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Port of Alaska
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REVISED SEDIMENT SAMPLING REPORT
Port of Alaska Modernization
Program
ANCHORAGE, ALASKA

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Submitted To: Municipality of Anchorage
Port of Alaska
2000 Anchorage Port Road Anchorage, Alaska 99501
Attn: Mr. Steve Ribuffo

Subject: SEDIMENT SAMPLING REPORT, PORT OF ALASKA MODERNIZATION
PROGRAM, ANCHORAGE, ALASKA

Shannon & Wilson prepared this report and participated in this project as a consultant to the Municipality of Anchorage (MOA). Our scope of services was specified in our proposal dated June 4, 2024. This report presents the results of our sediment sampling activities and was prepared by the undersigned.

We appreciate the opportunity to be of service to you on this project. If you have questions concerning this report, or we may be of further service, please contact us.

Sincerely,

SHANNON & WILSON, INC.



Alec Rizzo
Environmental Staff

Dan P.
McMahon, PMP

Digitally signed by
Dan P. McMahon, PMP
Date: 2024.12.30
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Dan P. McMahon, PMP
Vice President

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ACRONYMS

AAC	Alaska Administrative Code
ADMEF	Alaska Dredged Material Evaluation Framework
Alpha-BHC	Alpha-hexachlorocyclohexane
ARI	Analytical Resources, Inc.
2,4'-DDD	2,4-Dichlorodiphenyldichloroethane
4,4'-DDD	4,4-Dichlorodiphenyldichloroethane
4,4'-DDE	4,4'-Dichlorodiphenyldichloroethylene
4,4'-DDT	4,4'-Dichlorodiphenyltrichloroethane
DEC	Alaska Department of Environmental Conservation
Discovery	Discovery Drilling, Inc.
DQO	Data quality objective
DRO	Diesel Range Organics
EPA	Environmental Protection Agency
ERNS	Emergency Response Notification System
ESA	Environmental Site Assessment
IDW	Investigation derived waste
LCS/LCSD	Laboratory control sample/laboratory control sample duplicate
LDRC	Laboratory data review checklist
mg/kg	Milligrams per kilogram
MS/MSD	Matrix spike/matrix spike duplicate
MOA	Municipality of Anchorage
QEP	Qualified environmental professional
PAHs	Polynuclear Aromatic Hydrocarbons
PAMP	Port of Alaska Modernization Program
PCBs	Polychlorinated Biphenyls
POA	Port of Alaska
PPE	Personal protective equipment
SIM	Selective ion method
SLs	Screening Levels
SVOCs	Semi-volatile Organic Compounds
TOC	Total Organic Carbon
TS	Total Solids
TVS	Total Volatile Solids

1 INTRODUCTION

This report presents the results of our sediment sampling activities conducted to support Phase 2 of the Port of Alaska Modernization Program (PAMP) at the Port of Alaska (POA) located in Anchorage, Alaska. The project site is located east of the Port Administration Building, which is located at 2000 Anchorage Port Road. The project area is located offshore beneath an elevated parking structure. A vicinity map and a site plan are included as Figures 1 and 2, respectively.

It is understood that the sediments located within the project area may be dredged during future construction activities. Based on discussions with HDR Alaska, Inc., a work plan was not completed prior to conducting the field activities. It is also our understanding that the sample results will be used by others as a screening tool to identify potential contamination located within the proposed dredge area.

2 BACKGROUND

The site is located at the Port of Alaska which is an Alaska Department of Environmental Conservation (DEC)-listed contaminated site (File No. 2100.38.535), identified as “MOA Port of Anchorage” According to the DEC database, the site was added to the database in November 2012 because “hydrocarbon contamination is fairly widespread at the Port of Anchorage, resulting from historical releases from pipelines and tank farms dating back to the 1964 earthquake”.

As part of a Phase II Environmental Site Assessment (ESA) conducted in 2023, Shannon & Wilson advanced a soil boring (B-08) through a drain in the elevated parking structure east of the POA Administration Building. At the time of drilling, the surface of the elevated parking structure was approximately 16 feet above the mudline. The boring was advanced to about 10 feet below the mudline. Two analytical sediment/soil samples were collected from the boring. The samples contained diesel range organics (DRO), nine polynuclear aromatic hydrocarbons (PAHs), barium, cadmium, chromium, and/or lead at concentrations less than the DEC Method Two Method Two soil cleanup levels. The sample also contained 13.0 milligrams per kilogram (mg/kg) arsenic which exceeds the DEC Method Two soil cleanup level. However, there was no known record of potential releases or usage of arsenic at the site. Therefore, it was concluded that the reported arsenic concentration is likely the result of naturally occurring arsenic. The sediment/soil sample results were not compared to sediment screening levels.

3 PROJECT ACTIVITIES

Field activities consisted of advancing four soil borings, collecting sediment samples, and managing investigation-derived waste (IDW). Shannon & Wilson provided a Qualified Environmental Professional (QEP), as defined by 18 Alaska Administrative Code (AAC) 75.333, to conduct and document the field work. Discovery Drilling, Inc. (Discovery) provided the equipment and personnel to advance the soil borings. The analytical sediment samples were submitted to Analytical Resources, Inc. (ARI) for laboratory analysis. Site photographs and boring logs are included in Appendices A and B, respectively.

3.1 Soil Borings and Sampling

Prior to advancing the soil borings, the utility locate center and the POA were contacted to mark buried utilities within the project area. On July 1 and July 2, 2024, Borings SB1 through SB4 were advanced by Discovery using a GeoProbe® direct-push drilling rig in the approximate locations shown on Figure 2. During a period of low tides, the borings were advanced from the elevated parking structure east of the POA Administration Building through pre-existing drain holes to approximately 30 feet below the mudline.

At the time of drilling, the surface of the elevated parking structure was approximately 12 feet (Boring SB1), 13 feet (Boring SB1), and 15 feet (Borings SB3 and SB4) above the mudline. Discovery inserted drill tooling into the drains until it was in contact with the sediment below the parking structure and then began drilling. Each boring was advanced to 30 feet below the mudline. Soil samples from Borings SB1 through SB4 were recovered on a continuous basis using 5-foot long, 2.25-inch or 3-inch outside diameter MC5/MC7 macro-core® samplers. The borings were initiated with MC7 tooling. Recovery issues occurred in Borings SB1 and SB3 with poor recovery starting at approximately 25 feet and 20 feet below the mudline, respectively. Therefore, Borings SB1 and SB3 were completed with MC5 tooling. Due to the lack of recovery in Borings SB1 and SB3, samples were not collected below 25 feet and 20 feet below the mudline, respectively. Each sampling sleeve was removed from the sampling device and split down the long axis. If sample recovery was at least 80 percent, the soil section was divided into two equal parts for sampling purposes.

Immediately following retrieval and opening of the samplers, analytical samples were collected. For each sample, the laboratory-supplied jar was completely filled with soil taking care to avoid pieces of gravel and debris. Sample jars were filled using decontaminated stainless-steel spoons, placed in coolers with ice packs, and transferred to the laboratory using chain-of-custody procedures.

Drill rods and sampling equipment were decontaminated with a solution of Alconox detergent followed by a rinse of potable water.

3.2 Investigation Derived Waste

IDW consisted of soil cuttings, decontamination water, personal protective equipment (PPE), and disposable sampling equipment. PPE and disposable sampling equipment were collected into plastic garbage bags and disposed of as general municipal waste. The soil cuttings and decontamination water were containerized in two labeled 55-gallon drums which are located at the POA, pending disposal.

4 LABORATORY ANALYSES

The sediment samples were submitted to ARI for analytical testing, using chain-of-custody procedures. Each sediment sample was analyzed for Alaska Dredged Material Evaluation Framework (ADMEF) 2024 metals by Environmental Protection Agency (EPA) 6020B, total solids by SM 2540 G-97 and PSEP 1986, low level semi-volatile organic compounds (SVOCs) by EPA Method 8270E selective ion method (SIM), polychlorinated biphenyls (PCBs) by EPA Method 8082A, organochlorine pesticides by EPA Method 8081B, SVOCs by EPA Method 8270E, sediment conventional parameters, grainsize, and butyl tins by EPA Method 8270E SIM. The laboratory reports and completed DEC Laboratory Data Review Checklists (LDRCs) are provided in Appendix C. The analytical sediment sample results are summarized in Tables 2 and 3, respectively.

5 SUBSURFACE CONDITIONS

Borings SB1, SB2, and SB4 generally consisted of silt with varying amounts gravel, sand, and/or clay. Boring SB3 primarily consisted of silt with trace gravel.

6 DISCUSSION OF ANALYTICAL RESULTS

Conventional parameter analytical results are summarized in Table 2. The results for the chemical parameters outlined within the ADMEF are summarized in Table 3. The analytical sediment results are compared to the Screening Levels (SLs) established for marine projects provided in Table 8-2 of the ADMEF. During the sampling event, 34 primary samples and 4 duplicate samples, were collected and analyzed for conventional and chemical parameters.

6.1 Conventional Parameters

The analytical samples were analyzed for conventional parameters including grain size, total solids (TS), total volatile solids (TVS), and total organic carbon (TOC).

As summarized in Table 2, the estuarine sediments were typically fine-grained with high TS percentages, low TVS percentages, and low TOC. The samples collected from Borings SB1 through SB4 contained:

- Between 0% and 34.1% gravel, 2.1% and 29.3% sand, 31.1% to 83.7% silt, and 6.2% and 23.1% clay.
- TS percentages ranging from 73.65% to 83.5%.
- TVS percentages ranging from 1.19% to 2.57%.
- TOC percentages ranging from 0.3% to 0.72%.

Conventional parameter analytical results are provided in Table 2.

6.2 Chemical Parameters

At least one project sample contained nine metals, 21 SVOC compounds, seven pesticides, and three PCB congeners at concentrations below the respective SLs. Below is a list of the detected results:

- Metals including antimony, arsenic, cadmium, chromium, copper, lead, selenium, silver, zinc, and mercury were detected in at least one of the project samples.
- SVOCs including 1-methylnaphthalene, 2-methylnaphthalene, 2-methylphenol, 4-methylphenol, acenaphthene, anthracene, benzo(a)pyrene, carbazole, chrysene, dibenzofuran, fluoranthene, fluorene, naphthalene, phenanthrene, phenol, pyrene, 1,4-dichlorobenzene, benzoic acid, butylbenzylphthalate, diethylphthalate, and n-nitrosodiphenylamine were detected in at least one of the project samples.
- Pesticides including 4,4-dichlorodiphenyldichloroethane (4,4'-DDD), 4,4'-dichlorodiphenyldichloroethylene (4,4'-DDE), 4,4'-dichlorodiphenyltrichloroethane (4,4'-DDT), 2,4-dichlorodiphenyldichloroethane (2,4'-DDD), alpha-hexachlorocyclohexane (alpha-BHC), hexachlorobenzene, and hexachlorobutadiene were detected in at least one of the project samples.
- PCB congeners including Arochlor-1248, Arochlor-1254, and Arochlor-1260 were detected in at least one of the project samples.

The remaining analytes were reported as non-detect. Chemical parameter analytical results are provided in Table 3. However, it is noted that several additional analytes were reported for SVOC analyses that were not required for this project. The analytes were not detected and are excluded from the summary table but are presented in the analytical laboratory

report. In addition, several SVOC analytes were reported by both the standard EPA 8270E method and the low-level EPA 8270E-SIM method. Results for the more sensitive methods are only presented in the summary table, unless detections were observed in both methods.

6.3 Quality Assurance Summary

The project laboratory implements on-going quality assurance/quality control procedures to evaluate conformance to DEC data quality objectives (DQOs). Internal laboratory controls to assess data quality for this project include surrogates, method blanks, matrix spike/matrix spike duplicates (MS/MSD), and laboratory control sample/laboratory control sample duplicates (LCS/LCSD) to assess precision, accuracy, and matrix bias. If a DQO was not met, the project laboratory provides a brief narrative concerning the problem in the case narrative of their laboratory reports (See Appendix C).

Shannon & Wilson conducted a limited data assessment to review the laboratory's compliance with precision, accuracy, sensitivity, and completeness to the data quality objectives. Shannon & Wilson reviewed the ARI data deliverables and completed the DEC's Laboratory Data Review Checklist for each data package, which are included in Appendix C.

7 SUMMARY

The sediment sampling and evaluation activities documented within this report were completed to support the PAMP. As summarized in Table 2, the sediments were typically fine-grained with high TS percentages, low TVS percentages, and low TOC. In addition, nine metals, 21 SVOC compounds, seven pesticides, and three PCB congeners were detected at concentrations below the respective SLs in at least one project sample.

8 CLOSURE/LIMITATIONS

This report was prepared for the exclusive use of our client and their representatives in the study of this site. The findings presented within this report are based on the limited research, sampling, and analyses that were conducted. They should not be construed as definite conclusions regarding the site's sediment quality. As a result, the sampling, analyses, and data interpretations can provide you with only our professional judgment as to the environmental characteristics of this site, and in no way guarantee that an agency or its staff will reach the same conclusions as Shannon & Wilson, Inc. The data presented in this report should be considered representative of the time of our sampling activities. Changes in site conditions can occur over time, due to natural forces or human activity. In

addition, changes in government codes, regulations, or laws may occur. Because of such changes beyond our control, our observations and interpretations may need to be revised.

You are advised that various state and federal agencies (DEC, EPA, etc.) may require the reporting of this information. Shannon & Wilson does not assume the responsibility for reporting these findings and therefore has not, and will not, disclose the results of this study unless specifically requested and authorized by our client, or as required by law.

Shannon & Wilson has prepared the information in Appendix D, "Important Information About Your Geotechnical/Environmental Report," to assist you and others in understanding the use and limitations of our report.

TABLE 1 - SAMPLE DETAILS

Analytical Sample ID		Date	Sample Location	Depth (feet bgs)	Latitude^	Longitude^
Boring SB1						
*	SB1S1	7/2/2024	Boring SB1, Sample S1	0.0-2.5	61° 14' 18.95" N	149° 53' 17.15" W
*	SB1S2	7/2/2024	Boring SB1, Sample S2	2.5-5.0		
*	SB1S12	7/2/2024	Duplicate of Sample SB1S2	2.5-5.0		
*	SB1S3	7/2/2024	Boring SB1, Sample S3	5.0-10.0		
*	SB1S4	7/2/2024	Boring SB1, Sample S4	10.0-15.0		
*	SB1S5	7/2/2024	Boring SB1, Sample S5	15.0-20.0		
*	SB1S6	7/2/2024	Boring SB1, Sample S6	20.0-22.5		
*	SB1S7	7/2/2024	Boring SB1, Sample S7	22.5-25.0		
Boring SB2						
*	SB2S1	7/1/2024	Boring SB2, Sample S1	0.0-2.5	61° 14' 19.70" N	149° 53' 16.55" W
*	SB2S2	7/1/2024	Boring SB2, Sample S2	2.5-5.0		
*	SB2S3	7/1/2024	Boring SB2, Sample S3	5.0-7.5		
*	SB2S13	7/1/2024	Duplicate of Sample SB2S3	5.0-7.5		
*	SB2S4	7/1/2024	Boring SB2, Sample S4	7.5-10.0		
*	SB2S5	7/1/2024	Boring SB2, Sample S5	10.0-15.0		
*	SB2S6	7/1/2024	Boring SB2, Sample S6	15.0-17.5		
*	SB2S7	7/1/2024	Boring SB2, Sample S7	17.5-20.0		
*	SB2S8	7/1/2024	Boring SB2, Sample S8	20.0-25.0		
*	SB2S9	7/1/2024	Boring SB2, Sample S9	25.0-27.5		
*	SB2S10	7/1/2024	Boring SB2, Sample S10	27.5-30.0		
Boring SB3						
*	SB3S1	7/1/2024	Boring SB3, Sample S1	0.0-5.0	61° 14' 20.88" N	149° 53' 15.69" W
*	SB3S2	7/1/2024	Boring SB3, Sample S2	5.0-10.0		
*	SB3S3	7/1/2024	Boring SB3, Sample S3	10.0-12.5		
*	SB3S4	7/1/2024	Boring SB3, Sample S4	12.5-15.0		
*	SB3S5	7/1/2024	Boring SB3, Sample S5	15.0-20.0		
Boring SB4						
*	SB4S1	7/2/2024	Boring SB4, Sample S1	0.0-2.5	61° 14' 21.81" N	149° 53' 14.98" W
*	SB4S2	7/2/2024	Boring B-04, Sample S2	2.5-5.0		
*	SB4S12	7/2/2024	Duplicate of Sample SB4S2	2.5-5.0		
*	SB4S3	7/2/2024	Boring B-04, Sample S3	5.0-7.5		
*	SB4S4	7/2/2024	Boring B-04, Sample S4	7.5-10.0		
*	SB4S14	7/2/2024	Duplicate of Sample SB4S4	7.5-10.0		
*	SB4S5	7/2/2024	Boring B-04, Sample S5	10.0-12.5		
*	SB4S6	7/2/2024	Boring B-04, Sample S6	12.5-15.0		
*	SB4S7	7/2/2024	Boring B-04, Sample S7	15.0-17.5		
*	SB4S8	7/2/2024	Boring B-04, Sample S8	17.5-20.0		
*	SB4S9	7/2/2024	Boring B-04, Sample S9	20.0-22.5		
*	SB4S10	7/2/2024	Boring B-04, Sample S10	22.5-25.0		
*	SB4S11	7/2/2024	Boring B-04, Sample S11	25.0-27.5		
*	SB4S13	7/2/2024	Boring B-04, Sample S13	27.5-30.0		

NOTES:
[^] = Coordinates collected in WGS84 using Google Earth.

bgs = below ground surface

* = Sample analyzed by project laboratory

- = Not applicable

Table 2 - Conventional Parameters Analytical Results

Sample Location:				Boring SB1						
Sample ID and Depth in Feet:				SB1S1	SB1S2	SB1S12~	SB1S3	SB1S4	SB1S5	
Analytical Method	Analyte	Opening (mm)	Units	0.0-2.5	2.5-5.0	2.5-5.0	5.0-10.0	10.0-15.0	15.0-20.0	
SM 2540 G-97	Total Solids	—	%	73.65	77.76	75.57	75.44	80.2	83.5	
EPA 9060A m	Total Organic Carbon	—	%	0.51	0.38	0.46	0.48	0.4	0.39	
PSEP 1986	Total Volatile Solids	—	%	2.36	1.99	2.52	2.14	1.88	1.77	
PSEP-PS (Grainsize)	Gravel	Phi Size less than -2.25	4.75	%	6.20	1.3	28.6	0.2	14.1	0.6
		Phi Size -2.25 to -2	4.00	%	0.50	0.8	1.2	0	0.00	0.6
		Phi Size -2 to -1	2.00	%	6.30	2.2	4.3	0.4	0.2	0.6
		Total Gravel	—	%	13.00	4.30	34.10	0.60	14.30	1.80
	Sand	Phi Size -1 to 0	1.00	%	2.1	1.1	4.3	0.3	0.3	0.4
		Phi Size 0 to 1	0.50	%	0.9	1	8.6	0.2	0.3	0.00
		Phi Size 1 to 2	0.25	%	0.6	1.4	10	0.5	0.2	0.00
		Phi Size 2 to 3	0.125	%	0.3	1.5	1.1	0.4	0.4	0.2
		Phi Size 3 to 4	0.063	%	1.8	3.3	0.9	2.7	3.8	8.5
		Total Sand	—	%	5.70	8.30	24.90	4.10	5.00	9.10
	Silt	Phi Size 4 to 5	0.032	%	41.1	50.8	15.3	42.3	45.5	57.1
		Phi Size 5 to 6	0.016	%	10.5	14.8	6.5	17.8	14.7	7.7
		Phi Size 6 to 7	0.008	%	9.2	8	5.6	11.6	5.6	6.7
		Phi Size 7 to 8	0.004	%	5.6	3	3.7	6.7	4.4	4.4
		Total Silt	—	%	66.40	76.60	31.10	78.40	70.20	75.90
	Clay	Phi Size 8 to 9	0.002	%	4	2.9	2.8	4.7	2.7	3.3
		Phi Size 9 to 10	0.001	%	2.8	1.9	1.6	2.9	1.5	2
		Phi Size greater than 10	<0.001	%	8.2	6	5.6	9.2	6.3	7.9
		Total Clay	—	%	15	10.8	10	16.8	10.5	13.2

- Notes:
- < Analyte not detected; listed as less than the reporting limit (RL) unless otherwise flagged due to quality-control failures.
 - J* Estimated concentration due to quality control failures. Flag applied by Shannon & Wilson, Inc. (*)
 - JH* Estimated concentration, biased high due to quality control failures. Flag applied by Shannon & Wilson, Inc. (*)
 - JL* Estimated concentration, biased low due to quality control failures. Flag applied by Shannon & Wilson, Inc. (*)
 - H Hold time was exceeded.
 - ~ Field duplicate of preceding sample

Table 2 - Conventional Parameters Analytical Results

Sample Location:				Boring SB1				Boring SB2			
Sample ID and Depth in Feet:				SB1S6	SB1S7	SB2S1	SB2S2	SB2S3	SB2S13~	SB2S4	SB2S5
Analytical Method	Analyte	Opening (mm)	Units	20.0-22.5	22.5-25.0	0.0-2.5	2.5-5.0	5.0-7.5	5.0-7.5	7.5-10.0	10.0-15.0
SM 2540 G-97	Total Solids	—	%	79.33	81.31	74.68	77.67	79.09	78.35	79.36	70.88
EPA 9060A m	Total Organic Carbon	—	%	0.61	0.37	0.5	0.63	0.45	0.44	0.47	0.46
PSEP 1986	Total Volatile Solids	—	%	1.92	1.97	2.18	2.29	2.5	1.99	1.86	1.93
PSEP-PS (Grainsize)	Gravel	Phi Size less than -2.25	4.75	%	0.4	0	0.4	0.4	0	0	1.7
		Phi Size -2.25 to -2	4.00	%	0.2	0	0.3	0.3	0	0	0.7
		Phi Size -2 to -1	2.00	%	0.5	0	0.8	0	0	0	2.4
		Total Gravel	—	%	1.1	0	1.5	0.7	0	0	4.8
	Sand	Phi Size -1 to 0	1.00	%	0.3	0.3	0.4	0.2	0	0	0.9
		Phi Size 0 to 1	0.50	%	0.5	0.2	0.4	0.4	0	0	0.5
		Phi Size 1 to 2	0.25	%	1	0.4	0.4	0.5	0	0.4	0.4
		Phi Size 2 to 3	0.125	%	1.8	1.2	0.4	0.2	0.2	0.4	0.3
		Phi Size 3 to 4	0.063	%	20.3	15.9	6.4	2.2	3	3.6	4.5
		Total Sand	—	%	23.9	18	8	3.5	3.2	4.4	6.6
	Silt	Phi Size 4 to 5	0.032	%	42	42	52.2	48.7	44	51	53.6
		Phi Size 5 to 6	0.016	%	9.7	12.3	17.2	12	18.5	21.1	13.3
		Phi Size 6 to 7	0.008	%	6.7	9.5	6.7	9	11.6	8.2	7.5
		Phi Size 7 to 8	0.004	%	3.8	5	4.5	6.3	5.6	3.4	6.9
		Total Silt	—	%	62.2	68.8	80.6	76	79.7	83.7	81.3
	Clay	Phi Size 8 to 9	0.002	%	2.9	3.3	1.7	4.7	3.9	3	3.7
		Phi Size 9 to 10	0.001	%	1.9	2	0.7	2.9	2.1	1.9	2.1
		Phi Size greater than 10	<0.001	%	7.8	7.8	7.5	12	10.8	6.7	9.6
		Total Clay	—	%	12.6	13.1	9.9	19.6	16.8	11.6	15.4

- Notes:
- < Analyte not detected; listed as less than the reporting limit (RL) unless otherwise flagged due to quality-control failures.
 - J* Estimated concentration due to quality control failures. Flag applied by Shannon & Wilson, Inc. (*)
 - JH* Estimated concentration, biased high due to quality control failures. Flag applied by Shannon & Wilson, Inc. (*)
 - JL* Estimated concentration, biased low due to quality control failures. Flag applied by Shannon & Wilson, Inc. (*)
 - H Hold time was exceeded.
 - ~ Field duplicate of preceding sample

Table 2 - Conventional Parameters Analytical Results

Sample Location:				Boring SB2					Boring SB3			
Sample ID and Depth in Feet:				SB2S6	SB2S7	SB2S8	SB2S9	SB2S10	SB3S1	SB3S2	SB3S3	
Analytical Method	Analyte	Opening (mm)	Units	15.0-17.5	17.5-20.0	20.0-25.0	25.0-27.5	27.5-30.0	0.0-5.0	5.0-10.0	10.0-12.5	
SM 2540 G-97	Total Solids	—	%	76.67	76.67	72.28	71.1	75.22	73.09	70.57	72.29	
EPA 9060A m	Total Organic Carbon	—	%	0.43	0.5	0.4	0.33	0.3	0.45	0.36	0.32	
PSEP 1986	Total Volatile Solids	—	%	1.96	1.50 J*	1.89	1.37	1.19	2.29 J*	1.74	1.5	
PSEP-PS (Grainsize)	Gravel	Phi Size less than -2.25	4.75	%	0	0	0	8.3	13.4	0	0.2	0
		Phi Size -2.25 to -2	4.00	%	0	0	0	0.2	2.1	0	0	0
		Phi Size -2 to -1	2.00	%	0	0	0	0.4	3.9	0	0.7	0
		Total Gravel	—	%	0	0	0	8.9	19.4	0	0.9	0
	Sand	Phi Size -1 to 0	1.00	%	0	0	0	0.9	3.6	0	0.8	0
		Phi Size 0 to 1	0.50	%	0	0	0	1	3.7	0	0.6	0
		Phi Size 1 to 2	0.25	%	0	0	0	2.7	9.6	0	0.6	0
		Phi Size 2 to 3	0.125	%	0.3	0.5	0.2	2.9	4.7	0	0.8	0.5
		Phi Size 3 to 4	0.063	%	3.2	4.4	3.9	11.1	7.7	3.6	8.6	15.8
		Total Sand	—	%	3.5	4.9	4.1	18.6	29.3	3.6	11.4	16.3
	Silt	Phi Size 4 to 5	0.032	%	39.3	54.8	54.9	42.2	20.6	57.1	53.3	58.5
		Phi Size 5 to 6	0.016	%	19.5	14.5	15.3	11.8	7.9	14.8	13.3	12
		Phi Size 6 to 7	0.008	%	11.1	7	7.4	5.7	7	7.8	7.2	3.2
		Phi Size 7 to 8	0.004	%	6.8	4.2	3.9	1.8	2.7	3.7	2.8	1.7
		Total Silt	—	%	76.7	80.5	81.5	61.5	38.2	83.4	76.6	75.4
	Clay	Phi Size 8 to 9	0.002	%	4.7	2.9	2.9	2.1	3.1	2.1	2.3	0.7
		Phi Size 9 to 10	0.001	%	2.9	1.7	1.8	1.4	1.9	1	1.4	0.3
		Phi Size greater than 10	<0.001	%	11.9	9.8	9.6	7.6	7.9	9.4	7.3	6.8
		Total Clay	—	%	19.5	14.4	14.3	11.1	12.9	12.5	11	7.8

- Notes:
- < Analyte not detected; listed as less than the reporting limit (RL) unless otherwise flagged due to quality-control failures.
 - J* Estimated concentration due to quality control failures. Flag applied by Shannon & Wilson, Inc. (*)
 - JH* Estimated concentration, biased high due to quality control failures. Flag applied by Shannon & Wilson, Inc. (*)
 - JL* Estimated concentration, biased low due to quality control failures. Flag applied by Shannon & Wilson, Inc. (*)
 - H Hold time was exceeded.
 - ~ Field duplicate of preceding sample

Table 2 - Conventional Parameters Analytical Results

Sample Location:				Boring SB3				Boring SB4				
Sample ID and Depth in Feet:				SB3S4	SB3S5	SB4S1	SB4S2	SB4S12~	SB4S3	SB4S4	SB4S14~	
Analytical Method	Analyte	Opening (mm)	Units	12.5-15.0	15.0-20.0	0.0-2.5	2.5-5.0	2.5-5.0	5.0-7.5	7.5-10.0	7.5-10.0	
SM 2540 G-97	Total Solids	—	%	77.38	78.66	75.16	75.68	79.52	76.9	75.41	77.41	
EPA 9060A m	Total Organic Carbon	—	%	0.49	0.33	0.4	0.56	0.39	0.3	0.53	0.52	
PSEP 1986	Total Volatile Solids	—	%	1.51	1.7	1.93	2.57	2.13	1.62	2.25	1.44	
PSEP-PS (Grainsize)	Gravel	Phi Size less than -2.25	4.75	%	0	0	3.6	9.3	14.7	0	0	0.4
		Phi Size -2.25 to -2	4.00	%	0	0	0	0.2	0.4	0	0	0.3
		Phi Size -2 to -1	2.00	%	0.6	0	0.9	0.9	0.6	0.6	0	1
		Total Gravel	—	%	0.6	0	4.5	10.4	15.7	0.6	0	1.7
	Sand	Phi Size -1 to 0	1.00	%	0	0.2	1.2	0.6	0.5	0.4	0	0.6
		Phi Size 0 to 1	0.50	%	0	0.2	1.2	0.6	0.6	0.5	0.2	0.3
		Phi Size 1 to 2	0.25	%	0.4	0.9	1.5	0.8	1	0.9	0	0.4
		Phi Size 2 to 3	0.125	%	0.4	2.1	0.2	0.7	0.6	0.4	0	0.4
		Phi Size 3 to 4	0.063	%	12.9	15	2.5	4.7	2.5	2.7	1.9	2.3
		Total Sand	—	%	13.7	18.4	6.6	7.4	5.2	4.9	2.1	4
	Silt	Phi Size 4 to 5	0.032	%	69.8	44.9	40.9	36.9	32.3	48.2	50.4	41
		Phi Size 5 to 6	0.016	%	6.4	15.1	17.4	13.6	16.2	16.7	5.7	18.4
		Phi Size 6 to 7	0.008	%	2.7	6.5	8.8	7.8	8.5	7.9	8.4	10.2
		Phi Size 7 to 8	0.004	%	0.4	3.5	5.8	5.4	5.6	5.2	10.1	5.6
		Total Silt	—	%	79.3	70	72.9	63.7	62.6	78	74.6	75.2
	Clay	Phi Size 8 to 9	0.002	%	0.4	2.2	4	4	4.4	3.5	5.7	5.4
		Phi Size 9 to 10	0.001	%	0.3	1.3	2.2	2.8	2.8	2.1	3.8	3.5
		Phi Size greater than 10	<0.001	%	5.5	8.1	9.9	11.8	9.3	10.8	13.6	10.3
		Total Clay	—	%	6.2	11.6	16.1	18.6	16.5	16.4	23.1	19.2

- Notes:
- < Analyte not detected; listed as less than the reporting limit (RL) unless otherwise flagged due to quality-control failures.
 - J* Estimated concentration due to quality control failures. Flag applied by Shannon & Wilson, Inc. (*)
 - JH* Estimated concentration, biased high due to quality control failures. Flag applied by Shannon & Wilson, Inc. (*)
 - JL* Estimated concentration, biased low due to quality control failures. Flag applied by Shannon & Wilson, Inc. (*)
 - H Hold time was exceeded.
 - ~ Field duplicate of preceding sample

Table 2 - Conventional Parameters Analytical Results

Sample Location:				Boring SB4								
Sample ID and Depth in Feet:				SB4S5	SB4S6	SB4S7	SB4S8	SB4S9	SB4S10	SB4S11	SB4S13	
Analytical Method	Analyte	Opening (mm)	Units	10.0-12.5	12.5-15.0	15.0-17.5	17.5-20.0	20.0-22.5	22.5-25.0	25.0-27.5	27.5-30.0	
SM 2540 G-97	Total Solids	—	%	79.83	76.33	78.68	81.74	80.77	81.36	83.19	81.41	
EPA 9060A m	Total Organic Carbon	—	%	0.72	0.49	0.52	0.370 J*	0.35	0.29	0.33	0.31	
PSEP 1986	Total Volatile Solids	—	%	2	1.83	1.92	1.92	1.67	1.65	1.74	1.51	
PSEP-PS (Grainsize)	Gravel	Phi Size less than -2.25	4.75	%	0	2.7	0	0	0	0.5	0	0
		Phi Size -2.25 to -2	4.00	%	0	0	0	0	0	0	0	0
		Phi Size -2 to -1	2.00	%	0	0.7	0	0	0	0	0.2	0
		Total Gravel	—	%	0	3.4	0	0	0	0.5	0.2	0
	Sand	Phi Size -1 to 0	1.00	%	0	0.5	0	0.2	0	0	0	0
		Phi Size 0 to 1	0.50	%	0	0.4	0.2	0.2	0	0.3	0	0.2
		Phi Size 1 to 2	0.25	%	0	0.4	0	0.4	0.9	0.6	0.5	0.4
		Phi Size 2 to 3	0.125	%	0.4	0.6	0.3	1.0	1.7	1.5	2.7	1.7
		Phi Size 3 to 4	0.063	%	5	6.4	10.7	23.8	15.2	23.5	17.5	19.3
		Total Sand	—	%	5.4	8.3	11.2	25.6	17.8	25.9	20.7	21.6
	Silt	Phi Size 4 to 5	0.032	%	55.1	46.3	37.8	19.6	45.1	41.6	42.8	39.7
		Phi Size 5 to 6	0.016	%	14.1	12.4	19.6	16.7	10.1	10	12	12.2
		Phi Size 6 to 7	0.008	%	6.8	8.2	10.9	11.5	7.3	6.4	6.6	6.6
		Phi Size 7 to 8	0.004	%	3.7	5.4	4.5	7.4	5.7	4.3	4.4	4.8
		Total Silt	—	%	79.7	72.3	72.8	55.2	68.2	62.3	65.8	63.3
	Clay	Phi Size 8 to 9	0.002	%	3	3.5	3.3	5.3	3.8	2.7	3.7	4.2
		Phi Size 9 to 10	0.001	%	2.1	2	2	3	2.3	1.6	2.3	2.6
		Phi Size greater than 10	<0.001	%	9.4	10.4	10.4	11.1	7.7	6.7	7.2	8.2
		Total Clay	—	%	14.5	15.9	15.7	19.4	13.8	11	13.2	15

- Notes:
- < Analyte not detected; listed as less than the reporting limit (RL) unless otherwise flagged due to quality-control failures.
 - J* Estimated concentration due to quality control failures. Flag applied by Shannon & Wilson, Inc. (*)
 - JH* Estimated concentration, biased high due to quality control failures. Flag applied by Shannon & Wilson, Inc. (*)
 - JL* Estimated concentration, biased low due to quality control failures. Flag applied by Shannon & Wilson, Inc. (*)
 - H Hold time was exceeded.
 - ~ Field duplicate of preceding sample

Table 3 - Chemical Parameters Analytical Results

Sample Location:				Boring SB1								Boring SB2						
Analytical Method	Analyte	Sample ID and Depth in Feet:		SB1S1	SB1S2	SB1S12~	SB1S3	SB1S4	SB1S5	SB1S6	SB1S7	SB2S1	SB2S2	SB2S3	SB2S13~	SB2S4	SB2S5	SB2S6
		SL	Units	0.0-2.5	2.5-5.0	2.5-5.0	5.0-10.0	10.0-15.0	15.0-20.0	20.0-22.5	22.5-25.0	0.0-2.5	2.5-5.0	5.0-7.5	5.0-7.5	7.5-10.0	10.0-15.0	15.0-17.5
EPA 6020B (Metals)	Antimony	150	mg/kg	R*	<0.130	<0.130	<0.120	<0.120	<0.120	<0.120	<0.120	<0.130	<0.130	<0.120	<0.130	<0.130	<0.140	<0.130
	Arsenic	57	mg/kg	14.6	12.6	12.6	13.3	11.6	13.9	9.76	12.8	12.1	14.2	18.1	11.9	12.8	12.6	12.9
	Cadmium	5.1	mg/kg	0.150	0.100 J	0.150	0.120	0.110 J	0.110 J	0.0900 J	0.120 J	0.100 J	0.140	0.170 J*	0.0800 J*	0.120	0.130 J	0.130
	Chromium	260	mg/kg	34.2	31.3	34.6	32.9	29.3	35.3	26.4	29.9	29.3	35.9	40.3	26.5	29.4	31.0	27.8
	Copper	390	mg/kg	45.1	39.2	43.3	40.9	37.0	35.1	27.1	34.8	39.8	51.3	51.8 J*	30.6 J*	37.3	37.5	33.6
	Lead	450	mg/kg	9.34	7.79	9.27	9.11	7.56	7.55	5.59	7.02	7.52	9.89	11.6 J*	5.99 J*	7.30	8.56	6.74
	Selenium	3	mg/kg	1.44 J*	1.13	1.28	1.13	1.15	1.34	0.890	1.03	1.02	1.24	1.34	1.05	1.13	0.900	1.15
	Silver	6.1	mg/kg	0.150 JL*	0.140 J	0.150 J	0.150 J	0.130 J	0.140 J	0.100 J	0.130 J	0.150 J	0.200 J	0.190 J	0.120 J	0.150 J	0.140 J	0.150 J
	Zinc	410	mg/kg	96.8	83.7	94.4	89.0	79.9	78.4	65.0	73.2	82.6	98.7	111	68.2	78.1	86.7	74.5
EPA 7471B	Mercury	0.41	mg/kg	0.0853	0.0769	0.0641	0.0913	0.0669	0.0695	0.0425	0.0507	0.0764	0.0849	0.0857	0.0637	0.0758	0.0600	0.0698
EPA 8270E (SVOC)	1-Methylnaphthalene	N/A	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
	2-Methylnaphthalene	0.67	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0121 J	0.0173 J*	0.0101 J*	<0.0100	<0.0100	<0.0100
	2-Methylphenol	0.063	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0170 J	<0.0100	<0.0100	<0.0100	<0.0100
	4-Methylphenol	0.67	mg/kg	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	0.0192 J	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150
	Acenaphthene	0.5	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0110 J	<0.0100	<0.0100	<0.0100	<0.0100
	Acenaphthylene	0.56	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
	Anthracene	0.96	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0995 J*	<0.0100 J*	<0.0100	<0.0100	<0.0100
	Benzo(a)anthracene	1.3	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
	Benzo(a)pyrene	1.6	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0129 J	<0.0100	<0.0100	<0.0100
	Benzo(g,h,i)perylene	0.67	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0199	<0.0200	<0.0199	<0.0200
	Bis (2-ethylhexyl) phthalate	1.3	mg/kg	<0.0400	<0.0400	<0.0400	<0.0399	<0.0400	<0.0400	<0.0399	<0.0400	<0.0400	<0.0399	<0.0400	<0.0399	<0.0399	<0.0399	<0.0400
	Carbazole	N/A	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0321 J*	<0.0100 J*	<0.0100	<0.0100
	Chrysene	1.4	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0127 J	<0.0100	<0.0100	<0.0100
	Dibenzofuran	0.54	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	0.0324 J*	<0.0199 J*	<0.0200	<0.0199
	Di-n-butylphthalate	1.4	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
	Di-n-octyl phthalate	6.2	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
	Fluoranthene	1.7	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.413 J*	<0.0100 J*	<0.0100	<0.0100
	Fluorene	0.54	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	0.0698 J*	<0.0199 J*	<0.0200	<0.0199
	Indeno(1,2,3-c,d) pyrene	0.6	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0199	<0.0200	<0.0199	<0.0200
	Naphthalene	2.1	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
	Phenanthrene	1.5	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.418 J*	<0.0100 J*	<0.0100	<0.0100
	Phenol	0.42	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0501 J*	<0.0100 J*	<0.0100	<0.0100
	Pyrene	2.6	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.300 J*	<0.0100 J*	<0.0100	<0.0100
		Benzofluoranthenes, Total	3.2	mg/kg	<0.0300	<0.0300	<0.0300	<0.0299	<0.0300	<0.0300	<0.0299	<0.0300	<0.0300	<0.0300	<0.0300	<0.0299	<0.0299	<0.0299

See Page 10 for notes.

Table 3 - Chemical Parameters Analytical Results

Sample Location:				Boring SB1								Boring SB2							
Analytical Method	Analyte	Sample ID and Depth in Feet:		SB1S1	SB1S2	SB1S12~	SB1S3	SB1S4	SB1S5	SB1S6	SB1S7	SB2S1	SB2S2	SB2S3	SB2S13~	SB2S4	SB2S5	SB2S6	
		SL	Units	0.0-2.5	2.5-5.0	2.5-5.0	5.0-10.0	10.0-15.0	15.0-20.0	20.0-22.5	22.5-25.0	0.0-2.5	2.5-5.0	5.0-7.5	5.0-7.5	7.5-10.0	10.0-15.0	15.0-17.5	
EPA 8270E (LL SVOC)	1,2,4-Trichlorobenzene	0.031	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	
	1,2-Dichlorobenzene	0.035	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	
	1,4-Dichlorobenzene	0.11	mg/kg	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	0.00340 J	<0.00250	<0.00250	<0.00250	<0.00250	
	2,4-Dimethylphenol	0.029	mg/kg	<0.0100 J*	<0.0100 J*	<0.0100 J*	<0.0100 J*	<0.0100 J*	<0.0100 J*	<0.0100 J*	<0.0100 J*	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	
	2-Methylphenol	0.063	mg/kg	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	0.0170 J*	<0.00250 J*	<0.00250	<0.00250	<0.00250	
	4-Methylphenol	0.67	mg/kg	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	0.00410 J	0.0203	0.00410 J	<0.00250	0.00270 J	0.00430 J	<0.00250
	Benzoic acid	0.65	mg/kg	<0.500	<0.500	<0.500	<0.499	<0.500	<0.500	<0.499	<0.500	<0.200	<0.200	<0.200	<0.0498	<0.200	<0.199	<0.200	
	Benzyl alcohol	0.057	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	
	Butylbenzylphthalate	0.063	mg/kg	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	0.00420 J	<0.00250	<0.00250	0.00330 J	<0.00250	
	Dibenzo(a,h)anthracene	0.23	mg/kg	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	
	Diethylphthalate	0.2	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0200 B*	<0.0200 B*	<0.0200 B*	<0.0200 B*	0.0309	0.0258	0.0163 J	0.0134 J	0.0200	0.0153 J	0.0125 J	
	Dimethylphthalate	0.071	mg/kg	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	
	Hexachlorobenzene	0.022	mg/kg	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	
	Hexachlorobutadiene	0.011	mg/kg	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	
	N-Nitrosodiphenylamine	0.028	mg/kg	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	0.00850	0.0124 J*	<0.00250	0.00370 J	<0.00250	<0.00250	
	Pentachlorophenol	0.4	mg/kg	<0.250	<0.250	<0.250	<0.249	<0.250	<0.250	<0.250	<0.250	<0.100	<0.0999	<0.100	<0.0100	<0.0998	<0.0997	<0.0999	
	Phenol	0.42	mg/kg	<0.00500 B*	<0.00500 B*	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	0.00390 J	0.00260 J	0.0530 J*	<0.00250 J*	0.00270 J	0.00510	<0.00250	
	Tributyltin	0.073	mg/kg	<0.00193	<0.00193	<0.00192	<0.00193	<0.00192	<0.00192	<0.00192	<0.00191	<0.00193	<0.00192	<0.00193	<0.00193	<0.00192	<0.00193	<0.00192	<0.00192
EPA 8081B (Pesticides)	4,4'-DDD	0.016	mg/kg	<0.000500	<0.000500	0.000770 JH*	<0.000500	0.00196 JH*	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	0.00137 JH*	0.00169 JH*	<0.000500	0.00474 JH*	<0.000500	
	4,4'-DDE	0.009	mg/kg	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	0.000720 J	<0.000500	
	4,4'-DDT	0.012	mg/kg	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	0.000860 JH*	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	
	2,4'-DDD	N/A	mg/kg	<0.000500	<0.000500	<0.000500	<0.000500	0.000730 J	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	0.00137 J*	<0.000500	
	Aldrin	0.0095	mg/kg	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	
	alpha-BHC	N/A	mg/kg	<0.000250	<0.000250	<0.000250	0.000480 J	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	0.000450 J	<0.000250	<0.000250	<0.000250	0.000310 J	0.000600	
	alpha-Chlordane	0.0028	mg/kg	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	
	Dieldrin	0.0019	mg/kg	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	
	gamma-Chlordane	0.0028	mg/kg	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	
	Heptachlor	0.0015	mg/kg	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	
	Hexachlorobenzene	0.022	mg/kg	<0.000250	<0.000250	0.000280 J	0.000320 J	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	0.000560	0.000350 J	<0.000250	<0.000250	<0.000250	<0.000250	
	Hexachlorobutadiene	0.011	mg/kg	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	0.000370 J	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	
	cis-Nonachlor	0.0028	mg/kg	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	
	Oxychlordane	0.0028	mg/kg	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	
	trans-Nonachlor	0.0028	mg/kg	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	

See Page 10 for notes.

Table 3 - Chemical Parameters Analytical Results

Sample Location:				Boring SB1								Boring SB2						
Analytical Method	Analyte	Sample ID and Depth in Feet:		SB1S1	SB1S2	SB1S12~	SB1S3	SB1S4	SB1S5	SB1S6	SB1S7	SB2S1	SB2S2	SB2S3	SB2S13~	SB2S4	SB2S5	SB2S6
		SL	Units	0.0-2.5	2.5-5.0	2.5-5.0	5.0-10.0	10.0-15.0	15.0-20.0	20.0-22.5	22.5-25.0	0.0-2.5	2.5-5.0	5.0-7.5	5.0-7.5	7.5-10.0	10.0-15.0	15.0-17.5
EPA 8082A (PCBs)	Aroclor-1016	0.13	mg/kg	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200
	Aroclor-1221	0.13	mg/kg	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200
	Aroclor-1232	0.13	mg/kg	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200
	Aroclor-1242	0.13	mg/kg	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200
	Aroclor-1248	0.13	mg/kg	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	0.0106	0.00560 J*	<0.00200 J*	<0.00200	<0.00200	<0.00200
	Aroclor-1254	0.13	mg/kg	<0.00200	<0.00200	<0.00200	<0.00200	0.00460	<0.00200	<0.00200	<0.00200	<0.00200	0.0112	0.0128 J*	<0.00200 J*	0.0109	<0.00200	<0.00200
	Aroclor-1260	0.13	mg/kg	<0.00200	<0.00200	<0.00200	<0.00200	0.00410	<0.00200	<0.00200	<0.00200	<0.00200	0.0105	0.00870 J*	0.00340 J*	0.00920	<0.00200	<0.00200
	Aroclor-1262	0.13	mg/kg	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200
	Aroclor-1268	0.13	mg/kg	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200

See Page 10 for notes.

Table 3 - Chemical Parameters Analytical Results

Sample Location:				Boring SB2				Boring SB3					Boring SB4					
Analytical Method	Analyte	Sample ID and Depth in Feet:		SB2S7	SB2S8	SB2S9	SB2S10	SB3S1	SB3S2	SB3S3	SB3S4	SB3S5	SB4S1	SB4S2	SB4S12~	SB4S3	SB4S4	SB4S14~
		SL	Units	17.5-20.0	20.0-25.0	25.0-27.5	27.5-30.0	0.0-5.0	5.0-10.0	10.0-12.5	12.5-15.0	15.0-20.0	0.0-2.5	2.5-5.0	2.5-5.0	5.0-7.5	7.5-10.0	7.5-10.0
EPA 6020B (Metals)	Antimony	150	mg/kg	<0.130	<0.130	<0.140	<0.130	<0.140	<0.140	<0.130	<0.120	<0.120	R*	<0.130	<0.130	<0.130	<0.130	R*
	Arsenic	57	mg/kg	13.3	11.9	10.6	10.7	16.6	14.2	9.88	10.8	8.95	12.1	14.4	14.1	7.95	12.7	9.83
	Cadmium	5.1	mg/kg	0.120 J	0.120 J	0.100 J	0.0800 J	0.150	0.140	0.0900 J	0.110 J	0.0900 J	0.140 J*	0.120 J	0.110 J	0.0500 J	0.110 J	0.0800 J
	Chromium	260	mg/kg	28.3	28.0	27.4	25.9	37.1	31.6	23.5	24.8	24.6	35.6	36.8	33.5	17.8	29.7	25.5
	Copper	390	mg/kg	37.8	33.8	30.1	28.7	48.4	43.9	23.4	28.8	29.9	45.6	47.8	37.4	17.5	35.8	27.0
	Lead	450	mg/kg	6.97	6.70	5.86	5.64	11.8	8.28	4.93	5.61	5.61	9.14	9.89	8.54	3.82	7.04	15.5
	Selenium	3	mg/kg	1.01	1.07	1.17	1.03	1.20	1.05	0.930	0.930	1.07	1.41 J*	1.39	1.32	0.730	1.21	0.820
	Silver	6.1	mg/kg	0.160 J	0.160 J	0.130 J	0.120 J	0.210 J	0.200 J	0.0900 J	0.110 J	0.110 J	0.160 JL*	0.180 J	0.140 J	0.0600 J	0.140 J	0.100 J
	Zinc	410	mg/kg	78.0	72.4	78.1	65.7	101	86.4	60.4	65.2	65.5	98.2	100	83.9	45.5	77.6	67.0
EPA 7471B	Mercury	0.41	mg/kg	0.0581	0.0518	0.0419	0.0406	0.0713	0.0433	0.0487	0.0503	0.0651	0.0731	0.0868	0.0568	0.0654	0.0810	0.0697
EPA 8270E (SVOC)	1-Methylnaphthalene	N/A	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
	2-Methylnaphthalene	0.67	mg/kg	0.0138 J	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 J*	0.0583 JH*
	2-Methylphenol	0.063	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
	4-Methylphenol	0.67	mg/kg	<0.0150	<0.0150	<0.0149	<0.0150	<0.0150	0.0262	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0149	<0.0150
	Acenaphthene	0.5	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0116 J
	Acenaphthylene	0.56	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
	Anthracene	0.96	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
	Benzo(a)anthracene	1.3	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
	Benzo(a)pyrene	1.6	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
	Benzo(g,h,i)perylene	0.67	mg/kg	<0.0200	<0.0200	<0.0199	<0.0200	<0.0199	<0.0200	<0.0199	<0.0200	<0.0200	<0.0199	<0.0200	<0.0200	<0.0200	<0.0199	<0.0200
	Bis (2-ethylhexyl) phthalate	1.3	mg/kg	<0.0400	<0.0399	<0.0398	<0.0400	<0.0399	<0.0400	<0.0399	<0.0399	<0.0399	<0.0399	<0.0399	<0.0400	<0.0399	<0.0399	<0.0399
	Carbazole	N/A	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
	Chrysene	1.4	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
	Dibenzofuran	0.54	mg/kg	<0.0200	<0.0200	<0.0199	<0.0200	<0.0199	<0.0200	<0.0199	<0.0200	<0.0200	<0.0199	<0.0200	<0.0200	<0.0200	<0.0199	<0.0200
	Di-n-butylphthalate	1.4	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
	Di-n-octyl phthalate	6.2	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
	Fluoranthene	1.7	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0263 J*	<0.0100 J*	<0.0100	<0.0100
	Fluorene	0.54	mg/kg	<0.0200	<0.0200	<0.0199	<0.0200	<0.0199	<0.0200	<0.0199	<0.0200	<0.0200	<0.0199	<0.0200	<0.0200	<0.0200	<0.0199	<0.0200
	Indeno(1,2,3-c,d) pyrene	0.6	mg/kg	<0.0200	<0.0200	<0.0199	<0.0200	<0.0199	<0.0200	<0.0199	<0.0200	<0.0200	<0.0199	<0.0200	<0.0200	<0.0200	<0.0199	<0.0200
	Naphthalene	2.1	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 J*	0.0603 JH*
	Phenanthrene	1.5	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0206 J*	<0.0100 J*	<0.0100	<0.0100
	Phenol	0.42	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
	Pyrene	2.6	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0202 J*	<0.0100 J*	<0.0100	<0.0100
		Benzofluoranthenes, Total	3.2	mg/kg	<0.0300	<0.0300	<0.0299	<0.0300	<0.0299	<0.0300	<0.0299	<0.0299	<0.0299	<0.0299	<0.0299	<0.0300	<0.0299	<0.0299

See Page 10 for notes.

Table 3 - Chemical Parameters Analytical Results

Sample Location:				Boring SB2				Boring SB3					Boring SB4						
Analytical Method	Sample ID and Depth in Feet:			SB2S7	SB2S8	SB2S9	SB2S10	SB3S1	SB3S2	SB3S3	SB3S4	SB3S5	SB4S1	SB4S2	SB4S12~	SB4S3	SB4S4	SB4S14~	
	Analyte	SL	Units	17.5-20.0	20.0-25.0	25.0-27.5	27.5-30.0	0.0-5.0	5.0-10.0	10.0-12.5	12.5-15.0	15.0-20.0	0.0-2.5	2.5-5.0	2.5-5.0	5.0-7.5	7.5-10.0	7.5-10.0	
EPA 8270E (LL SVOC)	1,2,4-Trichlorobenzene	0.031	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	
	1,2-Dichlorobenzene	0.035	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	
	1,4-Dichlorobenzene	0.11	mg/kg	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	0.00530	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	
	2,4-Dimethylphenol	0.029	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 J*	<0.0100 J*	<0.0100 J*	<0.0100 J*	<0.0100 J*	<0.0100	<0.0100	<0.0100 J*	<0.0100	<0.0100	<0.0100 J*	
	2-Methylphenol	0.063	mg/kg	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	
	4-Methylphenol	0.67	mg/kg	<0.00250	0.00300 J	<0.00250	<0.00250	0.00830	0.0253	<0.00250	<0.00250	<0.00250	<0.00250	0.00290 J	<0.00250	<0.00250	<0.00250	0.00310 J	<0.00250
	Benzoic acid	0.65	mg/kg	<0.0500	<0.0499	<0.0498	<0.0500	<0.498	<0.500	<0.498	<0.499	<0.499	0.0537 J	<0.0499	<0.0500	<0.0499	<0.0498	<0.0499 J*	
	Benzyl alcohol	0.057	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	R*	
	Butylbenzylphthalate	0.063	mg/kg	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	
	Dibenzo(a,h)anthracene	0.23	mg/kg	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	
	Diethylphthalate	0.2	mg/kg	0.0160 J	0.0172 J	0.0118 J	0.0121 J	<0.0199 B*	<0.0200 B*	<0.0199 B*	<0.0200 B*	<0.0200 B*	0.0118 J	0.0143 J	<0.0200 B*	0.0157 J	0.0172 J	<0.0200 B*	
	Dimethylphthalate	0.071	mg/kg	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	
	Hexachlorobenzene	0.022	mg/kg	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	
	Hexachlorobutadiene	0.011	mg/kg	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	
	N-Nitrosodiphenylamine	0.028	mg/kg	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	
	Pentachlorophenol	0.4	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.249	<0.250	<0.249	<0.249	<0.249	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	
	Phenol	0.42	mg/kg	0.00250 J	0.00300 J	<0.00250	<0.00250	<0.00500 B*	<0.00500 B*	<0.00250	<0.00250	<0.00250	0.00350 J	0.00260 J	<0.00250	<0.00250	0.00280 J	<0.00500 B*	
	Tributyltin	0.073	mg/kg	<0.00193	<0.00192	<0.00192	<0.00192	<0.00192	<0.00192	<0.00193	<0.00192	<0.00192 J*	<0.00193	<0.00193	<0.00192	<0.00193	<0.00192	<0.00192	
EPA 8081B (Pesticides)	4,4'-DDD	0.016	mg/kg	0.00110 JH*	0.00275 JH*	<0.000500	<0.000500	<0.000500	0.00688 JH*	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	0.000550 JH*	0.000870 JH*	0.00508 JH*	
	4,4'-DDE	0.009	mg/kg	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	0.00107	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	0.000540 J	
	4,4'-DDT	0.012	mg/kg	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	
	2,4'-DDD	N/A	mg/kg	<0.000500	0.00108	<0.000500	<0.000500	<0.000500	0.00243P1	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	
	Aldrin	0.0095	mg/kg	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	
	alpha-BHC	N/A	mg/kg	0.000400 J	0.000340 J	<0.000250	<0.000250	0.000280 J	0.000550	<0.000250	<0.000250	<0.000250	<0.000250	0.000800 J*	0.000350 J*	0.000320 J	0.000450 J	<0.000250	
	alpha-Chlordane	0.0028	mg/kg	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	
	Dieldrin	0.0019	mg/kg	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	
	gamma-Chlordane	0.0028	mg/kg	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	
	Heptachlor	0.0015	mg/kg	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	
	Hexachlorobenzene	0.022	mg/kg	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	
	Hexachlorobutadiene	0.011	mg/kg	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	
	cis-Nonachlor	0.0028	mg/kg	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	
	Oxychlordane	0.0028	mg/kg	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	
	trans-Nonachlor	0.0028	mg/kg	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	

See Page 10 for notes.

Table 3 - Chemical Parameters Analytical Results

Sample Location:				Boring SB2				Boring SB3					Boring SB4					
Analytical Method	Analyte	Sample ID and Depth in Feet:		SB2S7	SB2S8	SB2S9	SB2S10	SB3S1	SB3S2	SB3S3	SB3S4	SB3S5	SB4S1	SB4S2	SB4S12~	SB4S3	SB4S4	SB4S14~
		SL	Units	17.5-20.0	20.0-25.0	25.0-27.5	27.5-30.0	0.0-5.0	5.0-10.0	10.0-12.5	12.5-15.0	15.0-20.0	0.0-2.5	2.5-5.0	2.5-5.0	5.0-7.5	7.5-10.0	7.5-10.0
EPA 8082A (PCBs)	Aroclor-1016	0.13	mg/kg	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200
	Aroclor-1221	0.13	mg/kg	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200
	Aroclor-1232	0.13	mg/kg	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200
	Aroclor-1242	0.13	mg/kg	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200
	Aroclor-1248	0.13	mg/kg	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200
	Aroclor-1254	0.13	mg/kg	<0.00200	<0.00200	<0.00200	<0.00200	0.00620	0.00950	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	0.00350 J	0.00420 J*	0.0111 J*
	Aroclor-1260	0.13	mg/kg	0.00460	<0.00200	<0.00200	<0.00200	0.00420	0.00530	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	0.00310 J	0.00360 J*	0.00760 J*
	Aroclor-1262	0.13	mg/kg	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200
	Aroclor-1268	0.13	mg/kg	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200

See Page 10 for notes.

Table 3 - Chemical Parameters Analytical Results

Analytical Method	Sample Location:			Boring SB4							
	Sample ID and Depth in Feet:			SB4S5	SB4S6	SB4S7	SB4S8	SB4S9	SB4S10	SB4S11	SB4S13
	Analyte	SL	Units	10.0-12.5	12.5-15.0	15.0-17.5	17.5-20.0	20.0-22.5	22.5-25.0	25.0-27.5	27.5-30.0
EPA 6020B (Metals)	Antimony	150	mg/kg	<0.120	<0.130	<0.120	<0.120	<0.120	<0.120	<0.120	<0.120
	Arsenic	57	mg/kg	12.1	11.3	11.5	12.7	11.7	10.1	9.70	10.4
	Cadmium	5.1	mg/kg	0.110 J	0.110 J	0.100 J	0.110 J	0.140	0.0800 J	0.0800 J	0.0900 J
	Chromium	260	mg/kg	28.4	29.0	27.7	30.6	27.6	24.4	24.4	24.2
	Copper	390	mg/kg	37.8	35.4	31.6	36.0	32.8	26.5	24.4	26.9
	Lead	450	mg/kg	7.38	7.61	6.67	7.49	6.95	5.73	5.28	5.62
	Selenium	3	mg/kg	1.06	1.05	0.960	1.04	1.18	1.14	1.17	0.930
	Silver	6.1	mg/kg	0.180 J	0.140 J	0.120 J	0.150 J	0.140 J	0.0900 J	0.0900 J	0.110 J
	Zinc	410	mg/kg	79.4	74.7	71.0	78.4	73.8	61.6	58.3	62.9
EPA 7471B	Mercury	0.41	mg/kg	0.0894	0.0550	0.0791	0.0390	0.0720	0.0635	0.0490	0.0324
EPA 8270E (SVOC)	1-Methylnaphthalene	N/A	mg/kg	0.0236	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
	2-Methylnaphthalene	0.67	mg/kg	0.0497	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
	2-Methylphenol	0.063	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
	4-Methylphenol	0.67	mg/kg	<0.0150	<0.0149	<0.0150	<0.0150	<0.0150	<0.0150	<0.0150	<0.0149
	Acenaphthene	0.5	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
	Acenaphthylene	0.56	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
	Anthracene	0.96	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
	Benzo(a)anthracene	1.3	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
	Benzo(a)pyrene	1.6	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
	Benzo(g,h,i)perylene	0.67	mg/kg	<0.0200	<0.0199	<0.0200	<0.0200	<0.0200	<0.0200	<0.0199	<0.0199
	Bis (2-ethylhexyl) phthalate	1.3	mg/kg	<0.0400	<0.0398	<0.0400	<0.0399	<0.0400	<0.0400	<0.0399	<0.0399
	Carbazole	N/A	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
	Chrysene	1.4	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
	Dibenzofuran	0.54	mg/kg	<0.0200	<0.0199	<0.0200	<0.0200	<0.0200	<0.0200	<0.0199	<0.0199
	Di-n-butylphthalate	1.4	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
	Di-n-octyl phthalate	6.2	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
	Fluoranthene	1.7	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
	Fluorene	0.54	mg/kg	<0.0200	<0.0199	<0.0200	<0.0200	<0.0200	<0.0200	<0.0199	<0.0199
	Indeno(1,2,3-c,d) pyrene	0.6	mg/kg	<0.0200	<0.0199	<0.0200	<0.0200	<0.0200	<0.0200	<0.0199	<0.0199
	Naphthalene	2.1	mg/kg	0.0198 J	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
	Phenanthrene	1.5	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
	Phenol	0.42	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
	Pyrene	2.6	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
	Benzofluoranthenes, Total	3.2	mg/kg	<0.0300	<0.0299	<0.0300	<0.0299	<0.0300	<0.0300	<0.0299	<0.0299

See Page 10 for notes.

Table 3 - Chemical Parameters Analytical Results

Sample Location:				Boring SB4							
Analytical Method	Analyte	Sample ID and Depth in Feet:		SB4S5	SB4S6	SB4S7	SB4S8	SB4S9	SB4S10	SB4S11	SB4S13
		SL	Units	10.0-12.5	12.5-15.0	15.0-17.5	17.5-20.0	20.0-22.5	22.5-25.0	25.0-27.5	27.5-30.0
EPA 8270E (LL SVOC)	1,2,4-Trichlorobenzene	0.031	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
	1,2-Dichlorobenzene	0.035	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
	1,4-Dichlorobenzene	0.11	mg/kg	0.00570	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250
	2,4-Dimethylphenol	0.029	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 J*	<0.0100 J*	<0.0100 J*	<0.0100 J*	<0.0100 J*
	2-Methylphenol	0.063	mg/kg	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250
	4-Methylphenol	0.67	mg/kg	0.00390 J	0.00340 J	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250
	Benzoic acid	0.65	mg/kg	<0.0500	<0.0498	<0.0500	<0.0499	<0.0500	<0.0500	<0.0498	<0.0498
	BenzyI alcohol	0.057	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
	Butylbenzylphthalate	0.063	mg/kg	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250
	Dibenzo(a,h)anthracene	0.23	mg/kg	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250
	Diethylphthalate	0.2	mg/kg	0.0293	0.0187 J	0.0140 J	<0.0200 B*	<0.0200 B*	<0.0200 B*	<0.0100	<0.0199 B*
	Dimethylphthalate	0.071	mg/kg	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250
	Hexachlorobenzene	0.022	mg/kg	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250
	Hexachlorobutadiene	0.011	mg/kg	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250
	N-Nitrosodiphenylamine	0.028	mg/kg	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250
	Pentachlorophenol	0.4	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
	Phenol	0.42	mg/kg	0.00360 J	<0.00250	<0.00250	<0.00500 B*	<0.00250	<0.00250	<0.00250	<0.00500 B*
	Tributyltin	0.073	mg/kg	<0.00193	<0.00192	<0.00192	<0.00192	<0.00193	<0.00192	<0.00193	<0.00192
EPA 8081B (Pesticides)	4,4'-DDD	0.016	mg/kg	0.00435 JH*	0.000560 JH*	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500 J*	<0.000500
	4,4'-DDE	0.009	mg/kg	0.000610 J	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500 J*	<0.000500
	4,4'-DDT	0.012	mg/kg	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500 J*	<0.000500
	2,4'-DDD	N/A	mg/kg	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500 J*	<0.000500
	Aldrin	0.0095	mg/kg	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500 J*	<0.000500
	alpha-BHC	N/A	mg/kg	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250 J*	<0.000250
	alpha-Chlordane	0.0028	mg/kg	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250 J*	<0.000250
	Dieldrin	0.0019	mg/kg	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500 J*	<0.000500
	gamma-Chlordane	0.0028	mg/kg	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500 J*	<0.000500
	Heptachlor	0.0015	mg/kg	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250 J*	<0.000250
	Hexachlorobenzene	0.022	mg/kg	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250 J*	0.000280 J
	Hexachlorobutadiene	0.011	mg/kg	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250	<0.000250 J*	<0.000250
	cis-Nonachlor	0.0028	mg/kg	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500 J*	<0.000500
	Oxychlordane	0.0028	mg/kg	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500 J*	<0.000500
	trans-Nonachlor	0.0028	mg/kg	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500 J*	<0.000500

See Page 10 for notes.

Table 3 - Chemical Parameters Analytical Results

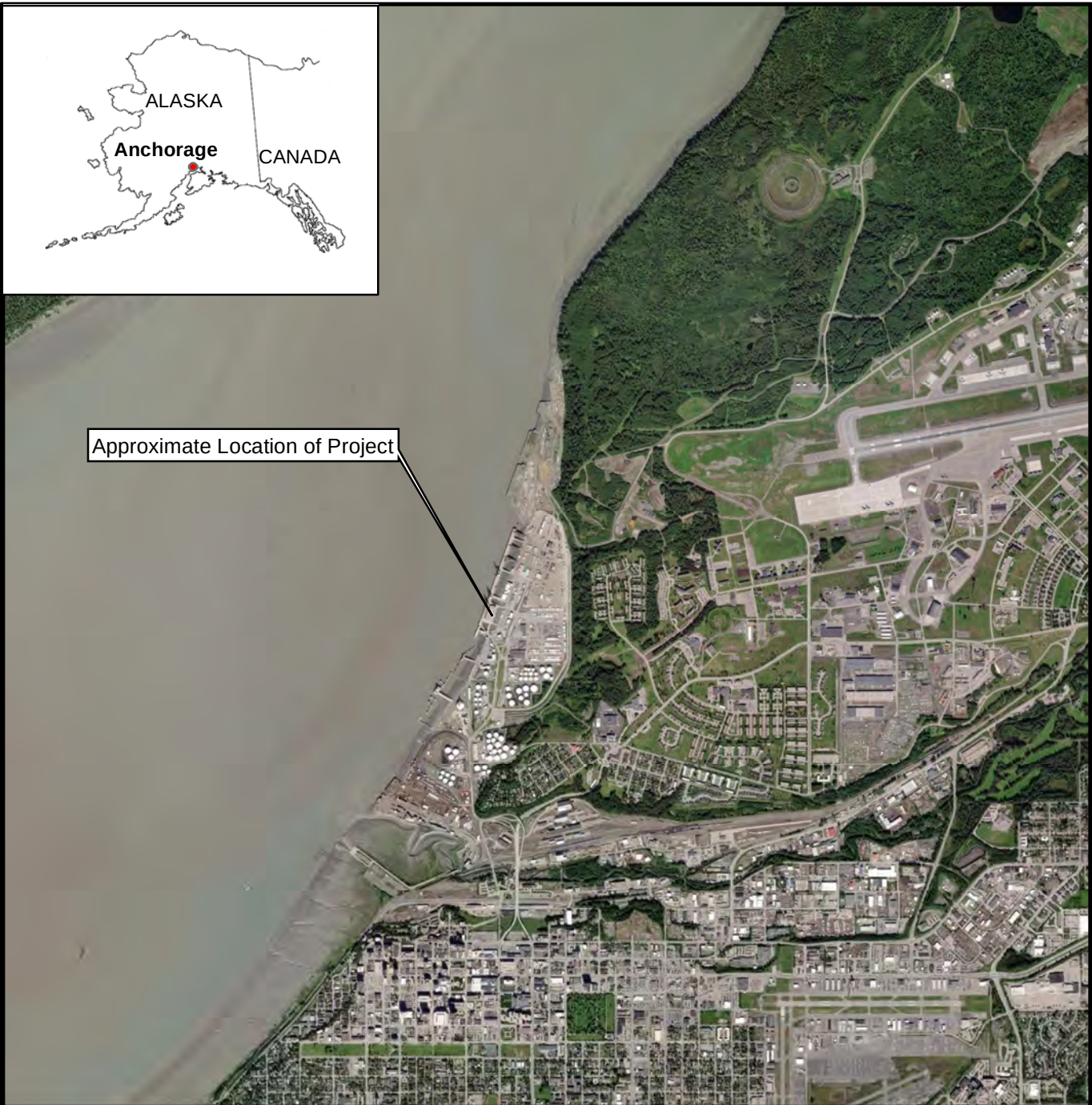
Sample Location:				Boring SB4							
Analytical Method	Analyte	Sample ID and Depth in Feet:		SB4S5	SB4S6	SB4S7	SB4S8	SB4S9	SB4S10	SB4S11	SB4S13
		SL	Units	10.0-12.5	12.5-15.0	15.0-17.5	17.5-20.0	20.0-22.5	22.5-25.0	25.0-27.5	27.5-30.0
EPA 8082A (PCBs)	Aroclor-1016	0.13	mg/kg	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200
	Aroclor-1221	0.13	mg/kg	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200
	Aroclor-1232	0.13	mg/kg	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200
	Aroclor-1242	0.13	mg/kg	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200
	Aroclor-1248	0.13	mg/kg	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200
	Aroclor-1254	0.13	mg/kg	0.00670	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200
	Aroclor-1260	0.13	mg/kg	0.00430	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200
	Aroclor-1262	0.13	mg/kg	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200
	Aroclor-1268	0.13	mg/kg	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200

See Page 10 for notes.

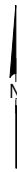
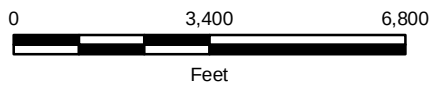
Table 3 - Chemical Parameters Analytical Results

Notes:	Regulatory limits from Draft ADEC Dredge Material Management Plan
<	Analyte not detected; listed as less than the reporting limit (RL) unless otherwise flagged due to quality-control failures.
<Bold	The non-detect result exceeds the regulatory limit for the associated analyte.
J	Estimated concentration, detected greater than the detection limit (DL) and less than the reporting limit (RL). Flag applied by the laboratory.
B*	Result is included in the same preparatory batch as a blank detection for the associated analyte. Flag applied by Shannon & Wilson, Inc. (*)
J*	Estimated concentration due to quality control failures. Flag applied by Shannon & Wilson, Inc. (*)
JH*	Estimated concentration, biased high due to quality control failures. Flag applied by Shannon & Wilson, Inc. (*)
JL*	Estimated concentration, biased low due to quality control failures. Flag applied by Shannon & Wilson, Inc. (*)
R*	Result is rejected due to serious QC failures. Flag applied by Shannon & Wilson, Inc. (*)

LL = low-level; mg/kg = milligram per kilogram; PCB = polychlorinated biphenyl; SL = screening level; SVOC = semivolatile organic compound



Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



Port of Alaska Modernization Program
Anchorage, Alaska

VICINITY MAP

December 2024

113733-001

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

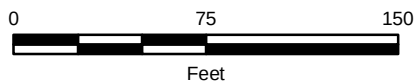
FIG. 1



Legend



Approximate Location of Boring Advanced by Shannon & Wilson in July 2024.



Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Port of Alaska Modernization Program
Anchorage, Alaska

SITE PLAN

December 2024

113733-001

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

FIG. 2

Appendix A

Site Photographs

APPENDIX A: SITE PHOTOGRAPHS

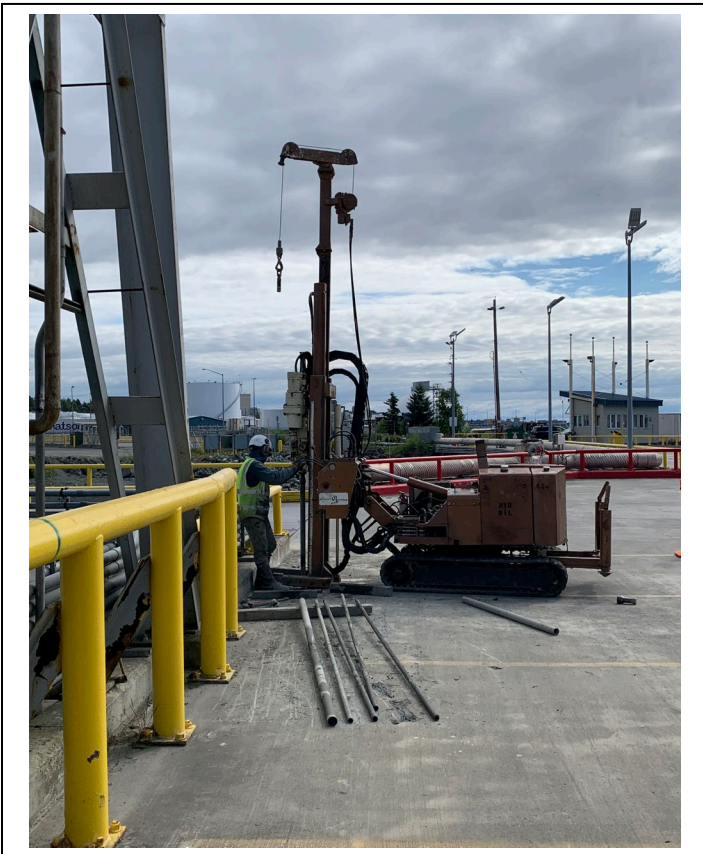


Photo 1: Looking southwest at the advancement of Boring SB1.
(July 2, 2024)

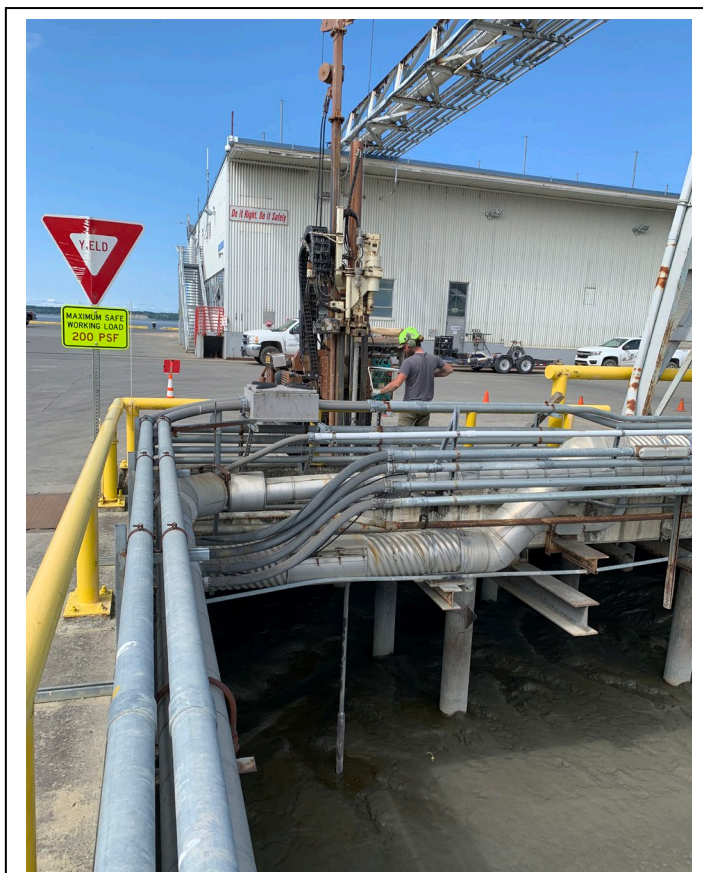


Photo 2: Looking west at the advancement of Boring SB1. (July 2, 2024)

Port of Alaska Modernization Program
Anchorage, Alaska

PHOTOS 1 AND 2

December 2024

113733-001



SHANNON & WILSON, INC.
Geotechnical & Environmental Consultants

A-1



Photo 3: Looking south at the advancement of Boring SB2. (July 1, 2024)

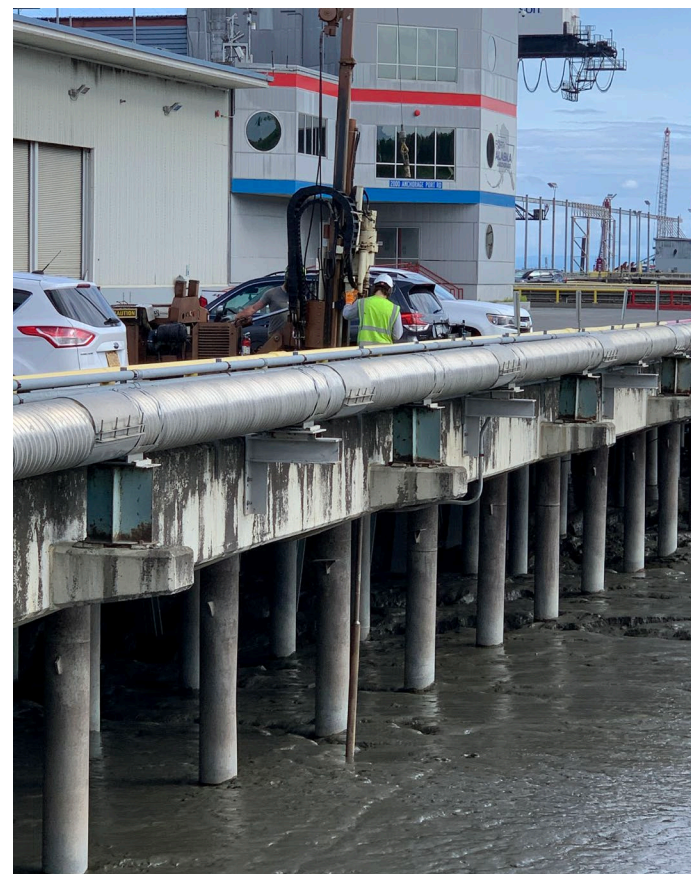


Photo 4: Looking north at advancement of Boring SB2. (July 1, 2024)

Port of Alaska Modernization Program
Anchorage, Alaska

PHOTOS 3 AND 4

December 2024

113733-001



SHANNON & WILSON, INC.
Geotechnical & Environmental Consultants

A-2



Photo 5: Looking southwest at the advancement of Boring SB3. (July 1, 2024)

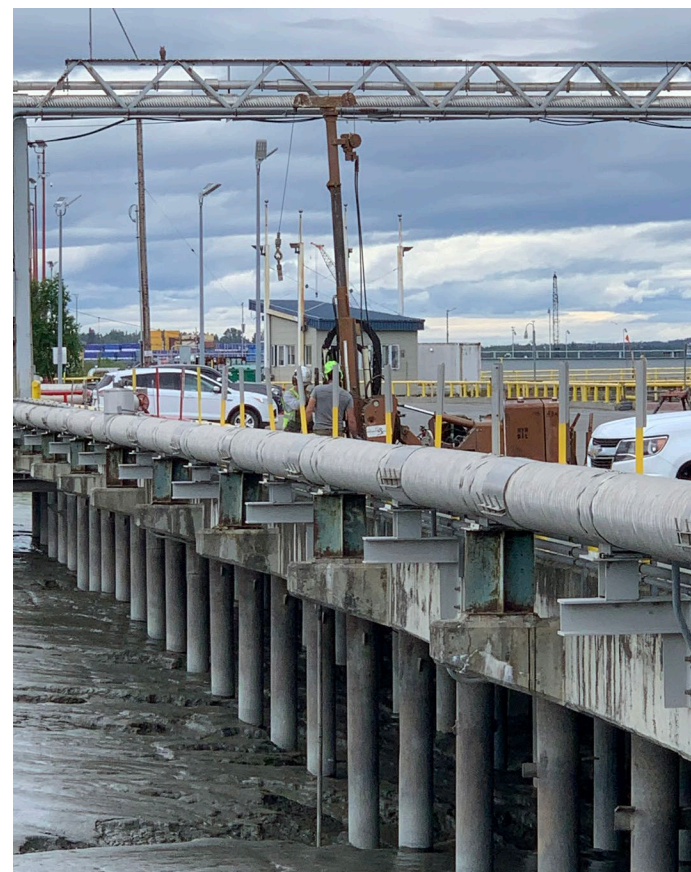


Photo 6: Looking south at advancement of Boring SB3. (July 1, 2024)

Port of Alaska Modernization Program
Anchorage, Alaska

PHOTOS 5 AND 6

December 2024

113733-001



SHANNON & WILSON, INC.
Geotechnical & Environmental Consultants

A-3



Photo 5: Looking northeast at the advancement of Boring SB4. (July 2, 2024)



Photo 6: Looking west at advancement of Boring SB4. (July 2, 2024)

Port of Alaska Modernization Program
Anchorage, Alaska

PHOTOS 7 AND 8

December 2024

113733-001



SHANNON & WILSON, INC.
Geotechnical & Environmental Consultants

A-4

Appendix B

Boring Logs

APPENDIX B: BORING LOGS

ENVIRONMENTAL LOG BORING LOGS.GPJ S&W GEO1.GDT 11/1/24

MATERIAL DESCRIPTION	Depth, Ft.	Symbol	Samples	Ground Water Depth, Ft.	Penetration Resistance ▲ Blows per foot				
					0	25	50	75	100
Gray, <i>Silt with Clay and Gravel</i> ; wet			S1						
			S2						
Gray, <i>Silt with trace Sand and Gravel</i> ; wet	5.0		S3	5					
			S4	10					
Gray to Black, <i>Silt with trace Gravel with interbedded layers of Clay</i> ; wet	10.0		S5	15					
Gray, <i>Silt with trace Gravel</i> ; moist to wet	15.0		S6	20					
			S7	25					
			*						
Bottom of Boring Boring Completed 7/2/24	30.0			30					
LEGEND					0				
* Sample not recovered					■ PID Reading (ppm)				
II Direct Push									
NOTES									
1. The stratification lines represent the approximate boundaries between soil types, and the transition may be gradual.									
2. The discussion in the text of this report is necessary for a proper understanding of the nature of subsurface materials.									
3. Water level, if indicated above, is for the date specified and may vary.									
4. USC letter symbol based on visual classification.									
					Port of Alaska Modernization Program Anchorage, Alaska				
					LOG OF BORING SB1				
					December 2024		113733-001		
					 SHANNON & WILSON, INC. Geotechnical and Environmental Consultants		FIG. B-1		

ENVIRONMENTAL LOG BORING LOGS.GPJ S&W GEO1.GDT 11/1/24

MATERIAL DESCRIPTION	Depth, Ft.	Symbol	Samples	Ground Water Depth, Ft.	Penetration Resistance				
					▲ Blows per foot				
Gray, Silt with trace Gravel; wet			S1		0	25	50	75	100
Bottom of Boring Boring Completed 7/1/24	30.0				5				
					10				
					15				
					20				
					25				
					30				

*

Sample not recovered

II

Direct Push

PID Reading (ppm)

Port of Alaska Modernization Program
Anchorage, Alaska

LOG OF BORING SB3

December 2024113733-001

SHANNON & WILSON, INC.

Geotechnical and Environmental Consultants

FIG. B-3

NOTES

1. The stratification lines represent the approximate boundaries between soil types, and the transition may be gradual.

2. The discussion in the text of this report is necessary for a proper understanding of the nature of subsurface materials.

3. Water level, if indicated above, is for the date specified and may vary.

4. USC letter symbol based on visual classification.

ENVIRONMENTAL LOG BORING LOGS.GPJ S&W GEO1.GDT 11/1/24

MATERIAL DESCRIPTION	Depth, Ft.	Symbol	Samples	Ground Water Depth, Ft.	Penetration Resistance ▲ Blows per foot				
					0	25	50	75	100
Gray, <i>Silt with trace Gravel and Sand</i> ; wet	5.0		S1	5					
Gray, <i>Silt with Clay and trace Gravel</i> ; wet			S2						
			S3						
			S4						
Dark Gray to Black, <i>Silt with trace Gravel</i> ; wet to moist	10.0		S5	10					
	15.0		S6	15					
Dark Gray to Gray, <i>Silt</i> ; moist to wet			S7						
			S8						
			S9						
	20		S10	20					
			S11						
			S12						
			S13						
Bottom of Boring Boring Completed 7/2/24	30.0			30					
LEGEND * Sample not recovered II Direct Push ■ PID Reading (ppm)									
NOTES 1. The stratification lines represent the approximate boundaries between soil types, and the transition may be gradual. 2. The discussion in the text of this report is necessary for a proper understanding of the nature of subsurface materials. 3. Water level, if indicated above, is for the date specified and may vary. 4. USC letter symbol based on visual classification.					Port of Alaska Modernization Program Anchorage, Alaska LOG OF BORING SB4 December 2024 113733-001 SHANNON & WILSON, INC. Geotechnical and Environmental Consultants FIG. B-4				

Appendix C

Results of Analytical Testing

APPENDIX C: RESULTS OF ANALYTICAL TESTING



Analytical Resources, LLC
Analytical Chemists and Consultants
Tukwila, WA

02 September 2024

Dan McMahon
Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage, AK 99518

RE: PAMP Sediments (113733)

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)
24G0167

Associated SDG ID(s)
N/A

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, LLC

Susan Dunnihoo, Director, Client Services

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Chain of Custody Record & Laboratory Analysis Request

AR Assigned Number: 24G0167		Turn-around Requested: standard		Date: 7/8/24		 Analytical Resources, LLC Analytical Chemists and Consultants 4611 South 134th Place, Suite 100 Tukwila, WA 98168 206-695-6200 206-695-6202 (fax)							
AR Client Company: Shannon & Wilson, Inc.		Phone: 907-433-3223		Page: 1 of 1									
Client Contact: Dan McMahon				No. of Coolers: 1 Cooler Temps: 1									
Client Project Name: PAMP Sediment						Analysis Requested						Notes/Comments	
Client Project #: 113733		Samplers: AJR											
Sample ID	Date	Time	Matrix	No. Containers	SVOC/TBT/ Pest/PCB	TS/TVS/TOC	Metals	Grainsize					
113733-SB4S8	07/02/24	11:35	Sed	3	✓	✓	✓	✓					
113733-SB4S9	07/02/24	12:00	Sed	3	✓	✓	✓	✓					
113733-SB4S10	07/02/24	12:05	Sed	3	✓	✓	✓	✓					
113733-SB4S11	07/02/24	13:15	Sed	3	✓	✓	✓	✓					
113733-SB4S12	07/02/24	10:05	Sed	3	✓	✓	✓	✓					
113733-SB4S13	07/02/24	13:20	Sed	3	✓	✓	✓	✓					
113733-SB4S14	07/02/24	10:25	Sed	3	✓	✓	✓	✓					
Comments/Special Instructions					Relinquished by: (Signature) <i>[Signature]</i>		Received by: <i>[Signature]</i>		Relinquished by:		Received by:		
					Printed Name: ARU MBO		Printed Name: Emma Stewart		Printed Name:		Printed Name:		
					Company: STW		Company: ARL		Company:		Company:		
					Date & Time: 7/8/24 800		Date & Time: 7/9/24 1137		Date & Time:		Date & Time:		

Limits of Liability: Analytical Resources, LLC (AR) will perform all requested services in accordance with appropriate methodology following AR Standard Operating Procedures and the AR Quality Assurance Program. This program meets standards for the industry. The total liability of AR, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the invoiced amount for said services. The acceptance by the client of a proposal for services by AR release AR from any liability in excess thereof, notwithstanding any provision to the contrary in any contract, purchase order or co-signed agreement between AR and the Client.

Sample Retention Policy: Unless specified by work order or contract, all water/soil samples submitted to AR will be discarded or returned, no sooner than 90 days after receipt or 60 days after submission of hard copy data, whichever is longer. Sediment samples submitted under PSDDA/PSEP/SMS protocol will be stored frozen for up to one year and then discarded.



Analytical Resources, LLC
Analytical Chemists and Consultants

SUBCONTRACT ORDER
To: AmTest Laboratories
ARI Work Order:24G0167

SENDING LABORATORY:

Analytical Resources, LLC
4611 S. 134th Place, Suite 100
Tukwila, WA 98168
Phone: (206) 695-6200
Fax: (206) 695-6202
Project Manager: Susan Dunnihoo
E-Mail: sue.dunnihoo@arilabs.com

RECEIVING LABORATORY:

AmTest Laboratories
13600 NE 126th Pl Suite C
Kirkland, WA 98034
Phone :425-885-1664
Fax: -

PLEASE SEND DATA AND INVOICE TO subdata@arilabs.com

Analysis	Due	Expires	Sub Laboratory ID	Comments
Sample ID: 24G0167-01				
Sampled: 07/02/24 11:35 Matrix: Solid				
Grainsize PSEP (Subc)	07/23/24	01/01/25 04:23		
<i>Containers Supplied:</i>				
24G0167-01 A Ziploc Bag, Quart				
Sample ID: 24G0167-02				
Sampled: 07/02/24 12:00 Matrix: Solid				
Grainsize PSEP (Subc)	07/23/24	01/01/25 04:48		
<i>Containers Supplied:</i>				
24G0167-02 A Ziploc Bag, Quart				
Sample ID: 24G0167-03				
Sampled: 07/02/24 12:05 Matrix: Solid				
Grainsize PSEP (Subc)	07/23/24	01/01/25 04:53		
<i>Containers Supplied:</i>				
24G0167-03 A Ziploc Bag, Quart				
Sample ID: 24G0167-04				
Sampled: 07/02/24 13:15 Matrix: Solid				
Grainsize PSEP (Subc)	07/23/24	01/01/25 06:03		
<i>Containers Supplied:</i>				
24G0167-04 A Ziploc Bag, Quart				

1.2°C

Released By Mattias Otero 07/11/24 1245 Date SF Received By 7/11/24 1245 Date

Released By _____ Date _____ Received By _____ Date _____



Analytical Resources, LLC
Analytical Chemists and Consultants

SUBCONTRACT ORDER
To: AmTest Laboratories
ARI Work Order:24G0167

Analysis	Due	Expires	Sub Laboratory ID	Comments
Sample ID: 24G0167-05				
Sampled: 07/02/24 10:05 Matrix: Solid				
Grainsize PSEP (Subc)	07/23/24	01/01/25 02:53		
Containers Supplied:				
24G0167-05 A Ziploc Bag, Quart				
Sample ID: 24G0167-06				
Sampled: 07/02/24 13:20 Matrix: Solid				
Grainsize PSEP (Subc)	07/23/24	01/01/25 06:08		
Containers Supplied:				
24G0167-06 A Ziploc Bag, Quart				
Sample ID: 24G0167-07				
Sampled: 07/02/24 10:25 Matrix: Solid				
Grainsize PSEP (Subc)	07/23/24	01/01/25 03:13		
Containers Supplied:				
24G0167-07 A Ziploc Bag, Quart				

Mattie Dwyer 07/11/24 1245
Released By Date

SF 7/11/24 1245
Received By Date

Released By Date Received By Date



Shannon & Wilson, Inc

5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

02-Sep-2024 14:07

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
113733-SB4S8	24G0167-01	Solid	02-Jul-2024 11:35	09-Jul-2024 11:37
113733-SB4S9	24G0167-02	Solid	02-Jul-2024 12:00	09-Jul-2024 11:37
113733-SB4S10	24G0167-03	Solid	02-Jul-2024 12:05	09-Jul-2024 11:37
113733-SB4S11	24G0167-04	Solid	02-Jul-2024 13:15	09-Jul-2024 11:37
113733-SB4S12	24G0167-05	Solid	02-Jul-2024 10:05	09-Jul-2024 11:37
113733-SB4S13	24G0167-06	Solid	02-Jul-2024 13:20	09-Jul-2024 11:37
113733-SB4S14	24G0167-07	Solid	02-Jul-2024 10:25	09-Jul-2024 11:37



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
02-Sep-2024 14:07

Work Order Case Narrative

Client: Shannon & Wilson, Inc
Project: PAMP Sediments
Work Order: 24G0167

Sample receipt

Samples as listed on the preceding page were received 09-Jul-2024 11:37 under ARI work order 24G0167. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Grainsize

The samples were submitted to AmTest Laboratories for grainsize analysis. The AmTest report is included here in its entirety.

Semivolatiles - EPA Method SW8270E

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements, with accepted excursions outside the 20% window for calibration verification. Associated positive results have been "Q"-flagged. Response is noted to be low for 2,4-dimethylphenol, 2,4-dinitrophenol, 4,6-dinitro-2-methylphenol, 4-methyl phenol, 4-nitrophenol, benzo(ghi)perylene, benzoic acid, dibenzo(ah)anthracene, indeno(1,2,3-cd)pyrene, hexachlorocyclopentadiene, dibenzo(a,h)anthracene, hexachlorocyclopentadiene, pentachlorophenol and benzyl alcohol. Response was high for 3,3-dichlorobenzidine, 4-nitroaniline total benzofluoranthenes, butylbenzylphthalate, carbazone and isophorone.

The internal standard areas were low of control limits for 2,4,6-tribromophenol in SHM0016-CCV1 and SMH0016-ICV3.

The surrogate percent recoveries outside of control limits are flagged on the summary sheets.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) outside of control limits are flagged on the summary sheet.

The matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent differences (RPD) outside of advisory control limits are flagged on the summary sheet.

Semivolatiles - EPA Method SW8270E-SIM

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements, with accepted excursions outside the 20% window. Associated positive results have been "Q"-flagged. Response was noted to be low for 2,4-dimethylphenol, benzoic acid, benzyl alcohol, dibenzo(a,h)anthracene and pentachlorophenol.



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
02-Sep-2024 14:07

Internal standard areas were within limits.

The surrogate percent recoveries outside of control limits are flagged on the summary sheets.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) outside of control limits are flagged on the summary sheet.

The matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent differences (RPD) outside of advisory control limits are flagged on the summary sheet.

Butyl Tin(s)- EPA Method SW8270E-SIM

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent differences (RPD) were within control limits.

The batch BMG0259 matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent differences (RPD) outside of advisory control limits are flagged on the summary sheet, reported under work order 24G0178

Chlorinated Pesticides - EPA Method SW8081B

The sample(s) were initially extracted and analyzed within the recommended holding times. Due to an oversight in the laboratory, the samples for this work order were not frozen. Sample 113733-SB4S11 required reextraction due to surrogate failures and has been "H"-flagged noting the sample was extracted outside recommended holding times.

Initial and continuing calibrations were within method requirements with exceptions. On the STX- CLP column, response was noted to be high in some standards for 2,4'-DDD, 2,4'-DDE, 2,4'-DDT, oxychlordane, 4,4'-DDD, 4,4'-DDT, heptachlor, endosulfan sulfate, endrin, endrin aldehyde, endrin ketone, methoxychlor, cis-nonachlor, trans-nonachlor and endosulfan II. Response was low on the CLP2 column in some standards for decachlorobiphenyl (DCBP), dieldrin, endrin aldehyde, endrin ketone and methoxychlor and high for hexachlorobutadiene.

Internal standard areas were within limits with exceptions. Hexabromobiphenyl (HBB) response was low on the CLP-STX



Shannon & Wilson, Inc

5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

02-Sep-2024 14:07

113733-SB4S11, 113733-SB4S12, 113733-SB4S13, 113733-SB4S14, SMG0341-CCV5, -CCV6, -PEM3, and -PEM4. The internal standard 1-bromo-2-nitrobenzene response was out high on the STX-CLP in 113733-SB4S8 and BMG0258-BS2. The surrogate percent recoveries outside of control limits are flagged on the summary sheets.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) outside of control limits are flagged on the summary sheet.

The matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent differences (RPD) outside of advisory control limits are flagged on the summary sheet.

Results that have been "P1"-flagged indicate a greater than 40% difference between the results on the two analytical columns.

PCB Aroclors - EPA Method SW8082A

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent differences (RPD) were within control limits.

The batch BMG0257 matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD) were within advisory control limits, reported under work order 24G0168.

Total Metals - EPA Method 6020B

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations including interference checks were within method requirements for reported elements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

The duplicate (DUP) relative percent differences (RPD) were within advisory control limits.



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5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

02-Sep-2024 14:07

The matrix spike (MS) percent recovery for antimony was low of advisory control limits. The post spike had an acceptable recovery.

Total Mercury - EPA Method 7471B

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

The matrix spike (MS) percent recovery and the duplicate (DUP) relative percent difference (RPD) were within advisory control limits. A post spike for the batch had an acceptable recovery.

Wet Chemistry

The sample(s) were prepared and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

The reference material (SRM) percent recoveries were within control limits.

The matrix spike (MS) percent recoveries were within control limits. The replicate (DUP1, DUP2) relative percent difference (RPD) were within advisory control limits for TVS. The DUP1 relative percent difference (RPD) for TOC was high of advisory control limits.



Cooler Receipt Form

ARI Client: Shannon + Wilson

Project Name: PAMP SEDIMENT

COC No(s): NA

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: NA

Assigned ARI Job No: 24G0167

Tracking No: NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler? YES NO
Were custody papers included with the cooler? YES NO
Were custody papers properly filled out (ink, signed, etc.) YES NO
Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 11:37 0.1

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 8117

Cooler Accepted by: E. SA Date: 7/9/24 Time: 11:37

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES NO SA 7/9/24
What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: NA
Was sufficient ice used (if appropriate)? YES NO
How were bottles sealed in plastic bags? Individually Grouped Not
Did all bottles arrive in good condition (unbroken)? YES NO
Were all bottle labels complete and legible? YES NO
Did the number of containers listed on COC match with the number of containers received? YES NO
Did all bottle labels and tags agree with custody papers? YES NO
Were all bottles used correct for the requested analyses? YES NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs) ... NA YES NO
Were all VOC vials free of air bubbles? NA YES NO
Was sufficient amount of sample sent in each bottle? YES NO
Date VOC Trip Blank was made at ARI: NA
Were the sample(s) split by ARI? NA YES Date/Time: Equipment: Split by:

Samples Logged by: SA Date: 7/9/24 Time: 11:42 Labels checked by: ES

**** Notify Project Manager of discrepancies or concerns ****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: Date:

Am Test Inc.
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Kirkland, WA
(425) 885-1664
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***Professional
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August 28, 2024

Susan Dunnihoo
4611 S 134th Pl Suite 100
Tukwila, WA 98168

Project: ARI GRAIN SIZES
Project Number: 24G0167
Project Manager: Susan Dunnihoo
RE: ARI GRAIN SIZES

Enclosed are the results of analyses for samples received by our laboratory on 7/11/2024.
Please feel free to contact me with any questions or considerations regarding this report.

Sincerely,

A handwritten signature in black ink that reads "Aaron Young". The signature is fluid and cursive, with the first name "Aaron" and the last name "Young" clearly distinguishable.

ElementStationManager For Aaron Young
President

Am Test Inc.
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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 08/28/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0167

Reported Samples

Lab ID	Sample	Matrix	Qualifiers	Date Sampled	Date Received
A24G0243-01	24G0167-01	Solid		07/02/2024	07/11/2024
A24G0243-02	24G0167-02	Solid		07/02/2024	07/11/2024
A24G0243-03	24G0167-03	Solid		07/02/2024	07/11/2024
A24G0243-04	24G0167-04	Solid		07/02/2024	07/11/2024
A24G0243-05	24G0167-05	Solid		07/02/2024	07/11/2024
A24G0243-06	24G0167-06	Solid		07/02/2024	07/11/2024
A24G0243-07	24G0167-07	Solid		07/02/2024	07/11/2024

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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 08/28/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0167

AMTEST Identification Number: A24G0243-01
Client Identification: 24G0167-01
Sampling Date: 07/02/24 11:35

Conventional Chemistry Parameters by APHA/EPA Methods

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
% Solids	53.7	%			SM 2540G_2011	HV	08/26/2024

Full Grain Size (Hydrometer/Sieve)

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
PHI -2.25 (4.75 mm) Gravel	ND	%	U	0.100	PSEP 1986 P.9	HV	08/26/2024
PHI -2.00 (4.00 mm)	ND	%	U	0.100	PSEP 1986 P.9	HV	08/26/2024
PHI -1.00 (2.00 mm)	ND	%	U	0.100	PSEP 1986 P.9	HV	08/26/2024
PHI 0.00 (1.00 mm) Sand	0.200	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +1.00 (0.50 mm)	0.200	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +2.00 (0.25 mm)	0.400	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +3.00 (0.125 mm)	1.00	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +4.00 (0.063 mm)	23.8	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +5.00 (0.032 mm) Silt	19.6	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +6.00 (0.016 mm)	16.7	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +7.00 (0.008 mm)	11.5	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +8.00 (0.004 mm)	7.40	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +9.00 (0.002 mm) Clay	5.30	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +10.0 (0.001 mm)	3.00	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI >10.0 (< 0.001 mm)	11.1	%		0.100	PSEP 1986 P.9	HV	08/26/2024

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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 08/28/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0167

AMTEST Identification Number: A24G0243-02
Client Identification: 24G0167-02
Sampling Date: 07/02/24 12:00

Conventional Chemistry Parameters by APHA/EPA Methods

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
% Solids	82.4	%			SM 2540G_2011	HV	08/26/2024

Full Grain Size (Hydrometer/Sieve)

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
PHI -2.25 (4.75 mm) Gravel	ND	%	U	0.100	PSEP 1986 P.9	HV	08/26/2024
PHI -2.00 (4.00 mm)	ND	%	U	0.100	PSEP 1986 P.9	HV	08/26/2024
PHI -1.00 (2.00 mm)	ND	%	U	0.100	PSEP 1986 P.9	HV	08/26/2024
PHI 0.00 (1.00 mm) Sand	0.100	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +1.00 (0.50 mm)	0.100	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +2.00 (0.25 mm)	0.900	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +3.00 (0.125 mm)	1.70	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +4.00 (0.063 mm)	15.2	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +5.00 (0.032 mm) Silt	45.1	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +6.00 (0.016 mm)	10.1	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +7.00 (0.008 mm)	7.30	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +8.00 (0.004 mm)	5.70	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +9.00 (0.002 mm) Clay	3.80	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +10.0 (0.001 mm)	2.30	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI >10.0 (< 0.001 mm)	7.70	%		0.100	PSEP 1986 P.9	HV	08/26/2024

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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 08/28/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0167

AMTEST Identification Number: A24G0243-03
Client Identification: 24G0167-03
Sampling Date: 07/02/24 12:05

Conventional Chemistry Parameters by APHA/EPA Methods

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
% Solids	81.8	%			SM 2540G_2011	HV	08/26/2024

Full Grain Size (Hydrometer/Sieve)

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
PHI -2.25 (4.75 mm) Gravel	0.500	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI -2.00 (4.00 mm)	0.100	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI -1.00 (2.00 mm)	0.100	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI 0.00 (1.00 mm) Sand	0.100	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +1.00 (0.50 mm)	0.300	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +2.00 (0.25 mm)	0.600	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +3.00 (0.125 mm)	1.50	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +4.00 (0.063 mm)	23.5	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +5.00 (0.032 mm) Silt	41.6	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +6.00 (0.016 mm)	10.0	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +7.00 (0.008 mm)	6.40	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +8.00 (0.004 mm)	4.30	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +9.00 (0.002 mm) Clay	2.70	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +10.0 (0.001 mm)	1.60	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI >10.0 (< 0.001 mm)	6.70	%		0.100	PSEP 1986 P.9	HV	08/26/2024

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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 08/28/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0167

AMTEST Identification Number: A24G0243-04
Client Identification: 24G0167-04
Sampling Date: 07/02/24 13:15

Conventional Chemistry Parameters by APHA/EPA Methods

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
% Solids	81.5	%			SM 2540G_2011	HV	08/26/2024

Full Grain Size (Hydrometer/Sieve)

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
PHI -2.25 (4.75 mm) Gravel	ND	%	U	0.100	PSEP 1986 P.9	HV	08/26/2024
PHI -2.00 (4.00 mm)	ND	%	U	0.100	PSEP 1986 P.9	HV	08/26/2024
PHI -1.00 (2.00 mm)	0.200	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI 0.00 (1.00 mm) Sand	0.100	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +1.00 (0.50 mm)	0.100	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +2.00 (0.25 mm)	0.500	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +3.00 (0.125 mm)	2.70	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +4.00 (0.063 mm)	17.5	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +5.00 (0.032 mm) Silt	42.8	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +6.00 (0.016 mm)	12.0	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +7.00 (0.008 mm)	6.60	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +8.00 (0.004 mm)	4.40	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +9.00 (0.002 mm) Clay	3.70	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +10.0 (0.001 mm)	2.30	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI >10.0 (< 0.001 mm)	7.20	%		0.100	PSEP 1986 P.9	HV	08/26/2024

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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 08/28/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0167

AMTEST Identification Number: A24G0243-05
Client Identification: 24G0167-05
Sampling Date: 07/02/24 10:05

Conventional Chemistry Parameters by APHA/EPA Methods

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
% Solids	78.4	%			SM 2540G_2011	HV	08/26/2024

Full Grain Size (Hydrometer/Sieve)

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
PHI -2.25 (4.75 mm) Gravel	14.7	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI -2.00 (4.00 mm)	0.400	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI -1.00 (2.00 mm)	0.600	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI 0.00 (1.00 mm) Sand	0.500	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +1.00 (0.50 mm)	0.600	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +2.00 (0.25 mm)	1.00	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +3.00 (0.125 mm)	0.600	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +4.00 (0.063 mm)	2.50	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +5.00 (0.032 mm) Silt	32.3	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +6.00 (0.016 mm)	16.2	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +7.00 (0.008 mm)	8.50	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +8.00 (0.004 mm)	5.60	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +9.00 (0.002 mm) Clay	4.40	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +10.0 (0.001 mm)	2.80	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI >10.0 (< 0.001 mm)	9.30	%		0.100	PSEP 1986 P.9	HV	08/26/2024

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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 08/28/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0167

AMTEST Identification Number: A24G0243-06
Client Identification: 24G0167-06
Sampling Date: 07/02/24 13:20

Conventional Chemistry Parameters by APHA/EPA Methods

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
% Solids	82.6	%			SM 2540G_2011	HV	08/26/2024

Full Grain Size (Hydrometer/Sieve)

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
PHI -2.25 (4.75 mm) Gravel	ND	%	U	0.100	PSEP 1986 P.9	HV	08/26/2024
PHI -2.00 (4.00 mm)	ND	%	U	0.100	PSEP 1986 P.9	HV	08/26/2024
PHI -1.00 (2.00 mm)	0.100	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI 0.00 (1.00 mm) Sand	ND	%	U	0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +1.00 (0.50 mm)	0.200	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +2.00 (0.25 mm)	0.400	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +3.00 (0.125 mm)	1.70	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +4.00 (0.063 mm)	19.3	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +5.00 (0.032 mm) Silt	39.7	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +6.00 (0.016 mm)	12.2	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +7.00 (0.008 mm)	6.60	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +8.00 (0.004 mm)	4.80	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +9.00 (0.002 mm) Clay	4.20	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +10.0 (0.001 mm)	2.60	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI >10.0 (< 0.001 mm)	8.20	%		0.100	PSEP 1986 P.9	HV	08/26/2024

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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 08/28/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0167

AMTEST Identification Number: A24G0243-07
Client Identification: 24G0167-07
Sampling Date: 07/02/24 10:25

Conventional Chemistry Parameters by APHA/EPA Methods

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
% Solids	78.4	%			SM 2540G_2011	HV	08/26/2024

Full Grain Size (Hydrometer/Sieve)

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
PHI -2.25 (4.75 mm) Gravel	0.400	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI -2.00 (4.00 mm)	0.300	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI -1.00 (2.00 mm)	1.00	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI 0.00 (1.00 mm) Sand	0.600	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +1.00 (0.50 mm)	0.300	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +2.00 (0.25 mm)	0.400	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +3.00 (0.125 mm)	0.400	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +4.00 (0.063 mm)	2.30	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +5.00 (0.032 mm) Silt	41.0	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +6.00 (0.016 mm)	18.4	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +7.00 (0.008 mm)	10.2	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +8.00 (0.004 mm)	5.60	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +9.00 (0.002 mm) Clay	5.40	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +10.0 (0.001 mm)	3.50	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI >10.0 (< 0.001 mm)	10.3	%		0.100	PSEP 1986 P.9	HV	08/26/2024

Am Test Inc.
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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 08/28/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0167

Quality Control

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBH0391 - No Prep - WC Soil										
Duplicate (BBH0391-DUP1)			Source: A24G0431-03		Prepared & Analyzed: 08/26/24					
% Solids	41.7			%		42.0			0.7	20
Duplicate (BBH0391-DUP2)			Source: A24G0243-07		Prepared & Analyzed: 08/26/24					
% Solids	77.9			%		78.4			0.6	20
Duplicate (BBH0391-DUP3)			Source: A24G0243-07		Prepared & Analyzed: 08/26/24					
% Solids	78.4			%		78.4			0.04	20
Duplicate (BBH0391-DUP4)			Source: A24H0352-01		Prepared & Analyzed: 08/26/24					
% Solids	74.6			%		75.4			1	20
Duplicate (BBH0391-DUP5)			Source: A24H0352-01		Prepared & Analyzed: 08/26/24					
% Solids	75.8			%		75.4			0.5	20

Quality Control

Full Grain Size (Hydrometer/Sieve)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBH0403 - Hydrometer/Sieve										
Duplicate (BBH0403-DUP1)			Source: A24G0243-07		Prepared & Analyzed: 08/26/24					
PHI +1.00 (0.50 mm)	0.100		0.100	%		0.300			100	200
PHI +10.0 (0.001 mm)	4.30		0.100	%		3.50			21	200
PHI +2.00 (0.25 mm)	0.100		0.100	%		0.400			120	200
PHI +3.00 (0.125 mm)	0.300		0.100	%		0.400			29	200
PHI +4.00 (0.063 mm)	2.20		0.100	%		2.30			4	200
PHI +5.00 (0.032 mm) Silt	34.1		0.100	%		41.0			18	200
PHI +6.00 (0.016 mm)	18.7		0.100	%		18.4			2	200
PHI +7.00 (0.008 mm)	12.9		0.100	%		10.2			23	200
PHI +8.00 (0.004 mm)	8.30		0.100	%		5.60			39	200
PHI +9.00 (0.002 mm) Clay	6.70		0.100	%		5.40			21	200
PHI >10.0 (< 0.001 mm)	12.0		0.100	%		10.3			15	200

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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 08/28/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0167

Quality Control
(Continued)

Full Grain Size (Hydrometer/Sieve) (Continued)

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

Batch: BBH0403 - Hydrometer/Sieve (Continued)

Duplicate (BBH0403-DUP1)		Source: A24G0243-07			Prepared & Analyzed: 08/26/24					
PHI 0.00 (1.00 mm) Sand	0.100		0.100	%		0.600			143	200
PHI -1.00 (2.00 mm)	0.300		0.100	%		1.00			108	200
PHI -2.00 (4.00 mm)	ND	U	0.100	%		0.300			200	200
PHI -2.25 (4.75 mm) Gravel	0.100		0.100	%		0.400			120	200
Duplicate (BBH0403-DUP2)		Source: A24G0243-07			Prepared & Analyzed: 08/26/24					
PHI +1.00 (0.50 mm)	0.800		0.100	%		0.300			91	200
PHI +10.0 (0.001 mm)	3.10		0.100	%		3.50			12	200
PHI +2.00 (0.25 mm)	1.10		0.100	%		0.400			93	200
PHI +3.00 (0.125 mm)	0.900		0.100	%		0.400			77	200
PHI +4.00 (0.063 mm)	4.20		0.100	%		2.30			58	200
PHI +5.00 (0.032 mm) Silt	40.0		0.100	%		41.0			2	200
PHI +6.00 (0.016 mm)	12.8		0.100	%		18.4			36	200
PHI +7.00 (0.008 mm)	8.60		0.100	%		10.2			17	200
PHI +8.00 (0.004 mm)	5.10		0.100	%		5.60			9	200
PHI +9.00 (0.002 mm) Clay	4.80		0.100	%		5.40			12	200
PHI >10.0 (< 0.001 mm)	9.10		0.100	%		10.3			12	200
PHI 0.00 (1.00 mm) Sand	1.70		0.100	%		0.600			96	200
PHI -1.00 (2.00 mm)	3.30		0.100	%		1.00			107	200
PHI -2.00 (4.00 mm)	0.900		0.100	%		0.300			100	200
PHI -2.25 (4.75 mm) Gravel	3.60		0.100	%		0.400			160	200

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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 08/28/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0167

Notes and Definitions

Item	Definition
U	The compound was analyzed for but was not detected (Non-detect) at or above the MRL/MDL.
Dry	Sample results reported on a dry weight basis.
ND	Analyte NOT DETECTED at or above the reporting limit.
RPD	Relative Percent Difference
%REC	Percent Recovery
Source	Sample that was matrix spiked or duplicated.



Analytical Resources, LLC
Analytical Chemists and Consultants

A24G0243

SUBCONTRACT ORDER
To: AmTest Laboratories
ARI Work Order:24G0167

SENDING LABORATORY:

Analytical Resources, LLC
4611 S. 134th Place, Suite 100
Tukwila, WA 98168
Phone: (206) 695-6200
Fax: (206) 695-6202
Project Manager: Susan Dunnihoo
E-Mail: sue.dunnihoo@arilabs.com

RECEIVING LABORATORY:

AmTest Laboratories
13600 NE 126th Pl Suite C
Kirkland, WA 98034
Phone :425-885-1664
Fax: -

PLEASE SEND DATA AND INVOICE TO subdata@arilabs.com

Analysis	Due	Expires	Sub Laboratory ID	Comments
Sample ID: 24G0167-01				
Sampled: 07/02/24 11:35	Matrix: Solid		01	
Grainsize PSEP (Subc)	07/23/24	01/01/25 04:23		
<i>Containers Supplied:</i>				
24G0167-01 A				
Ziploc Bag, Quart				
Sample ID: 24G0167-02				
Sampled: 07/02/24 12:00	Matrix: Solid		02	
Grainsize PSEP (Subc)	07/23/24	01/01/25 04:48		
<i>Containers Supplied:</i>				
24G0167-02 A				
Ziploc Bag, Quart				
Sample ID: 24G0167-03				
Sampled: 07/02/24 12:05	Matrix: Solid		03	
Grainsize PSEP (Subc)	07/23/24	01/01/25 04:53		
<i>Containers Supplied:</i>				
24G0167-03 A				
Ziploc Bag, Quart				
Sample ID: 24G0167-04				
Sampled: 07/02/24 13:15	Matrix: Solid		04	
Grainsize PSEP (Subc)	07/23/24	01/01/25 06:03		
<i>Containers Supplied:</i>				
24G0167-04 A				
Ziploc Bag, Quart				

1.2°C

Released By Mattias Puro Date 07/11/24 1245 Received By SF Date 7/11/24 1245

Released By _____ Date _____ Received By _____ Date _____



SUBCONTRACT ORDER
To: AmTest Laboratories
ARI Work Order:24G0167

Analysis	Due	Expires	Sub Laboratory ID	Comments
Sample ID: 24G0167-05 Sampled: 07/02/24 10:05 Matrix: Solid			05	
Grainsize PSEP (Subc)	07/23/24	01/01/25 02:53		
Containers Supplied:				
24G0167-05 A Ziploc Bag, Quart				
Sample ID: 24G0167-06 Sampled: 07/02/24 13:20 Matrix: Solid			06	
Grainsize PSEP (Subc)	07/23/24	01/01/25 06:08		
Containers Supplied:				
24G0167-06 A Ziploc Bag, Quart				
Sample ID: 24G0167-07 Sampled: 07/02/24 10:25 Matrix: Solid			07	
Grainsize PSEP (Subc)	07/23/24	01/01/25 03:13		
Containers Supplied:				
24G0167-07 A Ziploc Bag, Quart				

Released By *Matt Dyer* 07/11/24 1245 Date *SF* 7/11/24 1245

Released By _____ Date _____ Received By _____ Date _____



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
02-Sep-2024 14:07

113733-SB4S8
24G0167-01 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 11:35

Instrument: NT14 Analyst: RJL

Analyzed: 08/02/2024 16:11

Sample Preparation: Preparation Method: EPA 3546 (Microwave)
Preparation Batch: BMG0260
Prepared: 07/15/2024

Sample Size: 12.22 g (wet)
Final Volume: 1 mL

Extract ID: 24G0167-01 B 04
Dry Weight: 10.02 g
% Solids: 81.99

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	10.0	20.0	ND	ug/kg	U
bis(2-chloroethyl) ether	111-44-4	1	34.9	49.9	ND	ug/kg	U
2-Chlorophenol	95-57-8	1	20.0	20.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	10.0	20.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	10.0	20.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	10.0	20.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	20.0	20.0	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	10.0	20.0	ND	ug/kg	U
2-Methylphenol	95-48-7	1	10.0	20.0	ND	ug/kg	U
Hexachloroethane	67-72-1	1	10.0	20.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	15.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	15.0	20.0	ND	ug/kg	U
Nitrobenzene	98-95-3	1	10.0	20.0	ND	ug/kg	U
Isophorone	78-59-1	1	15.0	20.0	ND	ug/kg	U
2-Nitrophenol	88-75-5	1	10.0	20.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	49.9	99.8	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	1	10.0	20.0	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	1	49.9	99.8	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	10.0	20.0	ND	ug/kg	U
Naphthalene	91-20-3	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	99.8	200	ND	ug/kg	U
4-Chloroaniline	106-47-8	1	49.9	99.8	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	10.0	20.0	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	1	49.9	99.8	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	10.0	20.0	ND	ug/kg	U
Hexachlorocyclopentadiene	77-47-4	1	49.9	99.8	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	1	49.9	99.8	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	1	49.9	99.8	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	1	10.0	20.0	ND	ug/kg	U
2-Nitroaniline	88-74-4	1	49.9	99.8	ND	ug/kg	U
Acenaphthylene	208-96-8	1	10.0	20.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	10.0	20.0	ND	ug/kg	U



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
02-Sep-2024 14:07

113733-SB4S8
24G0167-01 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 11:35

Instrument: NT14 Analyst: RJL

Analyzed: 08/02/2024 16:11

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2,6-Dinitrotoluene	606-20-2	1	49.9	99.8	ND	ug/kg	U
Acenaphthene	83-32-9	1	10.0	20.0	ND	ug/kg	U
3-Nitroaniline	99-09-2	1	49.9	99.8	ND	ug/kg	U
2,4-Dinitrophenol	51-28-5	1	99.8	200	ND	ug/kg	U
Dibenzofuran	132-64-9	1	20.0	20.0	ND	ug/kg	U
4-Nitrophenol	100-02-7	1	49.9	99.8	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	1	49.9	99.8	ND	ug/kg	U
Fluorene	86-73-7	1	20.0	20.0	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	1	34.9	49.9	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	34.9	49.9	ND	ug/kg	U
4-Nitroaniline	100-01-6	1	49.9	99.8	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	1	99.8	200	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	10.0	20.0	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	1	20.0	20.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	20.0	20.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	49.9	99.8	ND	ug/kg	U
Phenanthrene	85-01-8	1	10.0	20.0	ND	ug/kg	U
Anthracene	120-12-7	1	10.0	20.0	ND	ug/kg	U
Carbazole	86-74-8	1	10.0	20.0	ND	ug/kg	U
Di-n-Butylphthalate	84-74-2	1	10.0	20.0	ND	ug/kg	U
Fluoranthene	206-44-0	1	10.0	20.0	ND	ug/kg	U
Pyrene	129-00-0	1	10.0	20.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	10.0	20.0	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	1	10.0	20.0	ND	ug/kg	U
3,3'-Dichlorobenzidine	91-94-1	1	49.9	99.8	ND	ug/kg	U
Chrysene	218-01-9	1	10.0	20.0	ND	ug/kg	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	39.9	49.9	ND	ug/kg	U
Di-n-Octylphthalate	117-84-0	1	10.0	20.0	ND	ug/kg	U
Benzo(a)fluoranthene, Total		1	29.9	39.9	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	10.0	20.0	ND	ug/kg	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	20.0	20.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	20.0	20.0	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	20.0	20.0	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	10.0	20.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	55.9	%	
Surrogate: Phenol-d5				29-120 %	50.5	%	
Surrogate: 2-Chlorophenol-d4				31-120 %	54.3	%	



Shannon & Wilson, Inc

5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

02-Sep-2024 14:07

113733-SB4S8

24G0167-01 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 11:35

Instrument: NT14 Analyst: RJL

Analyzed: 08/02/2024 16:11

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: 1,2-Dichlorobenzene-d4		32-120 %	50.9	%	
Surrogate: Nitrobenzene-d5		30-120 %	59.2	%	
Surrogate: 2-Fluorobiphenyl		35-120 %	55.5	%	
Surrogate: 2,4,6-Tribromophenol		24-134 %	58.7	%	
Surrogate: p-Terphenyl-d14		37-120 %	63.7	%	



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
02-Sep-2024 14:07

113733-SB4S8
24G0167-01 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM

Sampled: 07/02/2024 11:35

Instrument: NT14 Analyst: RJL

Analyzed: 08/02/2024 16:11

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0167-01 B 04

Preparation Batch: BMG0260

Sample Size: 12.22 g (wet)

Dry Weight: 10.02 g

Prepared: 07/15/2024

Final Volume: 1 mL

% Solids: 81.99

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	2.5	5.0	3.1	ug/kg	J
1,3-Dichlorobenzene	541-73-1	1	2.5	5.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	2.5	5.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	2.5	5.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	49.9	99.8	ND	ug/kg	U
2-Methylphenol	95-48-7	1	2.5	5.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	10.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	2.5	5.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	10.0	20.0	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	5.0	5.0	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	2.5	5.0	ND	ug/kg	U
N-Nitrosodimethylamine	62-75-9	1	12.5	25.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	2.5	5.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	10.0	20.0	13.4	ug/kg	J
N-Nitrosodiphenylamine	86-30-6	1	2.5	5.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	2.5	5.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	10.0	20.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	2.5	5.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	2.5	5.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	54.0	%	
Surrogate: p-Terphenyl-d14				37-120 %	64.5	%	



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
02-Sep-2024 14:07

113733-SB4S8
24G0167-01 (Solid)

Butyl Tins

Method: EPA 8270E-SIM
Instrument: NT17 Analyst: JZ

Sampled: 07/02/2024 11:35

Analyzed: 08/05/2024 18:34

Sample Preparation: Preparation Method: EPA 3546 (Microwave)
Preparation Batch: BMG0259
Prepared: 07/15/2024

Sample Size: 6.12 g (wet)

Final Volume: 0.5 mL

Extract ID: 24G0167-01 B 03

Dry Weight: 5.02 g

% Solids: 81.99

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CMH0022
Cleaned: 02-Aug-2024

Initial Volume: 0.5 uL

Final Volume: 0.5 uL

Extract ID: 24G0167-01 B 03

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Tributyltin Ion	36643-28-4	1	1.92	3.85	ND	ug/kg	U
Surrogate: Triphenyltin				30-160 %	107	%	
Surrogate: Tripropyltin				30-160 %	77.5	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

02-Sep-2024 14:07

113733-SB4S8

24G0167-01 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/02/2024 11:35

Instrument: ECD6 Analyst: RT

Analyzed: 07/30/2024 14:24

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 15.25 g (wet)	Extract ID: 24G0167-01 B 02
	Preparation Batch: BMG0258	Final Volume: 2.5 mL	Dry Weight: 12.50 g
	Prepared: 07/15/2024		% Solids: 81.99

Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL	Extract ID: 24G0167-01 B 02
	Cleanup Batch: CMG0194	Final Volume: 2.5 uL	
	Cleaned: 29-Jul-2024		

Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL	Extract ID: 24G0167-01 B 02
	Cleanup Batch: CMG0193	Final Volume: 2.5 uL	
	Cleaned: 29-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.25	0.50	ND	ug/kg	U
beta-BHC	319-85-7	1	0.25	0.50	ND	ug/kg	U
gamma-BHC (Lindane)	58-89-9	1	0.25	0.50	ND	ug/kg	U
delta-BHC	319-86-8	1	0.25	0.50	ND	ug/kg	U
Heptachlor	76-44-8	1	0.25	0.50	ND	ug/kg	U
Aldrin	309-00-2	1	0.50	0.50	ND	ug/kg	U
Heptachlor Epoxide	1024-57-3	1	0.25	0.50	ND	ug/kg	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.50	0.50	ND	ug/kg	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.25	0.50	ND	ug/kg	U
Endosulfan I	959-98-8	1	0.25	0.50	ND	ug/kg	U
4,4'-DDE	72-55-9	1	0.50	1.00	ND	ug/kg	U
Dieldrin	60-57-1	1	0.50	1.00	ND	ug/kg	U
Endrin	72-20-8	1	0.50	1.00	ND	ug/kg	U
Endosulfan II	33213-65-9	1	0.50	1.00	ND	ug/kg	U
4,4'-DDD	72-54-8	1	0.50	1.00	ND	ug/kg	U
Endrin Aldehyde	7421-93-4	1	0.50	1.00	ND	ug/kg	U
4,4'-DDT	50-29-3	1	0.50	1.00	ND	ug/kg	U
Endosulfan Sulfate	1031-07-8	1	0.50	1.00	ND	ug/kg	U
Endrin Ketone	53494-70-5	1	0.50	1.00	ND	ug/kg	U
Methoxychlor	72-43-5	1	2.50	5.00	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	0.25	0.50	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	0.25	0.50	ND	ug/kg	U
2,4'-DDE	3424-82-6	1	0.50	1.00	ND	ug/kg	U
2,4'-DDD	53-19-0	1	0.50	1.00	ND	ug/kg	U
2,4'-DDT	789-02-6	1	0.50	1.00	ND	ug/kg	U
Oxychlordane	27304-13-8	1	0.50	1.00	ND	ug/kg	U
cis-Nonachlor	5103-73-1	1	0.50	1.00	ND	ug/kg	U
trans-Nonachlor	39765-80-5	1	0.50	1.00	ND	ug/kg	U
Mirex	2385-85-5	1	1.00	1.00	ND	ug/kg	U



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

02-Sep-2024 14:07

113733-SB4S8

24G0167-01 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/02/2024 11:35

Instrument: ECD6 Analyst: RT

Analyzed: 07/30/2024 14:24

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Decachlorobiphenyl		30-160 %	99.0	%	
Surrogate: Decachlorobiphenyl [2C]		30-160 %	79.7	%	
Surrogate: Tetrachlorometaxylene		30-160 %	56.6	%	
Surrogate: Tetrachlorometaxylene [2C]		30-160 %	74.0	%	



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
02-Sep-2024 14:07

113733-SB4S8
24G0167-01 (Solid)

Aroclor PCB

Method: EPA 8082A			Sampled: 07/02/2024 11:35	
Instrument: ECD5 Analyst: AA			Analyzed: 07/25/2024 17:11	
Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 15.25 g (wet)	Extract ID: 24G0167-01 B 01	
	Preparation Batch: BMG0257		Dry Weight: 12.50 g	
	Prepared: 07/16/2024		% Solids: 81.99	
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL	Extract ID: 24G0167-01 B 01	
	Cleanup Batch: CMG0174			
	Cleaned: 25-Jul-2024			
Sample Cleanup:	Cleanup Method: Sulfuric Acid	Initial Volume: 2.5 uL	Extract ID: 24G0167-01 B 01	
	Cleanup Batch: CMG0172			
	Cleaned: 25-Jul-2024			
Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL	Extract ID: 24G0167-01 B 01	
	Cleanup Batch: CMG0173			
	Cleaned: 25-Jul-2024			

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	2.0	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	2.0	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	2.0	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1262	37324-23-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1268	11100-14-4	1	2.0	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				40-126 %	76.0	%	
Surrogate: Tetrachlorometaxylene				44-120 %	78.0	%	
Surrogate: Decachlorobiphenyl [2C]				40-126 %	78.5	%	
Surrogate: Tetrachlorometaxylene [2C]				44-120 %	76.6	%	



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Project: PAMP Sediments
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Reported:
02-Sep-2024 14:07

113733-SB4S8
24G0167-01 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED

Sampled: 07/02/2024 11:35

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 11:01

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0167-01 B 05

Preparation Batch: BMG0275

Sample Size: 1.047 g (wet)

Dry Weight: 0.86 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 81.74

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.04	0.23	12.7	mg/kg	
Cadmium	7440-43-9	20	0.04	0.12	0.11	mg/kg	J
Copper	7440-50-8	20	0.20	0.58	36.0	mg/kg	
Selenium	7782-49-2	20	0.21	0.58	1.04	mg/kg	
Zinc	7440-66-6	20	3.4	7.0	78.4	mg/kg	



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Project: PAMP Sediments
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Reported:
02-Sep-2024 14:07

113733-SB4S8
24G0167-01 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B

Sampled: 07/02/2024 11:35

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/19/2024 19:40

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0167-01 B 05

Preparation Batch: BMG0275

Sample Size: 1.047 g (wet)

Dry Weight: 0.86 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 81.74

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	20	0.12	0.23	ND	mg/kg	U
Lead	7439-92-1	20	0.06	0.12	7.49	mg/kg	
Silver	7440-22-4	20	0.03	0.23	0.15	mg/kg	J



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

02-Sep-2024 14:07

113733-SB4S8

24G0167-01 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B

Sampled: 07/02/2024 11:35

Instrument: HYDRA Analyst: ML

Analyzed: 07/15/2024 13:12

Sample Preparation:

Preparation Method: SMM EPA 7471B

Extract ID: 24G0167-01 B

Preparation Batch: BMG0340

Sample Size: 0.236 g (wet)

Dry Weight: 0.19 g

Prepared: 07/13/2024

Final Volume: 50 mL

% Solids: 81.74

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00544	0.0259	0.0390	mg/kg	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

02-Sep-2024 14:07

113733-SB4S8

24G0167-01 (Solid)

Wet Chemistry

Method: EPA 9060A m

Sampled: 07/02/2024 11:35

Instrument: TOC Cube Analyst: ARR

Analyzed: 07/30/2024 16:16

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0167-01 B

Preparation Batch: BMG0720

Sample Size: 0.5258 g (wet)

Dry Weight: 0.43 g

Prepared: 07/29/2024

Final Volume: 0.5258 mL

% Solids: 81.74

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.37	%	



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Reported:

02-Sep-2024 14:07

113733-SB4S8

24G0167-01 (Solid)

Wet Chemistry

Method: PSEP 1986

Sampled: 07/02/2024 11:35

Instrument: BAL2 Analyst: LERB

Analyzed: 07/23/2024 15:43

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0167-01

Preparation Batch: BMG0567

Sample Size: 5 g (wet)

Prepared: 07/23/2024

Final Volume: 5 mL

% Solids: 81.74

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Volatile Solids		1	0.01	0.01	1.92	%	



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Project: PAMP Sediments
Project Number: 113733
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Reported:
02-Sep-2024 14:07

113733-SB4S8
24G0167-01 (Solid)

Wet Chemistry

Method: SM 2540 G-11

Sampled: 07/02/2024 11:35

Instrument: BAL2 Analyst: LERB

Analyzed: 07/23/2024 15:43

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0167-01

Preparation Batch: BMG0567

Sample Size: 5 g (wet)

Prepared: 07/23/2024

Final Volume: 5 mL

% Solids: 81.74

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	81.74	%	



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Project: PAMP Sediments
Project Number: 113733
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Reported:
02-Sep-2024 14:07

113733-SB4S8
24G0167-01RE1 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B

Sampled: 07/02/2024 11:35

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/19/2024 20:33

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0167-01RE1 B 05

Preparation Batch: BMG0275

Sample Size: 1.047 g (wet)

Dry Weight: 0.86 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 81.74

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	50	0.76	1.46	30.6	mg/kg	D



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

02-Sep-2024 14:07

113733-SB4S9

24G0167-02 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 12:00

Instrument: NT14 Analyst: RJL

Analyzed: 08/02/2024 16:50

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0167-02 B 04

Preparation Batch: BMG0260

Sample Size: 12.42 g (wet)

Dry Weight: 10.00 g

Prepared: 07/15/2024

Final Volume: 1 mL

% Solids: 80.54

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	10.0	20.0	ND	ug/kg	U
bis(2-chloroethyl) ether	111-44-4	1	35.0	50.0	ND	ug/kg	U
2-Chlorophenol	95-57-8	1	20.0	20.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	10.0	20.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	10.0	20.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	10.0	20.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	20.0	20.0	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	10.0	20.0	ND	ug/kg	U
2-Methylphenol	95-48-7	1	10.0	20.0	ND	ug/kg	U
Hexachloroethane	67-72-1	1	10.0	20.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	15.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	15.0	20.0	ND	ug/kg	U
Nitrobenzene	98-95-3	1	10.0	20.0	ND	ug/kg	U
Isophorone	78-59-1	1	15.0	20.0	ND	ug/kg	U
2-Nitrophenol	88-75-5	1	10.0	20.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	50.0	100	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	1	10.0	20.0	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	1	50.0	100	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	10.0	20.0	ND	ug/kg	U
Naphthalene	91-20-3	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	100	200	ND	ug/kg	U
4-Chloroaniline	106-47-8	1	50.0	100	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	10.0	20.0	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	1	50.0	100	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	10.0	20.0	ND	ug/kg	U
Hexachlorocyclopentadiene	77-47-4	1	50.0	100	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	1	50.0	100	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	1	50.0	100	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	1	10.0	20.0	ND	ug/kg	U
2-Nitroaniline	88-74-4	1	50.0	100	ND	ug/kg	U
Acenaphthylene	208-96-8	1	10.0	20.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	10.0	20.0	ND	ug/kg	U
2,6-Dinitrotoluene	606-20-2	1	50.0	100	ND	ug/kg	U
Acenaphthene	83-32-9	1	10.0	20.0	ND	ug/kg	U
3-Nitroaniline	99-09-2	1	50.0	100	ND	ug/kg	U



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
02-Sep-2024 14:07

113733-SB4S9
24G0167-02 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 12:00

Instrument: NT14 Analyst: RJL

Analyzed: 08/02/2024 16:50

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2,4-Dinitrophenol	51-28-5	1	100	200	ND	ug/kg	U
Dibenzofuran	132-64-9	1	20.0	20.0	ND	ug/kg	U
4-Nitrophenol	100-02-7	1	50.0	100	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	1	50.0	100	ND	ug/kg	U
Fluorene	86-73-7	1	20.0	20.0	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	1	35.0	50.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	35.0	50.0	ND	ug/kg	U
4-Nitroaniline	100-01-6	1	50.0	100	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	1	100	200	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	10.0	20.0	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	1	20.0	20.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	20.0	20.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	50.0	100	ND	ug/kg	U
Phenanthrene	85-01-8	1	10.0	20.0	ND	ug/kg	U
Anthracene	120-12-7	1	10.0	20.0	ND	ug/kg	U
Carbazole	86-74-8	1	10.0	20.0	ND	ug/kg	U
Di-n-Butylphthalate	84-74-2	1	10.0	20.0	ND	ug/kg	U
Fluoranthene	206-44-0	1	10.0	20.0	ND	ug/kg	U
Pyrene	129-00-0	1	10.0	20.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	10.0	20.0	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	1	10.0	20.0	ND	ug/kg	U
3,3'-Dichlorobenzidine	91-94-1	1	50.0	100	ND	ug/kg	U
Chrysene	218-01-9	1	10.0	20.0	ND	ug/kg	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	40.0	50.0	ND	ug/kg	U
Di-n-Octylphthalate	117-84-0	1	10.0	20.0	ND	ug/kg	U
Benzo(a)fluoranthene, Total		1	30.0	40.0	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	10.0	20.0	ND	ug/kg	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	20.0	20.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	20.0	20.0	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	20.0	20.0	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	10.0	20.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	102	%	
Surrogate: Phenol-d5				29-120 %	96.6	%	
Surrogate: 2-Chlorophenol-d4				31-120 %	103	%	
Surrogate: 1,2-Dichlorobenzene-d4				32-120 %	99.0	%	
Surrogate: Nitrobenzene-d5				30-120 %	113	%	
Surrogate: 2-Fluorobiphenyl				35-120 %	110	%	



Shannon & Wilson, Inc

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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

02-Sep-2024 14:07

113733-SB4S9

24G0167-02 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 12:00

Instrument: NT14 Analyst: RJL

Analyzed: 08/02/2024 16:50

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: 2,4,6-Tribromophenol		24-134 %	102	%	
Surrogate: p-Terphenyl-d14		37-120 %	123	%	*



Shannon & Wilson, Inc
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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
02-Sep-2024 14:07

113733-SB4S9
24G0167-02 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM

Sampled: 07/02/2024 12:00

Instrument: NT14 Analyst: RJL

Analyzed: 08/02/2024 16:50

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0167-02 B 04

Preparation Batch: BMG0260

Sample Size: 12.42 g (wet)

Dry Weight: 10.00 g

Prepared: 07/15/2024

Final Volume: 1 mL

% Solids: 80.54

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	2.5	5.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	2.5	5.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	2.5	5.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	2.5	5.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	50.0	100	ND	ug/kg	U
2-Methylphenol	95-48-7	1	2.5	5.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	10.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	2.5	5.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	10.0	20.0	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	5.0	5.0	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	2.5	5.0	ND	ug/kg	U
N-Nitrosodimethylamine	62-75-9	1	12.5	25.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	2.5	5.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	10.0	20.0	12.7	ug/kg	J
N-Nitrosodiphenylamine	86-30-6	1	2.5	5.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	2.5	5.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	10.0	20.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	2.5	5.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	2.5	5.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	99.3	%	
Surrogate: p-Terphenyl-d14				37-120 %	123	%	*



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
02-Sep-2024 14:07

113733-SB4S9
24G0167-02 (Solid)

Butyl Tins

Method: EPA 8270E-SIM
Instrument: NT17 Analyst: JZ

Sampled: 07/02/2024 12:00

Analyzed: 08/05/2024 18:59

Sample Preparation: Preparation Method: EPA 3546 (Microwave)
Preparation Batch: BMG0259
Prepared: 07/15/2024

Sample Size: 6.21 g (wet)

Final Volume: 0.5 mL

Extract ID: 24G0167-02 B 03

Dry Weight: 5.00 g

% Solids: 80.54

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CMH0022
Cleaned: 02-Aug-2024

Initial Volume: 0.5 uL

Final Volume: 0.5 uL

Extract ID: 24G0167-02 B 03

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Tributyltin Ion	36643-28-4	1	1.93	3.86	ND	ug/kg	U
Surrogate: Triphenyltin				30-160 %	112	%	
Surrogate: Tripropyltin				30-160 %	79.6	%	



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Project Manager: Dan McMahon

Reported:

02-Sep-2024 14:07

113733-SB4S9

24G0167-02 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/02/2024 12:00

Instrument: ECD6 Analyst: RT

Analyzed: 07/30/2024 14:43

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 15.52 g (wet)	Extract ID: 24G0167-02 B 02
	Preparation Batch: BMG0258	Final Volume: 2.5 mL	Dry Weight: 12.50 g
	Prepared: 07/15/2024		% Solids: 80.54

Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL	Extract ID: 24G0167-02 B 02
	Cleanup Batch: CMG0194	Final Volume: 2.5 uL	
	Cleaned: 29-Jul-2024		

Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL	Extract ID: 24G0167-02 B 02
	Cleanup Batch: CMG0193	Final Volume: 2.5 uL	
	Cleaned: 29-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.25	0.50	ND	ug/kg	U
beta-BHC	319-85-7	1	0.25	0.50	ND	ug/kg	U
gamma-BHC (Lindane)	58-89-9	1	0.25	0.50	ND	ug/kg	U
delta-BHC	319-86-8	1	0.25	0.50	ND	ug/kg	U
Heptachlor	76-44-8	1	0.25	0.50	ND	ug/kg	U
Aldrin	309-00-2	1	0.50	0.50	ND	ug/kg	U
Heptachlor Epoxide	1024-57-3	1	0.25	0.50	ND	ug/kg	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.50	0.50	ND	ug/kg	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.25	0.50	ND	ug/kg	U
Endosulfan I	959-98-8	1	0.25	0.50	ND	ug/kg	U
4,4'-DDE	72-55-9	1	0.50	1.00	ND	ug/kg	U
Dieldrin	60-57-1	1	0.50	1.00	ND	ug/kg	U
Endrin	72-20-8	1	0.50	1.00	ND	ug/kg	U
Endosulfan II	33213-65-9	1	0.50	1.00	ND	ug/kg	U
4,4'-DDD	72-54-8	1	0.50	1.00	ND	ug/kg	U
Endrin Aldehyde	7421-93-4	1	0.50	1.00	ND	ug/kg	U
4,4'-DDT	50-29-3	1	0.50	1.00	ND	ug/kg	U
Endosulfan Sulfate	1031-07-8	1	0.50	1.00	ND	ug/kg	U
Endrin Ketone	53494-70-5	1	0.50	1.00	ND	ug/kg	U
Methoxychlor	72-43-5	1	2.50	5.00	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	0.25	0.50	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	0.25	0.50	ND	ug/kg	U
2,4'-DDE	3424-82-6	1	0.50	1.00	ND	ug/kg	U
2,4'-DDD	53-19-0	1	0.50	1.00	ND	ug/kg	U
2,4'-DDT	789-02-6	1	0.50	1.00	ND	ug/kg	U
Oxychlordane	27304-13-8	1	0.50	1.00	ND	ug/kg	U
cis-Nonachlor	5103-73-1	1	0.50	1.00	ND	ug/kg	U
trans-Nonachlor	39765-80-5	1	0.50	1.00	ND	ug/kg	U
Mirex	2385-85-5	1	1.00	1.00	ND	ug/kg	U



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

02-Sep-2024 14:07

113733-SB4S9

24G0167-02 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/02/2024 12:00

Instrument: ECD6 Analyst: RT

Analyzed: 07/30/2024 14:43

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Decachlorobiphenyl		30-160 %	100	%	
Surrogate: Decachlorobiphenyl [2C]		30-160 %	82.9	%	
Surrogate: Tetrachlorometaxylene		30-160 %	56.5	%	
Surrogate: Tetrachlorometaxylene [2C]		30-160 %	72.5	%	



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Reported:

02-Sep-2024 14:07

113733-SB4S9

24G0167-02 (Solid)

Aroclor PCB

Method: EPA 8082A

Sampled: 07/02/2024 12:00

Instrument: ECD5 Analyst: AA

Analyzed: 07/25/2024 17:31

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 15.53 g (wet) Final Volume: 2.5 mL	Extract ID: 24G0167-02 B 01 Dry Weight: 12.51 g % Solids: 80.54
	Preparation Batch: BMG0257		
	Prepared: 07/16/2024		
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0167-02 B 01
	Cleanup Batch: CMG0174		
	Cleaned: 25-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfuric Acid	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0167-02 B 01
	Cleanup Batch: CMG0172		
	Cleaned: 25-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0167-02 B 01
	Cleanup Batch: CMG0173		
	Cleaned: 25-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	2.0	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	2.0	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	2.0	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1262	37324-23-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1268	11100-14-4	1	2.0	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				40-126 %	79.1	%	
Surrogate: Tetrachlorometaxylene				44-120 %	80.7	%	
Surrogate: Decachlorobiphenyl [2C]				40-126 %	82.5	%	
Surrogate: Tetrachlorometaxylene [2C]				44-120 %	80.9	%	



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Reported:

02-Sep-2024 14:07

113733-SB4S9

24G0167-02 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED

Sampled: 07/02/2024 12:00

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 10:57

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0167-02 B 05

Preparation Batch: BMG0275

Sample Size: 1.068 g (wet)

Dry Weight: 0.86 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 80.77

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.04	0.23	11.7	mg/kg	
Cadmium	7440-43-9	20	0.03	0.12	0.14	mg/kg	
Copper	7440-50-8	20	0.20	0.58	32.8	mg/kg	
Selenium	7782-49-2	20	0.21	0.58	1.18	mg/kg	
Zinc	7440-66-6	20	3.4	7.0	73.8	mg/kg	



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Project: PAMP Sediments
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Reported:
02-Sep-2024 14:07

113733-SB4S9
24G0167-02 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B

Sampled: 07/02/2024 12:00

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/19/2024 19:26

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0167-02 B 05

Preparation Batch: BMG0275

Sample Size: 1.068 g (wet)

Dry Weight: 0.86 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 80.77

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	20	0.12	0.23	ND	mg/kg	U
Chromium	7440-47-3	20	0.28	0.58	27.6	mg/kg	
Lead	7439-92-1	20	0.06	0.12	6.95	mg/kg	
Silver	7440-22-4	20	0.03	0.23	0.14	mg/kg	J



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Reported:

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113733-SB4S9

24G0167-02 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B

Sampled: 07/02/2024 12:00

Instrument: HYDRA Analyst: ML

Analyzed: 07/15/2024 13:19

Sample Preparation:

Preparation Method: SMM EPA 7471B

Extract ID: 24G0167-02 B

Preparation Batch: BMG0340

Sample Size: 0.234 g (wet)

Dry Weight: 0.19 g

Prepared: 07/13/2024

Final Volume: 50 mL

% Solids: 80.77

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00556	0.0265	0.0720	mg/kg	



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Reported:
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113733-SB4S9
24G0167-02 (Solid)

Wet Chemistry

Method: EPA 9060A m

Sampled: 07/02/2024 12:00

Instrument: TOC Cube Analyst: ARR

Analyzed: 08/01/2024 09:35

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0167-02 B

Preparation Batch: BMG0720

Sample Size: 0.5312 g (wet)

Dry Weight: 0.43 g

Prepared: 07/29/2024

Final Volume: 0.5312 mL

% Solids: 80.77

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.35	%	



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Reported:
02-Sep-2024 14:07

113733-SB4S9
24G0167-02 (Solid)

Wet Chemistry

Method: PSEP 1986

Sampled: 07/02/2024 12:00

Instrument: BAL2 Analyst: LERB

Analyzed: 07/23/2024 15:43

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0167-02

Preparation Batch: BMG0567

Sample Size: 5 g (wet)

Prepared: 07/23/2024

Final Volume: 5 mL

% Solids: 80.77

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Volatile Solids		1	0.01	0.01	1.67	%	



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Reported:
02-Sep-2024 14:07

113733-SB4S9
24G0167-02 (Solid)

Wet Chemistry

Method: SM 2540 G-11

Sampled: 07/02/2024 12:00

Instrument: BAL2 Analyst: LERB

Analyzed: 07/23/2024 15:43

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0167-02

Preparation Batch: BMG0567

Sample Size: 5 g (wet)

Prepared: 07/23/2024

Final Volume: 5 mL

% Solids: 80.77

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	80.77	%	



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Project: PAMP Sediments

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Reported:

02-Sep-2024 14:07

113733-SB4S10

24G0167-03 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 12:05

Instrument: NT14 Analyst: RJL

Analyzed: 08/02/2024 17:30

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0167-03 B 04

Preparation Batch: BMG0260

Sample Size: 12.44 g (wet)

Dry Weight: 10.01 g

Prepared: 07/15/2024

Final Volume: 1 mL

% Solids: 80.45

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	10.0	20.0	ND	ug/kg	U
bis(2-chloroethyl) ether	111-44-4	1	35.0	50.0	ND	ug/kg	U
2-Chlorophenol	95-57-8	1	20.0	20.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	10.0	20.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	10.0	20.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	10.0	20.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	20.0	20.0	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	10.0	20.0	ND	ug/kg	U
2-Methylphenol	95-48-7	1	10.0	20.0	ND	ug/kg	U
Hexachloroethane	67-72-1	1	10.0	20.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	15.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	15.0	20.0	ND	ug/kg	U
Nitrobenzene	98-95-3	1	10.0	20.0	ND	ug/kg	U
Isophorone	78-59-1	1	15.0	20.0	ND	ug/kg	U
2-Nitrophenol	88-75-5	1	10.0	20.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	50.0	99.9	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	1	10.0	20.0	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	1	50.0	99.9	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	10.0	20.0	ND	ug/kg	U
Naphthalene	91-20-3	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	99.9	200	ND	ug/kg	U
4-Chloroaniline	106-47-8	1	50.0	99.9	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	10.0	20.0	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	1	50.0	99.9	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	10.0	20.0	ND	ug/kg	U
Hexachlorocyclopentadiene	77-47-4	1	50.0	99.9	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	1	50.0	99.9	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	1	50.0	99.9	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	1	10.0	20.0	ND	ug/kg	U
2-Nitroaniline	88-74-4	1	50.0	99.9	ND	ug/kg	U
Acenaphthylene	208-96-8	1	10.0	20.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	10.0	20.0	ND	ug/kg	U
2,6-Dinitrotoluene	606-20-2	1	50.0	99.9	ND	ug/kg	U
Acenaphthene	83-32-9	1	10.0	20.0	ND	ug/kg	U
3-Nitroaniline	99-09-2	1	50.0	99.9	ND	ug/kg	U



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Reported:
02-Sep-2024 14:07

113733-SB4S10
24G0167-03 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 12:05

Instrument: NT14 Analyst: RJL

Analyzed: 08/02/2024 17:30

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2,4-Dinitrophenol	51-28-5	1	99.9	200	ND	ug/kg	U
Dibenzofuran	132-64-9	1	20.0	20.0	ND	ug/kg	U
4-Nitrophenol	100-02-7	1	50.0	99.9	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	1	50.0	99.9	ND	ug/kg	U
Fluorene	86-73-7	1	20.0	20.0	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	1	35.0	50.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	35.0	50.0	ND	ug/kg	U
4-Nitroaniline	100-01-6	1	50.0	99.9	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	1	99.9	200	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	10.0	20.0	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	1	20.0	20.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	20.0	20.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	50.0	99.9	ND	ug/kg	U
Phenanthrene	85-01-8	1	10.0	20.0	ND	ug/kg	U
Anthracene	120-12-7	1	10.0	20.0	ND	ug/kg	U
Carbazole	86-74-8	1	10.0	20.0	ND	ug/kg	U
Di-n-Butylphthalate	84-74-2	1	10.0	20.0	ND	ug/kg	U
Fluoranthene	206-44-0	1	10.0	20.0	ND	ug/kg	U
Pyrene	129-00-0	1	10.0	20.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	10.0	20.0	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	1	10.0	20.0	ND	ug/kg	U
3,3'-Dichlorobenzidine	91-94-1	1	50.0	99.9	ND	ug/kg	U
Chrysene	218-01-9	1	10.0	20.0	ND	ug/kg	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	40.0	50.0	ND	ug/kg	U
Di-n-Octylphthalate	117-84-0	1	10.0	20.0	ND	ug/kg	U
Benzo(a)fluoranthene, Total		1	30.0	40.0	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	10.0	20.0	ND	ug/kg	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	20.0	20.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	20.0	20.0	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	20.0	20.0	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	10.0	20.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	101	%	
Surrogate: Phenol-d5				29-120 %	95.7	%	
Surrogate: 2-Chlorophenol-d4				31-120 %	100	%	
Surrogate: 1,2-Dichlorobenzene-d4				32-120 %	95.4	%	
Surrogate: Nitrobenzene-d5				30-120 %	109	%	
Surrogate: 2-Fluorobiphenyl				35-120 %	104	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

02-Sep-2024 14:07

113733-SB4S10

24G0167-03 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 12:05

Instrument: NT14 Analyst: RJL

Analyzed: 08/02/2024 17:30

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: 2,4,6-Tribromophenol		24-134 %	113	%	
Surrogate: p-Terphenyl-d14		37-120 %	120	%	



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
02-Sep-2024 14:07

113733-SB4S10
24G0167-03 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM

Sampled: 07/02/2024 12:05

Instrument: NT14 Analyst: RJL

Analyzed: 08/02/2024 17:30

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0167-03 B 04

Preparation Batch: BMG0260

Sample Size: 12.44 g (wet)

Dry Weight: 10.01 g

Prepared: 07/15/2024

Final Volume: 1 mL

% Solids: 80.45

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	2.5	5.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	2.5	5.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	2.5	5.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	2.5	5.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	50.0	99.9	ND	ug/kg	U
2-Methylphenol	95-48-7	1	2.5	5.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	10.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	2.5	5.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	10.0	20.0	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	5.0	5.0	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	2.5	5.0	ND	ug/kg	U
N-Nitrosodimethylamine	62-75-9	1	12.5	25.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	2.5	5.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	10.0	20.0	19.1	ug/kg	J
N-Nitrosodiphenylamine	86-30-6	1	2.5	5.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	2.5	5.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	10.0	20.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	2.5	5.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	2.5	5.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	97.9	%	
Surrogate: p-Terphenyl-d14				37-120 %	121	%	*



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Project Manager: Dan McMahon

Reported:
02-Sep-2024 14:07

113733-SB4S10
24G0167-03 (Solid)

Butyl Tins

Method: EPA 8270E-SIM			Sampled: 07/02/2024 12:05		
Instrument: NT17 Analyst: JZ			Analyzed: 08/05/2024 19:13		
Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 24G0167-03 B 03		
	Preparation Batch: BMG0259		Dry Weight: 5.02 g		
	Prepared: 07/15/2024		% Solids: 80.45		
Sample Cleanup:	Sample Size: 6.24 g (wet)		Extract ID: 24G0167-03 B 03		
	Final Volume: 0.5 mL				
	Cleanup Method: Silica Gel				
	Cleanup Batch: CMH0022				
	Initial Volume: 0.5 uL				
	Cleaned: 02-Aug-2024				
		Final Volume: 0.5 uL			

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Tributyltin Ion	36643-28-4	1	1.92	3.84	ND	ug/kg	U
Surrogate: Triphenyltin				30-160 %	94.0	%	
Surrogate: Tripropyltin				30-160 %	69.3	%	



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Project Manager: Dan McMahon

Reported:

02-Sep-2024 14:07

113733-SB4S10

24G0167-03 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/02/2024 12:05

Instrument: ECD6 Analyst: RT

Analyzed: 07/30/2024 15:38

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 15.55 g (wet)	Extract ID: 24G0167-03 B 02
	Preparation Batch: BMG0258	Final Volume: 2.5 mL	Dry Weight: 12.51 g
	Prepared: 07/15/2024		% Solids: 80.45

Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL	Extract ID: 24G0167-03 B 02
	Cleanup Batch: CMG0194	Final Volume: 2.5 uL	
	Cleaned: 29-Jul-2024		

Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL	Extract ID: 24G0167-03 B 02
	Cleanup Batch: CMG0193	Final Volume: 2.5 uL	
	Cleaned: 29-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.25	0.50	ND	ug/kg	U
beta-BHC	319-85-7	1	0.25	0.50	ND	ug/kg	U
gamma-BHC (Lindane)	58-89-9	1	0.25	0.50	ND	ug/kg	U
delta-BHC	319-86-8	1	0.25	0.50	ND	ug/kg	U
Heptachlor	76-44-8	1	0.25	0.50	ND	ug/kg	U
Aldrin	309-00-2	1	0.50	0.50	ND	ug/kg	U
Heptachlor Epoxide	1024-57-3	1	0.25	0.50	ND	ug/kg	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.50	0.50	ND	ug/kg	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.25	0.50	ND	ug/kg	U
Endosulfan I	959-98-8	1	0.25	0.50	ND	ug/kg	U
4,4'-DDE	72-55-9	1	0.50	1.00	ND	ug/kg	U
Dieldrin	60-57-1	1	0.50	1.00	ND	ug/kg	U
Endrin	72-20-8	1	0.50	1.00	ND	ug/kg	U
Endosulfan II	33213-65-9	1	0.50	1.00	ND	ug/kg	U
4,4'-DDD	72-54-8	1	0.50	1.00	ND	ug/kg	U
Endrin Aldehyde	7421-93-4	1	0.50	1.00	ND	ug/kg	U
4,4'-DDT	50-29-3	1	0.50	1.00	ND	ug/kg	U
Endosulfan Sulfate	1031-07-8	1	0.50	1.00	ND	ug/kg	U
Endrin Ketone	53494-70-5	1	0.50	1.00	ND	ug/kg	U
Methoxychlor	72-43-5	1	2.50	5.00	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	0.25	0.50	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	0.25	0.50	ND	ug/kg	U
2,4'-DDE	3424-82-6	1	0.50	1.00	ND	ug/kg	U
2,4'-DDD	53-19-0	1	0.50	1.00	ND	ug/kg	U
2,4'-DDT	789-02-6	1	0.50	1.00	ND	ug/kg	U
Oxychlordane	27304-13-8	1	0.50	1.00	ND	ug/kg	U
cis-Nonachlor	5103-73-1	1	0.50	1.00	ND	ug/kg	U
trans-Nonachlor	39765-80-5	1	0.50	1.00	ND	ug/kg	U
Mirex	2385-85-5	1	1.00	1.00	ND	ug/kg	U



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
02-Sep-2024 14:07

113733-SB4S10
24G0167-03 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/02/2024 12:05

Instrument: ECD6 Analyst: RT

Analyzed: 07/30/2024 15:38

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Decachlorobiphenyl		30-160 %	102	%	
Surrogate: Decachlorobiphenyl [2C]		30-160 %	81.2	%	
Surrogate: Tetrachlorometaxylene		30-160 %	65.7	%	
Surrogate: Tetrachlorometaxylene [2C]		30-160 %	72.9	%	



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Project Manager: Dan McMahon

Reported:

02-Sep-2024 14:07

113733-SB4S10

24G0167-03 (Solid)

Aroclor PCB

Method: EPA 8082A

Sampled: 07/02/2024 12:05

Instrument: ECD5 Analyst: AA

Analyzed: 07/25/2024 17:52

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 15.54 g (wet) Final Volume: 2.5 mL	Extract ID: 24G0167-03 B 01 Dry Weight: 12.50 g % Solids: 80.45
	Preparation Batch: BMG0257		
	Prepared: 07/16/2024		
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0167-03 B 01
	Cleanup Batch: CMG0174		
	Cleaned: 25-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfuric Acid	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0167-03 B 01
	Cleanup Batch: CMG0172		
	Cleaned: 25-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0167-03 B 01
	Cleanup Batch: CMG0173		
	Cleaned: 25-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	2.0	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	2.0	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	2.0	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1262	37324-23-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1268	11100-14-4	1	2.0	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl					40-126 %	84.9	%
Surrogate: Tetrachlorometaxylene					44-120 %	83.5	%
Surrogate: Decachlorobiphenyl [2C]					40-126 %	88.4	%
Surrogate: Tetrachlorometaxylene [2C]					44-120 %	83.2	%



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Reported:

02-Sep-2024 14:07

113733-SB4S10

24G0167-03 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED

Sampled: 07/02/2024 12:05

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 10:52

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0167-03 B 05

Preparation Batch: BMG0275

Sample Size: 1.022 g (wet)

Dry Weight: 0.83 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 81.36

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.05	0.24	10.1	mg/kg	
Cadmium	7440-43-9	20	0.04	0.12	0.08	mg/kg	J
Copper	7440-50-8	20	0.21	0.60	26.5	mg/kg	
Selenium	7782-49-2	20	0.22	0.60	1.14	mg/kg	
Zinc	7440-66-6	20	3.5	7.2	61.6	mg/kg	



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Project: PAMP Sediments
Project Number: 113733
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Reported:
02-Sep-2024 14:07

113733-SB4S10
24G0167-03 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B

Sampled: 07/02/2024 12:05

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/19/2024 19:30

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0167-03 B 05

Preparation Batch: BMG0275

Sample Size: 1.022 g (wet)

Dry Weight: 0.83 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 81.36

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	20	0.12	0.24	ND	mg/kg	U
Chromium	7440-47-3	20	0.29	0.60	24.4	mg/kg	
Lead	7439-92-1	20	0.06	0.12	5.73	mg/kg	
Silver	7440-22-4	20	0.03	0.24	0.09	mg/kg	J



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Reported:

02-Sep-2024 14:07

113733-SB4S10

24G0167-03 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B

Sampled: 07/02/2024 12:05

Instrument: HYDRA Analyst: ML

Analyzed: 07/15/2024 13:22

Sample Preparation:

Preparation Method: SMM EPA 7471B

Extract ID: 24G0167-03 B

Preparation Batch: BMG0340

Sample Size: 0.274 g (wet)

Dry Weight: 0.22 g

Prepared: 07/13/2024

Final Volume: 50 mL

% Solids: 81.36

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00471	0.0224	0.0635	mg/kg	



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Reported:

02-Sep-2024 14:07

113733-SB4S10

24G0167-03 (Solid)

Wet Chemistry

Method: EPA 9060A m

Sampled: 07/02/2024 12:05

Instrument: TOC Cube Analyst: ARR

Analyzed: 08/01/2024 10:05

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0167-03 B

Preparation Batch: BMG0720

Sample Size: 0.5397 g (wet)

Dry Weight: 0.44 g

Prepared: 07/29/2024

Final Volume: 0.5397 mL

% Solids: 81.36

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.29	%	



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Reported:

02-Sep-2024 14:07

113733-SB4S10

24G0167-03 (Solid)

Wet Chemistry

Method: PSEP 1986

Sampled: 07/02/2024 12:05

Instrument: BAL2 Analyst: LERB

Analyzed: 07/23/2024 15:43

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0167-03

Preparation Batch: BMG0567

Sample Size: 5 g (wet)

Prepared: 07/23/2024

Final Volume: 5 mL

% Solids: 81.36

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Volatile Solids		1	0.01	0.01	1.65	%	



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Reported:
02-Sep-2024 14:07

113733-SB4S10
24G0167-03 (Solid)

Wet Chemistry

Method: SM 2540 G-11

Sampled: 07/02/2024 12:05

Instrument: BAL2 Analyst: LERB

Analyzed: 07/23/2024 15:43

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0167-03

Preparation Batch: BMG0567

Sample Size: 5 g (wet)

Prepared: 07/23/2024

Final Volume: 5 mL

% Solids: 81.36

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	81.36	%	



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Project Manager: Dan McMahon

Reported:

02-Sep-2024 14:07

113733-SB4S11
24G0167-04 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 13:15

Instrument: NT14 Analyst: RJL

Analyzed: 08/02/2024 18:09

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0167-04 B 04

Preparation Batch: BMG0260

Sample Size: 10.86 g (wet)

Dry Weight: 10.03 g

Prepared: 07/15/2024

Final Volume: 1 mL

% Solids: 92.38

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	10.0	19.9	ND	ug/kg	U
bis(2-chloroethyl) ether	111-44-4	1	34.9	49.8	ND	ug/kg	U
2-Chlorophenol	95-57-8	1	19.9	19.9	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	10.0	19.9	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	10.0	19.9	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	10.0	19.9	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	19.9	19.9	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	10.0	19.9	ND	ug/kg	U
2-Methylphenol	95-48-7	1	10.0	19.9	ND	ug/kg	U
Hexachloroethane	67-72-1	1	10.0	19.9	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	15.0	19.9	ND	ug/kg	U
4-Methylphenol	106-44-5	1	15.0	19.9	ND	ug/kg	U
Nitrobenzene	98-95-3	1	10.0	19.9	ND	ug/kg	U
Isophorone	78-59-1	1	15.0	19.9	ND	ug/kg	U
2-Nitrophenol	88-75-5	1	10.0	19.9	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	49.8	99.7	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	1	10.0	19.9	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	1	49.8	99.7	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	10.0	19.9	ND	ug/kg	U
Naphthalene	91-20-3	1	10.0	19.9	ND	ug/kg	U
Benzoic acid	65-85-0	1	99.7	199	ND	ug/kg	U
4-Chloroaniline	106-47-8	1	49.8	99.7	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	10.0	19.9	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	1	49.8	99.7	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	10.0	19.9	ND	ug/kg	U
Hexachlorocyclopentadiene	77-47-4	1	49.8	99.7	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	1	49.8	99.7	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	1	49.8	99.7	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	1	10.0	19.9	ND	ug/kg	U
2-Nitroaniline	88-74-4	1	49.8	99.7	ND	ug/kg	U
Acenaphthylene	208-96-8	1	10.0	19.9	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	10.0	19.9	ND	ug/kg	U
2,6-Dinitrotoluene	606-20-2	1	49.8	99.7	ND	ug/kg	U
Acenaphthene	83-32-9	1	10.0	19.9	ND	ug/kg	U
3-Nitroaniline	99-09-2	1	49.8	99.7	ND	ug/kg	U



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
02-Sep-2024 14:07

113733-SB4S11
24G0167-04 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 13:15

Instrument: NT14 Analyst: RJL

Analyzed: 08/02/2024 18:09

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2,4-Dinitrophenol	51-28-5	1	99.7	199	ND	ug/kg	U
Dibenzofuran	132-64-9	1	19.9	19.9	ND	ug/kg	U
4-Nitrophenol	100-02-7	1	49.8	99.7	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	1	49.8	99.7	ND	ug/kg	U
Fluorene	86-73-7	1	19.9	19.9	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	1	34.9	49.8	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	34.9	49.8	ND	ug/kg	U
4-Nitroaniline	100-01-6	1	49.8	99.7	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	1	99.7	199	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	10.0	19.9	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	1	19.9	19.9	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	19.9	19.9	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	49.8	99.7	ND	ug/kg	U
Phenanthrene	85-01-8	1	10.0	19.9	ND	ug/kg	U
Anthracene	120-12-7	1	10.0	19.9	ND	ug/kg	U
Carbazole	86-74-8	1	10.0	19.9	ND	ug/kg	U
Di-n-Butylphthalate	84-74-2	1	10.0	19.9	ND	ug/kg	U
Fluoranthene	206-44-0	1	10.0	19.9	ND	ug/kg	U
Pyrene	129-00-0	1	10.0	19.9	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	10.0	19.9	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	1	10.0	19.9	ND	ug/kg	U
3,3'-Dichlorobenzidine	91-94-1	1	49.8	99.7	ND	ug/kg	U
Chrysene	218-01-9	1	10.0	19.9	ND	ug/kg	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	39.9	49.8	ND	ug/kg	U
Di-n-Octylphthalate	117-84-0	1	10.0	19.9	ND	ug/kg	U
Benzo(a)fluoranthene, Total		1	29.9	39.9	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	10.0	19.9	ND	ug/kg	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	19.9	19.9	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	19.9	19.9	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	19.9	19.9	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	10.0	19.9	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	106	%	
Surrogate: Phenol-d5				29-120 %	99.8	%	
Surrogate: 2-Chlorophenol-d4				31-120 %	108	%	
Surrogate: 1,2-Dichlorobenzene-d4				32-120 %	105	%	
Surrogate: Nitrobenzene-d5				30-120 %	115	%	
Surrogate: 2-Fluorobiphenyl				35-120 %	107	%	



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5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

02-Sep-2024 14:07

113733-SB4S11

24G0167-04 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 13:15

Instrument: NT14 Analyst: RJL

Analyzed: 08/02/2024 18:09

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: 2,4,6-Tribromophenol		24-134 %	98.4	%	
Surrogate: p-Terphenyl-d14		37-120 %	126	%	*



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Reported:
02-Sep-2024 14:07

113733-SB4S11
24G0167-04 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM

Sampled: 07/02/2024 13:15

Instrument: NT14 Analyst: RJL

Analyzed: 08/02/2024 18:09

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0167-04 B 04

Preparation Batch: BMG0260

Sample Size: 10.86 g (wet)

Dry Weight: 10.03 g

Prepared: 07/15/2024

Final Volume: 1 mL

% Solids: 92.38

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	2.5	5.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	2.5	5.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	2.5	5.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	2.5	5.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	10.0	19.9	ND	ug/kg	U
Benzoic acid	65-85-0	1	49.8	99.7	ND	ug/kg	U
2-Methylphenol	95-48-7	1	2.5	5.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	10.0	19.9	ND	ug/kg	U
4-Methylphenol	106-44-5	1	2.5	5.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	10.0	19.9	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	5.0	5.0	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	2.5	5.0	ND	ug/kg	U
N-Nitrosodimethylamine	62-75-9	1	12.5	24.9	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	2.5	5.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	10.0	19.9	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	2.5	5.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	2.5	5.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	10.0	19.9	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	2.5	5.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	2.5	5.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	101	%	
Surrogate: p-Terphenyl-d14				37-120 %	127	%	*



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Reported:
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113733-SB4S11
24G0167-04 (Solid)

Butyl Tins

Method: EPA 8270E-SIM			Sampled: 07/02/2024 13:15		
Instrument: NT17 Analyst: JZ			Analyzed: 08/05/2024 19:26		
Sample Preparation:	Preparation Method: EPA 3546 (Microwave)			Extract ID: 24G0167-04 B 03	
	Preparation Batch: BMG0259	Sample Size: 5.42 g (wet)		Dry Weight: 5.01 g	
	Prepared: 07/15/2024	Final Volume: 0.5 mL		% Solids: 92.38	
Sample Cleanup:	Cleanup Method: Silica Gel			Extract ID: 24G0167-04 B 03	
	Cleanup Batch: CMH0022	Initial Volume: 0.5 uL			
	Cleaned: 02-Aug-2024	Final Volume: 0.5 uL			

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Tributyltin Ion	36643-28-4	1	1.93	3.85	ND	ug/kg	U
Surrogate: Triphenyltin				30-160 %	107	%	
Surrogate: Tripropyltin				30-160 %	79.0	%	



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Reported:

02-Sep-2024 14:07

113733-SB4S11
24G0167-04 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/02/2024 13:15

Instrument: ECD6 Analyst: RT

Analyzed: 08/20/2024 12:52

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 13.58 g (wet)	Extract ID: 24G0167-04 B 06
	Preparation Batch: BMG0716	Final Volume: 2.5 mL	Dry Weight: 12.55 g
	Prepared: 08/01/2024		% Solids: 92.38

Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL	Extract ID: 24G0167-04 B 06
	Cleanup Batch: CMH0045	Final Volume: 2.5 uL	
	Cleaned: 07-Aug-2024		

Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL	Extract ID: 24G0167-04 B 06
	Cleanup Batch: CMH0044	Final Volume: 2.5 uL	
	Cleaned: 07-Aug-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.25	0.50	ND	ug/kg	H, U
beta-BHC	319-85-7	1	0.25	0.50	ND	ug/kg	H, U
gamma-BHC (Lindane)	58-89-9	1	0.25	0.50	ND	ug/kg	H, U
delta-BHC	319-86-8	1	0.25	0.50	ND	ug/kg	H, U
Heptachlor	76-44-8	1	0.25	0.50	ND	ug/kg	H, U
Aldrin	309-00-2	1	0.50	0.50	ND	ug/kg	H, U
Heptachlor Epoxide	1024-57-3	1	0.25	0.50	ND	ug/kg	H, U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.50	0.50	ND	ug/kg	H, U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.25	0.50	ND	ug/kg	H, U
Endosulfan I	959-98-8	1	0.25	0.50	ND	ug/kg	H, U
4,4'-DDE	72-55-9	1	0.50	1.00	ND	ug/kg	H, U
Dieldrin	60-57-1	1	0.50	1.00	ND	ug/kg	H, U
Endrin	72-20-8	1	0.50	1.00	ND	ug/kg	H, U
Endosulfan II	33213-65-9	1	0.50	1.00	ND	ug/kg	H, U
4,4'-DDD	72-54-8	1	0.50	1.00	ND	ug/kg	H, U
Endrin Aldehyde	7421-93-4	1	0.50	1.00	ND	ug/kg	H, U
4,4'-DDT	50-29-3	1	0.50	1.00	ND	ug/kg	H, U
Endosulfan Sulfate	1031-07-8	1	0.50	1.00	ND	ug/kg	H, U
Endrin Ketone	53494-70-5	1	0.50	1.00	ND	ug/kg	H, U
Methoxychlor	72-43-5	1	2.49	4.98	ND	ug/kg	H, U
Hexachlorobutadiene	87-68-3	1	0.25	0.50	ND	ug/kg	H, U
Hexachlorobenzene	118-74-1	1	0.25	0.50	ND	ug/kg	H, U
2,4'-DDE	3424-82-6	1	0.50	1.00	ND	ug/kg	H, U
2,4'-DDD	53-19-0	1	0.50	1.00	ND	ug/kg	H, U
2,4'-DDT	789-02-6	1	0.50	1.00	ND	ug/kg	H, U
Oxychlordane	27304-13-8	1	0.50	1.00	ND	ug/kg	H, U
cis-Nonachlor	5103-73-1	1	0.50	1.00	ND	ug/kg	H, U
trans-Nonachlor	39765-80-5	1	0.50	1.00	ND	ug/kg	H, U
Mirex	2385-85-5	1	1.00	1.00	ND	ug/kg	H, U



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Reported:
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113733-SB4S11
24G0167-04 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/02/2024 13:15

Instrument: ECD6 Analyst: RT

Analyzed: 08/20/2024 12:52

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Decachlorobiphenyl		30-160 %	103	%	P1, H
Surrogate: Decachlorobiphenyl [2C]		30-160 %	160	%	P1, H
Surrogate: Tetrachlorometaxylene		30-160 %	101	%	H
Surrogate: Tetrachlorometaxylene [2C]		30-160 %	109	%	H



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Reported:
02-Sep-2024 14:07

113733-SB4S11
24G0167-04 (Solid)

Aroclor PCB

Method: EPA 8082A			Sampled: 07/02/2024 13:15	
Instrument: ECD5 Analyst: AA			Analyzed: 07/25/2024 18:12	
Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 13.53 g (wet) Final Volume: 2.5 mL	Extract ID: 24G0167-04 B 01	
	Preparation Batch: BMG0257		Dry Weight: 12.50 g	
	Prepared: 07/16/2024		% Solids: 92.38	
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0167-04 B 01	
	Cleanup Batch: CMG0174			
	Cleaned: 25-Jul-2024			
Sample Cleanup:	Cleanup Method: Sulfuric Acid	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0167-04 B 01	
	Cleanup Batch: CMG0172			
	Cleaned: 25-Jul-2024			
Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0167-04 B 01	
	Cleanup Batch: CMG0173			
	Cleaned: 25-Jul-2024			

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	2.0	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	2.0	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	2.0	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1262	37324-23-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1268	11100-14-4	1	2.0	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				40-126 %	72.5	%	
Surrogate: Tetrachlorometaxylene				44-120 %	72.3	%	
Surrogate: Decachlorobiphenyl [2C]				40-126 %	75.0	%	
Surrogate: Tetrachlorometaxylene [2C]				44-120 %	71.3	%	



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Reported:
02-Sep-2024 14:07

113733-SB4S11
24G0167-04 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED

Sampled: 07/02/2024 13:15

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 10:47

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0167-04 B 05

Preparation Batch: BMG0275

Sample Size: 1.042 g (wet)

Dry Weight: 0.87 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 83.19

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.04	0.23	9.70	mg/kg	
Cadmium	7440-43-9	20	0.03	0.12	0.08	mg/kg	J
Copper	7440-50-8	20	0.20	0.58	24.4	mg/kg	
Selenium	7782-49-2	20	0.21	0.58	1.17	mg/kg	
Zinc	7440-66-6	20	3.4	6.9	58.3	mg/kg	



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Reported:
02-Sep-2024 14:07

113733-SB4S11
24G0167-04 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B

Sampled: 07/02/2024 13:15

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/19/2024 19:36

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0167-04 B 05

Preparation Batch: BMG0275

Sample Size: 1.042 g (wet)

Dry Weight: 0.87 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 83.19

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	20	0.12	0.23	ND	mg/kg	U
Lead	7439-92-1	20	0.06	0.12	5.28	mg/kg	
Silver	7440-22-4	20	0.03	0.23	0.09	mg/kg	J



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Reported:

02-Sep-2024 14:07

113733-SB4S11

24G0167-04 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B

Sampled: 07/02/2024 13:15

Instrument: HYDRA Analyst: ML

Analyzed: 07/15/2024 13:24

Sample Preparation:

Preparation Method: SMM EPA 7471B

Extract ID: 24G0167-04 B

Preparation Batch: BMG0340

Sample Size: 0.219 g (wet)

Dry Weight: 0.18 g

Prepared: 07/13/2024

Final Volume: 50 mL

% Solids: 83.19

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00576	0.0274	0.0490	mg/kg	



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Reported:

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113733-SB4S11

24G0167-04 (Solid)

Wet Chemistry

Method: EPA 9060A m

Sampled: 07/02/2024 13:15

Instrument: TOC Cube Analyst: ARR

Analyzed: 08/01/2024 10:36

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0167-04 B

Preparation Batch: BMG0720

Sample Size: 0.5416 g (wet)

Dry Weight: 0.45 g

Prepared: 07/29/2024

Final Volume: 0.5416 mL

% Solids: 83.19

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.33	%	



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Reported:
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113733-SB4S11
24G0167-04 (Solid)

Wet Chemistry

Method: PSEP 1986

Sampled: 07/02/2024 13:15

Instrument: BAL2 Analyst: LERB

Analyzed: 07/23/2024 15:43

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0167-04

Preparation Batch: BMG0567

Sample Size: 5 g (wet)

Prepared: 07/23/2024

Final Volume: 5 mL

% Solids: 83.19

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Volatile Solids		1	0.01	0.01	1.74	%	



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02-Sep-2024 14:07

113733-SB4S11

24G0167-04 (Solid)

Wet Chemistry

Method: SM 2540 G-11

Sampled: 07/02/2024 13:15

Instrument: BAL2 Analyst: LERB

Analyzed: 07/23/2024 15:43

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0167-04

Preparation Batch: BMG0567

Sample Size: 5 g (wet)

Prepared: 07/23/2024

Final Volume: 5 mL

% Solids: 83.19

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	83.19	%	



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Reported:

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113733-SB4S11

24G0167-04RE1 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B

Sampled: 07/02/2024 13:15

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/19/2024 21:36

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0167-04RE1 B 05

Preparation Batch: BMG0275

Sample Size: 1.042 g (wet)

Dry Weight: 0.87 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 83.19

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	50	0.75	1.44	24.4	mg/kg	D



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Project Manager: Dan McMahon

Reported:

02-Sep-2024 14:07

113733-SB4S12
24G0167-05 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 10:05

Instrument: NT14 Analyst: RJL

Analyzed: 08/02/2024 18:48

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0167-05 B 04

Preparation Batch: BMG0260

Sample Size: 12.55 g (wet)

Dry Weight: 10.00 g

Prepared: 07/15/2024

Final Volume: 1 mL

% Solids: 79.68

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	10.0	20.0	ND	ug/kg	U
bis(2-chloroethyl) ether	111-44-4	1	35.0	50.0	ND	ug/kg	U
2-Chlorophenol	95-57-8	1	20.0	20.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	10.0	20.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	10.0	20.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	10.0	20.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	20.0	20.0	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	10.0	20.0	ND	ug/kg	U
2-Methylphenol	95-48-7	1	10.0	20.0	ND	ug/kg	U
Hexachloroethane	67-72-1	1	10.0	20.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	15.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	15.0	20.0	ND	ug/kg	U
Nitrobenzene	98-95-3	1	10.0	20.0	ND	ug/kg	U
Isophorone	78-59-1	1	15.0	20.0	ND	ug/kg	U
2-Nitrophenol	88-75-5	1	10.0	20.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	50.0	100	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	1	10.0	20.0	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	1	50.0	100	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	10.0	20.0	ND	ug/kg	U
Naphthalene	91-20-3	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	100	200	ND	ug/kg	U
4-Chloroaniline	106-47-8	1	50.0	100	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	10.0	20.0	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	1	50.0	100	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	10.0	20.0	ND	ug/kg	U
Hexachlorocyclopentadiene	77-47-4	1	50.0	100	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	1	50.0	100	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	1	50.0	100	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	1	10.0	20.0	ND	ug/kg	U
2-Nitroaniline	88-74-4	1	50.0	100	ND	ug/kg	U
Acenaphthylene	208-96-8	1	10.0	20.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	10.0	20.0	ND	ug/kg	U
2,6-Dinitrotoluene	606-20-2	1	50.0	100	ND	ug/kg	U
Acenaphthene	83-32-9	1	10.0	20.0	ND	ug/kg	U
3-Nitroaniline	99-09-2	1	50.0	100	ND	ug/kg	U



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
02-Sep-2024 14:07

113733-SB4S12
24G0167-05 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 10:05

Instrument: NT14 Analyst: RJL

Analyzed: 08/02/2024 18:48

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2,4-Dinitrophenol	51-28-5	1	100	200	ND	ug/kg	U
Dibenzofuran	132-64-9	1	20.0	20.0	ND	ug/kg	U
4-Nitrophenol	100-02-7	1	50.0	100	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	1	50.0	100	ND	ug/kg	U
Fluorene	86-73-7	1	20.0	20.0	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	1	35.0	50.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	35.0	50.0	ND	ug/kg	U
4-Nitroaniline	100-01-6	1	50.0	100	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	1	100	200	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	10.0	20.0	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	1	20.0	20.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	20.0	20.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	50.0	100	ND	ug/kg	U
Phenanthrene	85-01-8	1	10.0	20.0	ND	ug/kg	U
Anthracene	120-12-7	1	10.0	20.0	ND	ug/kg	U
Carbazole	86-74-8	1	10.0	20.0	ND	ug/kg	U
Di-n-Butylphthalate	84-74-2	1	10.0	20.0	ND	ug/kg	U
Fluoranthene	206-44-0	1	10.0	20.0	ND	ug/kg	U
Pyrene	129-00-0	1	10.0	20.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	10.0	20.0	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	1	10.0	20.0	ND	ug/kg	U
3,3'-Dichlorobenzidine	91-94-1	1	50.0	100	ND	ug/kg	U
Chrysene	218-01-9	1	10.0	20.0	ND	ug/kg	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	40.0	50.0	ND	ug/kg	U
Di-n-Octylphthalate	117-84-0	1	10.0	20.0	ND	ug/kg	U
Benzo(a)fluoranthene, Total		1	30.0	40.0	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	10.0	20.0	ND	ug/kg	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	20.0	20.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	20.0	20.0	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	20.0	20.0	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	10.0	20.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	101	%	
Surrogate: Phenol-d5				29-120 %	95.1	%	
Surrogate: 2-Chlorophenol-d4				31-120 %	102	%	
Surrogate: 1,2-Dichlorobenzene-d4				32-120 %	97.4	%	
Surrogate: Nitrobenzene-d5				30-120 %	108	%	
Surrogate: 2-Fluorobiphenyl				35-120 %	105	%	



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Project Number: 113733

Project Manager: Dan McMahon

Reported:

02-Sep-2024 14:07

113733-SB4S12

24G0167-05 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 10:05

Instrument: NT14 Analyst: RJL

Analyzed: 08/02/2024 18:48

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: 2,4,6-Tribromophenol		24-134 %	102	%	
Surrogate: p-Terphenyl-d14		37-120 %	121	%	*



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Project Manager: Dan McMahon

Reported:
02-Sep-2024 14:07

113733-SB4S12
24G0167-05 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM

Sampled: 07/02/2024 10:05

Instrument: NT14 Analyst: RJL

Analyzed: 08/02/2024 18:48

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0167-05 B 04

Preparation Batch: BMG0260

Sample Size: 12.55 g (wet)

Dry Weight: 10.00 g

Prepared: 07/15/2024

Final Volume: 1 mL

% Solids: 79.68

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	2.5	5.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	2.5	5.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	2.5	5.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	2.5	5.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	50.0	100	ND	ug/kg	U
2-Methylphenol	95-48-7	1	2.5	5.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	10.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	2.5	5.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	10.0	20.0	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	5.0	5.0	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	2.5	5.0	ND	ug/kg	U
N-Nitrosodimethylamine	62-75-9	1	12.5	25.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	2.5	5.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	10.0	20.0	12.5	ug/kg	J
N-Nitrosodiphenylamine	86-30-6	1	2.5	5.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	2.5	5.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	10.0	20.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	2.5	5.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	2.5	5.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	98.9	%	
Surrogate: p-Terphenyl-d14				37-120 %	119	%	



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Reported:
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113733-SB4S12
24G0167-05 (Solid)

Butyl Tins

Method: EPA 8270E-SIM			Sampled: 07/02/2024 10:05		
Instrument: NT17 Analyst: JZ			Analyzed: 08/05/2024 19:40		
Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 24G0167-05 B 03		
	Preparation Batch: BMG0259		Dry Weight: 5.03 g		
	Prepared: 07/15/2024		% Solids: 79.68		
Sample Cleanup:	Sample Size: 6.31 g (wet)		Extract ID: 24G0167-05 B 03		
	Final Volume: 0.5 mL				
	Cleanup Method: Silica Gel				
	Cleanup Batch: CMH0022				
	Initial Volume: 0.5 uL				
	Cleaned: 02-Aug-2024				
		Final Volume: 0.5 uL			

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Tributyltin Ion	36643-28-4	1	1.92	3.84	ND	ug/kg	U
Surrogate: Triphenyltin				30-160 %	94.4	%	
Surrogate: Tripropyltin				30-160 %	68.4	%	



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Reported:
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113733-SB4S12
24G0167-05 (Solid)

Chlorinated Pesticides

Method: EPA 8081B			Sampled: 07/02/2024 10:05
Instrument: ECD6 Analyst: RT			Analyzed: 07/30/2024 16:52
Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 24G0167-05 B 02
	Preparation Batch: BMG0258	Sample Size: 15.74 g (wet)	
	Prepared: 07/15/2024	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 24G0167-05 B 02
	Cleanup Batch: CMG0194	Initial Volume: 2.5 uL	
	Cleaned: 29-Jul-2024	Final Volume: 2.5 uL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:24G0167-05 B 02
	Cleanup Batch: CMG0193	Initial Volume: 2.5 uL	
	Cleaned: 29-Jul-2024	Final Volume: 2.5 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.25	0.50	0.35	ug/kg	J
beta-BHC	319-85-7	1	0.25	0.50	ND	ug/kg	U
gamma-BHC (Lindane)	58-89-9	1	0.25	0.50	ND	ug/kg	U
delta-BHC	319-86-8	1	0.25	0.50	ND	ug/kg	U
Heptachlor	76-44-8	1	0.25	0.50	ND	ug/kg	U
Aldrin	309-00-2	1	0.50	0.50	ND	ug/kg	U
Heptachlor Epoxide	1024-57-3	1	0.25	0.50	ND	ug/kg	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.50	0.50	ND	ug/kg	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.25	0.50	ND	ug/kg	U
Endosulfan I	959-98-8	1	0.25	0.50	ND	ug/kg	U
4,4'-DDE	72-55-9	1	0.50	1.00	ND	ug/kg	U
Dieldrin	60-57-1	1	0.50	1.00	ND	ug/kg	U
Endrin	72-20-8	1	0.50	1.00	ND	ug/kg	U
Endosulfan II	33213-65-9	1	0.50	1.00	ND	ug/kg	U
4,4'-DDD	72-54-8	1	0.50	1.00	ND	ug/kg	U
Endrin Aldehyde	7421-93-4	1	0.50	1.00	ND	ug/kg	U
4,4'-DDT	50-29-3	1	0.50	1.00	ND	ug/kg	U
Endosulfan Sulfate	1031-07-8	1	0.50	1.00	ND	ug/kg	U
Endrin Ketone	53494-70-5	1	0.50	1.00	ND	ug/kg	U
Methoxychlor	72-43-5	1	2.49	4.98	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	0.25	0.50	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	0.25	0.50	ND	ug/kg	U
2,4'-DDE	3424-82-6	1	0.50	1.00	ND	ug/kg	U
2,4'-DDD	53-19-0	1	0.50	1.00	ND	ug/kg	U
2,4'-DDT	789-02-6	1	0.50	1.00	ND	ug/kg	U
Oxychlordane	27304-13-8	1	0.50	1.00	ND	ug/kg	U
cis-Nonachlor	5103-73-1	1	0.50	1.00	ND	ug/kg	U
trans-Nonachlor	39765-80-5	1	0.50	1.00	ND	ug/kg	U
Mirex	2385-85-5	1	1.00	1.00	ND	ug/kg	U



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Reported:
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113733-SB4S12
24G0167-05 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/02/2024 10:05

Instrument: ECD6 Analyst: RT

Analyzed: 07/30/2024 16:52

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Decachlorobiphenyl		30-160 %	97.5	%	
Surrogate: Decachlorobiphenyl [2C]		30-160 %	80.0	%	
Surrogate: Tetrachlorometaxylene		30-160 %	70.8	%	
Surrogate: Tetrachlorometaxylene [2C]		30-160 %	70.4	%	



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Reported:
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113733-SB4S12
24G0167-05 (Solid)

Aroclor PCB

Method: EPA 8082A			Sampled: 07/02/2024 10:05	
Instrument: ECD5 Analyst: AA			Analyzed: 07/25/2024 18:33	
Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 15.69 g (wet) Final Volume: 2.5 mL	Extract ID: 24G0167-05 B 01	
	Preparation Batch: BMG0257		Dry Weight: 12.50 g	
	Prepared: 07/16/2024		% Solids: 79.68	
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0167-05 B 01	
	Cleanup Batch: CMG0174			
	Cleaned: 25-Jul-2024			
Sample Cleanup:	Cleanup Method: Sulfuric Acid	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0167-05 B 01	
	Cleanup Batch: CMG0172			
	Cleaned: 25-Jul-2024			
Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0167-05 B 01	
	Cleanup Batch: CMG0173			
	Cleaned: 25-Jul-2024			

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	2.0	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	2.0	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	2.0	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1262	37324-23-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1268	11100-14-4	1	2.0	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				40-126 %	76.7	%	
Surrogate: Tetrachlorometaxylene				44-120 %	75.8	%	
Surrogate: Decachlorobiphenyl [2C]				40-126 %	78.9	%	
Surrogate: Tetrachlorometaxylene [2C]				44-120 %	74.6	%	



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Reported:

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113733-SB4S12

24G0167-05 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED

Sampled: 07/02/2024 10:05

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 13:52

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0167-05 B 05

Preparation Batch: BMG0275

Sample Size: 1.017 g (wet)

Dry Weight: 0.81 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 79.52

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.05	0.25	14.1	mg/kg	
Cadmium	7440-43-9	20	0.04	0.12	0.11	mg/kg	J
Copper	7440-50-8	20	0.22	0.62	37.4	mg/kg	
Selenium	7782-49-2	20	0.22	0.62	1.32	mg/kg	
Zinc	7440-66-6	20	3.6	7.4	83.9	mg/kg	



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113733-SB4S12

24G0167-05 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B

Sampled: 07/02/2024 10:05

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 13:52

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0167-05 B 05

Preparation Batch: BMG0275

Sample Size: 1.017 g (wet)

Dry Weight: 0.81 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 79.52

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	20	0.13	0.25	ND	mg/kg	U
Chromium	7440-47-3	50	0.80	1.55	33.5	mg/kg	D
Lead	7439-92-1	20	0.06	0.12	8.54	mg/kg	
Silver	7440-22-4	20	0.03	0.25	0.14	mg/kg	J



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Reported:

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113733-SB4S12

24G0167-05 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B

Sampled: 07/02/2024 10:05

Instrument: HYDRA Analyst: ML

Analyzed: 07/15/2024 13:31

Sample Preparation:

Preparation Method: SMM EPA 7471B

Extract ID: 24G0167-05 B

Preparation Batch: BMG0340

Sample Size: 0.247 g (wet)

Dry Weight: 0.20 g

Prepared: 07/13/2024

Final Volume: 50 mL

% Solids: 79.52

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00535	0.0255	0.0568	mg/kg	



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Reported:

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113733-SB4S12

24G0167-05 (Solid)

Wet Chemistry

Method: EPA 9060A m

Sampled: 07/02/2024 10:05

Instrument: TOC Cube Analyst: ARR

Analyzed: 08/01/2024 11:06

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0167-05 B

Preparation Batch: BMG0720

Sample Size: 0.526 g (wet)

Dry Weight: 0.42 g

Prepared: 07/29/2024

Final Volume: 0.526 mL

% Solids: 79.52

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.39	%	



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Reported:
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113733-SB4S12
24G0167-05 (Solid)

Wet Chemistry

Method: PSEP 1986

Sampled: 07/02/2024 10:05

Instrument: BAL2 Analyst: LERB

Analyzed: 07/23/2024 15:43

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0167-05

Preparation Batch: BMG0567

Sample Size: 5 g (wet)

Prepared: 07/23/2024

Final Volume: 5 mL

% Solids: 79.52

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Volatile Solids		1	0.01	0.01	2.13	%	



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Reported:
02-Sep-2024 14:07

113733-SB4S12
24G0167-05 (Solid)

Wet Chemistry

Method: SM 2540 G-11

Sampled: 07/02/2024 10:05

Instrument: BAL2 Analyst: LERB

Analyzed: 07/23/2024 15:43

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0167-05

Preparation Batch: BMG0567

Sample Size: 5 g (wet)

Prepared: 07/23/2024

Final Volume: 5 mL

% Solids: 79.52

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	79.52	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

02-Sep-2024 14:07

113733-SB4S13

24G0167-06 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 13:20

Instrument: NT14 Analyst: RJL

Analyzed: 08/02/2024 19:26

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0167-06 B 04

Preparation Batch: BMG0260

Sample Size: 12.45 g (wet)

Dry Weight: 10.03 g

Prepared: 07/15/2024

Final Volume: 1 mL

% Solids: 80.60

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	10.0	19.9	ND	ug/kg	U
bis(2-chloroethyl) ether	111-44-4	1	34.9	49.8	ND	ug/kg	U
2-Chlorophenol	95-57-8	1	19.9	19.9	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	10.0	19.9	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	10.0	19.9	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	10.0	19.9	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	19.9	19.9	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	10.0	19.9	ND	ug/kg	U
2-Methylphenol	95-48-7	1	10.0	19.9	ND	ug/kg	U
Hexachloroethane	67-72-1	1	10.0	19.9	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	14.9	19.9	ND	ug/kg	U
4-Methylphenol	106-44-5	1	14.9	19.9	ND	ug/kg	U
Nitrobenzene	98-95-3	1	10.0	19.9	ND	ug/kg	U
Isophorone	78-59-1	1	14.9	19.9	ND	ug/kg	U
2-Nitrophenol	88-75-5	1	10.0	19.9	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	49.8	99.7	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	1	10.0	19.9	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	1	49.8	99.7	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	10.0	19.9	ND	ug/kg	U
Naphthalene	91-20-3	1	10.0	19.9	ND	ug/kg	U
Benzoic acid	65-85-0	1	99.7	199	ND	ug/kg	U
4-Chloroaniline	106-47-8	1	49.8	99.7	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	10.0	19.9	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	1	49.8	99.7	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	10.0	19.9	ND	ug/kg	U
Hexachlorocyclopentadiene	77-47-4	1	49.8	99.7	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	1	49.8	99.7	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	1	49.8	99.7	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	1	10.0	19.9	ND	ug/kg	U
2-Nitroaniline	88-74-4	1	49.8	99.7	ND	ug/kg	U
Acenaphthylene	208-96-8	1	10.0	19.9	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	10.0	19.9	ND	ug/kg	U
2,6-Dinitrotoluene	606-20-2	1	49.8	99.7	ND	ug/kg	U
Acenaphthene	83-32-9	1	10.0	19.9	ND	ug/kg	U
3-Nitroaniline	99-09-2	1	49.8	99.7	ND	ug/kg	U



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
02-Sep-2024 14:07

113733-SB4S13
24G0167-06 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 13:20

Instrument: NT14 Analyst: RJL

Analyzed: 08/02/2024 19:26

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2,4-Dinitrophenol	51-28-5	1	99.7	199	ND	ug/kg	U
Dibenzofuran	132-64-9	1	19.9	19.9	ND	ug/kg	U
4-Nitrophenol	100-02-7	1	49.8	99.7	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	1	49.8	99.7	ND	ug/kg	U
Fluorene	86-73-7	1	19.9	19.9	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	1	34.9	49.8	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	34.9	49.8	ND	ug/kg	U
4-Nitroaniline	100-01-6	1	49.8	99.7	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	1	99.7	199	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	10.0	19.9	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	1	19.9	19.9	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	19.9	19.9	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	49.8	99.7	ND	ug/kg	U
Phenanthrene	85-01-8	1	10.0	19.9	ND	ug/kg	U
Anthracene	120-12-7	1	10.0	19.9	ND	ug/kg	U
Carbazole	86-74-8	1	10.0	19.9	ND	ug/kg	U
Di-n-Butylphthalate	84-74-2	1	10.0	19.9	ND	ug/kg	U
Fluoranthene	206-44-0	1	10.0	19.9	ND	ug/kg	U
Pyrene	129-00-0	1	10.0	19.9	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	10.0	19.9	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	1	10.0	19.9	ND	ug/kg	U
3,3'-Dichlorobenzidine	91-94-1	1	49.8	99.7	ND	ug/kg	U
Chrysene	218-01-9	1	10.0	19.9	ND	ug/kg	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	39.9	49.8	ND	ug/kg	U
Di-n-Octylphthalate	117-84-0	1	10.0	19.9	ND	ug/kg	U
Benzo(a)fluoranthene, Total		1	29.9	39.9	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	10.0	19.9	ND	ug/kg	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	19.9	19.9	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	19.9	19.9	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	19.9	19.9	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	10.0	19.9	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	104	%	
Surrogate: Phenol-d5				29-120 %	97.2	%	
Surrogate: 2-Chlorophenol-d4				31-120 %	106	%	
Surrogate: 1,2-Dichlorobenzene-d4				32-120 %	101	%	
Surrogate: Nitrobenzene-d5				30-120 %	111	%	
Surrogate: 2-Fluorobiphenyl				35-120 %	109	%	



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Project Manager: Dan McMahon

Reported:

02-Sep-2024 14:07

113733-SB4S13

24G0167-06 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 13:20

Instrument: NT14 Analyst: RJL

Analyzed: 08/02/2024 19:26

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: 2,4,6-Tribromophenol		24-134 %	102	%	
Surrogate: p-Terphenyl-d14		37-120 %	124	%	*



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Reported:
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113733-SB4S13
24G0167-06 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM

Sampled: 07/02/2024 13:20

Instrument: NT14 Analyst: RJL

Analyzed: 08/02/2024 19:26

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0167-06 B 04

Preparation Batch: BMG0260

Sample Size: 12.45 g (wet)

Dry Weight: 10.03 g

Prepared: 07/15/2024

Final Volume: 1 mL

% Solids: 80.60

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	2.5	5.0	3.2	ug/kg	J
1,3-Dichlorobenzene	541-73-1	1	2.5	5.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	2.5	5.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	2.5	5.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	10.0	19.9	ND	ug/kg	U
Benzoic acid	65-85-0	1	49.8	99.7	ND	ug/kg	U
2-Methylphenol	95-48-7	1	2.5	5.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	10.0	19.9	ND	ug/kg	U
4-Methylphenol	106-44-5	1	2.5	5.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	10.0	19.9	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	5.0	5.0	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	2.5	5.0	ND	ug/kg	U
N-Nitrosodimethylamine	62-75-9	1	12.5	24.9	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	2.5	5.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	10.0	19.9	15.5	ug/kg	J
N-Nitrosodiphenylamine	86-30-6	1	2.5	5.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	2.5	5.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	10.0	19.9	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	2.5	5.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	2.5	5.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	101	%	
Surrogate: p-Terphenyl-d14				37-120 %	124	%	*



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Reported:
02-Sep-2024 14:07

113733-SB4S13
24G0167-06 (Solid)

Butyl Tins

Method: EPA 8270E-SIM
Instrument: NT17 Analyst: JZ

Sampled: 07/02/2024 13:20

Analyzed: 08/05/2024 19:53

Sample Preparation: Preparation Method: EPA 3546 (Microwave)
Preparation Batch: BMG0259
Prepared: 07/15/2024

Sample Size: 6.25 g (wet)

Final Volume: 0.5 mL

Extract ID: 24G0167-06 B 03

Dry Weight: 5.04 g

% Solids: 80.60

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CMH0022
Cleaned: 02-Aug-2024

Initial Volume: 0.5 uL

Final Volume: 0.5 uL

Extract ID: 24G0167-06 B 03

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Tributyltin Ion	36643-28-4	1	1.92	3.83	ND	ug/kg	U
Surrogate: Triphenyltin				30-160 %	108	%	
Surrogate: Tripropyltin				30-160 %	78.8	%	



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Reported:
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113733-SB4S13
24G0167-06 (Solid)

Chlorinated Pesticides

Method: EPA 8081B			Sampled: 07/02/2024 13:20	
Instrument: ECD6 Analyst: RT			Analyzed: 07/30/2024 17:11	
Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 15.52 g (wet)	Extract ID: 24G0167-06 B 02	
	Preparation Batch: BMG0258		Dry Weight: 12.51 g	
	Prepared: 07/15/2024		% Solids: 80.60	
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL	Extract ID: 24G0167-06 B 02	
	Cleanup Batch: CMG0194			
	Cleaned: 29-Jul-2024			
Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL	Extract ID: 24G0167-06 B 02	
	Cleanup Batch: CMG0193			
	Cleaned: 29-Jul-2024			

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.25	0.50	ND	ug/kg	U
beta-BHC	319-85-7	1	0.25	0.50	ND	ug/kg	U
gamma-BHC (Lindane)	58-89-9	1	0.25	0.50	ND	ug/kg	U
delta-BHC	319-86-8	1	0.25	0.50	ND	ug/kg	U
Heptachlor	76-44-8	1	0.25	0.50	ND	ug/kg	U
Aldrin	309-00-2	1	0.50	0.50	ND	ug/kg	U
Heptachlor Epoxide	1024-57-3	1	0.25	0.50	ND	ug/kg	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.50	0.50	ND	ug/kg	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.25	0.50	ND	ug/kg	U
Endosulfan I	959-98-8	1	0.25	0.50	ND	ug/kg	U
4,4'-DDE	72-55-9	1	0.50	1.00	ND	ug/kg	U
Dieldrin	60-57-1	1	0.50	1.00	ND	ug/kg	U
Endrin	72-20-8	1	0.50	1.00	ND	ug/kg	U
Endosulfan II	33213-65-9	1	0.50	1.00	ND	ug/kg	U
4,4'-DDD	72-54-8	1	0.50	1.00	ND	ug/kg	U
Endrin Aldehyde	7421-93-4	1	0.50	1.00	ND	ug/kg	U
4,4'-DDT	50-29-3	1	0.50	1.00	ND	ug/kg	U
Endosulfan Sulfate	1031-07-8	1	0.50	1.00	ND	ug/kg	U
Endrin Ketone	53494-70-5	1	0.50	1.00	ND	ug/kg	U
Methoxychlor	72-43-5	1	2.50	5.00	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	0.25	0.50	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	0.25	0.50	0.28	ug/kg	J
2,4'-DDE	3424-82-6	1	0.50	1.00	ND	ug/kg	U
2,4'-DDD	53-19-0	1	0.50	1.00	ND	ug/kg	U
2,4'-DDT	789-02-6	1	0.50	1.00	ND	ug/kg	U
Oxychlordane	27304-13-8	1	0.50	1.00	ND	ug/kg	U
cis-Nonachlor	5103-73-1	1	0.50	1.00	ND	ug/kg	U
trans-Nonachlor	39765-80-5	1	0.50	1.00	ND	ug/kg	U
Mirex	2385-85-5	1	1.00	1.00	ND	ug/kg	U



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Reported:
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113733-SB4S13
24G0167-06 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/02/2024 13:20

Instrument: ECD6 Analyst: RT

Analyzed: 07/30/2024 17:11

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Decachlorobiphenyl		30-160 %	101	%	
Surrogate: Decachlorobiphenyl [2C]		30-160 %	82.6	%	
Surrogate: Tetrachlorometaxylene		30-160 %	78.5	%	
Surrogate: Tetrachlorometaxylene [2C]		30-160 %	72.8	%	



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113733-SB4S13

24G0167-06 (Solid)

Aroclor PCB

Method: EPA 8082A

Sampled: 07/02/2024 13:20

Instrument: ECD5 Analyst: AA

Analyzed: 07/25/2024 18:54

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 15.56 g (wet) Final Volume: 2.5 mL	Extract ID: 24G0167-06 B 01 Dry Weight: 12.54 g % Solids: 80.60
	Preparation Batch: BMG0257		
	Prepared: 07/16/2024		
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0167-06 B 01
	Cleanup Batch: CMG0174		
	Cleaned: 25-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfuric Acid	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0167-06 B 01
	Cleanup Batch: CMG0172		
	Cleaned: 25-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0167-06 B 01
	Cleanup Batch: CMG0173		
	Cleaned: 25-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	2.0	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	2.0	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	2.0	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1262	37324-23-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1268	11100-14-4	1	2.0	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl					40-126 %	81.9	%
Surrogate: Tetrachlorometaxylene					44-120 %	80.3	%
Surrogate: Decachlorobiphenyl [2C]					40-126 %	84.9	%
Surrogate: Tetrachlorometaxylene [2C]					44-120 %	80.8	%



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113733-SB4S13
24G0167-06 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED

Sampled: 07/02/2024 13:20

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 13:57

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0167-06 B 05

Preparation Batch: BMG0275

Sample Size: 1.07 g (wet)

Dry Weight: 0.87 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 81.41

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.04	0.23	10.4	mg/kg	
Cadmium	7440-43-9	20	0.03	0.11	0.09	mg/kg	J
Copper	7440-50-8	20	0.20	0.57	26.9	mg/kg	
Selenium	7782-49-2	20	0.21	0.57	0.93	mg/kg	
Zinc	7440-66-6	20	3.4	6.9	62.9	mg/kg	



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113733-SB4S13
24G0167-06 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B

Sampled: 07/02/2024 13:20

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 13:57

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0167-06 B 05

Preparation Batch: BMG0275

Sample Size: 1.07 g (wet)

Dry Weight: 0.87 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 81.41

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	20	0.12	0.23	ND	mg/kg	U
Chromium	7440-47-3	20	0.28	0.57	24.2	mg/kg	
Lead	7439-92-1	20	0.06	0.11	5.62	mg/kg	
Silver	7440-22-4	20	0.03	0.23	0.11	mg/kg	J



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Reported:
02-Sep-2024 14:07

113733-SB4S13
24G0167-06 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B					Sampled: 07/02/2024 13:20		
Instrument: HYDRA Analyst: ML					Analyzed: 07/15/2024 13:33		
Sample Preparation:	Preparation Method: SMM EPA 7471B				Extract ID: 24G0167-06 B		
	Preparation Batch: BMG0340				Dry Weight: 0.24 g		
	Prepared: 07/13/2024				% Solids: 81.41		
		Sample Size: 0.291 g (wet)					
		Final Volume: 50 mL					
Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00443	0.0211	0.0324	mg/kg	



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02-Sep-2024 14:07

113733-SB4S13

24G0167-06 (Solid)

Wet Chemistry

Method: EPA 9060A m

Sampled: 07/02/2024 13:20

Instrument: TOC Cube Analyst: ARR

Analyzed: 08/01/2024 11:36

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0167-06 B

Preparation Batch: BMG0720

Sample Size: 0.542 g (wet)

Dry Weight: 0.44 g

Prepared: 07/29/2024

Final Volume: 0.542 mL

% Solids: 81.41

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.31	%	



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02-Sep-2024 14:07

113733-SB4S13

24G0167-06 (Solid)

Wet Chemistry

Method: PSEP 1986

Sampled: 07/02/2024 13:20

Instrument: BAL2 Analyst: LERB

Analyzed: 07/23/2024 15:43

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0167-06

Preparation Batch: BMG0567

Sample Size: 5 g (wet)

Prepared: 07/23/2024

Final Volume: 5 mL

% Solids: 81.41

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Volatile Solids		1	0.01	0.01	1.51	%	



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5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

02-Sep-2024 14:07

113733-SB4S13

24G0167-06 (Solid)

Wet Chemistry

Method: SM 2540 G-11

Sampled: 07/02/2024 13:20

Instrument: BAL2 Analyst: LERB

Analyzed: 07/23/2024 15:43

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0167-06

Preparation Batch: BMG0567

Sample Size: 5 g (wet)

Prepared: 07/23/2024

Final Volume: 5 mL

% Solids: 81.41

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	81.41	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

02-Sep-2024 14:07

113733-SB4S14
24G0167-07 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 10:25

Instrument: NT14 Analyst: RJL

Analyzed: 08/02/2024 20:05

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0167-07 B 04

Preparation Batch: BMG0260

Sample Size: 12.65 g (wet)

Dry Weight: 10.02 g

Prepared: 07/15/2024

Final Volume: 1 mL

% Solids: 79.22

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	10.0	20.0	ND	ug/kg	U
bis(2-chloroethyl) ether	111-44-4	1	34.9	49.9	ND	ug/kg	U
2-Chlorophenol	95-57-8	1	20.0	20.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	10.0	20.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	10.0	20.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	10.0	20.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	20.0	20.0	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	10.0	20.0	ND	ug/kg	U
2-Methylphenol	95-48-7	1	10.0	20.0	ND	ug/kg	U
Hexachloroethane	67-72-1	1	10.0	20.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	15.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	15.0	20.0	ND	ug/kg	U
Nitrobenzene	98-95-3	1	10.0	20.0	ND	ug/kg	U
Isophorone	78-59-1	1	15.0	20.0	ND	ug/kg	U
2-Nitrophenol	88-75-5	1	10.0	20.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	49.9	99.8	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	1	10.0	20.0	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	1	49.9	99.8	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	10.0	20.0	ND	ug/kg	U
Naphthalene	91-20-3	1	10.0	20.0	60.3	ug/kg	
Benzoic acid	65-85-0	1	99.8	200	ND	ug/kg	U
4-Chloroaniline	106-47-8	1	49.9	99.8	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	10.0	20.0	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	1	49.9	99.8	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	10.0	20.0	58.3	ug/kg	
Hexachlorocyclopentadiene	77-47-4	1	49.9	99.8	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	1	49.9	99.8	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	1	49.9	99.8	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	1	10.0	20.0	ND	ug/kg	U
2-Nitroaniline	88-74-4	1	49.9	99.8	ND	ug/kg	U
Acenaphthylene	208-96-8	1	10.0	20.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	10.0	20.0	ND	ug/kg	U
2,6-Dinitrotoluene	606-20-2	1	49.9	99.8	ND	ug/kg	U
Acenaphthene	83-32-9	1	10.0	20.0	11.6	ug/kg	J
3-Nitroaniline	99-09-2	1	49.9	99.8	ND	ug/kg	U



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
02-Sep-2024 14:07

113733-SB4S14
24G0167-07 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 10:25

Instrument: NT14 Analyst: RJL

Analyzed: 08/02/2024 20:05

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2,4-Dinitrophenol	51-28-5	1	99.8	200	ND	ug/kg	U
Dibenzofuran	132-64-9	1	20.0	20.0	ND	ug/kg	U
4-Nitrophenol	100-02-7	1	49.9	99.8	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	1	49.9	99.8	ND	ug/kg	U
Fluorene	86-73-7	1	20.0	20.0	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	1	34.9	49.9	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	34.9	49.9	ND	ug/kg	U
4-Nitroaniline	100-01-6	1	49.9	99.8	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	1	99.8	200	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	10.0	20.0	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	1	20.0	20.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	20.0	20.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	49.9	99.8	ND	ug/kg	U
Phenanthrene	85-01-8	1	10.0	20.0	ND	ug/kg	U
Anthracene	120-12-7	1	10.0	20.0	ND	ug/kg	U
Carbazole	86-74-8	1	10.0	20.0	ND	ug/kg	U
Di-n-Butylphthalate	84-74-2	1	10.0	20.0	ND	ug/kg	U
Fluoranthene	206-44-0	1	10.0	20.0	ND	ug/kg	U
Pyrene	129-00-0	1	10.0	20.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	10.0	20.0	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	1	10.0	20.0	ND	ug/kg	U
3,3'-Dichlorobenzidine	91-94-1	1	49.9	99.8	ND	ug/kg	U
Chrysene	218-01-9	1	10.0	20.0	ND	ug/kg	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	39.9	49.9	ND	ug/kg	U
Di-n-Octylphthalate	117-84-0	1	10.0	20.0	ND	ug/kg	U
Benzo(a)fluoranthene, Total		1	29.9	39.9	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	10.0	20.0	ND	ug/kg	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	20.0	20.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	20.0	20.0	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	20.0	20.0	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	10.0	20.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	110	%	
Surrogate: Phenol-d5				29-120 %	103	%	
Surrogate: 2-Chlorophenol-d4				31-120 %	115	%	
Surrogate: 1,2-Dichlorobenzene-d4				32-120 %	110	%	
Surrogate: Nitrobenzene-d5				30-120 %	121	%	*
Surrogate: 2-Fluorobiphenyl				35-120 %	117	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

02-Sep-2024 14:07

113733-SB4S14

24G0167-07 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 10:25

Instrument: NT14 Analyst: RJL

Analyzed: 08/02/2024 20:05

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: 2,4,6-Tribromophenol		24-134 %	110	%	
Surrogate: p-Terphenyl-d14		37-120 %	124	%	*



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Project: PAMP Sediments
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Project Manager: Dan McMahon

Reported:
02-Sep-2024 14:07

113733-SB4S14
24G0167-07 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM

Sampled: 07/02/2024 10:25

Instrument: NT14 Analyst: RJL

Analyzed: 08/02/2024 20:05

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0167-07 B 04

Preparation Batch: BMG0260

Sample Size: 12.65 g (wet)

Dry Weight: 10.02 g

Prepared: 07/15/2024

Final Volume: 1 mL

% Solids: 79.22

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	2.5	5.0	2.8	ug/kg	J
1,3-Dichlorobenzene	541-73-1	1	2.5	5.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	2.5	5.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	2.5	5.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	49.9	99.8	ND	ug/kg	U
2-Methylphenol	95-48-7	1	2.5	5.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	10.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	2.5	5.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	10.0	20.0	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	5.0	5.0	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	2.5	5.0	ND	ug/kg	U
N-Nitrosodimethylamine	62-75-9	1	12.5	24.9	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	2.5	5.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	10.0	20.0	14.1	ug/kg	J
N-Nitrosodiphenylamine	86-30-6	1	2.5	5.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	2.5	5.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	10.0	20.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	2.5	5.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	2.5	5.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	107	%	
Surrogate: p-Terphenyl-d14				37-120 %	122	%	*



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Reported:
02-Sep-2024 14:07

113733-SB4S14
24G0167-07 (Solid)

Butyl Tins

Method: EPA 8270E-SIM
Instrument: NT17 Analyst: JZ

Sampled: 07/02/2024 10:25

Analyzed: 08/05/2024 20:06

Sample Preparation: Preparation Method: EPA 3546 (Microwave)
Preparation Batch: BMG0259
Prepared: 07/15/2024

Sample Size: 6.35 g (wet)

Final Volume: 0.5 mL

Extract ID: 24G0167-07 B 03

Dry Weight: 5.03 g

% Solids: 79.22

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CMH0022
Cleaned: 02-Aug-2024

Initial Volume: 0.5 uL

Final Volume: 0.5 uL

Extract ID: 24G0167-07 B 03

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Tributyltin Ion	36643-28-4	1	1.92	3.84	ND	ug/kg	U
Surrogate: Triphenyltin				30-160 %	112	%	
Surrogate: Tripropyltin				30-160 %	82.7	%	



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Reported:
02-Sep-2024 14:07

113733-SB4S14
24G0167-07 (Solid)

Chlorinated Pesticides

Method: EPA 8081B			Sampled: 07/02/2024 10:25	
Instrument: ECD6 Analyst: RT			Analyzed: 07/30/2024 17:29	
Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 15.78 g (wet)	Extract ID: 24G0167-07 B 02	
	Preparation Batch: BMG0258		Dry Weight: 12.50 g	
	Prepared: 07/15/2024		% Solids: 79.22	
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL	Extract ID: 24G0167-07 B 02	
	Cleanup Batch: CMG0194			
	Cleaned: 29-Jul-2024			
Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL	Extract ID: 24G0167-07 B 02	
	Cleanup Batch: CMG0193			
	Cleaned: 29-Jul-2024			

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.25	0.50	ND	ug/kg	U
beta-BHC	319-85-7	1	0.25	0.50	ND	ug/kg	U
gamma-BHC (Lindane)	58-89-9	1	0.25	0.50	ND	ug/kg	U
delta-BHC	319-86-8	1	0.25	0.50	ND	ug/kg	U
Heptachlor	76-44-8	1	0.25	0.50	ND	ug/kg	U
Aldrin	309-00-2	1	0.50	0.50	ND	ug/kg	U
Heptachlor Epoxide	1024-57-3	1	0.25	0.50	ND	ug/kg	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.50	0.50	ND	ug/kg	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.25	0.50	ND	ug/kg	U
Endosulfan I	959-98-8	1	0.25	0.50	ND	ug/kg	U
4,4'-DDE	72-55-9	1	0.50	1.00	0.54	ug/kg	J
Dieldrin	60-57-1	1	0.50	1.00	ND	ug/kg	U
Endrin	72-20-8	1	0.50	1.00	ND	ug/kg	U
Endosulfan II	33213-65-9	1	0.50	1.00	ND	ug/kg	U
4,4'-DDD	72-54-8	1	0.50	1.00	5.08	ug/kg	P1
Endrin Aldehyde	7421-93-4	1	0.50	1.00	ND	ug/kg	U
4,4'-DDT	50-29-3	1	0.50	1.00	ND	ug/kg	U
Endosulfan Sulfate	1031-07-8	1	0.50	1.00	ND	ug/kg	U
Endrin Ketone	53494-70-5	1	0.50	1.00	ND	ug/kg	U
Methoxychlor	72-43-5	1	2.50	5.00	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	0.25	0.50	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	0.25	0.50	ND	ug/kg	U
2,4'-DDE	3424-82-6	1	0.50	1.00	ND	ug/kg	U
2,4'-DDD	53-19-0	1	0.50	1.00	ND	ug/kg	U
2,4'-DDT	789-02-6	1	0.50	1.00	ND	ug/kg	U
Oxychlordane	27304-13-8	1	0.50	1.00	ND	ug/kg	U
cis-Nonachlor	5103-73-1	1	0.50	1.00	ND	ug/kg	U
trans-Nonachlor	39765-80-5	1	0.50	1.00	ND	ug/kg	U
Mirex	2385-85-5	1	1.00	1.00	ND	ug/kg	U



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Project: PAMP Sediments
Project Number: 113733
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Reported:
02-Sep-2024 14:07

113733-SB4S14
24G0167-07 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/02/2024 10:25

Instrument: ECD6 Analyst: RT

Analyzed: 07/30/2024 17:29

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Decachlorobiphenyl		30-160 %	95.2	%	
Surrogate: Decachlorobiphenyl [2C]		30-160 %	81.1	%	
Surrogate: Tetrachlorometaxylene		30-160 %	61.4	%	
Surrogate: Tetrachlorometaxylene [2C]		30-160 %	62.3	%	



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Project Manager: Dan McMahon

Reported:

02-Sep-2024 14:07

113733-SB4S14

24G0167-07 (Solid)

Aroclor PCB

Method: EPA 8082A

Sampled: 07/02/2024 10:25

Instrument: ECD5 Analyst: AA

Analyzed: 07/25/2024 19:14

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 15.78 g (wet) Final Volume: 2.5 mL	Extract ID: 24G0167-07 B 01 Dry Weight: 12.50 g % Solids: 79.22
	Preparation Batch: BMG0257		
	Prepared: 07/16/2024		
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0167-07 B 01
	Cleanup Batch: CMG0174		
	Cleaned: 25-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfuric Acid	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0167-07 B 01
	Cleanup Batch: CMG0172		
	Cleaned: 25-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0167-07 B 01
	Cleanup Batch: CMG0173		
	Cleaned: 25-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	2.0	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	2.0	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	2.0	4.0	11.1	ug/kg	
Aroclor 1260	11096-82-5	1	2.0	4.0	7.6	ug/kg	
Aroclor 1262	37324-23-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1268	11100-14-4	1	2.0	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl					40-126 %	80.6	%
Surrogate: Tetrachlorometaxylene					44-120 %	79.1	%
Surrogate: Decachlorobiphenyl [2C]					40-126 %	84.0	%
Surrogate: Tetrachlorometaxylene [2C]					44-120 %	80.0	%



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

02-Sep-2024 14:07

113733-SB4S14

24G0167-07 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED

Sampled: 07/02/2024 10:25

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 14:01

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0167-07 B 05

Preparation Batch: BMG0275

Sample Size: 1.01 g (wet)

Dry Weight: 0.78 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 77.41

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.05	0.26	9.83	mg/kg	
Cadmium	7440-43-9	20	0.04	0.13	0.08	mg/kg	J
Copper	7440-50-8	20	0.22	0.64	27.0	mg/kg	
Selenium	7782-49-2	20	0.23	0.64	0.82	mg/kg	
Zinc	7440-66-6	20	3.7	7.7	67.0	mg/kg	



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Reported:
02-Sep-2024 14:07

113733-SB4S14
24G0167-07 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B

Sampled: 07/02/2024 10:25

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 14:01

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0167-07 B 05

Preparation Batch: BMG0275

Sample Size: 1.01 g (wet)

Dry Weight: 0.78 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 77.41

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	20	0.13	0.26	ND	mg/kg	U
Chromium	7440-47-3	20	0.31	0.64	25.5	mg/kg	
Lead	7439-92-1	20	0.07	0.13	15.5	mg/kg	
Silver	7440-22-4	20	0.03	0.26	0.10	mg/kg	J



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Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

02-Sep-2024 14:07

113733-SB4S14

24G0167-07 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B

Sampled: 07/02/2024 10:25

Instrument: HYDRA Analyst: ML

Analyzed: 07/15/2024 13:36

Sample Preparation:

Preparation Method: SMM EPA 7471B

Extract ID: 24G0167-07 B

Preparation Batch: BMG0340

Sample Size: 0.268 g (wet)

Dry Weight: 0.21 g

Prepared: 07/13/2024

Final Volume: 50 mL

% Solids: 77.41

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00506	0.0241	0.0697	mg/kg	



Shannon & Wilson, Inc

5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

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Reported:

02-Sep-2024 14:07

113733-SB4S14

24G0167-07 (Solid)

Wet Chemistry

Method: EPA 9060A m

Sampled: 07/02/2024 10:25

Instrument: TOC Cube Analyst: ARR

Analyzed: 08/01/2024 13:07

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0167-07 B

Preparation Batch: BMG0720

Sample Size: 0.5119 g (wet)

Dry Weight: 0.40 g

Prepared: 07/29/2024

Final Volume: 0.5119 mL

% Solids: 77.41

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.52	%	



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02-Sep-2024 14:07

113733-SB4S14
24G0167-07 (Solid)

Wet Chemistry

Method: PSEP 1986

Sampled: 07/02/2024 10:25

Instrument: BAL2 Analyst: LERB

Analyzed: 07/23/2024 15:43

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0167-07

Preparation Batch: BMG0567

Sample Size: 5 g (wet)

Prepared: 07/23/2024

Final Volume: 5 mL

% Solids: 77.41

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Volatile Solids		1	0.01	0.01	1.44	%	



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Reported:

02-Sep-2024 14:07

113733-SB4S14

24G0167-07 (Solid)

Wet Chemistry

Method: SM 2540 G-11

Sampled: 07/02/2024 10:25

Instrument: BAL2 Analyst: LERB

Analyzed: 07/23/2024 15:43

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0167-07

Preparation Batch: BMG0567

Sample Size: 5 g (wet)

Prepared: 07/23/2024

Final Volume: 5 mL

% Solids: 77.41

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	77.41	%	



Shannon & Wilson, Inc
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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
02-Sep-2024 14:07

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0260 - EPA 8270E

Instrument: NT14 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0260-BLK1)						Prepared: 15-Jul-2024 Analyzed: 02-Aug-2024 14:14					
Phenol	ND	10.0	20.0	ug/kg							U
bis(2-chloroethyl) ether	ND	35.0	50.0	ug/kg							U
2-Chlorophenol	ND	20.0	20.0	ug/kg							U
1,3-Dichlorobenzene	ND	10.0	20.0	ug/kg							U
1,4-Dichlorobenzene	ND	10.0	20.0	ug/kg							U
1,2-Dichlorobenzene	ND	10.0	20.0	ug/kg							U
Benzyl Alcohol	ND	20.0	20.0	ug/kg							U
2,2'-Oxybis(1-chloropropane)	ND	10.0	20.0	ug/kg							U
2-Methylphenol	ND	10.0	20.0	ug/kg							U
Hexachloroethane	ND	10.0	20.0	ug/kg							U
N-Nitroso-di-n-Propylamine	ND	15.0	20.0	ug/kg							U
4-Methylphenol	ND	15.0	20.0	ug/kg							U
Nitrobenzene	ND	10.0	20.0	ug/kg							U
Isophorone	ND	15.0	20.0	ug/kg							U
2-Nitrophenol	ND	10.0	20.0	ug/kg							U
2,4-Dimethylphenol	ND	50.0	100	ug/kg							U
Bis(2-Chloroethoxy)methane	ND	10.0	20.0	ug/kg							U
2,4-Dichlorophenol	ND	50.0	100	ug/kg							U
1,2,4-Trichlorobenzene	ND	10.0	20.0	ug/kg							U
Naphthalene	ND	10.0	20.0	ug/kg							U
Benzoic acid	ND	100	200	ug/kg							U
4-Chloroaniline	ND	50.0	100	ug/kg							U
Hexachlorobutadiene	ND	10.0	20.0	ug/kg							U
4-Chloro-3-Methylphenol	ND	50.0	100	ug/kg							U
2-Methylnaphthalene	ND	10.0	20.0	ug/kg							U
Hexachlorocyclopentadiene	ND	50.0	100	ug/kg							U
2,4,6-Trichlorophenol	ND	50.0	100	ug/kg							U
2,4,5-Trichlorophenol	ND	50.0	100	ug/kg							U
2-Chloronaphthalene	ND	10.0	20.0	ug/kg							U
2-Nitroaniline	ND	50.0	100	ug/kg							U
Acenaphthylene	ND	10.0	20.0	ug/kg							U
Dimethylphthalate	ND	10.0	20.0	ug/kg							U
2,6-Dinitrotoluene	ND	50.0	100	ug/kg							U
Acenaphthene	ND	10.0	20.0	ug/kg							U
3-Nitroaniline	ND	50.0	100	ug/kg							U



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Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0260 - EPA 8270E

Instrument: NT14 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0260-BLK1)						Prepared: 15-Jul-2024 Analyzed: 02-Aug-2024 14:14					
2,4-Dinitrophenol	ND	100	200	ug/kg							U
Dibenzofuran	ND	20.0	20.0	ug/kg							U
4-Nitrophenol	ND	50.0	100	ug/kg							U
2,4-Dinitrotoluene	ND	50.0	100	ug/kg							U
Fluorene	ND	20.0	20.0	ug/kg							U
4-Chlorophenylphenyl ether	ND	35.0	50.0	ug/kg							U
Diethyl phthalate	ND	35.0	50.0	ug/kg							U
4-Nitroaniline	ND	50.0	100	ug/kg							U
4,6-Dinitro-2-methylphenol	ND	100	200	ug/kg							U
N-Nitrosodiphenylamine	ND	10.0	20.0	ug/kg							U
4-Bromophenyl phenyl ether	ND	20.0	20.0	ug/kg							U
Hexachlorobenzene	ND	20.0	20.0	ug/kg							U
Pentachlorophenol	ND	50.0	100	ug/kg							U
Phenanthrene	ND	10.0	20.0	ug/kg							U
Anthracene	ND	10.0	20.0	ug/kg							U
Carbazole	ND	10.0	20.0	ug/kg							U
Di-n-Butylphthalate	ND	10.0	20.0	ug/kg							U
Fluoranthene	ND	10.0	20.0	ug/kg							U
Pyrene	ND	10.0	20.0	ug/kg							U
Butylbenzylphthalate	ND	10.0	20.0	ug/kg							U
Benzo(a)anthracene	ND	10.0	20.0	ug/kg							U
3,3'-Dichlorobenzidine	ND	50.0	100	ug/kg							U
Chrysene	ND	10.0	20.0	ug/kg							U
bis(2-Ethylhexyl)phthalate	ND	40.0	50.0	ug/kg							U
Di-n-Octylphthalate	ND	10.0	20.0	ug/kg							U
Benzo(a)fluoranthene, Total	ND	30.0	40.0	ug/kg							U
Benzo(a)pyrene	ND	10.0	20.0	ug/kg							U
Indeno(1,2,3-cd)pyrene	ND	20.0	20.0	ug/kg							U
Dibenzo(a,h)anthracene	ND	20.0	20.0	ug/kg							U
Benzo(g,h,i)perylene	ND	20.0	20.0	ug/kg							U
1-Methylnaphthalene	ND	10.0	20.0	ug/kg							U
Surrogate: 2-Fluorophenol	764			ug/kg	750		102	27-120			
Surrogate: Phenol-d5	758			ug/kg	750		101	29-120			
Surrogate: 2-Chlorophenol-d4	795			ug/kg	750		106	31-120			
Surrogate: 1,2-Dichlorobenzene-d4	514			ug/kg	500		103	32-120			



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Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0260 - EPA 8270E

Instrument: NT14 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0260-BLK1)					Prepared: 15-Jul-2024 Analyzed: 02-Aug-2024 14:14						
Surrogate: Nitrobenzene-d5	564			ug/kg	500		113	30-120			
Surrogate: 2-Fluorobiphenyl	543			ug/kg	500		109	35-120			
Surrogate: 2,4,6-Tribromophenol	696			ug/kg	750		92.8	24-134			
Surrogate: p-Terphenyl-d14	664			ug/kg	500		133	37-120			*



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Semivolatile Organic Compounds - Quality Control

Batch BMG0260 - EPA 8270E

Instrument: NT14 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0260-BS1)						Prepared: 15-Jul-2024 Analyzed: 02-Aug-2024 14:53					
Phenol	392	10.0	20.0	ug/kg	500		78.5	31-120			
bis(2-chloroethyl) ether	436	35.0	50.0	ug/kg	500		87.2	36-120			
2-Chlorophenol	373	20.0	20.0	ug/kg	500		74.7	39-120			
1,3-Dichlorobenzene	389	10.0	20.0	ug/kg	500		77.7	40-120			
1,4-Dichlorobenzene	431	10.0	20.0	ug/kg	500		86.1	39-120			
1,2-Dichlorobenzene	395	10.0	20.0	ug/kg	500		79.1	40-120			
Benzyl Alcohol	349	20.0	20.0	ug/kg	500		69.8	19-120			Q
2,2'-Oxybis(1-chloropropane)	465	10.0	20.0	ug/kg	500		93.0	32-120			
2-Methylphenol	396	10.0	20.0	ug/kg	500		79.1	11-120			
Hexachloroethane	469	10.0	20.0	ug/kg	500		93.8	38-120			
N-Nitroso-di-n-Propylamine	391	15.0	20.0	ug/kg	500		78.2	24-120			
4-Methylphenol	419	15.0	20.0	ug/kg	500		83.8	29-120			
Nitrobenzene	457	10.0	20.0	ug/kg	500		91.4	36-120			
Isophorone	560	15.0	20.0	ug/kg	500		112	37-126			
2-Nitrophenol	359	10.0	20.0	ug/kg	500		71.7	30-120			
2,4-Dimethylphenol	548	50.0	100	ug/kg	1500		36.5	10-120			
Bis(2-Chloroethoxy)methane	482	10.0	20.0	ug/kg	500		96.5	39-126			
2,4-Dichlorophenol	1210	50.0	100	ug/kg	1500		80.8	28-120			
1,2,4-Trichlorobenzene	388	10.0	20.0	ug/kg	500		77.6	35-120			
Naphthalene	423	10.0	20.0	ug/kg	500		84.7	41-120			
Benzoic acid	1240	100	200	ug/kg	2250		55.1	10-120			
4-Chloroaniline	924	50.0	100	ug/kg	1500		61.6	10-120			
Hexachlorobutadiene	405	10.0	20.0	ug/kg	500		80.9	37-120			
4-Chloro-3-Methylphenol	1270	50.0	100	ug/kg	1500		84.8	32-120			
2-Methylnaphthalene	394	10.0	20.0	ug/kg	500		78.8	43-120			
Hexachlorocyclopentadiene	1250	50.0	100	ug/kg	1500		83.2	10-120			
2,4,6-Trichlorophenol	1270	50.0	100	ug/kg	1500		84.7	40-120			
2,4,5-Trichlorophenol	1390	50.0	100	ug/kg	1500		92.9	51.5-129			
2-Chloronaphthalene	418	10.0	20.0	ug/kg	500		83.6	40-120			
2-Nitroaniline	1320	50.0	100	ug/kg	1500		88.1	40-152			
Acenaphthylene	393	10.0	20.0	ug/kg	500		78.6	42-120			
Dimethylphthalate	451	10.0	20.0	ug/kg	500		90.3	43-120			
2,6-Dinitrotoluene	1540	50.0	100	ug/kg	1500		102	31-156			
Acenaphthene	440	10.0	20.0	ug/kg	500		87.9	45-120			
3-Nitroaniline	997	50.0	100	ug/kg	1500		66.4	22-120			



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Reported:
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Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0260 - EPA 8270E

Instrument: NT14 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0260-BS1)						Prepared: 15-Jul-2024 Analyzed: 02-Aug-2024 14:53					
2,4-Dinitrophenol	1890	100	200	ug/kg	2750		68.8	13-160			Q
Dibenzofuran	389	20.0	20.0	ug/kg	500		77.8	43-120			
4-Nitrophenol	1410	50.0	100	ug/kg	1500		94.2	18-154			Q
2,4-Dinitrotoluene	1380	50.0	100	ug/kg	1500		91.8	44-150			
Fluorene	441	20.0	20.0	ug/kg	500		88.3	40-120			
4-Chlorophenylphenyl ether	455	35.0	50.0	ug/kg	500		91.1	36-141			
Diethyl phthalate	500	35.0	50.0	ug/kg	500		99.9	43-140			
4-Nitroaniline	1320	50.0	100	ug/kg	1500		87.7	15-120			
4,6-Dinitro-2-methylphenol	2430	100	200	ug/kg	2750		88.5	33-144			
N-Nitrosodiphenylamine	406	10.0	20.0	ug/kg	500		81.2	17-120			
4-Bromophenyl phenyl ether	451	20.0	20.0	ug/kg	500		90.1	39-120			
Hexachlorobenzene	429	20.0	20.0	ug/kg	500		85.9	33-120			
Pentachlorophenol	1140	50.0	100	ug/kg	1500		75.8	33-133			Q
Phenanthrene	425	10.0	20.0	ug/kg	500		85.0	49-120			
Anthracene	425	10.0	20.0	ug/kg	500		85.0	37-120			
Carbazole	616	10.0	20.0	ug/kg	500		123	30-135			
Di-n-Butylphthalate	543	10.0	20.0	ug/kg	500		109	48-126			
Fluoranthene	439	10.0	20.0	ug/kg	500		87.7	38-127			
Pyrene	433	10.0	20.0	ug/kg	500		86.6	39-122			
Butylbenzylphthalate	527	10.0	20.0	ug/kg	500		105	45-132			
Benzo(a)anthracene	434	10.0	20.0	ug/kg	500		86.7	44-120			
3,3'-Dichlorobenzidine	465	50.0	100	ug/kg	1000		46.5	10-120			
Chrysene	443	10.0	20.0	ug/kg	500		88.7	47-120			
bis(2-Ethylhexyl)phthalate	503	40.0	50.0	ug/kg	500		101	10-130			
Di-n-Octylphthalate	467	10.0	20.0	ug/kg	500		93.5	10-124			
Benzo(a)fluoranthene, Total	880	30.0	40.0	ug/kg	1000		88.0	30-160			
Benzo(a)pyrene	440	10.0	20.0	ug/kg	500		88.0	37-120			
Indeno(1,2,3-cd)pyrene	377	20.0	20.0	ug/kg	500		75.5	30-160			
Dibenzo(a,h)anthracene	402	20.0	20.0	ug/kg	500		80.5	30-160			
Benzo(g,h,i)perylene	448	20.0	20.0	ug/kg	500		89.7	10-150			
1-Methylnaphthalene	411	10.0	20.0	ug/kg	500		82.3	42-120			
Surrogate: 2-Fluorophenol	754			ug/kg	750		101	27-120			
Surrogate: Phenol-d5	770			ug/kg	750		103	29-120			
Surrogate: 2-Chlorophenol-d4	768			ug/kg	750		102	31-120			
Surrogate: 1,2-Dichlorobenzene-d4	484			ug/kg	500		96.7	32-120			



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Reported:
02-Sep-2024 14:07

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0260 - EPA 8270E

Instrument: NT14 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0260-BS1)						Prepared: 15-Jul-2024 Analyzed: 02-Aug-2024 14:53					
Surrogate: Nitrobenzene-d5	561			ug/kg	500		112	30-120			
Surrogate: 2-Fluorobiphenyl	511			ug/kg	500		102	35-120			
Surrogate: 2,4,6-Tribromophenol	815			ug/kg	750		109	24-134			
Surrogate: p-Terphenyl-d14	578			ug/kg	500		116	37-120			



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Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0260 - EPA 8270E

Instrument: NT14 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMG0260-BSD1)						Prepared: 15-Jul-2024 Analyzed: 02-Aug-2024 15:32					
Phenol	451	10.0	20.0	ug/kg	500		90.3	31-120	14.00	30	
bis(2-chloroethyl) ether	493	35.0	50.0	ug/kg	500		98.6	36-120	12.30	30	
2-Chlorophenol	438	20.0	20.0	ug/kg	500		87.6	39-120	16.00	30	
1,3-Dichlorobenzene	433	10.0	20.0	ug/kg	500		86.5	40-120	10.70	30	
1,4-Dichlorobenzene	488	10.0	20.0	ug/kg	500		97.6	39-120	12.50	30	
1,2-Dichlorobenzene	460	10.0	20.0	ug/kg	500		91.9	40-120	15.00	30	
Benzyl Alcohol	368	20.0	20.0	ug/kg	500		73.7	19-120	5.36	30	Q
2,2'-Oxybis(1-chloropropane)	505	10.0	20.0	ug/kg	500		101	32-120	8.26	30	
2-Methylphenol	464	10.0	20.0	ug/kg	500		92.7	11-120	15.80	30	
Hexachloroethane	520	10.0	20.0	ug/kg	500		104	38-120	10.40	30	
N-Nitroso-di-n-Propylamine	450	15.0	20.0	ug/kg	500		90.0	24-120	14.00	30	
4-Methylphenol	489	15.0	20.0	ug/kg	500		97.8	29-120	15.50	30	
Nitrobenzene	512	10.0	20.0	ug/kg	500		102	36-120	11.30	30	
Isophorone	709	15.0	20.0	ug/kg	500		142	37-126	23.60	30	*
2-Nitrophenol	407	10.0	20.0	ug/kg	500		81.5	30-120	12.80	30	
2,4-Dimethylphenol	876	50.0	100	ug/kg	1500		58.4	10-120	46.10	30	*
Bis(2-Chloroethoxy)methane	531	10.0	20.0	ug/kg	500		106	39-126	9.52	30	
2,4-Dichlorophenol	1520	50.0	100	ug/kg	1500		102	28-120	22.80	30	
1,2,4-Trichlorobenzene	444	10.0	20.0	ug/kg	500		88.7	35-120	13.30	30	
Naphthalene	473	10.0	20.0	ug/kg	500		94.6	41-120	11.10	30	
Benzoic acid	1410	100	200	ug/kg	2250		62.5	10-120	12.70	30	
4-Chloroaniline	1020	50.0	100	ug/kg	1500		67.8	10-120	9.53	30	
Hexachlorobutadiene	465	10.0	20.0	ug/kg	500		92.9	37-120	13.80	30	
4-Chloro-3-Methylphenol	1430	50.0	100	ug/kg	1500		95.5	32-120	11.80	30	
2-Methylnaphthalene	451	10.0	20.0	ug/kg	500		90.1	43-120	13.40	30	
Hexachlorocyclopentadiene	1400	50.0	100	ug/kg	1500		93.5	10-120	11.60	30	
2,4,6-Trichlorophenol	1420	50.0	100	ug/kg	1500		94.9	40-120	11.30	30	
2,4,5-Trichlorophenol	1530	50.0	100	ug/kg	1500		102	51.5-129	9.27	30	
2-Chloronaphthalene	461	10.0	20.0	ug/kg	500		92.1	40-120	9.76	30	
2-Nitroaniline	1450	50.0	100	ug/kg	1500		96.8	40-152	9.44	30	
Acenaphthylene	440	10.0	20.0	ug/kg	500		88.0	42-120	11.40	30	
Dimethylphthalate	501	10.0	20.0	ug/kg	500		100	43-120	10.50	30	
2,6-Dinitrotoluene	1700	50.0	100	ug/kg	1500		114	31-156	10.30	30	
Acenaphthene	495	10.0	20.0	ug/kg	500		99.0	45-120	11.80	30	
3-Nitroaniline	1090	50.0	100	ug/kg	1500		72.8	22-120	9.13	30	



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
02-Sep-2024 14:07

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0260 - EPA 8270E

Instrument: NT14 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMG0260-BSD1)						Prepared: 15-Jul-2024 Analyzed: 02-Aug-2024 15:32					
2,4-Dinitrophenol	2170	100	200	ug/kg	2750		78.9	13-160	13.70	30	Q
Dibenzofuran	441	20.0	20.0	ug/kg	500		88.1	43-120	12.50	30	
4-Nitrophenol	1410	50.0	100	ug/kg	1500		93.9	18-154	0.30	30	Q
2,4-Dinitrotoluene	1580	50.0	100	ug/kg	1500		105	44-150	13.60	30	
Fluorene	494	20.0	20.0	ug/kg	500		98.9	40-120	11.30	30	
4-Chlorophenylphenyl ether	517	35.0	50.0	ug/kg	500		103	36-141	12.70	30	
Diethyl phthalate	578	35.0	50.0	ug/kg	500		116	43-140	14.50	30	
4-Nitroaniline	1510	50.0	100	ug/kg	1500		100	15-120	13.50	30	
4,6-Dinitro-2-methylphenol	2770	100	200	ug/kg	2750		101	33-144	13.00	30	
N-Nitrosodiphenylamine	470	10.0	20.0	ug/kg	500		93.9	17-120	14.50	30	
4-Bromophenyl phenyl ether	516	20.0	20.0	ug/kg	500		103	39-120	13.60	30	
Hexachlorobenzene	484	20.0	20.0	ug/kg	500		96.9	33-120	12.10	30	
Pentachlorophenol	1260	50.0	100	ug/kg	1500		84.0	33-133	10.30	30	Q
Phenanthrene	481	10.0	20.0	ug/kg	500		96.3	49-120	12.40	30	
Anthracene	475	10.0	20.0	ug/kg	500		95.1	37-120	11.20	30	
Carbazole	696	10.0	20.0	ug/kg	500		139	30-135	12.10	30	*
Di-n-Butylphthalate	609	10.0	20.0	ug/kg	500		122	48-126	11.40	30	
Fluoranthene	502	10.0	20.0	ug/kg	500		100	38-127	13.40	30	
Pyrene	496	10.0	20.0	ug/kg	500		99.2	39-122	13.60	30	
Butylbenzylphthalate	600	10.0	20.0	ug/kg	500		120	45-132	13.00	30	
Benzo(a)anthracene	497	10.0	20.0	ug/kg	500		99.5	44-120	13.70	30	
3,3'-Dichlorobenzidine	590	50.0	100	ug/kg	1000		59.0	10-120	23.60	30	
Chrysene	506	10.0	20.0	ug/kg	500		101	47-120	13.30	30	
bis(2-Ethylhexyl)phthalate	552	40.0	50.0	ug/kg	500		110	10-130	9.28	30	
Di-n-Octylphthalate	512	10.0	20.0	ug/kg	500		102	10-124	9.11	30	
Benzo(a)fluoranthene, Total	986	30.0	40.0	ug/kg	1000		98.6	30-160	11.40	30	
Benzo(a)pyrene	506	10.0	20.0	ug/kg	500		101	37-120	13.90	30	
Indeno(1,2,3-cd)pyrene	441	20.0	20.0	ug/kg	500		88.1	30-160	15.50	30	
Dibenzo(a,h)anthracene	467	20.0	20.0	ug/kg	500		93.5	30-160	14.90	30	
Benzo(g,h,i)perylene	512	20.0	20.0	ug/kg	500		102	10-150	13.20	30	
1-Methylnaphthalene	465	10.0	20.0	ug/kg	500		93.0	42-120	12.20	30	
Surrogate: 2-Fluorophenol	733			ug/kg	750		97.7	27-120			
Surrogate: Phenol-d5	741			ug/kg	750		98.8	29-120			
Surrogate: 2-Chlorophenol-d4	741			ug/kg	750		98.8	31-120			
Surrogate: 1,2-Dichlorobenzene-d4	460			ug/kg	500		92.0	32-120			



Shannon & Wilson, Inc
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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
02-Sep-2024 14:07

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0260 - EPA 8270E

Instrument: NT14 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMG0260-BSD1)											
Prepared: 15-Jul-2024 Analyzed: 02-Aug-2024 15:32											
Surrogate: Nitrobenzene-d5	529			ug/kg	500		106	30-120			
Surrogate: 2-Fluorobiphenyl	479			ug/kg	500		95.7	35-120			
Surrogate: 2,4,6-Tribromophenol	805			ug/kg	750		107	24-134			
Surrogate: p-Terphenyl-d14	553			ug/kg	500		111	37-120			



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Semivolatile Organic Compounds - Quality Control

Batch BMG0260 - EPA 8270E

Instrument: NT14 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BMG0260-MS1)		Source: 24G0167-07		Prepared: 15-Jul-2024 Analyzed: 02-Aug-2024 20:44							
Phenol	426	10.0	20.0	ug/kg	500	ND	85.3	31-120			
bis(2-chloroethyl) ether	496	35.0	50.0	ug/kg	500	ND	99.2	36-120			
2-Chlorophenol	429	20.0	20.0	ug/kg	500	ND	85.8	39-120			
1,3-Dichlorobenzene	441	10.0	20.0	ug/kg	500	ND	88.2	40-120			
1,4-Dichlorobenzene	500	10.0	20.0	ug/kg	500	ND	99.9	39-120			
1,2-Dichlorobenzene	455	10.0	20.0	ug/kg	500	ND	91.1	40-120			
Benzyl Alcohol	ND	20.0	20.0	ug/kg	500	ND		19-120			*, U
2,2'-Oxybis(1-chloropropane)	510	10.0	20.0	ug/kg	500	ND	102	32-120			
2-Methylphenol	491	10.0	20.0	ug/kg	500	ND	98.2	11-120			
Hexachloroethane	520	10.0	20.0	ug/kg	500	ND	104	38-120			
N-Nitroso-di-n-Propylamine	376	15.0	20.0	ug/kg	500	ND	75.1	24-120			
4-Methylphenol	502	15.0	20.0	ug/kg	500	ND	100	29-120			
Nitrobenzene	515	10.0	20.0	ug/kg	500	ND	103	36-120			
Isophorone	649	15.0	20.0	ug/kg	500	ND	130	37-126			*
2-Nitrophenol	433	10.0	20.0	ug/kg	500	ND	86.6	30-120			
2,4-Dimethylphenol	986	50.0	100	ug/kg	1500	ND	65.7	10-120			
Bis(2-Chloroethoxy)methane	561	10.0	20.0	ug/kg	500	ND	112	39-126			
2,4-Dichlorophenol	1580	50.0	100	ug/kg	1500	ND	105	28-120			
1,2,4-Trichlorobenzene	454	10.0	20.0	ug/kg	500	ND	90.8	35-120			
Naphthalene	563	10.0	20.0	ug/kg	500	60.3	100	41-120			
Benzoic acid	395	100	200	ug/kg	2250	ND	17.5	10-120			
4-Chloroaniline	779	50.0	100	ug/kg	1500	ND	52.0	10-120			
Hexachlorobutadiene	471	10.0	20.0	ug/kg	500	ND	94.2	37-120			
4-Chloro-3-Methylphenol	1480	50.0	100	ug/kg	1500	ND	98.4	32-120			
2-Methylnaphthalene	556	10.0	20.0	ug/kg	500	58.3	99.6	43-120			
Hexachlorocyclopentadiene	1080	50.0	100	ug/kg	1500	ND	72.1	10-120			
2,4,6-Trichlorophenol	1400	50.0	100	ug/kg	1500	ND	93.3	40-120			
2,4,5-Trichlorophenol	1640	50.0	100	ug/kg	1500	ND	110	51.5-129			
2-Chloronaphthalene	492	10.0	20.0	ug/kg	500	ND	98.4	40-120			
2-Nitroaniline	1470	50.0	100	ug/kg	1500	ND	98.1	40-152			
Acenaphthylene	465	10.0	20.0	ug/kg	500	ND	92.9	42-120			
Dimethylphthalate	513	10.0	20.0	ug/kg	500	ND	103	43-120			
2,6-Dinitrotoluene	1810	50.0	100	ug/kg	1500	ND	120	31-156			
Acenaphthene	530	10.0	20.0	ug/kg	500	11.6	104	45-120			
3-Nitroaniline	1020	50.0	100	ug/kg	1500	ND	67.9	22-120			



Shannon & Wilson, Inc
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Project: PAMP Sediments
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Project Manager: Dan McMahon

Reported:
02-Sep-2024 14:07

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0260 - EPA 8270E

Instrument: NT14 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BMG0260-MS1)		Source: 24G0167-07		Prepared: 15-Jul-2024 Analyzed: 02-Aug-2024 20:44							
2,4-Dinitrophenol	758	100	200	ug/kg	2750	ND	27.6	13-160			
Dibenzofuran	479	20.0	20.0	ug/kg	500	ND	95.8	43-120			
4-Nitrophenol	1450	50.0	100	ug/kg	1500	ND	96.6	18-154			
2,4-Dinitrotoluene	1640	50.0	100	ug/kg	1500	ND	109	44-150			
Fluorene	536	20.0	20.0	ug/kg	500	ND	107	40-120			
4-Chlorophenylphenyl ether	553	35.0	50.0	ug/kg	500	ND	111	36-141			
Diethyl phthalate	590	35.0	50.0	ug/kg	500	ND	118	43-140			
4-Nitroaniline	1230	50.0	100	ug/kg	1500	ND	82.0	15-120			
4,6-Dinitro-2-methylphenol	1990	100	200	ug/kg	2750	ND	72.5	33-144			
N-Nitrosodiphenylamine	521	10.0	20.0	ug/kg	500	ND	104	17-120			
4-Bromophenyl phenyl ether	563	20.0	20.0	ug/kg	500	ND	113	39-120			
Hexachlorobenzene	534	20.0	20.0	ug/kg	500	ND	107	33-120			
Pentachlorophenol	841	50.0	100	ug/kg	1500	ND	56.1	33-133			
Phenanthrene	528	10.0	20.0	ug/kg	500	ND	106	49-120			
Anthracene	508	10.0	20.0	ug/kg	500	ND	102	37-120			
Carbazole	753	10.0	20.0	ug/kg	500	ND	150	30-135			*
Di-n-Butylphthalate	613	10.0	20.0	ug/kg	500	ND	123	48-126			
Fluoranthene	506	10.0	20.0	ug/kg	500	ND	101	38-127			
Pyrene	499	10.0	20.0	ug/kg	500	ND	99.8	39-122			
Butylbenzylphthalate	593	10.0	20.0	ug/kg	500	ND	119	45-132			
Benzo(a)anthracene	506	10.0	20.0	ug/kg	500	ND	101	44-120			
3,3'-Dichlorobenzidine	106	50.0	100	ug/kg	1000	ND	10.6	10-120			
Chrysene	509	10.0	20.0	ug/kg	500	ND	102	47-120			
bis(2-Ethylhexyl)phthalate	570	40.0	50.0	ug/kg	500	ND	114	10-130			
Di-n-Octylphthalate	526	10.0	20.0	ug/kg	500	ND	105	10-124			
Benzo(a)fluoranthene, Total	1040	30.0	40.0	ug/kg	1000	ND	104	30-160			
Benzo(a)pyrene	528	10.0	20.0	ug/kg	500	ND	105	37-120			
Indeno(1,2,3-cd)pyrene	336	20.0	20.0	ug/kg	500	ND	67.1	30-160			
Dibenzo(a,h)anthracene	371	20.0	20.0	ug/kg	500	ND	74.1	30-160			
Benzo(g,h,i)perylene	348	20.0	20.0	ug/kg	500	ND	69.5	10-150			
1-Methylnaphthalene	582	10.0	20.0	ug/kg	500	ND	116	42-120			
Surrogate: 2-Fluorophenol	769			ug/kg	750	824	103	27-120			
Surrogate: Phenol-d5	775			ug/kg	750	774	103	29-120			
Surrogate: 2-Chlorophenol-d4	772			ug/kg	750	864	103	31-120			
Surrogate: 1,2-Dichlorobenzene-d4	499			ug/kg	500	547	99.7	32-120			



Shannon & Wilson, Inc

5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

02-Sep-2024 14:07

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0260 - EPA 8270E

Instrument: NT14 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BMG0260-MS1)		Source: 24G0167-07		Prepared: 15-Jul-2024 Analyzed: 02-Aug-2024 20:44							
Surrogate: Nitrobenzene-d5	556			ug/kg	500	602	111	30-120			
Surrogate: 2-Fluorobiphenyl	527			ug/kg	500	585	105	35-120			
Surrogate: 2,4,6-Tribromophenol	759			ug/kg	750	822	101	24-134			
Surrogate: p-Terphenyl-d14	558			ug/kg	500	621	112	37-120			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.



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Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0260 - EPA 8270E

Instrument: NT14 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BMG0260-MSD1)											
Source: 24G0167-07				Prepared: 15-Jul-2024 Analyzed: 02-Aug-2024 21:23							
Phenol	430	10.0	20.0	ug/kg	500	ND	86.0	31-120	0.91	30	
bis(2-chloroethyl) ether	493	35.0	50.0	ug/kg	500	ND	98.5	36-120	0.69	30	
2-Chlorophenol	436	20.0	20.0	ug/kg	500	ND	87.2	39-120	1.61	30	
1,3-Dichlorobenzene	460	10.0	20.0	ug/kg	500	ND	91.9	40-120	4.12	30	
1,4-Dichlorobenzene	506	10.0	20.0	ug/kg	500	ND	101	39-120	1.24	30	
1,2-Dichlorobenzene	461	10.0	20.0	ug/kg	500	ND	92.3	40-120	1.31	30	
Benzyl Alcohol	ND	20.0	20.0	ug/kg	500	ND		19-120			*, U
2,2'-Oxybis(1-chloropropane)	530	10.0	20.0	ug/kg	500	ND	106	32-120	3.71	30	
2-Methylphenol	474	10.0	20.0	ug/kg	500	ND	94.7	11-120	3.55	30	
Hexachloroethane	511	10.0	20.0	ug/kg	500	ND	102	38-120	1.80	30	
N-Nitroso-di-n-Propylamine	378	15.0	20.0	ug/kg	500	ND	75.6	24-120	0.56	30	
4-Methylphenol	483	15.0	20.0	ug/kg	500	ND	96.7	29-120	3.76	30	
Nitrobenzene	518	10.0	20.0	ug/kg	500	ND	104	36-120	0.60	30	
Isophorone	642	15.0	20.0	ug/kg	500	ND	128	37-126	1.04	30	*
2-Nitrophenol	447	10.0	20.0	ug/kg	500	ND	89.4	30-120	3.24	30	
2,4-Dimethylphenol	933	50.0	100	ug/kg	1500	ND	62.2	10-120	5.56	30	
Bis(2-Chloroethoxy)methane	548	10.0	20.0	ug/kg	500	ND	110	39-126	2.39	30	
2,4-Dichlorophenol	1610	50.0	100	ug/kg	1500	ND	108	28-120	2.10	30	
1,2,4-Trichlorobenzene	456	10.0	20.0	ug/kg	500	ND	91.3	35-120	0.48	30	
Naphthalene	555	10.0	20.0	ug/kg	500	60.3	98.8	41-120	1.44	30	
Benzoic acid	580	100	200	ug/kg	2250	ND	25.8	10-120	38.10	30	*
4-Chloroaniline	903	50.0	100	ug/kg	1500	ND	60.2	10-120	14.70	30	
Hexachlorobutadiene	487	10.0	20.0	ug/kg	500	ND	97.3	37-120	3.25	30	
4-Chloro-3-Methylphenol	1460	50.0	100	ug/kg	1500	ND	97.5	32-120	0.91	30	
2-Methylnaphthalene	533	10.0	20.0	ug/kg	500	58.3	94.9	43-120	4.30	30	
Hexachlorocyclopentadiene	1090	50.0	100	ug/kg	1500	ND	72.3	10-120	0.38	30	
2,4,6-Trichlorophenol	1410	50.0	100	ug/kg	1500	ND	94.1	40-120	0.87	30	
2,4,5-Trichlorophenol	1590	50.0	100	ug/kg	1500	ND	106	51.5-129	3.29	30	
2-Chloronaphthalene	498	10.0	20.0	ug/kg	500	ND	99.7	40-120	1.24	30	
2-Nitroaniline	1480	50.0	100	ug/kg	1500	ND	98.6	40-152	0.51	30	
Acenaphthylene	468	10.0	20.0	ug/kg	500	ND	93.6	42-120	0.73	30	
Dimethylphthalate	525	10.0	20.0	ug/kg	500	ND	105	43-120	2.32	30	
2,6-Dinitrotoluene	1830	50.0	100	ug/kg	1500	ND	122	31-156	1.04	30	
Acenaphthene	540	10.0	20.0	ug/kg	500	11.6	106	45-120	1.76	30	
3-Nitroaniline	986	50.0	100	ug/kg	1500	ND	65.7	22-120	3.33	30	



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Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0260 - EPA 8270E

Instrument: NT14 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BMG0260-MSD1)		Source: 24G0167-07		Prepared: 15-Jul-2024 Analyzed: 02-Aug-2024 21:23							
2,4-Dinitrophenol	1080	100	200	ug/kg	2750	ND	39.3	13-160	35.10	30	*
Dibenzofuran	483	20.0	20.0	ug/kg	500	ND	96.5	43-120	0.74	30	
4-Nitrophenol	1390	50.0	100	ug/kg	1500	ND	92.8	18-154	4.11	30	
2,4-Dinitrotoluene	1670	50.0	100	ug/kg	1500	ND	112	44-150	2.01	30	
Fluorene	543	20.0	20.0	ug/kg	500	ND	109	40-120	1.31	30	
4-Chlorophenylphenyl ether	562	35.0	50.0	ug/kg	500	ND	112	36-141	1.65	30	
Diethyl phthalate	586	35.0	50.0	ug/kg	500	ND	117	43-140	0.79	30	
4-Nitroaniline	1330	50.0	100	ug/kg	1500	ND	88.9	15-120	8.00	30	
4,6-Dinitro-2-methylphenol	2020	100	200	ug/kg	2750	ND	73.6	33-144	1.48	30	
N-Nitrosodiphenylamine	518	10.0	20.0	ug/kg	500	ND	104	17-120	0.64	30	
4-Bromophenyl phenyl ether	565	20.0	20.0	ug/kg	500	ND	113	39-120	0.27	30	
Hexachlorobenzene	517	20.0	20.0	ug/kg	500	ND	103	33-120	3.15	30	
Pentachlorophenol	772	50.0	100	ug/kg	1500	ND	51.4	33-133	8.67	30	
Phenanthrene	510	10.0	20.0	ug/kg	500	ND	102	49-120	3.63	30	
Anthracene	495	10.0	20.0	ug/kg	500	ND	99.0	37-120	2.59	30	
Carbazole	784	10.0	20.0	ug/kg	500	ND	157	30-135	4.05	30	*
Di-n-Butylphthalate	616	10.0	20.0	ug/kg	500	ND	123	48-126	0.34	30	
Fluoranthene	499	10.0	20.0	ug/kg	500	ND	99.7	38-127	1.55	30	
Pyrene	491	10.0	20.0	ug/kg	500	ND	98.1	39-122	1.74	30	
Butylbenzylphthalate	591	10.0	20.0	ug/kg	500	ND	118	45-132	0.39	30	
Benzo(a)anthracene	509	10.0	20.0	ug/kg	500	ND	102	44-120	0.46	30	
3,3'-Dichlorobenzidine	221	50.0	100	ug/kg	1000	ND	22.1	10-120	70.20	30	*
Chrysene	504	10.0	20.0	ug/kg	500	ND	101	47-120	1.07	30	
bis(2-Ethylhexyl)phthalate	582	40.0	50.0	ug/kg	500	ND	116	10-130	2.10	30	
Di-n-Octylphthalate	522	10.0	20.0	ug/kg	500	ND	104	10-124	0.81	30	
Benzo(a)fluoranthene, Total	1070	30.0	40.0	ug/kg	1000	ND	107	30-160	2.64	30	
Benzo(a)pyrene	536	10.0	20.0	ug/kg	500	ND	107	37-120	1.50	30	
Indeno(1,2,3-cd)pyrene	325	20.0	20.0	ug/kg	500	ND	65.0	30-160	3.20	30	
Dibenzo(a,h)anthracene	358	20.0	20.0	ug/kg	500	ND	71.6	30-160	3.47	30	
Benzo(g,h,i)perylene	327	20.0	20.0	ug/kg	500	ND	65.5	10-150	5.96	30	
1-Methylnaphthalene	550	10.0	20.0	ug/kg	500	ND	110	42-120	5.77	30	
Surrogate: 2-Fluorophenol	741			ug/kg	750	824	98.8	27-120			
Surrogate: Phenol-d5	742			ug/kg	750	774	99.0	29-120			
Surrogate: 2-Chlorophenol-d4	731			ug/kg	750	864	97.5	31-120			
Surrogate: 1,2-Dichlorobenzene-d4	468			ug/kg	500	547	93.7	32-120			



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
02-Sep-2024 14:07

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0260 - EPA 8270E

Instrument: NT14 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BMG0260-MSD1)		Source: 24G0167-07		Prepared: 15-Jul-2024 Analyzed: 02-Aug-2024 21:23							
Surrogate: Nitrobenzene-d5	526			ug/kg	500	602	105	30-120			
Surrogate: 2-Fluorobiphenyl	515			ug/kg	500	585	103	35-120			
Surrogate: 2,4,6-Tribromophenol	742			ug/kg	750	822	98.9	24-134			
Surrogate: p-Terphenyl-d14	527			ug/kg	500	621	105	37-120			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.



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Reported:
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Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0260 - EPA 8270E

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - SIM - Quality Control

Batch BMG0260 - EPA 8270E-SIM

Instrument: NT14 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0260-BLK2)						Prepared: 15-Jul-2024 Analyzed: 02-Aug-2024 14:14					
Phenol	2.7	2.5	5.0	ug/kg							J
1,3-Dichlorobenzene	ND	2.5	5.0	ug/kg							U
1,4-Dichlorobenzene	ND	2.5	5.0	ug/kg							U
1,2-Dichlorobenzene	ND	2.5	5.0	ug/kg							U
Benzyl Alcohol	ND	10.0	20.0	ug/kg							U
Benzoic acid	ND	50.0	100	ug/kg							U
2-Methylphenol	ND	2.5	5.0	ug/kg							U
N-Nitroso-di-n-Propylamine	ND	10.0	20.0	ug/kg							U
4-Methylphenol	ND	2.5	5.0	ug/kg							U
2,4-Dimethylphenol	ND	10.0	20.0	ug/kg							U
1,2,4-Trichlorobenzene	ND	5.0	5.0	ug/kg							U
Hexachlorobutadiene	ND	2.5	5.0	ug/kg							U
N-Nitrosodimethylamine	ND	12.5	25.0	ug/kg							U
Dimethylphthalate	ND	2.5	5.0	ug/kg							U
Diethyl phthalate	18.8	10.0	20.0	ug/kg							J
N-Nitrosodiphenylamine	ND	2.5	5.0	ug/kg							U
Hexachlorobenzene	ND	2.5	5.0	ug/kg							U
Pentachlorophenol	ND	10.0	20.0	ug/kg							U
Butylbenzylphthalate	ND	2.5	5.0	ug/kg							U
Dibenzo(a,h)anthracene	ND	2.5	5.0	ug/kg							U
Surrogate: 2-Fluorophenol	740			ug/kg	750		98.6	27-120			
Surrogate: p-Terphenyl-d14	669			ug/kg	500		134	37-120			*



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Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - SIM - Quality Control

Batch BMG0260 - EPA 8270E-SIM

Instrument: NT14 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0260-BS2)						Prepared: 15-Jul-2024 Analyzed: 02-Aug-2024 14:53					
Phenol	378	2.5	5.0	ug/kg	500		75.6	30-160			
1,3-Dichlorobenzene	378	2.5	5.0	ug/kg	500		75.6	30-120			
1,4-Dichlorobenzene	415	2.5	5.0	ug/kg	500		83.1	36-120			
1,2-Dichlorobenzene	384	2.5	5.0	ug/kg	500		76.8	36-120			
Benzyl Alcohol	361	10.0	20.0	ug/kg	500		72.3	25-123			
Benzoic acid	1490	50.0	100	ug/kg	2250		66.2	10-160			
2-Methylphenol	397	2.5	5.0	ug/kg	500		79.3	26-120			
N-Nitroso-di-n-Propylamine	380	10.0	20.0	ug/kg	500		76.0	30-160			
4-Methylphenol	432	2.5	5.0	ug/kg	500		86.3	30-160			
2,4-Dimethylphenol	521	10.0	20.0	ug/kg	1500		34.7	10-120			
1,2,4-Trichlorobenzene	373	5.0	5.0	ug/kg	500		74.6	35-120			
Hexachlorobutadiene	385	2.5	5.0	ug/kg	500		77.0	34-120			
N-Nitrosodimethylamine	767	12.5	25.0	ug/kg	1500		51.1	30-160			
Dimethylphthalate	437	2.5	5.0	ug/kg	500		87.3	38-120			
Diethyl phthalate	498	10.0	20.0	ug/kg	500		99.6	55-120			
N-Nitrosodiphenylamine	415	2.5	5.0	ug/kg	500		82.9	27-120			
Hexachlorobenzene	431	2.5	5.0	ug/kg	500		86.2	32-120			
Pentachlorophenol	1310	10.0	20.0	ug/kg	1500		87.5	26-120			E
Butylbenzylphthalate	464	2.5	5.0	ug/kg	500		92.8	32-142			
Dibenzo(a,h)anthracene	423	2.5	5.0	ug/kg	500		84.7	28-125			Q
Surrogate: 2-Fluorophenol	733			ug/kg	750		97.7	27-120			
Surrogate: p-Terphenyl-d14	592			ug/kg	500		118	37-120			



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Reported:
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Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - SIM - Quality Control

Batch BMG0260 - EPA 8270E-SIM

Instrument: NT14 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMG0260-BSD2)						Prepared: 15-Jul-2024 Analyzed: 02-Aug-2024 15:32					
Phenol	428	2.5	5.0	ug/kg	500		85.6	30-160	12.40	30	
1,3-Dichlorobenzene	422	2.5	5.0	ug/kg	500		84.4	30-120	11.00	30	
1,4-Dichlorobenzene	466	2.5	5.0	ug/kg	500		93.2	36-120	11.50	30	
1,2-Dichlorobenzene	434	2.5	5.0	ug/kg	500		86.8	36-120	12.20	30	
Benzyl Alcohol	399	10.0	20.0	ug/kg	500		79.8	25-123	9.91	30	
Benzoic acid	1620	50.0	100	ug/kg	2250		71.9	10-160	8.17	30	
2-Methylphenol	478	2.5	5.0	ug/kg	500		95.5	26-120	18.50	30	
N-Nitroso-di-n-Propylamine	433	10.0	20.0	ug/kg	500		86.7	30-160	13.10	30	
4-Methylphenol	504	2.5	5.0	ug/kg	500		101	30-160	15.50	30	
2,4-Dimethylphenol	827	10.0	20.0	ug/kg	1500		55.1	10-120	45.50	30	*
1,2,4-Trichlorobenzene	420	5.0	5.0	ug/kg	500		84.0	35-120	11.90	30	
Hexachlorobutadiene	436	2.5	5.0	ug/kg	500		87.3	34-120	12.50	30	
N-Nitrosodimethylamine	861	12.5	25.0	ug/kg	1500		57.4	30-160	11.60	30	
Dimethylphthalate	490	2.5	5.0	ug/kg	500		97.9	38-120	11.40	30	
Diethyl phthalate	568	10.0	20.0	ug/kg	500		114	55-120	13.20	30	
N-Nitrosodiphenylamine	481	2.5	5.0	ug/kg	500		96.2	27-120	14.90	30	
Hexachlorobenzene	496	2.5	5.0	ug/kg	500		99.2	32-120	14.10	30	
Pentachlorophenol	1500	10.0	20.0	ug/kg	1500		99.8	26-120	13.10	30	E
Butylbenzylphthalate	513	2.5	5.0	ug/kg	500		103	32-142	10.10	30	
Dibenzo(a,h)anthracene	483	2.5	5.0	ug/kg	500		96.6	28-125	13.10	30	Q
Surrogate: 2-Fluorophenol	717			ug/kg	750		95.6	27-120			
Surrogate: p-Terphenyl-d14	554			ug/kg	500		111	37-120			



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02-Sep-2024 14:07

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - SIM - Quality Control

Batch BMG0260 - EPA 8270E-SIM

Instrument: NT14 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BMG0260-MS2)		Source: 24G0167-07		Prepared: 15-Jul-2024 Analyzed: 02-Aug-2024 20:44							
Phenol	417	2.5	5.0	ug/kg	500	2.8	82.9	30-160			
1,3-Dichlorobenzene	435	2.5	5.0	ug/kg	500	ND	87.0	30-120			
1,4-Dichlorobenzene	481	2.5	5.0	ug/kg	500	ND	96.2	36-120			
1,2-Dichlorobenzene	445	2.5	5.0	ug/kg	500	ND	88.9	36-120			
Benzyl Alcohol	12.4	10.0	20.0	ug/kg	500	ND	2.5	25-123			*, J
Benzoic acid	532	50.0	100	ug/kg	2250	ND	23.6	10-160			
2-Methylphenol	508	2.5	5.0	ug/kg	500	ND	101	26-120			
N-Nitroso-di-n-Propylamine	366	10.0	20.0	ug/kg	500	ND	73.1	30-160			
4-Methylphenol	546	2.5	5.0	ug/kg	500	ND	109	30-160			
2,4-Dimethylphenol	928	10.0	20.0	ug/kg	1500	ND	61.9	10-120			
1,2,4-Trichlorobenzene	436	5.0	5.0	ug/kg	500	ND	87.1	35-120			
Hexachlorobutadiene	456	2.5	5.0	ug/kg	500	ND	91.1	34-120			
N-Nitrosodimethylamine	868	12.5	25.0	ug/kg	1500	ND	57.9	30-160			
Dimethylphthalate	507	2.5	5.0	ug/kg	500	ND	101	38-120			
Diethyl phthalate	582	10.0	20.0	ug/kg	500	14.1	114	55-120			
N-Nitrosodiphenylamine	515	2.5	5.0	ug/kg	500	ND	103	27-120			
Hexachlorobenzene	535	2.5	5.0	ug/kg	500	ND	107	32-120			
Pentachlorophenol	1050	10.0	20.0	ug/kg	1500	ND	70.3	26-120			E
Butylbenzylphthalate	519	2.5	5.0	ug/kg	500	ND	104	32-142			
Dibenzo(a,h)anthracene	388	2.5	5.0	ug/kg	500	ND	77.6	28-125			Q
Surrogate: 2-Fluorophenol	759			ug/kg	750	797	101	27-120			
Surrogate: p-Terphenyl-d14	562			ug/kg	500	610	112	37-120			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
02-Sep-2024 14:07

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - SIM - Quality Control

Batch BMG0260 - EPA 8270E-SIM

Instrument: NT14 Analyst: RJL

QC Sample/Analyte	Detection Result	Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BMG0260-MSD2) Source: 24G0167-07 Prepared: 15-Jul-2024 Analyzed: 02-Aug-2024 21:23											
Phenol	417	2.5	5.0	ug/kg	500	2.8	82.8	30-160	0.11	30	
1,3-Dichlorobenzene	440	2.5	5.0	ug/kg	500	ND	88.0	30-120	1.18	30	
1,4-Dichlorobenzene	486	2.5	5.0	ug/kg	500	ND	97.1	36-120	0.97	30	
1,2-Dichlorobenzene	450	2.5	5.0	ug/kg	500	ND	90.0	36-120	1.19	30	
Benzyl Alcohol	ND	10.0	20.0	ug/kg	500	ND		25-123			*, U
Benzoic acid	762	50.0	100	ug/kg	2250	ND	33.9	10-160	35.60	30	
2-Methylphenol	499	2.5	5.0	ug/kg	500	ND	99.8	26-120	1.66	30	
N-Nitroso-di-n-Propylamine	376	10.0	20.0	ug/kg	500	ND	75.2	30-160	2.83	30	
4-Methylphenol	555	2.5	5.0	ug/kg	500	ND	111	30-160	1.63	30	
2,4-Dimethylphenol	881	10.0	20.0	ug/kg	1500	ND	58.7	10-120	5.18	30	
1,2,4-Trichlorobenzene	441	5.0	5.0	ug/kg	500	ND	88.2	35-120	1.30	30	
Hexachlorobutadiene	460	2.5	5.0	ug/kg	500	ND	92.0	34-120	1.02	30	
N-Nitrosodimethylamine	874	12.5	25.0	ug/kg	1500	ND	58.2	30-160	0.63	30	
Dimethylphthalate	508	2.5	5.0	ug/kg	500	ND	102	38-120	0.15	30	
Diethyl phthalate	570	10.0	20.0	ug/kg	500	14.1	111	55-120	2.03	30	
N-Nitrosodiphenylamine	520	2.5	5.0	ug/kg	500	ND	104	27-120	0.86	30	
Hexachlorobenzene	531	2.5	5.0	ug/kg	500	ND	106	32-120	0.77	30	
Pentachlorophenol	952	10.0	20.0	ug/kg	1500	ND	63.4	26-120	10.30	30	
Butylbenzylphthalate	521	2.5	5.0	ug/kg	500	ND	104	32-142	0.40	30	
Dibenzo(a,h)anthracene	372	2.5	5.0	ug/kg	500	ND	74.3	28-125	4.40	30	Q
Surrogate: 2-Fluorophenol	729			ug/kg	750	797	97.1	27-120			
Surrogate: p-Terphenyl-d14	527			ug/kg	500	610	105	37-120			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.



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Reported:
02-Sep-2024 14:07

Analysis by: Analytical Resources, LLC

Butyl Tins - Quality Control

Batch BMG0259 - EPA 8270E-SIM

Instrument: NT17 Analyst: JZ

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0259-BLK1)					Prepared: 15-Jul-2024 Analyzed: 05-Aug-2024 17:21					
Tributyltin Ion	ND	1.93	3.86	ug/kg						U
Surrogate: Triphenyltin	28.8			ug/kg	45.2		63.7 30-160			
Surrogate: Tripropyltin	20.7			ug/kg	43.7		47.3 30-160			



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Reported:
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Analysis by: Analytical Resources, LLC

Butyl Tins - Quality Control

Batch BMG0259 - EPA 8270E-SIM

Instrument: NT17 Analyst: JZ

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0259-BS1)					Prepared: 15-Jul-2024 Analyzed: 05-Aug-2024 18:03					
Tributyltin Ion	31.0	1.93	3.86	ug/kg	44.6	69.5	30-160			
Surrogate: Triphenyltin	35.0			ug/kg	45.2	77.4	30-160			
Surrogate: Tripropyltin	26.2			ug/kg	43.7	59.9	30-160			



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Reported:
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Analysis by: Analytical Resources, LLC

Butyl Tins - Quality Control

Batch BMG0259 - EPA 8270E-SIM

Instrument: NT17 Analyst: JZ

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMG0259-BSD1)						Prepared: 15-Jul-2024 Analyzed: 05-Aug-2024 18:16					
Tributyltin Ion	33.5	1.93	3.86	ug/kg	44.6		75.2	30-160	7.85	30	
Surrogate: Triphenyltin	37.1			ug/kg	45.2		82.1	30-160			
Surrogate: Tripropyltin	25.8			ug/kg	43.7		58.9	30-160			



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Reported:
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Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BMG0258 - EPA 8081B

Instrument: ECD6 Analyst: RT/JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0258-BLK1) Prepared: 15-Jul-2024 Analyzed: 18-Aug-2024 02:40											
alpha-BHC	ND	0.25	0.50	ug/kg							U
beta-BHC	ND	0.25	0.50	ug/kg							U
gamma-BHC (Lindane)	ND	0.25	0.50	ug/kg							U
delta-BHC	ND	0.25	0.50	ug/kg							U
Heptachlor	ND	0.25	0.50	ug/kg							U
Aldrin	ND	0.50	0.50	ug/kg							U
Heptachlor Epoxide	ND	0.25	0.50	ug/kg							U
trans-Chlordane (beta-Chlordane)	ND	0.50	0.50	ug/kg							U
cis-Chlordane (alpha-chlordane)	ND	0.25	0.50	ug/kg							U
Endosulfan I	ND	0.25	0.50	ug/kg							U
4,4'-DDE	ND	0.50	1.00	ug/kg							U
Dieldrin	ND	0.50	1.00	ug/kg							U
Endrin	ND	0.50	1.00	ug/kg							U
Endosulfan II	ND	0.50	1.00	ug/kg							U
4,4'-DDD	ND	0.50	1.00	ug/kg							U
Endrin Aldehyde	ND	0.50	1.00	ug/kg							U
4,4'-DDT	ND	0.50	1.00	ug/kg							U
Endosulfan Sulfate	ND	0.50	1.00	ug/kg							U
Endrin Ketone	ND	0.50	1.00	ug/kg							U
Methoxychlor	ND	2.50	5.00	ug/kg							U
Hexachlorobutadiene	ND	0.25	0.50	ug/kg							U
Hexachlorobenzene	ND	0.25	0.50	ug/kg							U
2,4'-DDE	ND	0.50	1.00	ug/kg							U
2,4'-DDD	ND	0.50	1.00	ug/kg							U
2,4'-DDT	ND	0.50	1.00	ug/kg							U
Oxychlordane	ND	0.50	1.00	ug/kg							U
cis-Nonachlor	ND	0.50	1.00	ug/kg							U
trans-Nonachlor	ND	0.50	1.00	ug/kg							U
Mirex	ND	1.00	1.00	ug/kg							U
Surrogate: Decachlorobiphenyl	9.10			ug/kg	8.00		114	30-160			
Surrogate: Decachlorobiphenyl [2C]	8.94			ug/kg	8.00		112	30-160			
Surrogate: Tetrachlorometaxylene	27.5			ug/kg	8.00		344	30-160			*
Surrogate: Tetrachlorometaxylene [2C]	7.14			ug/kg	8.00		89.3	30-160			



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Reported:
02-Sep-2024 14:07

Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BMG0258 - EPA 8081B

Instrument: ECD6 Analyst: RT/JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0258-BS1)						Prepared: 15-Jul-2024 Analyzed: 18-Aug-2024 03:00					
alpha-BHC [2C]	3.72	0.25	0.50	ug/kg	4.00		92.9	28-120			
beta-BHC [2C]	3.89	0.25	0.50	ug/kg	4.00		97.2	33-120			
gamma-BHC (Lindane) [2C]	3.75	0.25	0.50	ug/kg	4.00		93.8	30-124			
delta-BHC	4.07	0.25	0.50	ug/kg	4.00		102	30-120			
Heptachlor	4.23	0.25	0.50	ug/kg	4.00		106	26-120			
Aldrin	3.46	0.50	0.50	ug/kg	4.00		86.5	26-120			
Heptachlor Epoxide	3.77	0.25	0.50	ug/kg	4.00		94.3	26-120			
trans-Chlordane (beta-Chlordane) [2C]	3.80	0.50	0.50	ug/kg	4.00		95.0	21-120			
cis-Chlordane (alpha-chlordane) [2C]	3.75	0.25	0.50	ug/kg	4.00		93.7	39-120			
Endosulfan I [2C]	3.74	0.25	0.50	ug/kg	4.00		93.4	17-143			
4,4'-DDE [2C]	7.72	0.50	1.00	ug/kg	8.00		96.5	35-120			
Dieldrin [2C]	7.74	0.50	1.00	ug/kg	8.00		96.7	10-140			
Endrin [2C]	9.79	0.50	1.00	ug/kg	8.00		122	45-120			*
Endosulfan II [2C]	9.52	0.50	1.00	ug/kg	8.00		119	10-139			
4,4'-DDD [2C]	9.55	0.50	1.00	ug/kg	8.00		119	50-120			
Endrin Aldehyde [2C]	7.27	0.50	1.00	ug/kg	8.00		90.9	10-120			
4,4'-DDT	9.87	0.50	1.00	ug/kg	8.00		123	39-120			*
Endosulfan Sulfate [2C]	10.0	0.50	1.00	ug/kg	8.00		125	38-120			*
Endrin Ketone [2C]	9.50	0.50	1.00	ug/kg	8.00		119	17-120			
Methoxychlor [2C]	47.1	2.50	5.00	ug/kg	40.0		118	10-140			
Hexachlorobutadiene [2C]	3.06	0.25	0.50	ug/kg	4.00		76.6	15-120			
Hexachlorobenzene [2C]	3.23	0.25	0.50	ug/kg	4.00		80.7	26-128			
Surrogate: Decachlorobiphenyl	9.86			ug/kg	8.00		123	30-160			
Surrogate: Decachlorobiphenyl [2C]	9.54			ug/kg	8.00		119	30-160			
Surrogate: Tetrachlorometaxylene	11.0			ug/kg	8.00		137	30-160			
Surrogate: Tetrachlorometaxylene [2C]	7.29			ug/kg	8.00		91.1	30-160			



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
02-Sep-2024 14:07

Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BMG0258 - EPA 8081B

Instrument: ECD6 Analyst: RT

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0258-BS2) Prepared: 15-Jul-2024 Analyzed: 30-Jul-2024 13:29										
2,4'-DDE	9.02	0.50	1.00	ug/kg	8.00		113 30-160			
2,4'-DDD	8.42	0.50	1.00	ug/kg	8.00		105 30-160			
2,4'-DDT	9.21	0.50	1.00	ug/kg	8.00		115 30-160			
Oxychlordane	8.46	0.50	1.00	ug/kg	8.00		106 30-160			P1
cis-Nonachlor	7.83	0.50	1.00	ug/kg	8.00		97.9 30-160			
trans-Nonachlor	7.86	0.50	1.00	ug/kg	8.00		98.2 30-160			
Mirex	6.76	1.00	1.00	ug/kg	8.00		84.5 30-160			P1
Surrogate: Decachlorobiphenyl	6.78			ug/kg	8.00		84.7 30-160			
Surrogate: Decachlorobiphenyl [2C]	7.93			ug/kg	8.00		99.1 30-160			
Surrogate: Tetrachlorometaxylene	4.91			ug/kg	8.00		61.4 30-160			
Surrogate: Tetrachlorometaxylene [2C]	6.31			ug/kg	8.00		78.9 30-160			



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02-Sep-2024 14:07

Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BMG0258 - EPA 8081B

Instrument: ECD6 Analyst: RT/JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0258-BS3)										
Prepared: 15-Jul-2024 Analyzed: 18-Aug-2024 03:21										
2,4'-DDE	6.65	0.50	1.00	ug/kg	8.00		83.1 30-160			
2,4'-DDD [2C]	7.33	0.50	1.00	ug/kg	8.00		91.6 30-160			
2,4'-DDT [2C]	7.73	0.50	1.00	ug/kg	8.00		96.6 30-160			
Oxychlorane	6.05	0.50	1.00	ug/kg	8.00		75.6 30-160			
cis-Nonachlor [2C]	7.52	0.50	1.00	ug/kg	8.00		94.0 30-160			
trans-Nonachlor [2C]	7.46	0.50	1.00	ug/kg	8.00		93.2 30-160			
Mirex [2C]	7.65	1.00	1.00	ug/kg	8.00		95.6 30-160			
Surrogate: Decachlorobiphenyl	9.73			ug/kg	8.00		122 30-160			
Surrogate: Decachlorobiphenyl [2C]	10.4			ug/kg	8.00		130 30-160			
Surrogate: Tetrachlorometaxylene	7.58			ug/kg	8.00		94.8 30-160			
Surrogate: Tetrachlorometaxylene [2C]	7.65			ug/kg	8.00		95.6 30-160			



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Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BMG0258 - EPA 8081B

Instrument: ECD6 Analyst: RT/JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMG0258-BSD1)						Prepared: 15-Jul-2024 Analyzed: 18-Aug-2024 03:41					
alpha-BHC [2C]	3.63	0.25	0.50	ug/kg	4.00		90.8	28-120	2.25	30	
beta-BHC [2C]	3.75	0.25	0.50	ug/kg	4.00		93.7	33-120	3.74	30	
gamma-BHC (Lindane) [2C]	3.85	0.25	0.50	ug/kg	4.00		96.3	30-124	2.71	30	
delta-BHC	3.84	0.25	0.50	ug/kg	4.00		96.1	30-120	5.83	30	
Heptachlor	4.01	0.25	0.50	ug/kg	4.00		100	26-120	5.28	30	
Aldrin	3.35	0.50	0.50	ug/kg	4.00		83.8	26-120	3.13	30	
Heptachlor Epoxide	3.67	0.25	0.50	ug/kg	4.00		91.8	26-120	2.64	30	
trans-Chlordane (beta-Chlordane) [2C]	3.65	0.50	0.50	ug/kg	4.00		91.2	21-120	4.04	30	
cis-Chlordane (alpha-chlordane) [2C]	3.66	0.25	0.50	ug/kg	4.00		91.5	39-120	2.33	30	
Endosulfan I [2C]	3.65	0.25	0.50	ug/kg	4.00		91.3	17-143	2.31	30	
4,4'-DDE [2C]	7.50	0.50	1.00	ug/kg	8.00		93.8	35-120	2.84	30	
Dieldrin [2C]	7.53	0.50	1.00	ug/kg	8.00		94.2	10-140	2.64	30	
Endrin [2C]	10.2	0.50	1.00	ug/kg	8.00		128	45-120	4.50	30	*
Endosulfan II [2C]	9.88	0.50	1.00	ug/kg	8.00		124	10-139	3.71	30	
4,4'-DDD [2C]	10.1	0.50	1.00	ug/kg	8.00		126	50-120	5.44	30	*
Endrin Aldehyde [2C]	6.98	0.50	1.00	ug/kg	8.00		87.2	10-120	4.10	30	
4,4'-DDT [2C]	10.1	0.50	1.00	ug/kg	8.00		126	39-120	4.98	30	*
Endosulfan Sulfate [2C]	10.5	0.50	1.00	ug/kg	8.00		131	38-120	4.48	30	*
Endrin Ketone [2C]	10.3	0.50	1.00	ug/kg	8.00		129	17-120	8.47	30	*
Methoxychlor [2C]	50.1	2.50	5.00	ug/kg	40.0		125	10-140	6.20	30	
Hexachlorobutadiene [2C]	3.20	0.25	0.50	ug/kg	4.00		80.1	15-120	4.45	30	
Hexachlorobenzene [2C]	3.13	0.25	0.50	ug/kg	4.00		78.3	26-128	3.06	30	
Surrogate: Decachlorobiphenyl	9.71			ug/kg	8.00		121	30-160			
Surrogate: Decachlorobiphenyl [2C]	9.79			ug/kg	8.00		122	30-160			
Surrogate: Tetrachlorometaxylene	6.87			ug/kg	8.00		85.8	30-160			
Surrogate: Tetrachlorometaxylene [2C]	6.76			ug/kg	8.00		84.5	30-160			



Shannon & Wilson, Inc
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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
02-Sep-2024 14:07

Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BMG0258 - EPA 8081B

Instrument: ECD6 Analyst: RT/JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BMG0258-MS1)		Source: 24G0167-02		Prepared: 15-Jul-2024 Analyzed: 18-Aug-2024 05:03							
alpha-BHC	3.66	0.25	0.50	ug/kg	4.00	ND	91.5	28-120			
beta-BHC	4.03	0.25	0.50	ug/kg	4.00	ND	101	33-120			
gamma-BHC (Lindane)	3.62	0.25	0.50	ug/kg	4.00	ND	90.5	30-124			
delta-BHC	3.81	0.25	0.50	ug/kg	4.00	ND	95.3	30-120			
Heptachlor	4.16	0.25	0.50	ug/kg	4.00	ND	104	26-120			
Aldrin	3.42	0.50	0.50	ug/kg	4.00	ND	85.5	26-120			
Heptachlor Epoxide	3.18	0.25	0.50	ug/kg	4.00	ND	79.5	26-120			
trans-Chlordane (beta-Chlordane)	3.12	0.50	0.50	ug/kg	4.00	ND	78.0	21-120			
cis-Chlordane (alpha-chlordane)	3.18	0.25	0.50	ug/kg	4.00	ND	79.4	39-120			
Endosulfan I	3.42	0.25	0.50	ug/kg	4.00	ND	85.4	17-143			
4,4'-DDE	6.66	0.50	1.00	ug/kg	8.00	ND	83.3	35-120			
Dieldrin	6.99	0.50	1.00	ug/kg	8.00	ND	87.4	10-140			
Endrin	9.37	0.50	1.00	ug/kg	8.00	ND	117	45-120			
Endosulfan II	8.03	0.50	1.00	ug/kg	8.00	ND	100	10-139			
4,4'-DDD	8.99	0.50	1.00	ug/kg	8.00	ND	112	50-120			
Endrin Aldehyde	6.92	0.50	1.00	ug/kg	8.00	ND	86.5	10-120			
4,4'-DDT	10.0	0.50	1.00	ug/kg	8.00	ND	125	39-120			*
Endosulfan Sulfate	8.88	0.50	1.00	ug/kg	8.00	ND	111	38-120			
Endrin Ketone	8.43	0.50	1.00	ug/kg	8.00	ND	105	17-120			
Methoxychlor	50.1	2.50	5.00	ug/kg	40.0	ND	125	10-140			
Hexachlorobutadiene	3.06	0.25	0.50	ug/kg	4.00	ND	76.4	15-120			
Hexachlorobenzene [2C]	3.29	0.25	0.50	ug/kg	4.00	ND	82.3	26-128			
Surrogate: Decachlorobiphenyl	10.5			ug/kg	8.00		131	30-160			
Surrogate: Decachlorobiphenyl [2C]	8.82			ug/kg	8.00		110	30-160			
Surrogate: Tetrachlorometaxylene	7.94			ug/kg	8.00		99.3	30-160			
Surrogate: Tetrachlorometaxylene [2C]	7.07			ug/kg	8.00		88.3	30-160			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
02-Sep-2024 14:07

Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BMG0258 - EPA 8081B

Instrument: ECD6 Analyst: RT/JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BMG0258-MSD1)		Source: 24G0167-02		Prepared: 15-Jul-2024 Analyzed: 18-Aug-2024 05:23							
alpha-BHC	3.59	0.25	0.50	ug/kg	4.00	ND	89.8	28-120	1.88	30	
beta-BHC	3.91	0.25	0.50	ug/kg	4.00	ND	97.8	33-120	3.14	30	
gamma-BHC (Lindane)	3.55	0.25	0.50	ug/kg	4.00	ND	88.8	30-124	1.97	30	
delta-BHC	3.75	0.25	0.50	ug/kg	4.00	ND	93.8	30-120	1.64	30	
Heptachlor	4.05	0.25	0.50	ug/kg	4.00	ND	101	26-120	2.78	30	
Aldrin	3.31	0.50	0.50	ug/kg	4.00	ND	82.8	26-120	3.34	30	
Heptachlor Epoxide	3.19	0.25	0.50	ug/kg	4.00	ND	79.8	26-120	0.34	30	
trans-Chlordane (beta-Chlordane)	3.10	0.50	0.50	ug/kg	4.00	ND	77.5	21-120	0.67	30	
cis-Chlordane (alpha-chlordane)	3.07	0.25	0.50	ug/kg	4.00	ND	76.8	39-120	3.41	30	
Endosulfan I	3.31	0.25	0.50	ug/kg	4.00	ND	82.6	17-143	3.30	30	
4,4'-DDE	6.42	0.50	1.00	ug/kg	8.00	ND	80.3	35-120	3.64	30	
Dieldrin	6.78	0.50	1.00	ug/kg	8.00	ND	84.8	10-140	3.08	30	
Endrin	9.19	0.50	1.00	ug/kg	8.00	ND	115	45-120	1.93	30	
Endosulfan II	7.58	0.50	1.00	ug/kg	8.00	ND	94.7	10-139	5.76	30	
4,4'-DDD	8.87	0.50	1.00	ug/kg	8.00	ND	111	50-120	1.31	30	
Endrin Aldehyde	6.93	0.50	1.00	ug/kg	8.00	ND	86.6	10-120	0.17	30	
4,4'-DDT	9.85	0.50	1.00	ug/kg	8.00	ND	123	39-120	1.65	30	*
Endosulfan Sulfate	8.55	0.50	1.00	ug/kg	8.00	ND	107	38-120	3.79	30	
Endrin Ketone	8.26	0.50	1.00	ug/kg	8.00	ND	103	17-120	1.99	30	
Methoxychlor	49.2	2.50	5.00	ug/kg	40.0	ND	123	10-140	1.76	30	
Hexachlorobutadiene	2.93	0.25	0.50	ug/kg	4.00	ND	73.2	15-120	4.24	30	
Hexachlorobenzene [2C]	3.34	0.25	0.50	ug/kg	4.00	ND	83.5	26-128	1.49	30	
Surrogate: Decachlorobiphenyl	9.70			ug/kg	8.00		121	30-160			
Surrogate: Decachlorobiphenyl [2C]	8.48			ug/kg	8.00		106	30-160			
Surrogate: Tetrachlorometaxylene	7.44			ug/kg	8.00		93.0	30-160			
Surrogate: Tetrachlorometaxylene [2C]	6.81			ug/kg	8.00		85.1	30-160			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
02-Sep-2024 14:07

Chlorinated Pesticides - Quality Control

Batch BMG0716 - EPA 8081B

Instrument: ECD6 Analyst: RT/JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0716-BLK1)					Prepared: 01-Aug-2024 Analyzed: 20-Aug-2024 11:31						
alpha-BHC	ND	0.25	0.50	ug/kg							U
beta-BHC	ND	0.25	0.50	ug/kg							U
gamma-BHC (Lindane)	ND	0.25	0.50	ug/kg							U
delta-BHC	ND	0.25	0.50	ug/kg							U
Heptachlor	ND	0.25	0.50	ug/kg							U
Aldrin	ND	0.50	0.50	ug/kg							U
Heptachlor Epoxide	ND	0.25	0.50	ug/kg							U
trans-Chlordane (beta-Chlordane)	ND	0.50	0.50	ug/kg							U
cis-Chlordane (alpha-chlordane)	ND	0.25	0.50	ug/kg							U
Endosulfan I	ND	0.25	0.50	ug/kg							U
4,4'-DDE	ND	0.50	1.00	ug/kg							U
Dieldrin	ND	0.50	1.00	ug/kg							U
Endrin	ND	0.50	1.00	ug/kg							U
Endosulfan II	ND	0.50	1.00	ug/kg							U
4,4'-DDD	ND	0.50	1.00	ug/kg							U
Endrin Aldehyde	ND	0.50	1.00	ug/kg							U
4,4'-DDT	ND	0.50	1.00	ug/kg							U
Endosulfan Sulfate	ND	0.50	1.00	ug/kg							U
Endrin Ketone	ND	0.50	1.00	ug/kg							U
Methoxychlor	ND	2.50	5.00	ug/kg							U
Hexachlorobutadiene	ND	0.25	0.50	ug/kg							U
Hexachlorobenzene	ND	0.25	0.50	ug/kg							U
2,4'-DDE	ND	0.50	1.00	ug/kg							U
2,4'-DDD	ND	0.50	1.00	ug/kg							U
2,4'-DDT	ND	0.50	1.00	ug/kg							U
Oxychlordane	ND	0.50	1.00	ug/kg							U
cis-Nonachlor	ND	0.50	1.00	ug/kg							U
trans-Nonachlor	ND	0.50	1.00	ug/kg							U
Mirex	ND	1.00	1.00	ug/kg							U
Surrogate: Decachlorobiphenyl	9.36			ug/kg	8.00		117	30-160			PI
Surrogate: Decachlorobiphenyl [2C]	14.4			ug/kg	8.00		180	30-160			*, PI
Surrogate: Tetrachlorometaxylene	7.94			ug/kg	8.00		99.3	30-160			
Surrogate: Tetrachlorometaxylene [2C]	9.73			ug/kg	8.00		122	30-160			



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Reported:
02-Sep-2024 14:07

Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BMG0716 - EPA 8081B

Instrument: ECD6 Analyst: RT/JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0716-BS1)										
Prepared: 01-Aug-2024 Analyzed: 20-Aug-2024 11:51										
alpha-BHC [2C]	4.44	0.25	0.50	ug/kg	4.00		111	28-120		
beta-BHC [2C]	4.49	0.25	0.50	ug/kg	4.00		112	33-120		
gamma-BHC (Lindane) [2C]	4.53	0.25	0.50	ug/kg	4.00		113	30-124		
delta-BHC [2C]	4.49	0.25	0.50	ug/kg	4.00		112	30-120		
Heptachlor [2C]	4.71	0.25	0.50	ug/kg	4.00		118	26-120		
Aldrin	3.80	0.50	0.50	ug/kg	4.00		95.1	26-120		
Heptachlor Epoxide [2C]	4.66	0.25	0.50	ug/kg	4.00		116	26-120		
trans-Chlordane (beta-Chlordane)	3.81	0.50	0.50	ug/kg	4.00		95.2	21-120		
cis-Chlordane (alpha-chlordane) [2C]	4.62	0.25	0.50	ug/kg	4.00		115	39-120		
Endosulfan I [2C]	4.82	0.25	0.50	ug/kg	4.00		121	17-143		
4,4'-DDE	8.48	0.50	1.00	ug/kg	8.00		106	35-120		
Dieldrin [2C]	9.64	0.50	1.00	ug/kg	8.00		121	10-140		
Endrin	8.30	0.50	1.00	ug/kg	8.00		104	45-120		
Endosulfan II	9.02	0.50	1.00	ug/kg	8.00		113	10-139		
4,4'-DDD	8.37	0.50	1.00	ug/kg	8.00		105	50-120		
Endrin Aldehyde [2C]	8.02	0.50	1.00	ug/kg	8.00		100	10-120		
4,4'-DDT	8.56	0.50	1.00	ug/kg	8.00		107	39-120		
Endosulfan Sulfate	8.53	0.50	1.00	ug/kg	8.00		107	38-120		
Endrin Ketone	7.88	0.50	1.00	ug/kg	8.00		98.5	17-120		
Methoxychlor	40.5	2.50	5.00	ug/kg	40.0		101	10-140		
Hexachlorobutadiene [2C]	4.05	0.25	0.50	ug/kg	4.00		101	15-120		
Hexachlorobenzene [2C]	3.86	0.25	0.50	ug/kg	4.00		96.5	26-128		
Surrogate: Decachlorobiphenyl	9.01			ug/kg	8.00		113	30-160		
Surrogate: Decachlorobiphenyl [2C]	9.01			ug/kg	8.00		113	30-160		
Surrogate: Tetrachlorometaxylene	7.34			ug/kg	8.00		91.7	30-160		
Surrogate: Tetrachlorometaxylene [2C]	8.79			ug/kg	8.00		110	30-160		



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
02-Sep-2024 14:07

Analysis by: Analytical Resources, LLC

Aroclor PCB - Quality Control

Batch BMG0257 - EPA 8082A

Instrument: ECD5 Analyst: AA

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0257-BLK1) Prepared: 16-Jul-2024 Analyzed: 25-Jul-2024 15:28										
Aroclor 1016	ND	2.0	4.0	ug/kg						U
Aroclor 1221	ND	2.0	4.0	ug/kg						U
Aroclor 1232	ND	2.0	4.0	ug/kg						U
Aroclor 1242	ND	2.0	4.0	ug/kg						U
Aroclor 1248	ND	2.0	4.0	ug/kg						U
Aroclor 1254	ND	2.0	4.0	ug/kg						U
Aroclor 1260	ND	2.0	4.0	ug/kg						U
Aroclor 1262	ND	2.0	4.0	ug/kg						U
Aroclor 1268	ND	2.0	4.0	ug/kg						U
Surrogate: Decachlorobiphenyl	5.99			ug/kg	8.00		74.8	40-126		
Surrogate: Tetrachlorometaxylene	5.84			ug/kg	8.00		72.9	44-120		
Surrogate: Decachlorobiphenyl [2C]	6.26			ug/kg	8.00		78.3	40-126		
Surrogate: Tetrachlorometaxylene [2C]	5.72			ug/kg	8.00		71.5	44-120		



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Analysis by: Analytical Resources, LLC

Aroclor PCB - Quality Control

Batch BMG0257 - EPA 8082A

Instrument: ECD5 Analyst: AA

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0257-BS1)						Prepared: 16-Jul-2024 Analyzed: 25-Jul-2024 15:48					
Aroclor 1016	92.3	2.0	4.0	ug/kg	101		91.6	56-120			
Aroclor 1260	92.1	2.0	4.0	ug/kg	101		91.3	58-120			
Surrogate: Decachlorobiphenyl	6.81			ug/kg	8.00		85.1	40-126			
Surrogate: Tetrachlorometaxylene	6.67			ug/kg	8.00		83.3	44-120			
Surrogate: Decachlorobiphenyl [2C]	7.06			ug/kg	8.00		88.3	40-126			
Surrogate: Tetrachlorometaxylene [2C]	6.43			ug/kg	8.00		80.4	44-120			



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Analysis by: Analytical Resources, LLC

Aroclor PCB - Quality Control

Batch BMG0257 - EPA 8082A

Instrument: ECD5 Analyst: AA

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMG0257-BSD1)						Prepared: 16-Jul-2024 Analyzed: 25-Jul-2024 16:09					
Aroclor 1016	99.3	2.0	4.0	ug/kg	101		98.5	56-120	7.32	30	
Aroclor 1260	98.9	2.0	4.0	ug/kg	101		98.1	58-120	7.19	30	
Surrogate: Decachlorobiphenyl	7.08			ug/kg	8.00		88.5	40-126			
Surrogate: Tetrachlorometaxylene	7.04			ug/kg	8.00		88.0	44-120			
Surrogate: Decachlorobiphenyl [2C]	7.42			ug/kg	8.00		92.8	40-126			
Surrogate: Tetrachlorometaxylene [2C]	6.75			ug/kg	8.00		84.4	44-120			



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Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BMG0275 - EPA 6020B

Instrument: ICPMS1 Analyst: DOE

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0275-BLK1)		Prepared: 11-Jul-2024 Analyzed: 18-Jul-2024 10:38										
Chromium	52	ND	0.26	0.50	mg/kg							U
Chromium	53	ND	0.24	0.50	mg/kg							U
Lead	208	ND	0.05	0.10	mg/kg							U
Silver	107	ND	0.02	0.20	mg/kg							U
Arsenic	75a	ND	0.04	0.20	mg/kg							U
Cadmium	111	ND	0.03	0.10	mg/kg							U
Copper	63	ND	0.17	0.50	mg/kg							U
Selenium	78	ND	0.18	0.50	mg/kg							U
Zinc	66	ND	2.9	6.0	mg/kg							U
Blank (BMG0275-BLK2)		Prepared: 11-Jul-2024 Analyzed: 19-Jul-2024 19:16										
Antimony	121	ND	0.10	0.20	mg/kg							U
LCS (BMG0275-BS1)		Prepared: 11-Jul-2024 Analyzed: 18-Jul-2024 10:43										
Chromium	52	26.2	0.26	0.50	mg/kg	25.0		105	80-120			
Chromium	53	24.9	0.24	0.50	mg/kg	25.0		99.5	80-120			
Lead	208	27.3	0.05	0.10	mg/kg	25.0		109	80-120			
Silver	107	26.1	0.02	0.20	mg/kg	25.0		104	80-120			
Arsenic	75a	24.5	0.04	0.20	mg/kg	25.0		97.9	80-120			
Cadmium	111	24.7	0.03	0.10	mg/kg	25.0		98.9	80-120			
Copper	63	26.5	0.17	0.50	mg/kg	25.0		106	80-120			
Selenium	78	78.9	0.18	0.50	mg/kg	80.0		98.7	80-120			
Zinc	66	80.2	2.9	6.0	mg/kg	80.0		100	80-120			
LCS (BMG0275-BS2)		Prepared: 11-Jul-2024 Analyzed: 19-Jul-2024 19:21										
Antimony	121	24.8	0.10	0.20	mg/kg	25.0		99.3	80-120			
Duplicate (BMG0275-DUP1)		Source: 24G0167-01		Prepared: 11-Jul-2024 Analyzed: 18-Jul-2024 11:06								
Lead	208	7.53	0.06	0.12	mg/kg		7.49			0.52	20	
Silver	107	0.14	0.03	0.23	mg/kg		0.15			1.98	20	J
Arsenic	75a	12.9	0.04	0.23	mg/kg		12.7			1.12	20	
Cadmium	111	0.12	0.03	0.12	mg/kg		0.11			13.10	20	
Copper	63	37.3	0.20	0.58	mg/kg		36.0			3.52	20	
Selenium	78	1.05	0.21	0.58	mg/kg		1.04			0.40	20	
Zinc	66	80.4	3.4	7.0	mg/kg		78.4			2.59	20	
Duplicate (BMG0275-DUP2)		Source: 24G0167-01		Prepared: 11-Jul-2024 Analyzed: 19-Jul-2024 19:45								



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Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BMG0275 - EPA 6020B

Instrument: ICPMS1 Analyst: DOE

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Duplicate (BMG0275-DUP2)		Source: 24G0167-01		Prepared: 11-Jul-2024 Analyzed: 19-Jul-2024 19:45								
Antimony	121	ND	0.12	0.23	mg/kg		ND					U
Duplicate (BMG0275-DUP3)		Source: 24G0167-01		Prepared: 11-Jul-2024 Analyzed: 19-Jul-2024 20:37								
Chromium	52	31.0	0.76	1.46	mg/kg		25.5			19.50	20	D
Matrix Spike (BMG0275-MS1)		Source: 24G0167-01		Prepared: 11-Jul-2024 Analyzed: 18-Jul-2024 11:10								
Lead	208	36.6	0.06	0.12	mg/kg	29.2	7.49	99.6	75-125			
Silver	107	22.2	0.03	0.23	mg/kg	29.2	0.15	75.6	75-125			
Arsenic	75a	41.7	0.04	0.23	mg/kg	29.2	12.7	99.2	75-125			
Cadmium	111	29.4	0.04	0.12	mg/kg	29.2	0.11	100	75-125			
Copper	63	64.8	0.20	0.58	mg/kg	29.2	36.0	98.7	75-125			
Selenium	78	85.8	0.21	0.58	mg/kg	93.5	1.04	90.7	75-125			
Zinc	66	167	3.4	7.0	mg/kg	93.5	78.4	95.1	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike (BMG0275-MS2)		Source: 24G0167-01		Prepared: 11-Jul-2024 Analyzed: 19-Jul-2024 19:50								
Antimony	121	1.64	0.12	0.23	mg/kg	29.2	ND	5.6	75-125			*
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike (BMG0275-MS3)		Source: 24G0167-01		Prepared: 11-Jul-2024 Analyzed: 19-Jul-2024 20:42								
Chromium	52	56.0	0.76	1.46	mg/kg	29.2	25.5	104	75-125			D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Post Spike (BMG0275-PS2)		Source: 24G0167-01		Prepared: 11-Jul-2024 Analyzed: 19-Jul-2024 19:54								
Antimony	121	496			mg/kg	500	ND	99.2	80-120			



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Reported:
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Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BMG0340 - EPA 7471B

Instrument: HYDRA Analyst: ML

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0340-BLK1)					Prepared: 13-Jul-2024 Analyzed: 15-Jul-2024 13:08						
Mercury	ND	0.00525	0.0250	mg/kg							U
LCS (BMG0340-BS1)					Prepared: 13-Jul-2024 Analyzed: 15-Jul-2024 13:10						
Mercury	0.522	0.00525	0.0250	mg/kg	0.500		104	80-120			
Duplicate (BMG0340-DUP1)					Source: 24G0167-01 Prepared: 13-Jul-2024 Analyzed: 15-Jul-2024 13:15						
Mercury	0.0630	0.00549	0.0261	mg/kg		0.0390			47.10	20	
Matrix Spike (BMG0340-MS1)					Source: 24G0167-01 Prepared: 13-Jul-2024 Analyzed: 15-Jul-2024 13:17						
Mercury	0.390	0.00551	0.0263	mg/kg	0.263	0.0390	134	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Post Spike (BMG0340-PS1)					Source: 24G0167-01 Prepared: 13-Jul-2024 Analyzed: 15-Jul-2024 13:38						
Mercury	0.00142			mg/kg	0.00100	0.0390	127	0-200			



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Reported:
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Analysis by: Analytical Resources, LLC

Wet Chemistry - Quality Control

Batch BMG0567 - PSEP 1986

Instrument: BAL2 Analyst: LERB

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0567-BLK1)						Prepared: 23-Jul-2024 Analyzed: 23-Jul-2024 15:43					
Volatile Solids	ND	0.01	0.01	%							U
Total Solids	ND	0.04	0.04	%							U
Duplicate (BMG0567-DUP1)						Source: 24G0167-01 Prepared: 23-Jul-2024 Analyzed: 23-Jul-2024 15:43					
Volatile Solids	2.02	0.01	0.01	%		1.92			5.19	20	
Total Solids	81.29	0.04	0.04	%		81.74			0.54	20	
Duplicate (BMG0567-DUP2)						Source: 24G0167-01 Prepared: 23-Jul-2024 Analyzed: 23-Jul-2024 15:43					
Volatile Solids	2.05	0.01	0.01	%		1.92			6.62	20	
Total Solids	80.82	0.04	0.04	%		81.74			1.12	20	



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Reported:
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Analysis by: Analytical Resources, LLC

Wet Chemistry - Quality Control

Batch BMG0720 - EPA 9060A m

Instrument: TOC Cube Analyst: ARR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0720-BLK1)					Prepared: 29-Jul-2024 Analyzed: 29-Jul-2024 23:03						
Total Organic Carbon	ND	0.02	0.02	%							U
LCS (BMG0720-BS1)					Prepared: 29-Jul-2024 Analyzed: 30-Jul-2024 00:34						
Total Organic Carbon	46.1	0.02	0.02	%	44.4		104	80-120			
Duplicate (BMG0720-DUP1)					Source: 24G0167-01 Prepared: 29-Jul-2024 Analyzed: 30-Jul-2024 16:46						
Total Organic Carbon	0.59	0.02	0.02	%		0.37			46.50	20	*
Duplicate (BMG0720-DUP2)					Source: 24G0167-01 Prepared: 29-Jul-2024 Analyzed: 30-Jul-2024 17:16						
Total Organic Carbon	0.34	0.02	0.02	%		0.37			8.36	20	
Matrix Spike (BMG0720-MS1)					Source: 24G0167-01 Prepared: 29-Jul-2024 Analyzed: 30-Jul-2024 17:47						
Total Organic Carbon	1.18	0.02	0.02	%	0.751	0.37	109	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.



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Certified Analyses included in this Report

Analyte	Certifications
EPA 6020B in Solid	
Silver-107	NELAP,DoD-ELAP,WADOE
Chromium-52	NELAP,DoD-ELAP,WADOE,ADEC
Chromium-53	NELAP,DoD-ELAP,WADOE,ADEC
Lead-208	NELAP,DoD-ELAP,WADOE,ADEC
Antimony-121	NELAP,DoD-ELAP,WADOE
EPA 6020B UCT-KED in Solid	
Arsenic-75a	NELAP,DoD-ELAP,WADOE,ADEC
Cadmium-111	NELAP,DoD-ELAP,WADOE,ADEC
Copper-63	NELAP,DoD-ELAP,WADOE
Selenium-78	NELAP,DoD-ELAP,WADOE
Zinc-66	NELAP,DoD-ELAP,WADOE
EPA 7471B in Solid	
Mercury	WADOE,NELAP,DoD-ELAP
EPA 8081B in Solid	
alpha-BHC	DoD-ELAP,NELAP,WADOE
alpha-BHC [2C]	DoD-ELAP,NELAP,WADOE
beta-BHC	DoD-ELAP,NELAP,WADOE
beta-BHC [2C]	DoD-ELAP,NELAP,WADOE
gamma-BHC (Lindane)	DoD-ELAP,NELAP,WADOE
gamma-BHC (Lindane) [2C]	DoD-ELAP,NELAP,WADOE
delta-BHC	DoD-ELAP,NELAP,WADOE
delta-BHC [2C]	DoD-ELAP,NELAP,WADOE
Heptachlor	DoD-ELAP,NELAP,WADOE
Heptachlor [2C]	DoD-ELAP,NELAP,WADOE
Aldrin	DoD-ELAP,NELAP,WADOE
Aldrin [2C]	DoD-ELAP,NELAP,WADOE
Heptachlor Epoxide	DoD-ELAP,NELAP,WADOE
Heptachlor Epoxide [2C]	DoD-ELAP,NELAP,WADOE
trans-Chlordane (beta-Chlordane)	DoD-ELAP,NELAP



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trans-Chlordane (beta-Chlordane)	DoD-ELAP,NELAP
cis-Chlordane (alpha-chlordane)	DoD-ELAP,NELAP,WADOE
cis-Chlordane (alpha-chlordane)	DoD-ELAP,NELAP,WADOE
Endosulfan I	DoD-ELAP,NELAP,WADOE
Endosulfan I [2C]	DoD-ELAP,NELAP,WADOE
4,4'-DDE	DoD-ELAP,NELAP,WADOE
4,4'-DDE [2C]	DoD-ELAP,NELAP,WADOE
Dieldrin	DoD-ELAP,NELAP,WADOE
Dieldrin [2C]	DoD-ELAP,NELAP,WADOE
Endrin	DoD-ELAP,NELAP,WADOE
Endrin [2C]	DoD-ELAP,NELAP,WADOE
Endosulfan II	DoD-ELAP,NELAP,WADOE
Endosulfan II [2C]	DoD-ELAP,NELAP,WADOE
4,4'-DDD	DoD-ELAP,NELAP,WADOE
4,4'-DDD [2C]	DoD-ELAP,NELAP,WADOE
Endrin Aldehyde	DoD-ELAP,NELAP,WADOE
Endrin Aldehyde [2C]	DoD-ELAP,NELAP,WADOE
4,4'-DDT	DoD-ELAP,NELAP,WADOE
4,4'-DDT [2C]	DoD-ELAP,NELAP,WADOE
Endosulfan Sulfate	DoD-ELAP,NELAP,WADOE
Endosulfan Sulfate [2C]	DoD-ELAP,NELAP,WADOE
Endrin Ketone	DoD-ELAP,NELAP,WADOE
Endrin Ketone [2C]	DoD-ELAP,NELAP,WADOE
Methoxychlor	DoD-ELAP,NELAP,WADOE
Methoxychlor [2C]	DoD-ELAP,NELAP,WADOE
Hexachlorobutadiene	DoD-ELAP,NELAP,WADOE
Hexachlorobutadiene [2C]	DoD-ELAP,NELAP,WADOE
Hexachlorobenzene	DoD-ELAP,NELAP,WADOE
Hexachlorobenzene [2C]	DoD-ELAP,NELAP,WADOE
2,4'-DDE	DoD-ELAP,NELAP,WADOE
2,4'-DDE [2C]	DoD-ELAP,NELAP,WADOE
2,4'-DDD	DoD-ELAP,NELAP,WADOE
2,4'-DDD [2C]	DoD-ELAP,NELAP,WADOE



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2,4'-DDT	DoD-ELAP,NELAP,WADOE
2,4'-DDT [2C]	DoD-ELAP,NELAP,WADOE
Oxychlordan	DoD-ELAP,NELAP,WADOE
Oxychlordan [2C]	DoD-ELAP,NELAP,WADOE
cis-Nonachlor	DoD-ELAP,NELAP,WADOE
cis-Nonachlor [2C]	DoD-ELAP,NELAP,WADOE
trans-Nonachlor	DoD-ELAP,NELAP,WADOE
trans-Nonachlor [2C]	DoD-ELAP,NELAP,WADOE
Mirex	DoD-ELAP,NELAP,WADOE
Mirex [2C]	DoD-ELAP,NELAP,WADOE

EPA 8082A in Solid

Aroclor 1016	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1016 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1242	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1242 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1248	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1248 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1260	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1260 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1262	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1262 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1268	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1268 [2C]	WADOE,DoD-ELAP,NELAP,ADEC

EPA 8270E in Solid

Phenol	DoD-ELAP,NELAP,WADOE
bis(2-chloroethyl) ether	DoD-ELAP,NELAP,WADOE
2-Chlorophenol	DoD-ELAP,NELAP,WADOE



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1,3-Dichlorobenzene	DoD-ELAP,NELAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,NELAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,NELAP,WADOE
Benzyl Alcohol	DoD-ELAP,NELAP,WADOE
2,2'-Oxybis(1-chloropropane)	DoD-ELAP,NELAP
2-Methylphenol	DoD-ELAP,NELAP,WADOE
Hexachloroethane	DoD-ELAP,NELAP,WADOE
N-Nitroso-di-n-Propylamine	DoD-ELAP,NELAP,WADOE
4-Methylphenol	DoD-ELAP,NELAP,WADOE
Nitrobenzene	DoD-ELAP,NELAP,WADOE
Isophorone	DoD-ELAP,NELAP,WADOE
2-Nitrophenol	DoD-ELAP,NELAP,WADOE
2,4-Dimethylphenol	DoD-ELAP,NELAP,WADOE
Bis(2-Chloroethoxy)methane	DoD-ELAP,NELAP,WADOE
2,4-Dichlorophenol	DoD-ELAP,NELAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,NELAP,WADOE
Naphthalene	DoD-ELAP,NELAP,WADOE,ADEC
Benzoic acid	DoD-ELAP,NELAP,WADOE
4-Chloroaniline	DoD-ELAP,NELAP,WADOE
Hexachlorobutadiene	DoD-ELAP,NELAP,WADOE
4-Chloro-3-Methylphenol	DoD-ELAP,NELAP,WADOE
2-Methylnaphthalene	DoD-ELAP,NELAP,WADOE,ADEC
Hexachlorocyclopentadiene	DoD-ELAP,NELAP,WADOE
2,4,6-Trichlorophenol	DoD-ELAP,NELAP,WADOE
2,4,5-Trichlorophenol	DoD-ELAP,NELAP,WADOE
2-Chloronaphthalene	DoD-ELAP,NELAP,WADOE
2-Nitroaniline	DoD-ELAP,NELAP,WADOE
Acenaphthylene	DoD-ELAP,NELAP,WADOE,ADEC
Dimethylphthalate	DoD-ELAP,NELAP,WADOE
2,6-Dinitrotoluene	DoD-ELAP,NELAP,WADOE
Acenaphthene	DoD-ELAP,NELAP,WADOE,ADEC
3-Nitroaniline	DoD-ELAP,NELAP,WADOE
2,4-Dinitrophenol	DoD-ELAP,NELAP,WADOE



Shannon & Wilson, Inc

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Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

02-Sep-2024 14:07

Dibenzofuran	DoD-ELAP,NELAP,WADOE,ADEC
4-Nitrophenol	DoD-ELAP,NELAP,WADOE
2,4-Dinitrotoluene	DoD-ELAP,NELAP,WADOE
Fluorene	DoD-ELAP,NELAP,WADOE,ADEC
4-Chlorophenylphenyl ether	DoD-ELAP,NELAP
Diethyl phthalate	DoD-ELAP,NELAP,WADOE
4-Nitroaniline	DoD-ELAP,NELAP,WADOE
4,6-Dinitro-2-methylphenol	DoD-ELAP,NELAP,WADOE
N-Nitrosodiphenylamine	DoD-ELAP,NELAP,WADOE
4-Bromophenyl phenyl ether	DoD-ELAP,NELAP,WADOE
Hexachlorobenzene	DoD-ELAP,NELAP,WADOE
Pentachlorophenol	DoD-ELAP,NELAP,WADOE
Phenanthrene	DoD-ELAP,NELAP,WADOE,ADEC
Anthracene	DoD-ELAP,NELAP,WADOE,ADEC
Carbazole	DoD-ELAP,NELAP,WADOE,ADEC
Di-n-Butylphthalate	DoD-ELAP,NELAP,WADOE
Fluoranthene	DoD-ELAP,NELAP,WADOE,ADEC
Pyrene	DoD-ELAP,NELAP,WADOE,ADEC
Butylbenzylphthalate	DoD-ELAP,NELAP,WADOE
Benzo(a)anthracene	DoD-ELAP,NELAP,WADOE,ADEC
3,3'-Dichlorobenzidine	DoD-ELAP,NELAP,WADOE
Chrysene	DoD-ELAP,NELAP,WADOE,ADEC
bis(2-Ethylhexyl)phthalate	DoD-ELAP,NELAP,WADOE
Di-n-Octylphthalate	DoD-ELAP,NELAP,WADOE
Benzofluoranthenes, Total	WADOE,ADEC
Benzo(a)pyrene	DoD-ELAP,NELAP,WADOE,ADEC
Indeno(1,2,3-cd)pyrene	DoD-ELAP,NELAP,WADOE,ADEC
Dibenzo(a,h)anthracene	DoD-ELAP,NELAP,WADOE,ADEC
Benzo(g,h,i)perylene	DoD-ELAP,NELAP,WADOE,ADEC
1-Methylnaphthalene	DoD-ELAP,NELAP,WADOE,ADEC

EPA 8270E-SIM in Solid

Tributyltin Ion	NELAP,WADOE,DoD-ELAP
Phenol	NELAP,WADOE



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Reported:

02-Sep-2024 14:07

1,3-Dichlorobenzene	NELAP,WADOE
1,4-Dichlorobenzene	NELAP,WADOE
1,2-Dichlorobenzene	NELAP,WADOE
Benzyl Alcohol	NELAP,WADOE
2-Methylphenol	NELAP,WADOE
N-Nitroso-di-n-Propylamine	NELAP,WADOE
4-Methylphenol	NELAP,WADOE
2,4-Dimethylphenol	NELAP,WADOE
1,2,4-Trichlorobenzene	NELAP,WADOE
Hexachlorobutadiene	NELAP,WADOE
N-Nitrosodimethylamine	NELAP,WADOE
Dimethylphthalate	NELAP,WADOE
Diethyl phthalate	NELAP,WADOE
N-Nitrosodiphenylamine	NELAP,WADOE
Hexachlorobenzene	NELAP,WADOE
Pentachlorophenol	NELAP,WADOE
Butylbenzylphthalate	NELAP,WADOE
Dibenzo(a,h)anthracene	NELAP,WADOE

EPA 9060A m in Solid

Total Organic Carbon	NELAP,WADOE

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2025
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program, PJLA Testing	66169	02/28/2025
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2025
WADOE	WA Dept of Ecology	C558	06/30/2025
WA-DW	Ecology - Drinking Water	C558	06/30/2025



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Notes and Definitions

*	Flagged value is not within established control limits.
D	The reported value is from a dilution
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
H	Hold time violation - Hold time was exceeded.
J	Estimated concentration value detected below the reporting limit.
L	Analyte concentration is ≤ 5 times the reporting limit and the replicate control limit defaults to $\pm$ RL instead of 20% RPD
P1	The reported value is greater than 40% difference between the concentrations determined on two GC columns where applicable.
Q	Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria ($<20\%$ RSD, $<20\%$ drift or minimum RRF)
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.

ADEC Contaminated Sites Program Laboratory Data Review Checklist

Completed By:	Ashley Jaramillo	CS Site Name:	NA	Lab Name:	Analytical Resources, LLC.
Title:	Senior Chemist	ADEC File No.:	NA	Lab Report No.:	24G0167
Consulting Firm:	Shannon & Wilson, Inc.	Hazard ID No.:	NA	Lab Report Date:	9/2/24

Note: Any N/A or No box checked must have an explanation in the comments box.

1. Laboratory

- a. Did an ADEC Contaminated Sites Laboratory Approval Program (CS-LAP) approved laboratory receive and perform all of the submitted sample analyses?

Yes ☐ No ☒ N/A ☐

Comments: Project samples were sent to Analytical Resources, LLC (ARI) Tukwila, Washington for the analysis of Grain Size by PSEP-PS, total solids by SM 2540, total volatile solids by PSEP 1986, SVOCs by 8270E, SVOC-SIM by 8270E-SIM, tributyltin (TBT) by 8270E-SIM, pesticide by 8081B, PCBs by 8082A, TOC by 9060A, metals by 6020B, and mercury by 7471. ARI is certified under DEC approval 17-015 dated 4/13/2023, expiring 3/28/2025. Grain Size by PSEP-PS was subcontracted to AMTEST Laboratories (AMTEST) in Tukwila, Washinton. The DEC CS project does not certify for this analysis.

- b. If the samples were transferred to another “network” laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses CS-LAP approved?

Yes ☐ No ☒ N/A ☐

Comments: Grain Size by PSEP-PS was subcontracted to AMTEST in Tukwila, Washinton. The DEC CS project does not certify for this analysis.

2. Chain of Custody (CoC)

- a. Is the CoC information completed, signed, and dated (including released/received by)?

Yes ☒ No ☐ N/A ☐

Comments:

CS Site Name: NA

Lab Report No.: 24G0167

b. Were the correct analyses requested?

Yes ☒ No ☐ N/A ☐

Analyses requested: No methods were listed on the CoC for Grain size, total solids, total volatile solids, SVOCs, SVOC-SIM, TBT, pesticides, PDBs, TOC, metals, and mercury. The laboratories analyzed Grain Size by PSEP-PS, total solids by SM 2540, total volatile solids by PSEP 1986, SVOCs by 8270E, SVOC-SIM by 8270E-SIM, TBT by 8270E-SIM, pesticide by 8081B, PCBs by 8082A, TOC by 9060A, metals by 6020B, and mercury by 7471.

Comments: These are the correct methods for this project. Data quality and/or usability not affected.

3. Laboratory Sample Receipt Documentation

a. Is the sample/cooler temperature documented and within range at receipt (0° to 6° C)?

Yes ☒ No ☐ N/A ☐

Cooler temperature(s): Cooler temperatures were not reported, rather a temperature blank was included with the samples in the cooler and is used to access temperature preservation. The temperature blank was 0.1°C at sample login at ARI. The temperature blank was 1.2°C at sample login at AMTEST.
Sample temperature(s): Sample temperatures were not reported.
Comments: The temperature blank was within the acceptable temperature range.

b. Is the sample preservation acceptable – acidified waters, methanol preserved soil (GRO, BTEX, VOCs, etc.)?

Yes ☐ No ☐ N/A ☒

Comments: Sample preservation not required.

c. Is the sample condition documented – broken, leaking, zero headspace (VOA vials); canister vacuum/pressure checked and no open valves, etc.?

Yes ☒ No ☐ N/A ☐

Comments: Samples were noted to be in good condition.

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, canister not holding a vacuum, etc.?

Yes ☐ No ☐ N/A ☒

Comments: No discrepancies were noted by the laboratory at sample login.

e. Is the data quality or usability affected?

Yes ☐ No ☒ N/A ☐

Comments: No laboratory sample receipt documentation discrepancies were noted at sample login.

4. Case Narrative

- a. Is the case narrative present and understandable?

Yes ☒ No ☐ N/A ☐

Comments: Click or tap here to enter text.

- b. Are there discrepancies, errors, or QC failures identified by the lab?

Yes ☒ No ☐ N/A ☐

Comments: ARI

The samples were submitted to AMTEST Laboratories for grainsize analysis. The AMTEST report is included with the ARI laboratory report in its entirety. Data quality and/or usability not affected.

Initial and continuing SVOC calibrations were within method requirements, with accepted excursions outside the 20% window for calibration verification. Associated positive results have been "Q"-flagged. Response is noted to be low for 2,4-dimethylphenol, 2,4-dinitrophenol, 4,6-dinitro-2-methylphenol, 4-methylphenol, 4-nitrophenol, benzo(ghi)perylene, benzoic acid, dibenzo(ah)anthracene, indeno(1,2,3-cd)pyrene, hexachlorocyclopentadiene, dibenzo(a,h)anthracene, hexachlorocyclopentadiene, pentachlorophenol and benzyl alcohol. Response was high for 3,3-dichlorobenzidine, 4-nitroaniline total benzofluoranthenes, butylbenzylphthalate, carbazone and isophorone. Evaluation of ICV or CCV is outside of the scope of a stage 2a data review and the laboratory didn't indicate an effect on project data due to the discrepancy, therefore sample results are not considered affected.

The SVOC internal standard areas were low of control limits for 2,4,6-tribromophenol in SHM0016-CCV1 and SMH0016-ICV3. Evaluation of the internal standard is outside the scope of a stage 2a data review and the laboratory didn't indicate an effect on project data due to this discrepancy, therefore samples results are not considered affected.

The SVOC surrogate percent recoveries outside of control limits are flagged on the summary sheets. See section 6.d. for details regarding impacts to data quality and/or usability.

The SVOC blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) outside of control limits are flagged on the summary sheet. See section 6.b. for details regarding impacts to data quality and/or usability.

The SVOC matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent differences (RPD) outside of advisory control limits are flagged on the summary sheet. See section 6.c. for details regarding impacts to data quality and/or usability.

Initial and continuing SVOC-SIM calibrations were within method requirements, with accepted excursions outside the 20% window. Associated positive results have been "Q"-flagged. Response was noted to be low for 2,4-dimethylphenol, benzoic acid, benzyl alcohol, dibenzo(a,h)anthracene and pentachlorophenol. Evaluation of ICV or CCV is outside of the scope of a stage 2a data review and the laboratory didn't indicate an effect on project data due to the discrepancy, therefore sample results are not considered affected.

The SVOC-SIM surrogate percent recoveries outside of control limits are flagged on the summary sheets. See section 6.d. for details regarding impacts to data quality and/or usability.

The SVOC-SIM blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) outside of control limits are flagged on the summary sheet. See section 6.b. for details regarding impacts on data quality and/or usability.

The SVOC-SIM matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent differences (RPD) outside of advisory control limits are flagged on the summary sheet. See section 6.c. for details regarding impacts on data quality and/or usability.

The butyltins batch BMG0259 matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent differences (RPD) outside of advisory control limits are flagged on the summary sheet, reported under work order 24G0178. As this data is reported in another work order, we do not discuss this case narrative entry further.

The pesticide sample(s) were initially extracted and analyzed within the recommended holding times. Due to an oversight in the laboratory, the samples for this work order were not frozen. Sample 113733-SB4S11 required reextraction due to surrogate failures and has been "H"-flagged noting the sample was extracted outside recommended holding times. See 5.b. for details regarding impacts to data quality and/or usability.

Initial and continuing calibrations were within method requirements with exceptions. On the STX- CLP column, response was noted to be high in some standards for 2,4'-DDD, 2,4'-DDE, 2,4'-DDT, oxychlordane, 4,4'-DDD, 4'4'-DDT, heptachlor, endosulfan sulfate, endrin, endrin aldehyde, endrin ketone, methoxychlor, cis-nonachlor, trans-nonachlor and endosulfan II. Response was low on the CLP2 column in some standards for decachlorobiphenyl (DCBP), dieldrin, endrin aldehyde, endrin ketone and methoxychlor and high for hexachlorobutadiene. Evaluation of ICV or CCV is outside of the scope of a stage 2a data review and the laboratory didn't indicate an effect on project data due to the discrepancy, therefore sample results are not considered affected.

CS Site Name: NA

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Pesticide Internal standard areas were within limits with exceptions. Hexabromobiphenyl (HBB) response was low on the CLP-STX 113733-SB4S11, 113733-SB4S12, 113733-SB4S13, 113733-SB4S14, SMG0341-CCV5, -CCV6, -PEM3, and -PEM4. The internal standard 1-bromo-2-nitrobenzene response was out high on the STX-CLP in 113733-SB4S8 and BMG0258-BS2. Evaluation of the internal standard is outside the scope of a stage 2a data review and the laboratory didn't indicate an effect on project data due to this discrepancy, therefore samples results are not considered affected.

The pesticide surrogate percent recoveries outside of control limits are flagged on the summary sheets. See section 6.d. for details regarding impacts to data quality and/or usability.

The pesticide blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) outside of control limits are flagged on the summary sheet. See section 6.b. for details regarding impacts on data quality and/or usability.

The pesticide matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent differences (RPD) outside of advisory control limits are flagged on the summary sheet. See section 6.c. for details regarding impacts to data quality and/or usability.

Pesticide results that have been "P1"-flagged indicate a greater than 40% difference between the results on the two analytical columns. Numerous P1 flags were applied, including quality control samples. P1 flags in quality control samples do not affect project data. The P1 flag was applied to 4,4'-DDD in 113733-SB4S14. Consequently, the result of this analyte in the noted sample is considered an estimate, however, this analyte in the noted sample has been previously flagged due to a LCS/LCSD recovery failure, see 6.b.iii, below. No additional flags were added due to this discrepancy.

The PCB batch BMG0257 matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD) were within advisory control limits, reported under work order 24G0168. As this data is reported in another work order, we do not discuss this case narrative entry further.

The metals matrix spike (MS) percent recovery for antimony was low of advisory control limits. The post spike had an acceptable recovery. See section 6.c. for details regarding impacts to data quality and/or usability.

The DUP1 relative percent difference (RPD) for TOC was high of advisory control limits. See section 6.b. for details regarding impacts on data quality and/or usability.

CS Site Name: NA

Lab Report No.: 24G0167

AMTEST

No CoC was included with the AMTEST lab report. No data quality control discrepancies were noted in the laboratory report, data quality and/or usability not affected.

- c. Were all the corrective actions documented?

Yes ☒ No ☐ N/A ☐

Comments: Click or tap here to enter text.

- d. What is the effect on data quality/usability according to the case narrative?

Comments: Effect on data quality and/or usability due to discrepancies, errors, or QC failures identified by the lab in the case narrative are either discussed above in Section 4.b. or elsewhere in this checklist.

5. Sample Results

- a. Are the correct analyses performed/reported as requested on CoC?

Yes ☒ No ☐ N/A ☐

Comments: No methods were listed on the CoC for Grain size, total solids, total volatile solids, SVOCs, SVOC-SIM, TBT, pesticides, PDBs, TOC, metals, and mercury. The laboratories analyzed Grain Size by PSEP-PS, total solids by SM 2540, total volatile solids by PSEP 1986, SVOCs by 8270E, SVOC-SIM by 8270E-SIM, TBT by 8270E-SIM, pesticide by 8081B, PCBs by 8082A, TOC by 9060A, metals by 6020B, and mercury by 7471. These are the correct methods for this project. Data quality and/or usability not affected.

- b. Are all applicable holding times met?

Yes ☐ No ☒ N/A ☐

Comments: The pesticide sample(s) were initially extracted and analyzed within the recommended holding times. Due to an oversight in the laboratory, the samples for this work order were not frozen. Sample 113733-SB4S11 required re-extraction due to surrogate failures and has been "H"-flagged noting the sample was extracted outside recommended holding times. Consequently, the non-detected pesticide results of in the noted project samples are considered estimates, no direction of bias, and are flagged 'J*' in the analytical table. Data quality is considered affected; however, data is considered usable with applied flags.

- c. Are all soils reported on a dry weight basis?

Yes ☒ No ☐ N/A ☐

Comments: Click or tap here to enter text.

CS Site Name: NA

Lab Report No.: 24G0167

- d. Are the reported limits of quantitation (LoQ) or limits of detections (LOD), or reporting limits (RL) less than the Cleanup Level or the action level for the project?

Yes ☐ No ☒ N/A ☐

Comments: Analytical sensitivity was evaluated to verify that LODs met applicable DEC migration to groundwater cleanup levels for non-detect results, as appropriate. Analytes with LODs that do not meet applicable cleanup levels are bolded in the analytical results table. Data quality and/or usability may be affected as these analytes cannot be detected, if present, at their respective cleanup level.

- e. Is the data quality or usability affected?

Yes ☒ No ☐ N/A ☐

Comments: See 5.d. above.

6. QC Samples

- a. Method Blank

- i. Was one method blank reported per matrix, analysis, and 20 samples?

Yes ☒ No ☐ N/A ☐

Comments: Click or tap here to enter text.

- ii. Are all method blank results less than LOQ (or RL)?

Yes ☒ No ☐

Comments: However, SVOC-SIM analytes phenol and diethyl phthalate were detected in the method blank sample for batch BMG0260 at concentrations below the LOQ. Phenol was detected within ten times the concentration detected in the method blank sample in associated project samples 113733-SB4S8, 113733-SB4S13, and 113733-SB4S14. Diethyl phthalate was detected within ten times the concentration detected in the method blank sample in associated project samples 113733-SB4S8, 113733-SB4S9, 113733-SB4S10, 113733-SB4S12, 113733-SB4S13, and 113733-SB4S14. Consequently, phenol and diethyl phthalate results in the noted samples are considered not detected at the LOQ and are flagged 'B*' in the analytical table. Data quality is considered affected as noted, however, data is considered usable with applied flags.

- iii. If above LoQ or RL, what samples are affected?

Comments: See 6.a.ii, above.

- iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes ☒ No ☐ N/A ☐

Comments: See 6.a.ii, above.

CS Site Name: NA

Lab Report No.: 24G0167

v. Data quality or usability affected?

Yes ☒ No ☐ N/A ☐

Comments: See 6.a.ii, above.

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics – Are one LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

Yes ☐ No ☒ N/A ☐

Comments: LCS/LCSDs were reported for SVOC, SVOC-SIM, TBT, pesticide, and PCB analyses.

ii. Metals/Inorganics – Are one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes ☐ No ☒ N/A ☐

Comments:

A LCS was reported for metals, mercury, and TOC analyses.

A laboratory duplicate sample was reported for metals, mercury, TOC, volatile solids, and total solids.

iii. Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes ☐ No ☒ N/A ☐

Comments: The LCSD %Rs for SVOC analytes isophorone and carbazole were above laboratory limits in batch BMF0260. These analytes were not detected in associated project samples. Data quality and/or usability not affected.

The LCS and/or LCSD %Rs for pesticide analytes endrin, 4,4'-DDD, 4,4'-DDT, endosulfan sulfate, endrin, and endrin ketone were above laboratory limits in batch BMG0258. 4,4'-DDD was detected in associated project sample 113733-SB4S14, consequently, the 4,4'-DDD result in the noted sample is considered an estimate, biased high, and is flagged 'JH*' in the analytical table. Data quality is affected as noted, however, data is considered usable with applied flags. Endrin, 4,4'-DDT, endosulfan sulfate, and endrin ketone were not detected in associated project samples. Data quality and/or usability not affected.

CS Site Name: NA

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- iv. Precision – Are all relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? Was the RPD reported from LCS/LCSD, and or sample/sample duplicate? (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes ☐ No ☒ N/A ☐

Comments: The LCS/LCSD RPDs for SVOC and SVOC-SIM analytes 2,4-dimethylphenol were outside of laboratory criteria in batch BMG0260. 2,4-dimethylphenol was not detected in associated project samples. Consequently, the results of this analyte in samples 113733-SB4S8, 113733-SB4S9, 113733-SB4S10, 113733-SB4S11, 113733-SB4S12, 113733-SB4S13, and 113733-SB4S14 are considered estimates, no direction of bias, and are flagged 'J*' in the analytical table. Data quality is considered affected; however, data is considered usable with applied flags.

The laboratory duplicate RPD for TOC was outside laboratory limits in sample 113733-SB4S8. TOC is detected in this sample. Consequently, the TOC result in this sample is considered an estimate, not direction of bias, and is flagged 'J*' in the analytical table. Data quality is considered affected; however, data is considered usable with applied flags.

- v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments: See 6.b.iii and 6.b.iv, above.

- vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes ☒ No ☐ N/A ☐

Comments: See 6.b.iii and 6.b.iv, above.

- vii. Is the data quality or usability affected?

Yes ☒ No ☐ N/A ☐

Comments: See 6.b.iii and 6.b.iv, above.

c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

- i. Organics – Are one MS/MSD reported per matrix, analysis and 20 samples?

Yes ☐ No ☒ N/A ☐

Comments: MS/MSD samples were reported for SVOC, SVOC-SIM and pesticide analyses.

CS Site Name: NA

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- ii. Metals/Inorganics – Are one MS/MSD reported per matrix, analysis and 20 samples?

Yes ☐ No ☒ N/A ☐

Comments: MS samples were reported for metals, mercury, and TOC analyses.

- iii. Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable?

Yes ☐ No ☒ N/A ☐

Comments: The MS/MSD %Rs for SVOC analyte benzyl alcohol were 0% for parent sample 113733-SB4S14. Consequently, the benzyl alcohol result in the noted parent sample is considered unusable and is flagged 'R*' as rejected in the analytical table.

The MS/MSD %Rs for SVOC analytes isophorone and carbazole were above laboratory limits for parent sample 113733-SB4S14. These analytes were not detected in the parent sample. Data quality and/or usability not affected.

The MS/MSD %Rs for SVOC-SIM analyte benzyl alcohol were <10% for parent sample 113733-SB4S14. Consequently, the benzyl alcohol result in the noted parent sample is considered unusable and is flagged 'R*' as rejected in the analytical table.

The MS/MSD %Rs for pesticide analyte 4,4'-DDT were above laboratory limits for parent sample 113733-SB4S9. This analyte was not detected in the parent sample. Data quality and/or usability not affected.

The MS %Rs for metals analyte antimony was <10% for parent sample 113733-SB4S8. Consequently, the antimony result in the noted parent sample is considered unusable and is flagged 'R*' as rejected in the analytical table.

- iv. Precision – Are all relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from MS/MSD, and or sample/sample duplicate.

Yes ☐ No ☒ N/A ☐

Comments: The MS/MSD RPDs for SVOC analytes benzoic acid, 2,4-dinitrophenol, and 3,3'-dichlorobenzidine were outside laboratory limits in parent sample 113733-SB4S14. These analytes were not detected in the parent sample. Consequently, the results of these analytes in the noted parent sample are considered estimates, no direction of bias, and are flagged 'J*' in the analytical table. Data quality is considered affected; however, data is considered usable with applied flags.

The MS/MSD RPD for SVOC-SIM analyte benzyl alcohol was not calculated due to the 0% recoveries in the MS and MSD samples for parent sample 113733-SB4S14. The results of this analyte in the noted parent sample have already been flagged as rejected, see 6.c.iii above. No further flags were added due to the RPD discrepancy.

- v. If %R or RPD is outside of acceptable limits, what samples are affected?
Comments: See 6.c.iii and 6.c.iv above.
- vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?
Yes ☒ No ☐ N/A ☐
Comments: See 6.c.iii and 6.c.iv above.
- vii. Is the data quality or usability affected?
Yes ☒ No ☐ N/A ☐
Comments: See 6.c.iii and 6.c.iv above.
- d. Surrogates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only
- i. Are surrogate/IDA recoveries reported for organic analyses – field, QC, and laboratory samples?
Yes ☒ No ☐ N/A ☐
Comments: Click or tap here to enter text.
- ii. Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods 50-150 %R for field samples and 60-120 %R for QC samples; all other analyses see the laboratory report pages)
Yes ☐ No ☒ N/A ☐
Comments: The SVOC surrogate p-Terphenyl-d14 was recovered above the laboratory limits in samples 113733-SB4S9, 113733-SB4S11, 113733-SB4S12, 113733-SB4S13, and 113733-SB414. p-Terphenyl-d14 controls the following analytes: 3,3-Dichlorobenzidine, Benzo(a)Anthracene, Benzo[a]pyrene, Benzofluoranthenes, Total, Benzo[g,h,i]perylene, bis(2-Ethylhexyl)phthalate, Butylbenzylphthalate, Chrysene, Dibenzo[a,h]anthracene, di-n-Octylphthalate, Indeno[1,2,3-c,d]pyrene, and Pyrene. These analytes were not detected in the noted project samples. Data quality and/or usability not affected.
- The SVOC surrogate nitrobenzene-d5 was recovered above the laboratory limits in sample 113733-SB4S14. Nitrobenzene-d5 controls the following analytes: 1,2,4-Trichlorobenzene, 2,4-Dichlorophenol, 2,4-Dimethylphenol, 2-Methylnaphthalene, 2-Nitrophenol, 4-Chloro-3-methylphenol, 4-Chloroaniline, Benzoic acid, Bis(2-

Chloroethoxy)methane, Hexachlorobutadiene, Isophorone, Naphthalene, and Nitrobenzene. 2-Methylnaphthalene and naphthalene were detected in this sample. Consequently, the results of these analytes in noted sample are considered estimates, biased high, and are flagged 'JH*' in the analytical table. Data quality is considered affected; however, data is considered usable with applied flags. 1,2,4-Trichlorobenzene, 2,4-Dichlorophenol, 2,4-Dimethylphenol, 2-Nitrophenol, 4-Chloro-3-methylphenol, 4-Chloroaniline, Benzoic acid, Bis(2-Chloroethoxy)methane, Hexachlorobutadiene, Isophorone, and Nitrobenzene were not detected in the noted project sample. Data quality and/or usability not affected.

The SVOC surrogate p-Terphenyl-d14 was recovered above the laboratory limits in method blank sample for batch BMG0260. Surrogate recovery failures in the quality control sample does not affect project sample results. Data quality and/or usability not affected.

The SVOC-SIM surrogate p-Terphenyl-d14 was recovered above the laboratory limits in samples 113733-SB4S9, 113733-SB4S10, 113733-SB4S11, 113733-SB4S13, and 113733-SB414. p-Terphenyl-d14 controls the following analytes: Butylbenzylphthalate, and Dibenzo[a,h]anthracene. These analytes were not detected in the noted project samples. Data quality and/or usability not affected.

The SVOC-SIM surrogate p-Terphenyl-d14 was recovered above the laboratory limits in method blank sample for batch BMG0260. Surrogate recovery failures in the quality control sample does not affect project sample results. Data quality and/or usability not affected.

Pesticide surrogates tetrachlorometaxylene and Decachlorobiphenyl were recovered above the laboratory limits in method blank samples for batches BMG0258 and BMG0716. Surrogate recovery failures in the quality control sample does not affect project sample results. Data quality and/or usability not affected.

- iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined?

Yes ☒ No ☐ N/A ☐

Comments: See 6.d.ii above.

- iv. Is the data quality or usability affected?

Yes ☒ No ☐ N/A ☐

Comments: See 6.d.ii above.

CS Site Name: NA

Lab Report No.: 24G0167

e. Trip Blanks

- i. Is one trip blank reported per matrix, analysis, and for each cooler containing volatile samples? Yes ☐ No ☐ N/A ☒

Comments: Volatile analyses were not included with this work order. No trip blank required.

- ii. Are all results less than LoQ or RL?

Yes ☐ No ☐ N/A ☒

Comments: Volatile analyses were not included with this work order. No trip blank required.

- iii. If above LoQ or RL, what samples are affected?

Comments: Not applicable. Volatile analyses were not included with this work order. No trip blank required.

- iv. Is the data quality or usability affected?

Yes ☐ No ☒ N/A ☐

Comments: Volatile analyses were not included with this work order. No trip blank required.

f. Field Duplicate

- i. Are one field duplicate submitted per matrix, analysis, and 10 project samples?

Yes ☒ No ☐ N/A ☐

Comments: Click or tap here to enter text.

- ii. Was the duplicate submitted blind to lab?

Yes ☒ No ☐ N/A ☐

Comments: 113733-SB4S12 and 113733-SB4S14 are the field duplicates of 113733-SB4S2 and 113733-SB4S4. 113733-SB4S2 and 113733-SB4S4 were reported un work order 24G0171.

- iii. Precision – All relative percent differences (RPD) less than specified project objectives? (Recommended: 30% water or air, 50% soil)

$$RPD (\%) = \left| \frac{R_1 - R_2}{\left(\frac{R_1 + R_2}{2}\right)} \right| \times 100$$

Where R_1 = Sample Concentration

R_2 = Field Duplicate Concentration

Is the data quality or usability affected? (Explain)

Yes ☐ No ☒ N/A ☐

Comments: Where calculable, analytical results met the comparison criterion ($\leq 50\%$ for soils) for the field duplicate pair 113733-SB4S12/113733-SB4S2 with the following exception: alpha-BHC. Consequently, the results of this analyte in the aforementioned field duplicate pair are considered estimated, with no direction of bias, and have been flagged 'J*' in the analytical table. Data is considered affected; however, data is considered usable with applied flags. In addition, SVOC analytes fluoranthene, phenanthrene, and pyrene were detected in the field duplicate and/or project sample above the LOQ but not detected in the field duplicate and/or project sample above the detection limit. While an RPD cannot be calculated for these analytes, these results are considered a precision failure. Consequently, the results of the noted analytes in the field duplicate pair are considered estimates, no direction of bias, and are flagged 'J*' in the analytical table. Data is considered affected; however, data is considered usable with applied flags.

Where calculable, analytical results met the comparison criterion ($\leq 50\%$ for soils) for the field duplicate pair 113733-SB4S14/113733-SB4S4 with the following exceptions: SVOC analytes 2-methylnaphthalene and naphthalene. Consequently, the results of this analyte in the aforementioned field duplicate pair are considered estimated. However, these analytes were previously qualified due to high surrogate recovery failures and further qualification was not required. Data is considered affected; however, data is considered usable with applied flags. In addition, 4,4'-DDD, aroclor 1254 and aroclor 1260 were detected in the field duplicate and/or project sample above the LOQ but not detected in the field duplicate and/or project sample above the detection limit. While an RPD cannot be calculated for these analytes, these results are considered a precision failure. Consequently, the results of the noted analytes in the field duplicate pair are considered estimates, no direction of bias, and are flagged 'J*' in the analytical table, unless previously flagged due to a LCS/LCSD %R failure, see section 6.b.iii. Data is considered affected; however, data is considered usable with applied flags.

CS Site Name: NA

Lab Report No.: 24G0167

iv. Is the data quality or usability affected? (Explain)

Yes ☒ No ☐ N/A ☐

Comments: See 6.f.iii, above.

g. Decontamination or Equipment Blanks

i. Were decontamination or equipment blanks collected?

Yes ☐ No ☐ N/A ☒

Comments: Samples were not collected with reusable equipment; equipment blank not required.

ii. Are all results less than LoQ or RL?

Yes ☐ No ☐ N/A ☒

Comments: Samples were not collected with reusable equipment; equipment blank not required.

iii. If above LoQ or RL, specify what samples are affected.

Comments: Not applicable. Samples were not collected with reusable equipment; equipment blank not required.

iv. Are data quality or usability affected?

Yes ☐ No ☒ N/A ☐

Comments: Samples were not collected with reusable equipment; equipment blank not required.

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Are they defined and appropriate?

Yes ☒ No ☐ N/A ☐

Comments: Some analytes were run at a dilution. These analytes are flagged with a 'D' in the analytical report, however, these flags do not appear in the analytical table.

See 4.b. above for other flags.



Analytical Resources, LLC
Analytical Chemists and Consultants
Tukwila, WA

13 September 2024

Dan McMahon
Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage, AK 99518

RE: PAMP Sediments (113733)

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)
24G0168

Associated SDG ID(s)
N/A

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, LLC

Susan Dunnihoo, Director, Client Services

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Chain of Custody Record & Laboratory Analysis Request

AR Assigned Number: 24G0168		Turn-around Requested: standard		Date: 7/8/24		 Analytical Resources, LLC Analytical Chemists and Consultants 4611 South 134th Place, Suite 100 Tukwila, WA 98168 206-695-6200 206-695-6202 (fax)			
AR Client Company: Shannon & Wilson, Inc.		Phone: 907-433-3223		Page: 1 of 1					
Client Contact: Dan McMahon				No. of Coolers: Cooler Temps:					
Client Project Name: PAMP Sediment				Analysis Requested				Notes/Comments	
Client Project #: 113733		Samplers: AJR		SVOC/TBT/ Pest/PCB	TS/TVS/TOC	Metals	Grainsize		
Sample ID	Date	Time	Matrix	No. Containers					
113733-SB1S1	07/02/24	13:50	Sed	3	✓	✓	✓	✓	
113733-SB1S2	07/02/24	13:55	Sed	3	✓	✓	✓	✓	
113733-SB1S3	07/02/24	14:10	Sed	3	✓	✓	✓	✓	
113733-SB1S4	07/02/24	15:30	Sed	3	✓	✓	✓	✓	
113733-SB1S5	07/02/24	16:15	Sed	3	✓	✓	✓	✓	
113733-SB1S6	07/02/24	17:00	Sed	3	✓	✓	✓	✓	
113733-SB1S7	07/02/24	17:05	Sed	3	✓	✓	✓	✓	
113733-SB1S12	07/02/24	14:00	Sed	3	✓	✓	✓	✓	
Comments/Special Instructions									
Relinquished by: (Signature) 		Received by: (Signature) 		Relinquished by: (Signature)		Received by: (Signature)			
Printed Name: Alex Rizzo		Printed Name: Emma Stewart		Printed Name:		Printed Name:			
Company: STW		Company: ARL		Company:		Company:			
Date & Time: 7/8/24 800		Date & Time: 7/9/24 1100		Date & Time:		Date & Time:			

Limits of Liability: Analytical Resources, LLC (AR) will perform all requested services in accordance with appropriate methodology following AR Standard Operating Procedures and the AR Quality Assurance Program. This program meets standards for the industry. The total liability of AR, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by AR release AR from any liability in excess thereof, notwithstanding any provision to the contrary in any contract, purchase order or co-signed agreement between AR and the Client.

Sample Retention Policy: Unless specified by work order or contract, all water/soil samples submitted to AR will be discarded or returned, no sooner than 90 days after receipt or 60 days after submission of hard copy data, whichever is longer. Sediment samples submitted under PSDDA/PSEP/SMS protocol will be stored frozen for up to one year and then discarded.



Analytical Resources, LLC
Analytical Chemists and Consultants

SUBCONTRACT ORDER
To: AmTest Laboratories
ARI Work Order:24G0168

SENDING LABORATORY:

Analytical Resources, LLC
4611 S. 134th Place, Suite 100
Tukwila, WA 98168
Phone: (206) 695-6200
Fax: (206) 695-6202
Project Manager: Susan Dunnihoo
E-Mail: sue.dunnihoo@arilabs.com

RECEIVING LABORATORY:

AmTest Laboratories
13600 NE 126th Pl Suite C
Kirkland, WA 98034
Phone :425-885-1664
Fax: -

PLEASE SEND DATA AND INVOICE TO subdata@arilabs.com

Analysis	Due	Expires	Sub Laboratory ID	Comments
Sample ID: 24G0168-01				
Sampled: 07/02/24 13:50 Matrix: Solid				
Grainsize PSEP (Subc)	07/23/24	01/01/25 06:38		
<i>Containers Supplied:</i>				
24G0168-01 A Ziploc Bag, Gallon				
Sample ID: 24G0168-02				
Sampled: 07/02/24 13:55 Matrix: Solid				
Grainsize PSEP (Subc)	07/23/24	01/01/25 06:43		
<i>Containers Supplied:</i>				
24G0168-02 A Ziploc Bag, Gallon				
Sample ID: 24G0168-03				
Sampled: 07/02/24 14:10 Matrix: Solid				
Grainsize PSEP (Subc)	07/23/24	01/01/25 06:58		
<i>Containers Supplied:</i>				
24G0168-03 A Ziploc Bag, Gallon				
Sample ID: 24G0168-04				
Sampled: 07/02/24 15:30 Matrix: Solid				
Grainsize PSEP (Subc)	07/23/24	01/01/25 08:18		
<i>Containers Supplied:</i>				
24G0168-04 A Ziploc Bag, Gallon				

1.2°C

Matt Dees 07/11/24 1245
Released By Date

SF 7/11/24 1245
Received By Date

Released By Date Received By Date

Printed: 7/9/2024 1:06:03PM



Shannon & Wilson, Inc

5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 11:33

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
113733-SB1S1	24G0168-01	Solid	02-Jul-2024 13:50	09-Jul-2024 11:37
113733-SB1S2	24G0168-02	Solid	02-Jul-2024 13:55	09-Jul-2024 11:37
113733-SB1S3	24G0168-03	Solid	02-Jul-2024 14:10	09-Jul-2024 11:37
113733-SB1S4	24G0168-04	Solid	02-Jul-2024 15:30	09-Jul-2024 11:37
113733-SB1S5	24G0168-05	Solid	02-Jul-2024 16:15	09-Jul-2024 11:37
113733-SB1S6	24G0168-06	Solid	02-Jul-2024 17:00	09-Jul-2024 11:37
113733-SB1S7	24G0168-07	Solid	02-Jul-2024 17:05	09-Jul-2024 11:37
113733-SB1S12	24G0168-08	Solid	02-Jul-2024 14:00	09-Jul-2024 11:37



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 11:33

Work Order Case Narrative

Client: Shannon & Wilson, Inc
Project: PAMP Sediments
Work Order: 24G0168

Sample receipt

Samples as listed on the preceding page were received 09-Jul-2024 11:37 under ARI work order 24G0168. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Grainsize

The samples were submitted to AmTest Laboratories for grainsize analysis. The AmTest report is included here in its entirety.

Semivolatiles - EPA Method SW8270E

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements, with accepted excursions low outside the 20% window for benzyl alcohol, 2,4-dinitrophenol, 4-nitrophenol and pentachlorophenol. Associated positive results have been "Q"-flagged.

Internal standard areas were within limits.

The surrogate recoveries outside of control limits are flagged on the summary sheets.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent differences (RPD) outside of control limits are flagged on the summary sheet.

The batch BMG0260 matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent differences (RPD) outside of advisory control limits are flagged on the summary sheet, reported under work order 24G0167.

Semivolatiles - EPA Method SW8270E-SIM

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements, with accepted excursions low outside the 20% window for dibenzo(a,h)anthracene. Associated positive results have been "Q"-flagged.

The surrogate recoveries outside of control limits are flagged on the summary sheets.

The surrogate percent recoveries were within control limits.



Shannon & Wilson, Inc

5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 11:33

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent differences (RPD) outside of control limits are flagged on the summary sheet.

The batch BMG0260 matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent differences (RPD) outside of advisory control limits are flagged on the summary sheet, reported under work order 24G0167.

Butyl Tin(s)- EPA Method SW8270E-SIM

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent differences (RPD) were within control limits.

The batch BMG0259 matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent differences (RPD) outside of advisory control limits are flagged on the summary sheet, reported under work order 24G0178.

Chlorinated Pesticides - EPA Method SW8081B

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements with exceptions. Response was noted to be high of limits on the STX-CLP column for some standards for 2,4'-DDD, 2,4'-DDE, 2,4'-DDT, 4,4'-DDD, 4,4'-DDT, cis-nonachlor, Endosulfan II, Endosulfan Sulfate, Endrin, Endrin Aldehyde, Endrin Ketone, Heptachlor, Methoxychlor, Oxychlordane and trans-Nonachlor. Response was noted low on the STX-CLP column for hexachlorobutadiene. On the CLP2 column, some standards had low response for 4,4'-DDT, decachlorobiphenyl, Dieldrin, Endrin Aldehyde, Endrin Ketone and Methoxychlor.

The internal standard areas for hexabromobiphenyl (HBB) on the STX-CLP column were low of limits for 113733-SB1S1, 113733-SB1S2, 113733-SB1S3, 113733-SB1S4, 113733-SB1S5, 113733-SB1S6, 113733-SB1S7, 113733-SB1S12, SMG0341-CCV5, SMG0341-CCV6, SMG0341-PEM3, and SMG0341-PEM4.

The surrogate recoveries outside of control limits are flagged on the summary sheets.

The method blank(s) were clean at the reporting limits.



Shannon & Wilson, Inc

5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 11:33

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries high of control limits are flagged on the summary sheet. The relative percent differences (RPD) were within control limits.

The batch BMG058 matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent differences (RPD) outside of advisory control limits are flagged on the summary sheet, reported under work order 24G0167.

Results that have been "P1"-flagged indicate a greater than 40% difference between the results on the two analytical columns.

PCB Aroclors - EPA Method SW8082A

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent differences (RPD) were within control limits.

The matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD) were within advisory control limits.

Total Metals - EPA Method 6020B

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations including interference checks were within method requirements for reported elements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

The duplicate (DUP) relative percent differences (RPD) were within advisory control limits.

The matrix spike (MS) percent recoveries outside of advisory control limits are flagged on the summary sheet. The post spike had an acceptable recovery.

Total Mercury - EPA Method 7471B

The sample(s) were digested and analyzed within the recommended holding times.



Shannon & Wilson, Inc

5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 11:33

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

The matrix spike (MS) percent recoveries and the duplicate (DUP) relative percent difference (RPD) were within advisory control limits.

Wet Chemistry

The sample(s) were prepared and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The TOC blank spike (BS/LCS) percent recoveries were within control limits.

The batch BMG0467 solids replicates (DUP1, DUP2) relative percent differences (RPD) were within advisory control limits, reported under work order 24G0167.

The TOC matrix spike (MS) percent recoveries and the replicate (DUP1, DUP2) relative percent differences (RPD) were within advisory control limits.



WORK ORDER

24G0168

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Shannon & Wilson, Inc

Project Manager: Susan Dunnihoo

Project: PAMP Sediments

Project Number: 113733

Report To:

Shannon & Wilson, Inc
Dan McMahon
5430 Fairbanks Street, Suite 3
Anchorage, AK 99518
Phone: (907) 433-3223
Fax: -

Invoice To:

Shannon & Wilson, Inc
Dan McMahon
5430 Fairbanks Street, Suite 3
Anchorage, AK 99518
Phone: (907) 433-3223
Fax: -

Date Due: 23-Jul-2024 18:00 (10 day TAT)

Received By: Emma Stewart

Date Received: 09-Jul-2024 11:37

Logged In By: Robert Leesemann

Date Logged In: 09-Jul-2024 12:12

Samples Received at 2.4°C

Intact, properly signed and dated custody seals attached to outside of cooler(s).....No
Custody papers properly filled out (in, signed, analyses requested, etc).....Yes
Was sufficient ice used (if appropriate).....Yes
All bottles arrived in good condition (unbroken).....Yes
Number of containers listed on COC match number received.....Yes
Correct bottles used for the requested analyses.....Yes
Analyses/bottles require preservation (attach preservation sheet excluding VOC).....No
Sample split at ARL.....No

Custody papers included with the cooler..... Yes
Was a temperature blank included in the cooler..... No
All bottles sealed in individual plastic bags..... No
All bottle labels complete and legible..... Yes
Bottle labels and tags agree with COC..... Yes
All VOC vials free of air bubbles..... No
Sufficient amount of sample sent in each bottle..... Yes

Analysis	Due	TAT	Expires	Comments



WORK ORDER

24G0168

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Shannon & Wilson, Inc

Project Manager: Susan Dunnihoo

Project: PAMP Sediments

Project Number: 113733

Analysis	Due	TAT	Expires	Comments

24G0168-01 113733-SB1S1 [Solid] Sampled 02-Jul-2024 13:50 (GMT-08:00)
Pacific Time (US & Canada)

A = Ziploc Bag, Gallon

B = Glass WM, Clear, 16 oz

C = Glass WM, Clear, 8 oz

8081B Pest (PSDDA)	23-Jul-2024 15:00	10	16-Jul-2024 23:59	Use Version
8082A PCB Solid 4	23-Jul-2024 15:00	10	16-Jul-2024 23:59	
8260D VOA	23-Jul-2024 15:00	10	16-Jul-2024 23:59	benzene only
8270E SVOA and SIM SVOA dual scan	23-Jul-2024 15:00	10	16-Jul-2024 13:50	
8270E-SIM Butyl Tins	23-Jul-2024 15:00	10	16-Jul-2024 23:59	
Carbon, 9060A m Solid	23-Jul-2024 15:00	10	30-Jul-2024 23:59	
Freeze and Hold Org - Met- Conv - Shar	23-Jul-2024 15:00	10	02-Jul-2025 13:50	
Metals, DMMP 2021 (Solid)	23-Jul-2024 15:00	10	29-Dec-2024 13:50	
Solids, Total Volatile (TVS) PSEP	23-Jul-2024 15:00	10	06-Aug-2024 23:59	
Solids, Total, Dried at 103 -105 °C, Soli	23-Jul-2024 15:00	10	30-Jul-2024 23:59	

24G0168-02 113733-SB1S2 [Solid] Sampled 02-Jul-2024 13:55 (GMT-08:00)
Pacific Time (US & Canada)

A = Ziploc Bag, Gallon

B = Glass WM, Clear, 16 oz

C = Glass WM, Clear, 8 oz

8081B Pest (PSDDA)	23-Jul-2024 15:00	10	16-Jul-2024 23:59	Use Version
8082A PCB Solid 4	23-Jul-2024 15:00	10	16-Jul-2024 23:59	
8260D VOA	23-Jul-2024 15:00	10	16-Jul-2024 23:59	benzene only
8270E SVOA and SIM SVOA dual scan	23-Jul-2024 15:00	10	16-Jul-2024 13:55	
8270E-SIM Butyl Tins	23-Jul-2024 15:00	10	16-Jul-2024 23:59	
Carbon, 9060A m Solid	23-Jul-2024 15:00	10	30-Jul-2024 23:59	
Freeze and Hold Org - Met- Conv - Shar	23-Jul-2024 15:00	10	02-Jul-2025 13:55	
Metals, DMMP 2021 (Solid)	23-Jul-2024 15:00	10	29-Dec-2024 13:55	
Solids, Total Volatile (TVS) PSEP	23-Jul-2024 15:00	10	06-Aug-2024 23:59	
Solids, Total, Dried at 103 -105 °C, Soli	23-Jul-2024 15:00	10	30-Jul-2024 23:59	



WORK ORDER

24G0168

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Shannon & Wilson, Inc

Project Manager: Susan Dunnihoo

Project: PAMP Sediments

Project Number: 113733

Analysis	Due	TAT	Expires	Comments

**24G0168-03 113733-SB1S3 [Solid] Sampled 02-Jul-2024 14:10 (GMT-08:00)
Pacific Time (US & Canada)**

A = Ziploc Bag, Gallon

B = Glass WM, Clear, 16 oz

C = Glass WM, Clear, 8 oz

8081B Pest (PSDDA)	23-Jul-2024 15:00	10	16-Jul-2024 23:59	Use Version
8082A PCB Solid 4	23-Jul-2024 15:00	10	16-Jul-2024 23:59	
8260D VOA	23-Jul-2024 15:00	10	16-Jul-2024 23:59	benzene only
8270E SVOA and SIM SVOA dual scan	23-Jul-2024 15:00	10	16-Jul-2024 14:10	
8270E-SIM Butyl Tins	23-Jul-2024 15:00	10	16-Jul-2024 23:59	
Carbon, 9060A m Solid	23-Jul-2024 15:00	10	30-Jul-2024 23:59	
Freeze and Hold Org - Met- Conv - Shar	23-Jul-2024 15:00	10	02-Jul-2025 14:10	
Metals, DMMP 2021 (Solid)	23-Jul-2024 15:00	10	29-Dec-2024 14:10	
Solids, Total Volatile (TVS) PSEP	23-Jul-2024 15:00	10	06-Aug-2024 23:59	
Solids, Total, Dried at 103 -105 °C, Soli	23-Jul-2024 15:00	10	30-Jul-2024 23:59	

**24G0168-04 113733-SB1S4 [Solid] Sampled 02-Jul-2024 15:30 (GMT-08:00)
Pacific Time (US & Canada)**

A = Ziploc Bag, Gallon

B = Glass WM, Clear, 16 oz

C = Glass WM, Clear, 8 oz

8081B Pest (PSDDA)	23-Jul-2024 15:00	10	16-Jul-2024 23:59	Use Version
8082A PCB Solid 4	23-Jul-2024 15:00	10	16-Jul-2024 23:59	
8260D VOA	23-Jul-2024 15:00	10	16-Jul-2024 23:59	benzene only
8270E SVOA and SIM SVOA dual scan	23-Jul-2024 15:00	10	16-Jul-2024 15:30	
8270E-SIM Butyl Tins	23-Jul-2024 15:00	10	16-Jul-2024 23:59	
Carbon, 9060A m Solid	23-Jul-2024 15:00	10	30-Jul-2024 23:59	
Freeze and Hold Org - Met- Conv - Shar	23-Jul-2024 15:00	10	02-Jul-2025 15:30	
Metals, DMMP 2021 (Solid)	23-Jul-2024 15:00	10	29-Dec-2024 15:30	
Solids, Total Volatile (TVS) PSEP	23-Jul-2024 15:00	10	06-Aug-2024 23:59	
Solids, Total, Dried at 103 -105 °C, Soli	23-Jul-2024 15:00	10	30-Jul-2024 23:59	



WORK ORDER

24G0168

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Shannon & Wilson, Inc

Project Manager: Susan Dunnihoo

Project: PAMP Sediments

Project Number: 113733

Analysis	Due	TAT	Expires	Comments

24G0168-05 113733-SB1S5 [Solid] Sampled 02-Jul-2024 16:15 (GMT-08:00)
Pacific Time (US & Canada)

A = Ziploc Bag, Gallon

B = Glass WM, Clear, 16 oz

C = Glass WM, Clear, 8 oz

8081B Pest (PSDDA)	23-Jul-2024 15:00	10	16-Jul-2024 23:59	Use Version
8082A PCB Solid 4	23-Jul-2024 15:00	10	16-Jul-2024 23:59	
8260D VOA	23-Jul-2024 15:00	10	16-Jul-2024 23:59	benzene only
8270E SVOA and SIM SVOA dual scan	23-Jul-2024 15:00	10	16-Jul-2024 16:15	
8270E-SIM Butyl Tins	23-Jul-2024 15:00	10	16-Jul-2024 23:59	
Carbon, 9060A m Solid	23-Jul-2024 15:00	10	30-Jul-2024 23:59	
Freeze and Hold Org - Met- Conv - Shar	23-Jul-2024 15:00	10	02-Jul-2025 16:15	
Metals, DMMP 2021 (Solid)	23-Jul-2024 15:00	10	29-Dec-2024 16:15	
Solids, Total Volatile (TVS) PSEP	23-Jul-2024 15:00	10	06-Aug-2024 23:59	
Solids, Total, Dried at 103 -105 °C, Soli	23-Jul-2024 15:00	10	30-Jul-2024 23:59	

24G0168-06 113733-SB1S6 [Solid] Sampled 02-Jul-2024 17:00 (GMT-08:00)
Pacific Time (US & Canada)

A = Ziploc Bag, Gallon

B = Glass WM, Clear, 16 oz

C = Glass WM, Clear, 8 oz

8081B Pest (PSDDA)	23-Jul-2024 15:00	10	16-Jul-2024 23:59	Use Version
8082A PCB Solid 4	23-Jul-2024 15:00	10	16-Jul-2024 23:59	
8260D VOA	23-Jul-2024 15:00	10	16-Jul-2024 23:59	benzene only
8270E SVOA and SIM SVOA dual scan	23-Jul-2024 15:00	10	16-Jul-2024 17:00	
8270E-SIM Butyl Tins	23-Jul-2024 15:00	10	16-Jul-2024 23:59	
Carbon, 9060A m Solid	23-Jul-2024 15:00	10	30-Jul-2024 23:59	
Freeze and Hold Org - Met- Conv - Shar	23-Jul-2024 15:00	10	02-Jul-2025 17:00	
Metals, DMMP 2021 (Solid)	23-Jul-2024 15:00	10	29-Dec-2024 17:00	
Solids, Total Volatile (TVS) PSEP	23-Jul-2024 15:00	10	06-Aug-2024 23:59	
Solids, Total, Dried at 103 -105 °C, Soli	23-Jul-2024 15:00	10	30-Jul-2024 23:59	



WORK ORDER

24G0168

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Shannon & Wilson, Inc

Project Manager: Susan Dunnihoo

Project: PAMP Sediments

Project Number: 113733

Analysis	Due	TAT	Expires	Comments

24G0168-07 113733-SB1S7 [Solid] Sampled 02-Jul-2024 17:05 (GMT-08:00)
Pacific Time (US & Canada)

A = Ziploc Bag, Gallon

B = Glass WM, Clear, 16 oz

C = Glass WM, Clear, 8 oz

8081B Pest (PSDDA)	23-Jul-2024 15:00	10	16-Jul-2024 23:59	Use Version
8082A PCB Solid 4	23-Jul-2024 15:00	10	16-Jul-2024 23:59	
8260D VOA	23-Jul-2024 15:00	10	16-Jul-2024 23:59	benzene only
8270E SVOA and SIM SVOA dual scan	23-Jul-2024 15:00	10	16-Jul-2024 17:05	
8270E-SIM Butyl Tins	23-Jul-2024 15:00	10	16-Jul-2024 23:59	
Carbon, 9060A m Solid	23-Jul-2024 15:00	10	30-Jul-2024 23:59	
Freeze and Hold Org - Met- Conv - Shar	23-Jul-2024 15:00	10	02-Jul-2025 17:05	
Metals, DMMP 2021 (Solid)	23-Jul-2024 15:00	10	29-Dec-2024 17:05	
Solids, Total Volatile (TVS) PSEP	23-Jul-2024 15:00	10	06-Aug-2024 23:59	
Solids, Total, Dried at 103 -105 °C, Soli	23-Jul-2024 15:00	10	30-Jul-2024 23:59	

24G0168-08 113733-SB1S12 [Solid] Sampled 02-Jul-2024 17:05 (GMT-08:00)
Pacific Time (US & Canada)

A = Ziploc Bag, Gallon

B = Glass WM, Clear, 16 oz

C = Glass WM, Clear, 8 oz

8081B Pest (PSDDA)	23-Jul-2024 15:00	10	16-Jul-2024 23:59	Use Version
8082A PCB Solid 4	23-Jul-2024 15:00	10	16-Jul-2024 23:59	
8260D VOA	23-Jul-2024 15:00	10	16-Jul-2024 23:59	benzene only
8270E SVOA and SIM SVOA dual scan	23-Jul-2024 15:00	10	16-Jul-2024 17:05	
8270E-SIM Butyl Tins	23-Jul-2024 15:00	10	16-Jul-2024 23:59	
Carbon, 9060A m Solid	23-Jul-2024 15:00	10	30-Jul-2024 23:59	
Freeze and Hold Org - Met- Conv - Shar	23-Jul-2024 15:00	10	02-Jul-2025 17:05	
Metals, DMMP 2021 (Solid)	23-Jul-2024 15:00	10	29-Dec-2024 17:05	
Solids, Total Volatile (TVS) PSEP	23-Jul-2024 15:00	10	06-Aug-2024 23:59	
Solids, Total, Dried at 103 -105 °C, Soli	23-Jul-2024 15:00	10	30-Jul-2024 23:59	



WORK ORDER

24G0168

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Shannon & Wilson, Inc

Project Manager: Susan Dunnihoo

Project: PAMP Sediments

Project Number: 113733

Analysis	Due	TAT	Expires	Comments

AmTest Laboratories

24G0168-01 113733-SB1S1 [Solid] Sampled 02-Jul-2024 13:50 (GMT-08:00)
Pacific Time (US & Canada)

A = Ziploc Bag, Gallon

Grainsize PSEP (Subc)	23-Jul-2024 15:00	10	01-Jan-2025 16:47

24G0168-02 113733-SB1S2 [Solid] Sampled 02-Jul-2024 13:55 (GMT-08:00)
Pacific Time (US & Canada)

A = Ziploc Bag, Gallon

Grainsize PSEP (Subc)	23-Jul-2024 15:00	10	01-Jan-2025 16:47

24G0168-03 113733-SB1S3 [Solid] Sampled 02-Jul-2024 14:10 (GMT-08:00)
Pacific Time (US & Canada)

A = Ziploc Bag, Gallon

Grainsize PSEP (Subc)	23-Jul-2024 15:00	10	01-Jan-2025 16:47

24G0168-04 113733-SB1S4 [Solid] Sampled 02-Jul-2024 15:30 (GMT-08:00)
Pacific Time (US & Canada)

A = Ziploc Bag, Gallon

Grainsize PSEP (Subc)	23-Jul-2024 15:00	10	01-Jan-2025 16:47

24G0168-05 113733-SB1S5 [Solid] Sampled 02-Jul-2024 16:15 (GMT-08:00)
Pacific Time (US & Canada)

A = Ziploc Bag, Gallon

Grainsize PSEP (Subc)	23-Jul-2024 15:00	10	01-Jan-2025 16:47

24G0168-06 113733-SB1S6 [Solid] Sampled 02-Jul-2024 17:00 (GMT-08:00)
Pacific Time (US & Canada)

A = Ziploc Bag, Gallon

Grainsize PSEP (Subc)	23-Jul-2024 15:00	10	01-Jan-2025 16:47

24G0168-07 113733-SB1S7 [Solid] Sampled 02-Jul-2024 17:05 (GMT-08:00)
Pacific Time (US & Canada)

A = Ziploc Bag, Gallon

Grainsize PSEP (Subc)	23-Jul-2024 15:00	10	01-Jan-2025 16:47

24G0168-08 113733-SB1S12 [Solid] Sampled 02-Jul-2024 17:05 (GMT-08:00)
Pacific Time (US & Canada)

A = Ziploc Bag, Gallon

Grainsize PSEP (Subc)	23-Jul-2024 15:00	10	01-Jan-2025 16:47

Reviewed By

Date

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WORK ORDER

24G0168

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Shannon & Wilson, Inc

Project Manager: Susan Dunnihoo

Project: PAMP Sediments

Project Number: 113733

Analysis groups included in this work order

8270E SVOA and SIM SVOA dual scan (solid)

8270E-SIM Dual Scan SVOC Solids, Total, PSEP (Extract) 8270E SVOC (20ug/kg sol

Metals, DMMP 2021 (Solid)

Met 6020B - Pb	Met 6020B - Ag	Met 6020B - As UCT	Met 6020B - Cd UCT
Met 6020B - Cu UCT	Solids, Total, Metals Corre	Met 6020B - Sb	Met 6020B - Se UCT
Met 6020B - Zn UCT	Met 7471B Hg	Metals Prep Hg	Metals Prep ICPMS
Met 6020B - Cr			

Reviewed By

Date

Page 7 of 7



Cooler Receipt Form

ARI Client: Shannon & Wilson

Project Name: PAMP SEDIMENT

COC No(s): NA

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: 24G0168

Tracking No: NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler? YES NO

Were custody papers included with the cooler? YES NO

Were custody papers properly filled out (ink, signed, etc.) YES NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 11:37 2.4

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: 2117

Cooler Accepted by: E. S. Date: 7/9/24 Time: 11:37

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES NO

What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____

Was sufficient ice used (if appropriate)? NA YES NO

How were bottles sealed in plastic bags? Individually Grouped Not

Did all bottles arrive in good condition (unbroken)? YES NO

Were all bottle labels complete and legible? YES NO

Did the number of containers listed on COC match with the number of containers received? YES NO

Did all bottle labels and tags agree with custody papers? YES NO

Were all bottles used correct for the requested analyses? YES NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs) ... NA YES NO

Were all VOC vials free of air bubbles? NA YES NO

Was sufficient amount of sample sent in each bottle? YES NO

Date VOC Trip Blank was made at ARI NA

Were the sample(s) split NA YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: RL Date: 7-9-24 Time: 12:12 Labels checked by: _____

**** Notify Project Manager of discrepancies or concerns ****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: _____ Date: _____

Am Test Inc.
13600 NE 126th Place Suite C
Kirkland, WA
(425) 885-1664
www.amtestlab.com



***Professional
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August 30, 2024

Susan Dunnihoo
4611 S 134th Pl Suite 100
Tukwila, WA 98168

Project: ARI GRAIN SIZES
Project Number: 24G0168
Project Manager: Susan Dunnihoo
RE: ARI GRAIN SIZES

Enclosed are the results of analyses for samples received by our laboratory on 7/11/2024.
Please feel free to contact me with any questions or considerations regarding this report.

Sincerely,

A handwritten signature in black ink that reads "Aaron Young". The signature is fluid and cursive, with the first name "Aaron" and the last name "Young" clearly distinguishable.

ElementStationManager For Aaron Young
President

Am Test Inc.
13600 NE 126th Place Suite C
Kirkland, WA
(425) 885-1664
www.amtestlab.com



**Professional
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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 08/30/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0168

Reported Samples

Lab ID	Sample	Matrix	Qualifiers	Date Sampled	Date Received
A24G0244-01	24G0168-01	Solid		07/02/2024	07/11/2024
A24G0244-02	24G0168-02	Solid		07/02/2024	07/11/2024
A24G0244-03	24G0168-03	Solid		07/02/2024	07/11/2024
A24G0244-04	24G0168-04	Solid		07/02/2024	07/11/2024
A24G0244-05	24G0168-05	Solid		07/02/2024	07/11/2024
A24G0244-06	24G0168-06	Solid		07/02/2024	07/11/2024
A24G0244-07	24G0168-07	Solid		07/02/2024	07/11/2024
A24G0244-08	24G0168-08	Solid		07/02/2024	07/11/2024

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**Professional
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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 08/30/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0168

AMTEST Identification Number: A24G0244-01
Client Identification: 24G0168-01
Sampling Date: 07/02/24 13:50

Conventional Chemistry Parameters by APHA/EPA Methods

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
% Solids	76.6	%			SM 2540G_2011	HV	08/26/2024

Full Grain Size (Hydrometer/Sieve)

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
PHI -2.25 (4.75 mm) Gravel	6.20	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI -2.00 (4.00 mm)	0.500	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI -1.00 (2.00 mm)	6.30	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI 0.00 (1.00 mm) Sand	2.10	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +1.00 (0.50 mm)	0.900	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +2.00 (0.25 mm)	0.600	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +3.00 (0.125 mm)	0.300	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +4.00 (0.063 mm)	1.80	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +5.00 (0.032 mm) Silt	41.1	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +6.00 (0.016 mm)	10.5	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +7.00 (0.008 mm)	9.20	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +8.00 (0.004 mm)	5.60	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +9.00 (0.002 mm) Clay	4.00	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +10.0 (0.001 mm)	2.80	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI >10.0 (< 0.001 mm)	8.20	%		0.100	PSEP 1986 P.9	HV	08/26/2024

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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 08/30/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0168

AMTEST Identification Number: A24G0244-02
Client Identification: 24G0168-02
Sampling Date: 07/02/24 13:55

Conventional Chemistry Parameters by APHA/EPA Methods

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
% Solids	82.1	%			SM 2540G_2011	HV	08/26/2024

Full Grain Size (Hydrometer/Sieve)

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
PHI -2.25 (4.75 mm) Gravel	1.30	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI -2.00 (4.00 mm)	0.800	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI -1.00 (2.00 mm)	2.20	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI 0.00 (1.00 mm) Sand	1.10	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +1.00 (0.50 mm)	1.00	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +2.00 (0.25 mm)	1.40	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +3.00 (0.125 mm)	1.50	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +4.00 (0.063 mm)	3.30	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +5.00 (0.032 mm) Silt	50.8	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +6.00 (0.016 mm)	14.8	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +7.00 (0.008 mm)	8.00	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +8.00 (0.004 mm)	3.00	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +9.00 (0.002 mm) Clay	2.90	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +10.0 (0.001 mm)	1.90	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI >10.0 (< 0.001 mm)	6.00	%		0.100	PSEP 1986 P.9	HV	08/26/2024

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**Professional
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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 08/30/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0168

AMTEST Identification Number: A24G0244-03
Client Identification: 24G0168-03
Sampling Date: 07/02/24 14:10

Conventional Chemistry Parameters by APHA/EPA Methods

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
% Solids	83.9	%			SM 2540G_2011	HV	08/26/2024

Full Grain Size (Hydrometer/Sieve)

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
PHI -2.25 (4.75 mm) Gravel	0.200	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI -2.00 (4.00 mm)	0.100	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI -1.00 (2.00 mm)	0.400	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI 0.00 (1.00 mm) Sand	0.300	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +1.00 (0.50 mm)	0.200	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +2.00 (0.25 mm)	0.500	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +3.00 (0.125 mm)	0.400	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +4.00 (0.063 mm)	2.70	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +5.00 (0.032 mm) Silt	42.3	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +6.00 (0.016 mm)	17.8	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +7.00 (0.008 mm)	11.6	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +8.00 (0.004 mm)	6.70	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +9.00 (0.002 mm) Clay	4.70	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +10.0 (0.001 mm)	2.90	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI >10.0 (< 0.001 mm)	9.20	%		0.100	PSEP 1986 P.9	HV	08/26/2024

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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 08/30/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0168

AMTEST Identification Number: A24G0244-04
Client Identification: 24G0168-04
Sampling Date: 07/02/24 15:30

Conventional Chemistry Parameters by APHA/EPA Methods

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
% Solids	87.7	%			SM 2540G_2011	HV	08/26/2024

Full Grain Size (Hydrometer/Sieve)

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
PHI -2.25 (4.75 mm) Gravel	14.1	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI -2.00 (4.00 mm)	ND	%	U	0.100	PSEP 1986 P.9	HV	08/26/2024
PHI -1.00 (2.00 mm)	0.200	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI 0.00 (1.00 mm) Sand	0.300	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +1.00 (0.50 mm)	0.300	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +2.00 (0.25 mm)	0.200	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +3.00 (0.125 mm)	0.400	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +4.00 (0.063 mm)	3.80	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +5.00 (0.032 mm) Silt	45.5	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +6.00 (0.016 mm)	14.7	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +7.00 (0.008 mm)	5.60	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +8.00 (0.004 mm)	4.40	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +9.00 (0.002 mm) Clay	2.70	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +10.0 (0.001 mm)	1.50	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI >10.0 (< 0.001 mm)	6.30	%		0.100	PSEP 1986 P.9	HV	08/26/2024

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Date Received: 07/11/24
Date Reported: 08/30/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0168

AMTEST Identification Number: A24G0244-05
Client Identification: 24G0168-05
Sampling Date: 07/02/24 16:15

Conventional Chemistry Parameters by APHA/EPA Methods

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
% Solids	81.5	%			SM 2540G_2011	HV	08/26/2024

Full Grain Size (Hydrometer/Sieve)

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
PHI -2.25 (4.75 mm) Gravel	0.600	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI -2.00 (4.00 mm)	0.600	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI -1.00 (2.00 mm)	0.600	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI 0.00 (1.00 mm) Sand	0.400	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +1.00 (0.50 mm)	ND	%	U	0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +2.00 (0.25 mm)	ND	%	U	0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +3.00 (0.125 mm)	0.200	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +4.00 (0.063 mm)	8.50	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +5.00 (0.032 mm) Silt	57.1	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +6.00 (0.016 mm)	7.70	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +7.00 (0.008 mm)	6.70	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +8.00 (0.004 mm)	4.40	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +9.00 (0.002 mm) Clay	3.30	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +10.0 (0.001 mm)	2.00	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI >10.0 (< 0.001 mm)	7.90	%		0.100	PSEP 1986 P.9	HV	08/26/2024

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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 08/30/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0168

AMTEST Identification Number: A24G0244-06
Client Identification: 24G0168-06
Sampling Date: 07/02/24 17:00

Conventional Chemistry Parameters by APHA/EPA Methods

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
% Solids	82.6	%			SM 2540G_2011	HV	08/26/2024

Full Grain Size (Hydrometer/Sieve)

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
PHI -2.25 (4.75 mm) Gravel	0.400	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI -2.00 (4.00 mm)	0.200	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI -1.00 (2.00 mm)	0.500	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI 0.00 (1.00 mm) Sand	0.300	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +1.00 (0.50 mm)	0.500	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +2.00 (0.25 mm)	1.00	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +3.00 (0.125 mm)	1.80	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +4.00 (0.063 mm)	20.3	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +5.00 (0.032 mm) Silt	42.0	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +6.00 (0.016 mm)	9.70	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +7.00 (0.008 mm)	6.70	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +8.00 (0.004 mm)	3.80	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +9.00 (0.002 mm) Clay	2.90	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +10.0 (0.001 mm)	1.90	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI >10.0 (< 0.001 mm)	7.80	%		0.100	PSEP 1986 P.9	HV	08/26/2024

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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 08/30/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0168

AMTEST Identification Number: A24G0244-07
Client Identification: 24G0168-07
Sampling Date: 07/02/24 17:05

Conventional Chemistry Parameters by APHA/EPA Methods

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
% Solids	94.4	%			SM 2540G_2011	HV	08/26/2024

Full Grain Size (Hydrometer/Sieve)

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
PHI -2.25 (4.75 mm) Gravel	ND	%	U	0.100	PSEP 1986 P.9	HV	08/26/2024
PHI -2.00 (4.00 mm)	ND	%	U	0.100	PSEP 1986 P.9	HV	08/26/2024
PHI -1.00 (2.00 mm)	ND	%	U	0.100	PSEP 1986 P.9	HV	08/26/2024
PHI 0.00 (1.00 mm) Sand	0.300	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +1.00 (0.50 mm)	0.200	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +2.00 (0.25 mm)	0.400	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +3.00 (0.125 mm)	1.20	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +4.00 (0.063 mm)	15.9	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +5.00 (0.032 mm) Silt	42.0	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +6.00 (0.016 mm)	12.3	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +7.00 (0.008 mm)	9.50	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +8.00 (0.004 mm)	5.00	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +9.00 (0.002 mm) Clay	3.30	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +10.0 (0.001 mm)	2.00	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI >10.0 (< 0.001 mm)	7.80	%		0.100	PSEP 1986 P.9	HV	08/26/2024

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Date Received: 07/11/24
Date Reported: 08/30/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0168

AMTEST Identification Number: A24G0244-08
Client Identification: 24G0168-08
Sampling Date: 07/02/24 17:05

Conventional Chemistry Parameters by APHA/EPA Methods

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
% Solids	97.0	%			SM 2540G_2011	HV	08/26/2024

Full Grain Size (Hydrometer/Sieve)

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
PHI -2.25 (4.75 mm) Gravel	28.6	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI -2.00 (4.00 mm)	1.20	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI -1.00 (2.00 mm)	4.30	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI 0.00 (1.00 mm) Sand	4.30	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +1.00 (0.50 mm)	8.60	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +2.00 (0.25 mm)	10.0	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +3.00 (0.125 mm)	1.10	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +4.00 (0.063 mm)	0.900	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +5.00 (0.032 mm) Silt	15.3	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +6.00 (0.016 mm)	6.50	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +7.00 (0.008 mm)	5.60	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +8.00 (0.004 mm)	3.70	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +9.00 (0.002 mm) Clay	2.80	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +10.0 (0.001 mm)	1.60	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI >10.0 (< 0.001 mm)	5.60	%		0.100	PSEP 1986 P.9	HV	08/26/2024

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Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0168

Date Received: 07/11/24
Date Reported: 08/30/24

ANALYSIS REPORT

Quality Control

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBH0391 - No Prep - WC Soil										
Duplicate (BBH0391-DUP1)			Source: A24G0431-03		Prepared & Analyzed: 08/26/24					
% Solids	41.7			%		42.0			0.7	20
Duplicate (BBH0391-DUP2)			Source: A24G0243-07		Prepared & Analyzed: 08/26/24					
% Solids	77.9			%		78.4			0.6	20
Duplicate (BBH0391-DUP3)			Source: A24G0243-07		Prepared & Analyzed: 08/26/24					
% Solids	78.4			%		78.4			0.04	20
Duplicate (BBH0391-DUP4)			Source: A24H0352-01		Prepared & Analyzed: 08/26/24					
% Solids	74.6			%		75.4			1	20
Duplicate (BBH0391-DUP5)			Source: A24H0352-01		Prepared & Analyzed: 08/26/24					
% Solids	75.8			%		75.4			0.5	20

Quality Control

Full Grain Size (Hydrometer/Sieve)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBH0423 - Hydrometer/Sieve										
Duplicate (BBH0423-DUP1)			Source: A24H0352-01		Prepared & Analyzed: 08/26/24					
PHI +1.00 (0.50 mm)	9.50		0.100	%		13.3			33	200
PHI +10.0 (0.001 mm)	0.300		0.100	%		0.700			80	200
PHI +2.00 (0.25 mm)	19.3		0.100	%		19.3			0	200
PHI +3.00 (0.125 mm)	13.2		0.100	%		12.9			2	200
PHI +4.00 (0.063 mm)	15.6		0.100	%		11.0			35	200
PHI +5.00 (0.032 mm) Silt	12.9		0.100	%		11.1			15	200
PHI +6.00 (0.016 mm)	3.40		0.100	%		5.60			49	200
PHI +7.00 (0.008 mm)	4.20		0.100	%		2.30			58	200
PHI +8.00 (0.004 mm)	3.10		0.100	%		2.80			10	200
PHI +9.00 (0.002 mm) Clay	1.00		0.100	%		1.40			33	200
PHI >10.0 (< 0.001 mm)	3.20		0.100	%		2.40			29	200

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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 08/30/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0168

Quality Control
(Continued)

Full Grain Size (Hydrometer/Sieve) (Continued)

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

Batch: BBH0423 - Hydrometer/Sieve (Continued)

Duplicate (BBH0423-DUP1)			Source: A24H0352-01			Prepared & Analyzed: 08/26/24				
PHI 0.00 (1.00 mm) Sand	7.00		0.100	%		9.10			26	200
PHI -1.00 (2.00 mm)	3.90		0.100	%		4.30			10	200
PHI -2.00 (4.00 mm)	0.500		0.100	%		0.300			50	200
PHI -2.25 (4.75 mm) Gravel	2.80		0.100	%		3.40			19	200
Duplicate (BBH0423-DUP2)			Source: A24H0352-01			Prepared & Analyzed: 08/26/24				
PHI +1.00 (0.50 mm)	7.10		0.100	%		13.3			61	200
PHI +10.0 (0.001 mm)	0.700		0.100	%		0.700			0	200
PHI +2.00 (0.25 mm)	21.0		0.100	%		19.3			8	200
PHI +3.00 (0.125 mm)	17.9		0.100	%		12.9			32	200
PHI +4.00 (0.063 mm)	18.0		0.100	%		11.0			48	200
PHI +5.00 (0.032 mm) Silt	3.90		0.100	%		11.1			96	200
PHI +6.00 (0.016 mm)	4.30		0.100	%		5.60			26	200
PHI +7.00 (0.008 mm)	4.00		0.100	%		2.30			54	200
PHI +8.00 (0.004 mm)	2.60		0.100	%		2.80			7	200
PHI +9.00 (0.002 mm) Clay	1.30		0.100	%		1.40			7	200
PHI >10.0 (< 0.001 mm)	2.40		0.100	%		2.40			0	200
PHI 0.00 (1.00 mm) Sand	3.70		0.100	%		9.10			84	200
PHI -1.00 (2.00 mm)	2.50		0.100	%		4.30			53	200
PHI -2.00 (4.00 mm)	0.300		0.100	%		0.300			0	200
PHI -2.25 (4.75 mm) Gravel	10.2		0.100	%		3.40			100	200

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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 08/30/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0168

Notes and Definitions

Item	Definition
U	The compound was analyzed for but was not detected (Non-detect) at or above the MRL/MDL.
Dry	Sample results reported on a dry weight basis.
ND	Analyte NOT DETECTED at or above the reporting limit.
RPD	Relative Percent Difference
%REC	Percent Recovery
Source	Sample that was matrix spiked or duplicated.



Analytical Resources, LLC
Analytical Chemists and Consultants

A24G0244

SUBCONTRACT ORDER
To: AmTest Laboratories
ARI Work Order:24G0168

SENDING LABORATORY:

Analytical Resources, LLC
4611 S. 134th Place, Suite 100
Tukwila, WA 98168
Phone: (206) 695-6200
Fax: (206) 695-6202
Project Manager: Susan Dunnihoo
E-Mail: sue.dunnihoo@arilabs.com

RECEIVING LABORATORY:

AmTest Laboratories
13600 NE 126th Pl Suite C
Kirkland, WA 98034
Phone :425-885-1664
Fax: -

PLEASE SEND DATA AND INVOICE TO subdata@arilabs.com

Analysis	Due	Expires	Sub Laboratory ID	Comments
Sample ID: 24G0168-01				
Sampled: 07/02/24 13:50	Matrix: Solid		01	
Grainsize PSEP (Subc)	07/23/24	01/01/25 06:38		
<i>Containers Supplied:</i>				
24G0168-01 A				
Ziploc Bag, Gallon				
Sample ID: 24G0168-02				
Sampled: 07/02/24 13:55	Matrix: Solid		02	
Grainsize PSEP (Subc)	07/23/24	01/01/25 06:43		
<i>Containers Supplied:</i>				
24G0168-02 A				
Ziploc Bag, Gallon				
Sample ID: 24G0168-03				
Sampled: 07/02/24 14:10	Matrix: Solid		03	
Grainsize PSEP (Subc)	07/23/24	01/01/25 06:58		
<i>Containers Supplied:</i>				
24G0168-03 A				
Ziploc Bag, Gallon				
Sample ID: 24G0168-04				
Sampled: 07/02/24 15:30	Matrix: Solid		04	
Grainsize PSEP (Subc)	07/23/24	01/01/25 08:18		
<i>Containers Supplied:</i>				
24G0168-04 A				
Ziploc Bag, Gallon				

1.2°C

Released By *Matt Dietz* 07/11/24 1245

Date

Received By *SF*

Date

7/11/24 1245

Date

Released By

Date

Received By

Date

Printed: 7/9/2024 1:06:03PM

Page 1 of 2

24G0168 ARISample FINAL 13 Sep 2024 1133 - Page 30 of 196



SUBCONTRACT ORDER
To: AmTest Laboratories
ARI Work Order:24G0168

Analysis	Due	Expires	Sub Laboratory ID	Comments
Sample ID: 24G0168-05				
Sampled: 07/02/24 16:15 Matrix: Solid			05	
Grainsize PSEP (Subc)	07/23/24	01/01/25 09:03		
Containers Supplied:				
24G0168-05 A				
Ziploc Bag, Gallon				
Sample ID: 24G0168-06				
Sampled: 07/02/24 17:00 Matrix: Solid			06	
Grainsize PSEP (Subc)	07/23/24	01/01/25 09:48		
Containers Supplied:				
24G0168-06 A				
Ziploc Bag, Gallon				
Sample ID: 24G0168-07				
Sampled: 07/02/24 17:05 Matrix: Solid			07	
Grainsize PSEP (Subc)	07/23/24	01/01/25 09:53		
Containers Supplied:				
24G0168-07 A				
Ziploc Bag, Gallon				
Sample ID: 24G0168-08				
Sampled: 07/02/24 17:05 Matrix: Solid			08	
Grainsize PSEP (Subc)	07/23/24	01/01/25 09:53		
Containers Supplied:				
24G0168-08 A				
Ziploc Bag, Gallon				

Released By

Date

Received By

Date

Released By

Date

Received By

Date

Printed: 7/9/2024 1:06:03PM

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Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 11:33

113733-SB1S1
24G0168-01 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM
Instrument: NT14 Analyst: RJL
Sample Preparation: Preparation Method: EPA 3546 (Microwave)
Preparation Batch: BMG0260
Prepared: 07/15/2024
Sample Size: 12.57 g (wet)
Final Volume: 1 mL
Extract ID: 24G0168-01 B 04
Dry Weight: 10.00 g
% Solids: 79.57
Sampled: 07/02/2024 13:50
Analyzed: 08/03/2024 00:35

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	2.5	5.0	3.5	ug/kg	J
1,3-Dichlorobenzene	541-73-1	1	2.5	5.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	2.5	5.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	2.5	5.0	ND	ug/kg	U
2-Methylphenol	95-48-7	1	2.5	5.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	10.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	2.5	5.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	10.0	20.0	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	5.0	5.0	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	2.5	5.0	ND	ug/kg	U
N-Nitrosodimethylamine	62-75-9	1	12.5	25.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	2.5	5.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	10.0	20.0	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	2.5	5.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	2.5	5.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	2.5	5.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	2.5	5.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	106	%	
Surrogate: p-Terphenyl-d14				37-120 %	123	%	*



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Project Manager: Dan McMahon

Reported:
13-Sep-2024 11:33

113733-SB1S1
24G0168-01 (Solid)

Butyl Tins

Method: EPA 8270E-SIM			Sampled: 07/02/2024 13:50		
Instrument: NT17 Analyst: JZ			Analyzed: 08/05/2024 20:20		
Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 24G0168-01 B 03		
	Preparation Batch: BMG0259		Dry Weight: 5.01 g		
	Prepared: 07/15/2024		% Solids: 79.57		
Sample Cleanup:	Sample Size: 6.3 g (wet)		Final Volume: 0.5 mL		
	Cleanup Method: Silica Gel		Initial Volume: 0.5 uL		
	Cleanup Batch: CMH0022		Final Volume: 0.5 uL		
Cleaned: 02-Aug-2024					

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Tributyltin Ion	36643-28-4	1	1.93	3.85	ND	ug/kg	U
Surrogate: Triphenyltin				30-160 %	91.2	%	
Surrogate: Tripropyltin				30-160 %	66.2	%	



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Project: PAMP Sediments

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Project Manager: Dan McMahon

Reported:

13-Sep-2024 11:33

113733-SB1S1
24G0168-01 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/02/2024 13:50

Instrument: ECD6 Analyst: RT

Analyzed: 07/30/2024 17:48

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 15.72 g (wet)	Extract ID: 24G0168-01 B 02
	Preparation Batch: BMG0258	Final Volume: 2.5 mL	Dry Weight: 12.51 g
	Prepared: 07/15/2024		% Solids: 79.57

Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL	Extract ID: 24G0168-01 B 02
	Cleanup Batch: CMG0194	Final Volume: 2.5 uL	
	Cleaned: 29-Jul-2024		

Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL	Extract ID: 24G0168-01 B 02
	Cleanup Batch: CMG0193	Final Volume: 2.5 uL	
	Cleaned: 29-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.25	0.50	ND	ug/kg	U
beta-BHC	319-85-7	1	0.25	0.50	ND	ug/kg	U
gamma-BHC (Lindane)	58-89-9	1	0.25	0.50	ND	ug/kg	U
delta-BHC	319-86-8	1	0.25	0.50	ND	ug/kg	U
Heptachlor	76-44-8	1	0.25	0.50	ND	ug/kg	U
Aldrin	309-00-2	1	0.50	0.50	ND	ug/kg	U
Heptachlor Epoxide	1024-57-3	1	0.25	0.50	ND	ug/kg	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.50	0.50	ND	ug/kg	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.25	0.50	ND	ug/kg	U
Endosulfan I	959-98-8	1	0.25	0.50	ND	ug/kg	U
4,4'-DDE	72-55-9	1	0.50	1.00	ND	ug/kg	U
Dieldrin	60-57-1	1	0.50	1.00	ND	ug/kg	U
Endrin	72-20-8	1	0.50	1.00	ND	ug/kg	U
Endosulfan II	33213-65-9	1	0.50	1.00	ND	ug/kg	U
4,4'-DDD	72-54-8	1	0.50	1.00	ND	ug/kg	U
Endrin Aldehyde	7421-93-4	1	0.50	1.00	ND	ug/kg	U
4,4'-DDT	50-29-3	1	0.50	1.00	ND	ug/kg	U
Endosulfan Sulfate	1031-07-8	1	0.50	1.00	ND	ug/kg	U
Endrin Ketone	53494-70-5	1	0.50	1.00	ND	ug/kg	U
Methoxychlor	72-43-5	1	2.50	5.00	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	0.25	0.50	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	0.25	0.50	ND	ug/kg	U
2,4'-DDE	3424-82-6	1	0.50	1.00	ND	ug/kg	U
2,4'-DDD	53-19-0	1	0.50	1.00	ND	ug/kg	U
2,4'-DDT	789-02-6	1	0.50	1.00	ND	ug/kg	U
Oxychlordane	27304-13-8	1	0.50	1.00	ND	ug/kg	U
cis-Nonachlor	5103-73-1	1	0.50	1.00	ND	ug/kg	U
trans-Nonachlor	39765-80-5	1	0.50	1.00	ND	ug/kg	U
Mirex	2385-85-5	1	1.00	1.00	ND	ug/kg	U



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 11:33

113733-SB1S1

24G0168-01 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/02/2024 13:50

Instrument: ECD6 Analyst: RT

Analyzed: 07/30/2024 17:48

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Decachlorobiphenyl		30-160 %	90.7	%	
Surrogate: Decachlorobiphenyl [2C]		30-160 %	85.1	%	
Surrogate: Tetrachlorometaxylene		30-160 %	61.8	%	
Surrogate: Tetrachlorometaxylene [2C]		30-160 %	63.7	%	



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Project Manager: Dan McMahon

Reported:

13-Sep-2024 11:33

113733-SB1S1
24G0168-01 (Solid)

Aroclor PCB

Method: EPA 8082A

Sampled: 07/02/2024 13:50

Instrument: ECD5 Analyst: AA

Analyzed: 07/25/2024 20:17

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 15.76 g (wet) Final Volume: 2.5 mL	Extract ID: 24G0168-01 B 01 Dry Weight: 12.54 g % Solids: 79.57
	Preparation Batch: BMG0257		
	Prepared: 07/16/2024		
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0168-01 B 01
	Cleanup Batch: CMG0174		
	Cleaned: 25-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfuric Acid	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0168-01 B 01
	Cleanup Batch: CMG0172		
	Cleaned: 25-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0168-01 B 01
	Cleanup Batch: CMG0173		
	Cleaned: 25-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	2.0	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	2.0	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	2.0	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1262	37324-23-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1268	11100-14-4	1	2.0	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl					40-126 %	77.3	%
Surrogate: Tetrachlorometaxylene					44-120 %	78.1	%
Surrogate: Decachlorobiphenyl [2C]					40-126 %	81.0	%
Surrogate: Tetrachlorometaxylene [2C]					44-120 %	76.8	%



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Reported:

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113733-SB1S1

24G0168-01 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED

Sampled: 07/02/2024 13:50

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 12:00

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0168-01 B 05

Preparation Batch: BMG0274

Sample Size: 1.078 g (wet)

Dry Weight: 0.79 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 73.65

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.05	0.25	14.6	mg/kg	
Cadmium	7440-43-9	20	0.04	0.13	0.15	mg/kg	
Copper	7440-50-8	20	0.22	0.63	45.1	mg/kg	
Selenium	7782-49-2	20	0.23	0.63	1.44	mg/kg	
Zinc	7440-66-6	20	3.7	7.6	96.8	mg/kg	



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Project: PAMP Sediments
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Reported:
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113733-SB1S1
24G0168-01 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B

Sampled: 07/02/2024 13:50

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 12:00

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0168-01 B 05

Preparation Batch: BMG0274

Sample Size: 1.078 g (wet)

Dry Weight: 0.79 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 73.65

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	20	0.13	0.25	ND	mg/kg	U
Chromium	7440-47-3	50	0.82	1.57	34.2	mg/kg	D
Lead	7439-92-1	20	0.07	0.13	9.34	mg/kg	
Silver	7440-22-4	20	0.03	0.25	0.15	mg/kg	J



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Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 11:33

113733-SB1S1

24G0168-01 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B

Sampled: 07/02/2024 13:50

Instrument: HYDRA Analyst: ML

Analyzed: 07/15/2024 12:19

Sample Preparation:

Preparation Method: SMM EPA 7471B

Extract ID: 24G0168-01 C

Preparation Batch: BMG0339

Sample Size: 0.206 g (wet)

Dry Weight: 0.15 g

Prepared: 07/13/2024

Final Volume: 50 mL

% Solids: 73.65

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00692	0.0330	0.0853	mg/kg	



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Project Manager: Dan McMahon

Reported:

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113733-SB1S1

24G0168-01 (Solid)

Wet Chemistry

Method: EPA 9060A m

Sampled: 07/02/2024 13:50

Instrument: Accumet AB150 Analyst: ARR

Analyzed: 08/08/2024 02:43

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0168-01 C

Preparation Batch: BMH0093

Sample Size: 0.5173 g (wet)

Dry Weight: 0.38 g

Prepared: 08/06/2024

Final Volume: 0.5173 mL

% Solids: 73.65

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.51	%	F



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Reported:
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113733-SB1S1
24G0168-01 (Solid)

Wet Chemistry

Method: PSEP 1986

Sampled: 07/02/2024 13:50

Instrument: BAL2 Analyst: LERB

Analyzed: 07/23/2024 15:43

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0168-01

Preparation Batch: BMG0567

Sample Size: 5 g (wet)

Prepared: 07/23/2024

Final Volume: 5 mL

% Solids: 73.65

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Volatile Solids		1	0.01	0.01	2.36	%	



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Reported:

13-Sep-2024 11:33

113733-SB1S1

24G0168-01 (Solid)

Wet Chemistry

Method: SM 2540 G-11

Sampled: 07/02/2024 13:50

Instrument: BAL2 Analyst: LERB

Analyzed: 07/23/2024 15:43

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0168-01

Preparation Batch: BMG0567

Sample Size: 5 g (wet)

Prepared: 07/23/2024

Final Volume: 5 mL

% Solids: 73.65

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	73.65	%	



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Reported:

13-Sep-2024 11:33

113733-SB1S1

24G0168-01RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 13:50

Instrument: NT14 Analyst: RJL

Analyzed: 08/08/2024 17:58

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0168-01RE1 B 04

Preparation Batch: BMG0260

Sample Size: 12.57 g (wet)

Dry Weight: 10.00 g

Prepared: 07/15/2024

Final Volume: 1 mL

% Solids: 79.57

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	10.0	20.0	ND	ug/kg	U
bis(2-chloroethyl) ether	111-44-4	1	35.0	50.0	ND	ug/kg	U
2-Chlorophenol	95-57-8	1	20.0	20.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	10.0	20.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	10.0	20.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	10.0	20.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	20.0	20.0	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	10.0	20.0	ND	ug/kg	U
2-Methylphenol	95-48-7	1	10.0	20.0	ND	ug/kg	U
Hexachloroethane	67-72-1	1	10.0	20.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	15.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	15.0	20.0	ND	ug/kg	U
Nitrobenzene	98-95-3	1	10.0	20.0	ND	ug/kg	U
Isophorone	78-59-1	1	15.0	20.0	ND	ug/kg	U
2-Nitrophenol	88-75-5	1	10.0	20.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	50.0	100	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	1	10.0	20.0	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	1	50.0	100	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	10.0	20.0	ND	ug/kg	U
Naphthalene	91-20-3	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	100	200	ND	ug/kg	U
4-Chloroaniline	106-47-8	1	50.0	100	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	10.0	20.0	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	1	50.0	100	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	10.0	20.0	ND	ug/kg	U
Hexachlorocyclopentadiene	77-47-4	1	50.0	100	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	1	50.0	100	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	1	50.0	100	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	1	10.0	20.0	ND	ug/kg	U
2-Nitroaniline	88-74-4	1	50.0	100	ND	ug/kg	U
Acenaphthylene	208-96-8	1	10.0	20.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	10.0	20.0	ND	ug/kg	U
2,6-Dinitrotoluene	606-20-2	1	50.0	100	ND	ug/kg	U
Acenaphthene	83-32-9	1	10.0	20.0	ND	ug/kg	U
3-Nitroaniline	99-09-2	1	50.0	100	ND	ug/kg	U



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 11:33

113733-SB1S1
24G0168-01RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 13:50

Instrument: NT14 Analyst: RJL

Analyzed: 08/08/2024 17:58

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2,4-Dinitrophenol	51-28-5	1	100	200	ND	ug/kg	U
Dibenzofuran	132-64-9	1	20.0	20.0	ND	ug/kg	U
4-Nitrophenol	100-02-7	1	50.0	100	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	1	50.0	100	ND	ug/kg	U
Fluorene	86-73-7	1	20.0	20.0	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	1	35.0	50.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	35.0	50.0	ND	ug/kg	U
4-Nitroaniline	100-01-6	1	50.0	100	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	1	100	200	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	10.0	20.0	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	1	20.0	20.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	20.0	20.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	50.0	100	ND	ug/kg	U
Phenanthrene	85-01-8	1	10.0	20.0	ND	ug/kg	U
Anthracene	120-12-7	1	10.0	20.0	ND	ug/kg	U
Carbazole	86-74-8	1	10.0	20.0	ND	ug/kg	U
Di-n-Butylphthalate	84-74-2	1	10.0	20.0	ND	ug/kg	U
Fluoranthene	206-44-0	1	10.0	20.0	ND	ug/kg	U
Pyrene	129-00-0	1	10.0	20.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	10.0	20.0	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	1	10.0	20.0	ND	ug/kg	U
3,3'-Dichlorobenzidine	91-94-1	1	50.0	100	ND	ug/kg	U
Chrysene	218-01-9	1	10.0	20.0	ND	ug/kg	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	40.0	50.0	ND	ug/kg	U
Di-n-Octylphthalate	117-84-0	1	10.0	20.0	ND	ug/kg	U
Benzo(a)fluoranthene, Total		1	30.0	40.0	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	10.0	20.0	ND	ug/kg	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	20.0	20.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	20.0	20.0	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	20.0	20.0	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	10.0	20.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	102	%	
Surrogate: Phenol-d5				29-120 %	96.9	%	
Surrogate: 2-Chlorophenol-d4				31-120 %	110	%	
Surrogate: 1,2-Dichlorobenzene-d4				32-120 %	104	%	
Surrogate: Nitrobenzene-d5				30-120 %	102	%	
Surrogate: 2-Fluorobiphenyl				35-120 %	86.5	%	



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Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 11:33

113733-SB1S1

24G0168-01RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 13:50

Instrument: NT14 Analyst: RJL

Analyzed: 08/08/2024 17:58

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: 2,4,6-Tribromophenol		24-134 %	124	%	
Surrogate: p-Terphenyl-d14		37-120 %	125	%	*



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Project Manager: Dan McMahon

Reported:

13-Sep-2024 11:33

113733-SB1S1

24G0168-01RE1 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM

Sampled: 07/02/2024 13:50

Instrument: NT14 Analyst: RJL

Analyzed: 08/08/2024 17:58

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0168-01RE1 B 04

Preparation Batch: BMG0260

Sample Size: 12.57 g (wet)

Dry Weight: 10.00 g

Prepared: 07/15/2024

Final Volume: 1 mL

% Solids: 79.57

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Benzyl Alcohol	100-51-6	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	500	500	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	250	250	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	98.4	%	
Surrogate: p-Terphenyl-d14				37-120 %	126	%	*



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 11:33

113733-SB1S2
24G0168-02 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM

Sampled: 07/02/2024 13:55

Instrument: NT14 Analyst: RJL

Analyzed: 08/03/2024 01:13

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0168-02 B 04

Preparation Batch: BMG0260

Sample Size: 12.89 g (wet)

Dry Weight: 10.00 g

Prepared: 07/15/2024

Final Volume: 1 mL

% Solids: 77.56

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	2.5	5.0	2.7	ug/kg	J
1,3-Dichlorobenzene	541-73-1	1	2.5	5.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	2.5	5.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	2.5	5.0	ND	ug/kg	U
2-Methylphenol	95-48-7	1	2.5	5.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	10.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	2.5	5.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	10.0	20.0	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	5.0	5.0	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	2.5	5.0	ND	ug/kg	U
N-Nitrosodimethylamine	62-75-9	1	12.5	25.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	2.5	5.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	10.0	20.0	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	2.5	5.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	2.5	5.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	2.5	5.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	2.5	5.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	91.2	%	
Surrogate: p-Terphenyl-d14				37-120 %	102	%	



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Reported:
13-Sep-2024 11:33

113733-SB1S2
24G0168-02 (Solid)

Butyl Tins

Method: EPA 8270E-SIM
Instrument: NT17 Analyst: JZ

Sampled: 07/02/2024 13:55

Analyzed: 08/05/2024 20:33

Sample Preparation: Preparation Method: EPA 3546 (Microwave)
Preparation Batch: BMG0259
Prepared: 07/15/2024

Sample Size: 6.45 g (wet)

Final Volume: 0.5 mL

Extract ID: 24G0168-02 B 03

Dry Weight: 5.00 g

% Solids: 77.56

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CMH0022
Cleaned: 02-Aug-2024

Initial Volume: 0.5 uL

Final Volume: 0.5 uL

Extract ID: 24G0168-02 B 03

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Tributyltin Ion	36643-28-4	1	1.93	3.86	ND	ug/kg	U
Surrogate: Triphenyltin				30-160 %	105	%	
Surrogate: Tripropyltin				30-160 %	79.8	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 11:33

113733-SB1S2
24G0168-02 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/02/2024 13:55

Instrument: ECD6 Analyst: RT

Analyzed: 07/30/2024 18:06

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 16.13 g (wet)	Extract ID: 24G0168-02 B 02
	Preparation Batch: BMG0258		
	Prepared: 07/15/2024		
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL	Extract ID: 24G0168-02 B 02
	Cleanup Batch: CMG0194		
	Cleaned: 29-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL	Extract ID: 24G0168-02 B 02
	Cleanup Batch: CMG0193		
	Cleaned: 29-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.25	0.50	ND	ug/kg	U
beta-BHC	319-85-7	1	0.25	0.50	ND	ug/kg	U
gamma-BHC (Lindane)	58-89-9	1	0.25	0.50	ND	ug/kg	U
delta-BHC	319-86-8	1	0.25	0.50	ND	ug/kg	U
Heptachlor	76-44-8	1	0.25	0.50	ND	ug/kg	U
Aldrin	309-00-2	1	0.50	0.50	ND	ug/kg	U
Heptachlor Epoxide	1024-57-3	1	0.25	0.50	ND	ug/kg	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.50	0.50	ND	ug/kg	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.25	0.50	ND	ug/kg	U
Endosulfan I	959-98-8	1	0.25	0.50	ND	ug/kg	U
4,4'-DDE	72-55-9	1	0.50	1.00	ND	ug/kg	U
Dieldrin	60-57-1	1	0.50	1.00	ND	ug/kg	U
Endrin	72-20-8	1	0.50	1.00	ND	ug/kg	U
Endosulfan II	33213-65-9	1	0.50	1.00	ND	ug/kg	U
4,4'-DDD	72-54-8	1	0.50	1.00	ND	ug/kg	U
Endrin Aldehyde	7421-93-4	1	0.50	1.00	ND	ug/kg	U
4,4'-DDT	50-29-3	1	0.50	1.00	ND	ug/kg	U
Endosulfan Sulfate	1031-07-8	1	0.50	1.00	ND	ug/kg	U
Endrin Ketone	53494-70-5	1	0.50	1.00	ND	ug/kg	U
Methoxychlor	72-43-5	1	2.50	5.00	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	0.25	0.50	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	0.25	0.50	ND	ug/kg	U
2,4'-DDE	3424-82-6	1	0.50	1.00	ND	ug/kg	U
2,4'-DDD	53-19-0	1	0.50	1.00	ND	ug/kg	U
2,4'-DDT	789-02-6	1	0.50	1.00	ND	ug/kg	U
Oxychlordane	27304-13-8	1	0.50	1.00	ND	ug/kg	U
cis-Nonachlor	5103-73-1	1	0.50	1.00	ND	ug/kg	U
trans-Nonachlor	39765-80-5	1	0.50	1.00	ND	ug/kg	U
Mirex	2385-85-5	1	1.00	1.00	ND	ug/kg	U



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 11:33

113733-SB1S2
24G0168-02 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/02/2024 13:55

Instrument: ECD6 Analyst: RT

Analyzed: 07/30/2024 18:06

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Decachlorobiphenyl		30-160 %	104	%	
Surrogate: Decachlorobiphenyl [2C]		30-160 %	100	%	
Surrogate: Tetrachlorometaxylene		30-160 %	72.6	%	
Surrogate: Tetrachlorometaxylene [2C]		30-160 %	67.7	%	



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Reported:

13-Sep-2024 11:33

113733-SB1S2
24G0168-02 (Solid)

Aroclor PCB

Method: EPA 8082A

Sampled: 07/02/2024 13:55

Instrument: ECD5 Analyst: AA

Analyzed: 07/25/2024 20:38

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 16.14 g (wet)	Extract ID: 24G0168-02 B 01
	Preparation Batch: BMG0257		
	Prepared: 07/16/2024		
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL	Dry Weight: 12.52 g
	Cleanup Batch: CMG0174		
	Cleaned: 25-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfuric Acid	Initial Volume: 2.5 uL	% Solids: 77.56
	Cleanup Batch: CMG0172		
	Cleaned: 25-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL	Extract ID: 24G0168-02 B 01
	Cleanup Batch: CMG0173		
	Cleaned: 25-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	2.0	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	2.0	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	2.0	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1262	37324-23-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1268	11100-14-4	1	2.0	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl					40-126 %	79.3	%
Surrogate: Tetrachlorometaxylene					44-120 %	82.3	%
Surrogate: Decachlorobiphenyl [2C]					40-126 %	82.4	%
Surrogate: Tetrachlorometaxylene [2C]					44-120 %	78.7	%



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Project: PAMP Sediments
Project Number: 113733
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Reported:
13-Sep-2024 11:33

113733-SB1S2
24G0168-02 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED

Sampled: 07/02/2024 13:55

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 11:56

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0168-02 B 05

Preparation Batch: BMG0274

Sample Size: 1.045 g (wet)

Dry Weight: 0.81 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 77.76

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.05	0.25	12.6	mg/kg	
Cadmium	7440-43-9	20	0.04	0.12	0.10	mg/kg	J
Copper	7440-50-8	20	0.21	0.62	39.2	mg/kg	
Selenium	7782-49-2	20	0.22	0.62	1.13	mg/kg	
Zinc	7440-66-6	20	3.6	7.4	83.7	mg/kg	



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Reported:
13-Sep-2024 11:33

113733-SB1S2
24G0168-02 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B

Sampled: 07/02/2024 13:55

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 11:56

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0168-02 B 05

Preparation Batch: BMG0274

Sample Size: 1.045 g (wet)

Dry Weight: 0.81 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 77.76

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	20	0.13	0.25	ND	mg/kg	U
Chromium	7440-47-3	50	0.80	1.54	31.3	mg/kg	D
Lead	7439-92-1	20	0.06	0.12	7.79	mg/kg	
Silver	7440-22-4	20	0.03	0.25	0.14	mg/kg	J



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Reported:

13-Sep-2024 11:33

113733-SB1S2

24G0168-02 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B

Sampled: 07/02/2024 13:55

Instrument: HYDRA Analyst: ML

Analyzed: 07/15/2024 12:26

Sample Preparation:

Preparation Method: SMM EPA 7471B

Extract ID: 24G0168-02 C

Preparation Batch: BMG0339

Sample Size: 0.28 g (wet)

Dry Weight: 0.22 g

Prepared: 07/13/2024

Final Volume: 50 mL

% Solids: 77.76

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00482	0.0230	0.0769	mg/kg	



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Reported:

13-Sep-2024 11:33

113733-SB1S2

24G0168-02 (Solid)

Wet Chemistry

Method: EPA 9060A m

Sampled: 07/02/2024 13:55

Instrument: Accumet AB150 Analyst: ARR

Analyzed: 08/08/2024 11:50

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0168-02 C

Preparation Batch: BMH0093

Sample Size: 0.5073 g (wet)

Dry Weight: 0.39 g

Prepared: 08/06/2024

Final Volume: 0.5073 mL

% Solids: 77.76

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.38	%	F



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Reported:
13-Sep-2024 11:33

113733-SB1S2
24G0168-02 (Solid)

Wet Chemistry

Method: PSEP 1986

Sampled: 07/02/2024 13:55

Instrument: BAL2 Analyst: LERB

Analyzed: 07/23/2024 15:43

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0168-02

Preparation Batch: BMG0567

Sample Size: 5 g (wet)

Prepared: 07/23/2024

Final Volume: 5 mL

% Solids: 77.76

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Volatile Solids		1	0.01	0.01	1.99	%	



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Reported:

13-Sep-2024 11:33

113733-SB1S2

24G0168-02 (Solid)

Wet Chemistry

Method: SM 2540 G-11

Sampled: 07/02/2024 13:55

Instrument: BAL2 Analyst: LERB

Analyzed: 07/23/2024 15:43

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0168-02

Preparation Batch: BMG0567

Sample Size: 5 g (wet)

Prepared: 07/23/2024

Final Volume: 5 mL

% Solids: 77.76

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	77.76	%	



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Reported:

13-Sep-2024 11:33

113733-SB1S2

24G0168-02RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 13:55

Instrument: NT14 Analyst: RJL

Analyzed: 08/08/2024 18:37

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0168-02RE1 B 04

Preparation Batch: BMG0260

Sample Size: 12.89 g (wet)

Dry Weight: 10.00 g

Prepared: 07/15/2024

Final Volume: 1 mL

% Solids: 77.56

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	10.0	20.0	ND	ug/kg	U
bis(2-chloroethyl) ether	111-44-4	1	35.0	50.0	ND	ug/kg	U
2-Chlorophenol	95-57-8	1	20.0	20.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	10.0	20.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	10.0	20.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	10.0	20.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	20.0	20.0	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	10.0	20.0	ND	ug/kg	U
2-Methylphenol	95-48-7	1	10.0	20.0	ND	ug/kg	U
Hexachloroethane	67-72-1	1	10.0	20.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	15.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	15.0	20.0	ND	ug/kg	U
Nitrobenzene	98-95-3	1	10.0	20.0	ND	ug/kg	U
Isophorone	78-59-1	1	15.0	20.0	ND	ug/kg	U
2-Nitrophenol	88-75-5	1	10.0	20.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	50.0	100	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	1	10.0	20.0	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	1	50.0	100	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	10.0	20.0	ND	ug/kg	U
Naphthalene	91-20-3	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	100	200	ND	ug/kg	U
4-Chloroaniline	106-47-8	1	50.0	100	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	10.0	20.0	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	1	50.0	100	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	10.0	20.0	ND	ug/kg	U
Hexachlorocyclopentadiene	77-47-4	1	50.0	100	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	1	50.0	100	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	1	50.0	100	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	1	10.0	20.0	ND	ug/kg	U
2-Nitroaniline	88-74-4	1	50.0	100	ND	ug/kg	U
Acenaphthylene	208-96-8	1	10.0	20.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	10.0	20.0	ND	ug/kg	U
2,6-Dinitrotoluene	606-20-2	1	50.0	100	ND	ug/kg	U
Acenaphthene	83-32-9	1	10.0	20.0	ND	ug/kg	U
3-Nitroaniline	99-09-2	1	50.0	100	ND	ug/kg	U



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 11:33

113733-SB1S2
24G0168-02RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 13:55

Instrument: NT14 Analyst: RJL

Analyzed: 08/08/2024 18:37

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2,4-Dinitrophenol	51-28-5	1	100	200	ND	ug/kg	U
Dibenzofuran	132-64-9	1	20.0	20.0	ND	ug/kg	U
4-Nitrophenol	100-02-7	1	50.0	100	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	1	50.0	100	ND	ug/kg	U
Fluorene	86-73-7	1	20.0	20.0	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	1	35.0	50.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	35.0	50.0	ND	ug/kg	U
4-Nitroaniline	100-01-6	1	50.0	100	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	1	100	200	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	10.0	20.0	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	1	20.0	20.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	20.0	20.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	50.0	100	ND	ug/kg	U
Phenanthrene	85-01-8	1	10.0	20.0	ND	ug/kg	U
Anthracene	120-12-7	1	10.0	20.0	ND	ug/kg	U
Carbazole	86-74-8	1	10.0	20.0	ND	ug/kg	U
Di-n-Butylphthalate	84-74-2	1	10.0	20.0	ND	ug/kg	U
Fluoranthene	206-44-0	1	10.0	20.0	ND	ug/kg	U
Pyrene	129-00-0	1	10.0	20.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	10.0	20.0	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	1	10.0	20.0	ND	ug/kg	U
3,3'-Dichlorobenzidine	91-94-1	1	50.0	100	ND	ug/kg	U
Chrysene	218-01-9	1	10.0	20.0	ND	ug/kg	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	40.0	50.0	ND	ug/kg	U
Di-n-Octylphthalate	117-84-0	1	10.0	20.0	ND	ug/kg	U
Benzo(a)fluoranthene, Total		1	30.0	40.0	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	10.0	20.0	ND	ug/kg	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	20.0	20.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	20.0	20.0	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	20.0	20.0	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	10.0	20.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	90.1	%	
Surrogate: Phenol-d5				29-120 %	85.0	%	
Surrogate: 2-Chlorophenol-d4				31-120 %	94.8	%	
Surrogate: 1,2-Dichlorobenzene-d4				32-120 %	89.1	%	
Surrogate: Nitrobenzene-d5				30-120 %	84.4	%	
Surrogate: 2-Fluorobiphenyl				35-120 %	73.0	%	



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Project Manager: Dan McMahon

Reported:

13-Sep-2024 11:33

113733-SB1S2

24G0168-02RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 13:55

Instrument: NT14 Analyst: RJL

Analyzed: 08/08/2024 18:37

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: 2,4,6-Tribromophenol		24-134 %	118	%	
Surrogate: p-Terphenyl-d14		37-120 %	108	%	



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Reported:
13-Sep-2024 11:33

113733-SB1S2
24G0168-02RE1 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM

Sampled: 07/02/2024 13:55

Instrument: NT14 Analyst: RJL

Analyzed: 08/08/2024 18:37

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0168-02RE1 B 04

Preparation Batch: BMG0260

Sample Size: 12.89 g (wet)

Dry Weight: 10.00 g

Prepared: 07/15/2024

Final Volume: 1 mL

% Solids: 77.56

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Benzyl Alcohol	100-51-6	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	500	500	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	250	250	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	86.3	%	
Surrogate: p-Terphenyl-d14				37-120 %	105	%	



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Project Manager: Dan McMahon

Reported:

13-Sep-2024 11:33

113733-SB1S3

24G0168-03 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM

Sampled: 07/02/2024 14:10

Instrument: NT14 Analyst: RJL

Analyzed: 08/03/2024 01:52

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0168-03 B 04

Preparation Batch: BMG0260

Sample Size: 13.32 g (wet)

Dry Weight: 10.02 g

Prepared: 07/15/2024

Final Volume: 1 mL

% Solids: 75.26

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	2.5	5.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	2.5	5.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	2.5	5.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	2.5	5.0	ND	ug/kg	U
2-Methylphenol	95-48-7	1	2.5	5.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	10.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	2.5	5.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	10.0	20.0	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	5.0	5.0	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	2.5	5.0	ND	ug/kg	U
N-Nitrosodimethylamine	62-75-9	1	12.5	24.9	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	2.5	5.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	10.0	20.0	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	2.5	5.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	2.5	5.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	2.5	5.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	2.5	5.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	86.1	%	
Surrogate: p-Terphenyl-d14				37-120 %	96.1	%	



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Reported:
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113733-SB1S3
24G0168-03 (Solid)

Butyl Tins

Method: EPA 8270E-SIM
Instrument: NT17 Analyst: JZ

Sampled: 07/02/2024 14:10

Analyzed: 08/05/2024 20:47

Sample Preparation: Preparation Method: EPA 3546 (Microwave)
Preparation Batch: BMG0259
Prepared: 07/15/2024

Sample Size: 6.66 g (wet)

Final Volume: 0.5 mL

Extract ID: 24G0168-03 B 03

Dry Weight: 5.01 g

% Solids: 75.26

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CMH0022
Cleaned: 02-Aug-2024

Initial Volume: 0.5 uL

Final Volume: 0.5 uL

Extract ID: 24G0168-03 B 03

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Tributyltin Ion	36643-28-4	1	1.93	3.85	ND	ug/kg	U
Surrogate: Triphenyltin				30-160 %	87.7	%	
Surrogate: Tripropyltin				30-160 %	57.1	%	



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Project Manager: Dan McMahon

Reported:

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113733-SB1S3
24G0168-03 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/02/2024 14:10

Instrument: ECD6 Analyst: RT

Analyzed: 07/30/2024 18:25

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 16.66 g (wet)	Extract ID: 24G0168-03 B 02
	Preparation Batch: BMG0258	Final Volume: 2.5 mL	Dry Weight: 12.54 g
	Prepared: 07/15/2024		% Solids: 75.26

Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL	Extract ID: 24G0168-03 B 02
	Cleanup Batch: CMG0194	Final Volume: 2.5 uL	
	Cleaned: 29-Jul-2024		

Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL	Extract ID: 24G0168-03 B 02
	Cleanup Batch: CMG0193	Final Volume: 2.5 uL	
	Cleaned: 29-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.25	0.50	0.48	ug/kg	J
beta-BHC	319-85-7	1	0.25	0.50	ND	ug/kg	U
gamma-BHC (Lindane)	58-89-9	1	0.25	0.50	ND	ug/kg	U
delta-BHC	319-86-8	1	0.25	0.50	ND	ug/kg	U
Heptachlor	76-44-8	1	0.25	0.50	ND	ug/kg	U
Aldrin	309-00-2	1	0.50	0.50	ND	ug/kg	U
Heptachlor Epoxide	1024-57-3	1	0.25	0.50	ND	ug/kg	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.50	0.50	ND	ug/kg	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.25	0.50	ND	ug/kg	U
Endosulfan I	959-98-8	1	0.25	0.50	ND	ug/kg	U
4,4'-DDE	72-55-9	1	0.50	1.00	ND	ug/kg	U
Dieldrin	60-57-1	1	0.50	1.00	ND	ug/kg	U
Endrin	72-20-8	1	0.50	1.00	ND	ug/kg	U
Endosulfan II	33213-65-9	1	0.50	1.00	ND	ug/kg	U
4,4'-DDD	72-54-8	1	0.50	1.00	ND	ug/kg	U
Endrin Aldehyde	7421-93-4	1	0.50	1.00	ND	ug/kg	U
4,4'-DDT	50-29-3	1	0.50	1.00	ND	ug/kg	U
Endosulfan Sulfate	1031-07-8	1	0.50	1.00	ND	ug/kg	U
Endrin Ketone	53494-70-5	1	0.50	1.00	ND	ug/kg	U
Methoxychlor	72-43-5	1	2.49	4.98	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	0.25	0.50	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	0.25	0.50	0.32	ug/kg	J
2,4'-DDE	3424-82-6	1	0.50	1.00	ND	ug/kg	U
2,4'-DDD	53-19-0	1	0.50	1.00	ND	ug/kg	U
2,4'-DDT	789-02-6	1	0.50	1.00	ND	ug/kg	U
Oxychlordane	27304-13-8	1	0.50	1.00	ND	ug/kg	U
cis-Nonachlor	5103-73-1	1	0.50	1.00	ND	ug/kg	U
trans-Nonachlor	39765-80-5	1	0.50	1.00	ND	ug/kg	U
Mirex	2385-85-5	1	1.00	1.00	ND	ug/kg	U



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Reported:
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113733-SB1S3
24G0168-03 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/02/2024 14:10

Instrument: ECD6 Analyst: RT

Analyzed: 07/30/2024 18:25

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Decachlorobiphenyl		30-160 %	94.9	%	
Surrogate: Decachlorobiphenyl [2C]		30-160 %	82.4	%	
Surrogate: Tetrachlorometaxylene		30-160 %	65.1	%	
Surrogate: Tetrachlorometaxylene [2C]		30-160 %	66.9	%	



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Reported:

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113733-SB1S3
24G0168-03 (Solid)

Aroclor PCB

Method: EPA 8082A

Sampled: 07/02/2024 14:10

Instrument: ECD5 Analyst: AA

Analyzed: 07/25/2024 20:59

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 16.63 g (wet) Final Volume: 2.5 mL	Extract ID: 24G0168-03 B 01 Dry Weight: 12.52 g % Solids: 75.26
	Preparation Batch: BMG0257		
	Prepared: 07/16/2024		
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0168-03 B 01
	Cleanup Batch: CMG0174		
	Cleaned: 25-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfuric Acid	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0168-03 B 01
	Cleanup Batch: CMG0172		
	Cleaned: 25-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0168-03 B 01
	Cleanup Batch: CMG0173		
	Cleaned: 25-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	2.0	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	2.0	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	2.0	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1262	37324-23-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1268	11100-14-4	1	2.0	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl					40-126 %	80.2	%
Surrogate: Tetrachlorometaxylene					44-120 %	80.1	%
Surrogate: Decachlorobiphenyl [2C]					40-126 %	83.3	%
Surrogate: Tetrachlorometaxylene [2C]					44-120 %	77.8	%



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113733-SB1S3

24G0168-03 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED

Sampled: 07/02/2024 14:10

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 11:51

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0168-03 B 05

Preparation Batch: BMG0274

Sample Size: 1.096 g (wet)

Dry Weight: 0.83 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 75.44

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.05	0.24	13.3	mg/kg	
Cadmium	7440-43-9	20	0.04	0.12	0.12	mg/kg	
Copper	7440-50-8	20	0.21	0.60	40.9	mg/kg	
Selenium	7782-49-2	20	0.22	0.60	1.13	mg/kg	
Zinc	7440-66-6	20	3.5	7.3	89.0	mg/kg	



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113733-SB1S3
24G0168-03 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B

Sampled: 07/02/2024 14:10

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 11:51

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0168-03 B 05

Preparation Batch: BMG0274

Sample Size: 1.096 g (wet)

Dry Weight: 0.83 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 75.44

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	20	0.12	0.24	ND	mg/kg	U
Chromium	7440-47-3	50	0.79	1.51	32.9	mg/kg	D
Lead	7439-92-1	20	0.06	0.12	9.11	mg/kg	
Silver	7440-22-4	20	0.03	0.24	0.15	mg/kg	J



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Reported:

13-Sep-2024 11:33

113733-SB1S3

24G0168-03 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B

Sampled: 07/02/2024 14:10

Instrument: HYDRA Analyst: ML

Analyzed: 07/15/2024 12:28

Sample Preparation:

Preparation Method: SMM EPA 7471B

Extract ID: 24G0168-03 C

Preparation Batch: BMG0339

Sample Size: 0.258 g (wet)

Dry Weight: 0.19 g

Prepared: 07/13/2024

Final Volume: 50 mL

% Solids: 75.44

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00539	0.0257	0.0913	mg/kg	



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Reported:

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113733-SB1S3

24G0168-03 (Solid)

Wet Chemistry

Method: EPA 9060A m

Sampled: 07/02/2024 14:10

Instrument: Accumet AB150 Analyst: ARR

Analyzed: 08/08/2024 12:20

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0168-03 C

Preparation Batch: BMH0093

Sample Size: 0.5487 g (wet)

Dry Weight: 0.41 g

Prepared: 08/06/2024

Final Volume: 0.5487 mL

% Solids: 75.44

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.48	%	F



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Reported:
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113733-SB1S3
24G0168-03 (Solid)

Wet Chemistry

Method: PSEP 1986

Sampled: 07/02/2024 14:10

Instrument: BAL2 Analyst: LERB

Analyzed: 07/23/2024 15:43

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0168-03

Preparation Batch: BMG0567

Sample Size: 5 g (wet)

Prepared: 07/23/2024

Final Volume: 5 mL

% Solids: 75.44

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Volatile Solids		1	0.01	0.01	2.14	%	



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Reported:

13-Sep-2024 11:33

113733-SB1S3

24G0168-03 (Solid)

Wet Chemistry

Method: SM 2540 G-11

Sampled: 07/02/2024 14:10

Instrument: BAL2 Analyst: LERB

Analyzed: 07/23/2024 15:43

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0168-03

Preparation Batch: BMG0567

Sample Size: 5 g (wet)

Prepared: 07/23/2024

Final Volume: 5 mL

% Solids: 75.44

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	75.44	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 11:33

113733-SB1S3

24G0168-03RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 14:10

Instrument: NT14 Analyst: RJL

Analyzed: 08/08/2024 19:16

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0168-03RE1 B 04

Preparation Batch: BMG0260

Sample Size: 13.32 g (wet)

Dry Weight: 10.02 g

Prepared: 07/15/2024

Final Volume: 1 mL

% Solids: 75.26

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	10.0	20.0	ND	ug/kg	U
bis(2-chloroethyl) ether	111-44-4	1	34.9	49.9	ND	ug/kg	U
2-Chlorophenol	95-57-8	1	20.0	20.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	10.0	20.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	10.0	20.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	10.0	20.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	20.0	20.0	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	10.0	20.0	ND	ug/kg	U
2-Methylphenol	95-48-7	1	10.0	20.0	ND	ug/kg	U
Hexachloroethane	67-72-1	1	10.0	20.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	15.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	15.0	20.0	ND	ug/kg	U
Nitrobenzene	98-95-3	1	10.0	20.0	ND	ug/kg	U
Isophorone	78-59-1	1	15.0	20.0	ND	ug/kg	U
2-Nitrophenol	88-75-5	1	10.0	20.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	49.9	99.8	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	1	10.0	20.0	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	1	49.9	99.8	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	10.0	20.0	ND	ug/kg	U
Naphthalene	91-20-3	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	99.8	200	ND	ug/kg	U
4-Chloroaniline	106-47-8	1	49.9	99.8	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	10.0	20.0	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	1	49.9	99.8	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	10.0	20.0	ND	ug/kg	U
Hexachlorocyclopentadiene	77-47-4	1	49.9	99.8	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	1	49.9	99.8	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	1	49.9	99.8	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	1	10.0	20.0	ND	ug/kg	U
2-Nitroaniline	88-74-4	1	49.9	99.8	ND	ug/kg	U
Acenaphthylene	208-96-8	1	10.0	20.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	10.0	20.0	ND	ug/kg	U
2,6-Dinitrotoluene	606-20-2	1	49.9	99.8	ND	ug/kg	U
Acenaphthene	83-32-9	1	10.0	20.0	ND	ug/kg	U
3-Nitroaniline	99-09-2	1	49.9	99.8	ND	ug/kg	U



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 11:33

113733-SB1S3
24G0168-03RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 14:10

Instrument: NT14 Analyst: RJL

Analyzed: 08/08/2024 19:16

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2,4-Dinitrophenol	51-28-5	1	99.8	200	ND	ug/kg	U
Dibenzofuran	132-64-9	1	20.0	20.0	ND	ug/kg	U
4-Nitrophenol	100-02-7	1	49.9	99.8	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	1	49.9	99.8	ND	ug/kg	U
Fluorene	86-73-7	1	20.0	20.0	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	1	34.9	49.9	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	34.9	49.9	ND	ug/kg	U
4-Nitroaniline	100-01-6	1	49.9	99.8	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	1	99.8	200	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	10.0	20.0	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	1	20.0	20.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	20.0	20.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	49.9	99.8	ND	ug/kg	U
Phenanthrene	85-01-8	1	10.0	20.0	ND	ug/kg	U
Anthracene	120-12-7	1	10.0	20.0	ND	ug/kg	U
Carbazole	86-74-8	1	10.0	20.0	ND	ug/kg	U
Di-n-Butylphthalate	84-74-2	1	10.0	20.0	ND	ug/kg	U
Fluoranthene	206-44-0	1	10.0	20.0	ND	ug/kg	U
Pyrene	129-00-0	1	10.0	20.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	10.0	20.0	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	1	10.0	20.0	ND	ug/kg	U
3,3'-Dichlorobenzidine	91-94-1	1	49.9	99.8	ND	ug/kg	U
Chrysene	218-01-9	1	10.0	20.0	ND	ug/kg	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	39.9	49.9	ND	ug/kg	U
Di-n-Octylphthalate	117-84-0	1	10.0	20.0	ND	ug/kg	U
Benzo(a)fluoranthene, Total		1	29.9	39.9	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	10.0	20.0	ND	ug/kg	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	20.0	20.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	20.0	20.0	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	20.0	20.0	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	10.0	20.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	82.2	%	
Surrogate: Phenol-d5				29-120 %	80.0	%	
Surrogate: 2-Chlorophenol-d4				31-120 %	90.3	%	
Surrogate: 1,2-Dichlorobenzene-d4				32-120 %	82.3	%	
Surrogate: Nitrobenzene-d5				30-120 %	80.0	%	
Surrogate: 2-Fluorobiphenyl				35-120 %	67.5	%	



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Project Manager: Dan McMahon

Reported:

13-Sep-2024 11:33

113733-SB1S3

24G0168-03RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 14:10

Instrument: NT14 Analyst: RJL

Analyzed: 08/08/2024 19:16

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: 2,4,6-Tribromophenol		24-134 %	110	%	
Surrogate: p-Terphenyl-d14		37-120 %	100	%	



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Project Manager: Dan McMahon

Reported:

13-Sep-2024 11:33

113733-SB1S3

24G0168-03RE1 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM

Sampled: 07/02/2024 14:10

Instrument: NT14 Analyst: RJL

Analyzed: 08/08/2024 19:16

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0168-03RE1 B 04

Preparation Batch: BMG0260

Sample Size: 13.32 g (wet)

Dry Weight: 10.02 g

Prepared: 07/15/2024

Final Volume: 1 mL

% Solids: 75.26

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Benzyl Alcohol	100-51-6	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	499	499	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	249	249	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	81.5	%	
Surrogate: p-Terphenyl-d14				37-120 %	98.5	%	



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Project Manager: Dan McMahon

Reported:

13-Sep-2024 11:33

113733-SB1S4

24G0168-04 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM

Sampled: 07/02/2024 15:30

Instrument: NT14 Analyst: RJL

Analyzed: 08/03/2024 02:30

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0168-04 B 04

Preparation Batch: BMG0260

Sample Size: 12.4 g (wet)

Dry Weight: 10.00 g

Prepared: 07/15/2024

Final Volume: 1 mL

% Solids: 80.65

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	2.5	5.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	2.5	5.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	2.5	5.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	2.5	5.0	ND	ug/kg	U
2-Methylphenol	95-48-7	1	2.5	5.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	10.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	2.5	5.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	10.0	20.0	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	5.0	5.0	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	2.5	5.0	ND	ug/kg	U
N-Nitrosodimethylamine	62-75-9	1	12.5	25.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	2.5	5.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	10.0	20.0	16.8	ug/kg	J
N-Nitrosodiphenylamine	86-30-6	1	2.5	5.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	2.5	5.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	2.5	5.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	2.5	5.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	101	%	
Surrogate: p-Terphenyl-d14				37-120 %	113	%	



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Reported:
13-Sep-2024 11:33

113733-SB1S4
24G0168-04 (Solid)

Butyl Tins

Method: EPA 8270E-SIM
Instrument: NT17 Analyst: JZ

Sampled: 07/02/2024 15:30

Analyzed: 08/05/2024 21:00

Sample Preparation: Preparation Method: EPA 3546 (Microwave)
Preparation Batch: BMG0259
Prepared: 07/15/2024

Sample Size: 6.24 g (wet)

Final Volume: 0.5 mL

Extract ID: 24G0168-04 B 03

Dry Weight: 5.03 g

% Solids: 80.65

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CMH0022
Cleaned: 02-Aug-2024

Initial Volume: 0.5 uL

Final Volume: 0.5 uL

Extract ID: 24G0168-04 B 03

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Tributyltin Ion	36643-28-4	1	1.92	3.84	ND	ug/kg	U
Surrogate: Triphenyltin				30-160 %	95.0	%	
Surrogate: Tripropyltin				30-160 %	70.1	%	



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Project Manager: Dan McMahon

Reported:

13-Sep-2024 11:33

113733-SB1S4
24G0168-04 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/02/2024 15:30

Instrument: ECD6 Analyst: RT

Analyzed: 07/30/2024 18:43

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 15.53 g (wet)	Extract ID: 24G0168-04 B 02
	Preparation Batch: BMG0258		
	Prepared: 07/15/2024		
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL	Extract ID: 24G0168-04 B 02
	Cleanup Batch: CMG0194		
	Cleaned: 29-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL	Extract ID: 24G0168-04 B 02
	Cleanup Batch: CMG0193		
	Cleaned: 29-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.25	0.50	ND	ug/kg	U
beta-BHC	319-85-7	1	0.25	0.50	ND	ug/kg	U
gamma-BHC (Lindane)	58-89-9	1	0.25	0.50	ND	ug/kg	U
delta-BHC	319-86-8	1	0.25	0.50	ND	ug/kg	U
Heptachlor	76-44-8	1	0.25	0.50	ND	ug/kg	U
Aldrin	309-00-2	1	0.50	0.50	ND	ug/kg	U
Heptachlor Epoxide	1024-57-3	1	0.25	0.50	ND	ug/kg	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.50	0.50	ND	ug/kg	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.25	0.50	ND	ug/kg	U
Endosulfan I	959-98-8	1	0.25	0.50	ND	ug/kg	U
4,4'-DDE	72-55-9	1	0.50	1.00	ND	ug/kg	U
Dieldrin	60-57-1	1	0.50	1.00	ND	ug/kg	U
Endrin	72-20-8	1	0.50	1.00	ND	ug/kg	U
Endosulfan II	33213-65-9	1	0.50	1.00	ND	ug/kg	U
4,4'-DDD	72-54-8	1	0.50	1.00	1.96	ug/kg	P1
Endrin Aldehyde	7421-93-4	1	0.50	1.00	ND	ug/kg	U
4,4'-DDT	50-29-3	1	0.50	1.00	ND	ug/kg	U
Endosulfan Sulfate	1031-07-8	1	0.50	1.00	ND	ug/kg	U
Endrin Ketone	53494-70-5	1	0.50	1.00	ND	ug/kg	U
Methoxychlor	72-43-5	1	2.50	4.99	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	0.25	0.50	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	0.25	0.50	ND	ug/kg	U
2,4'-DDE	3424-82-6	1	0.50	1.00	ND	ug/kg	U
2,4'-DDD	53-19-0	1	0.50	1.00	0.73	ug/kg	J
2,4'-DDT	789-02-6	1	0.50	1.00	ND	ug/kg	U
Oxychlordane	27304-13-8	1	0.50	1.00	ND	ug/kg	U
cis-Nonachlor	5103-73-1	1	0.50	1.00	ND	ug/kg	U
trans-Nonachlor	39765-80-5	1	0.50	1.00	ND	ug/kg	U
Mirex	2385-85-5	1	1.00	1.00	ND	ug/kg	U



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Reported:
13-Sep-2024 11:33

113733-SB1S4
24G0168-04 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/02/2024 15:30

Instrument: ECD6 Analyst: RT

Analyzed: 07/30/2024 18:43

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Decachlorobiphenyl		30-160 %	97.8	%	
Surrogate: Decachlorobiphenyl [2C]		30-160 %	82.2	%	
Surrogate: Tetrachlorometaxylene		30-160 %	57.1	%	
Surrogate: Tetrachlorometaxylene [2C]		30-160 %	59.4	%	



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Reported:

13-Sep-2024 11:33

113733-SB1S4
24G0168-04 (Solid)

Aroclor PCB

Method: EPA 8082A

Sampled: 07/02/2024 15:30

Instrument: ECD5 Analyst: AA

Analyzed: 07/25/2024 21:20

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 15.52 g (wet) Final Volume: 2.5 mL	Extract ID: 24G0168-04 B 01 Dry Weight: 12.52 g % Solids: 80.65
	Preparation Batch: BMG0257		
	Prepared: 07/16/2024		
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0168-04 B 01
	Cleanup Batch: CMG0174		
	Cleaned: 25-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfuric Acid	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0168-04 B 01
	Cleanup Batch: CMG0172		
	Cleaned: 25-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0168-04 B 01
	Cleanup Batch: CMG0173		
	Cleaned: 25-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	2.0	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	2.0	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	2.0	4.0	4.6	ug/kg	
Aroclor 1260	11096-82-5	1	2.0	4.0	4.1	ug/kg	
Aroclor 1262	37324-23-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1268	11100-14-4	1	2.0	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl					40-126 %	78.6	%
Surrogate: Tetrachlorometaxylene					44-120 %	72.4	%
Surrogate: Decachlorobiphenyl [2C]					40-126 %	81.4	%
Surrogate: Tetrachlorometaxylene [2C]					44-120 %	74.2	%



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Reported:
13-Sep-2024 11:33

113733-SB1S4
24G0168-04 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED

Sampled: 07/02/2024 15:30

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 11:46

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0168-04 B 05

Preparation Batch: BMG0274

Sample Size: 1.031 g (wet)

Dry Weight: 0.83 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 80.20

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.05	0.24	11.6	mg/kg	
Cadmium	7440-43-9	20	0.04	0.12	0.11	mg/kg	J
Copper	7440-50-8	20	0.21	0.60	37.0	mg/kg	
Selenium	7782-49-2	20	0.22	0.60	1.15	mg/kg	
Zinc	7440-66-6	20	3.5	7.3	79.9	mg/kg	



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Reported:
13-Sep-2024 11:33

113733-SB1S4
24G0168-04 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B

Sampled: 07/02/2024 15:30

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 11:46

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0168-04 B 05

Preparation Batch: BMG0274

Sample Size: 1.031 g (wet)

Dry Weight: 0.83 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 80.20

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	20	0.12	0.24	ND	mg/kg	U
Chromium	7440-47-3	50	0.79	1.51	29.3	mg/kg	D
Lead	7439-92-1	20	0.06	0.12	7.56	mg/kg	
Silver	7440-22-4	20	0.03	0.24	0.13	mg/kg	J



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Reported:

13-Sep-2024 11:33

113733-SB1S4

24G0168-04 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B

Sampled: 07/02/2024 15:30

Instrument: HYDRA Analyst: ML

Analyzed: 07/15/2024 12:35

Sample Preparation:

Preparation Method: SMM EPA 7471B

Extract ID: 24G0168-04 C

Preparation Batch: BMG0339

Sample Size: 0.223 g (wet)

Dry Weight: 0.18 g

Prepared: 07/13/2024

Final Volume: 50 mL

% Solids: 80.20

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00587	0.0280	0.0669	mg/kg	



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Reported:

13-Sep-2024 11:33

113733-SB1S4

24G0168-04 (Solid)

Wet Chemistry

Method: EPA 9060A m

Sampled: 07/02/2024 15:30

Instrument: Accumet AB150 Analyst: ARR

Analyzed: 08/08/2024 12:50

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0168-04 C

Preparation Batch: BMH0093

Sample Size: 0.5541 g (wet)

Dry Weight: 0.44 g

Prepared: 08/06/2024

Final Volume: 0.5541 mL

% Solids: 80.20

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.40	%	F



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 11:33

113733-SB1S4
24G0168-04 (Solid)

Wet Chemistry

Method: PSEP 1986

Sampled: 07/02/2024 15:30

Instrument: BAL2 Analyst: LERB

Analyzed: 07/23/2024 15:43

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0168-04

Preparation Batch: BMG0567

Sample Size: 5 g (wet)

Prepared: 07/23/2024

Final Volume: 5 mL

% Solids: 80.20

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Volatile Solids		1	0.01	0.01	1.88	%	



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Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 11:33

113733-SB1S4

24G0168-04 (Solid)

Wet Chemistry

Method: SM 2540 G-11

Sampled: 07/02/2024 15:30

Instrument: BAL2 Analyst: LERB

Analyzed: 07/23/2024 15:43

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0168-04

Preparation Batch: BMG0567

Sample Size: 5 g (wet)

Prepared: 07/23/2024

Final Volume: 5 mL

% Solids: 80.20

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	80.20	%	



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Project Manager: Dan McMahon

Reported:

13-Sep-2024 11:33

113733-SB1S4

24G0168-04RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 15:30

Instrument: NT14 Analyst: RJL

Analyzed: 08/08/2024 19:54

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0168-04RE1 B 04

Preparation Batch: BMG0260

Sample Size: 12.4 g (wet)

Dry Weight: 10.00 g

Prepared: 07/15/2024

Final Volume: 1 mL

% Solids: 80.65

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	10.0	20.0	ND	ug/kg	U
bis(2-chloroethyl) ether	111-44-4	1	35.0	50.0	ND	ug/kg	U
2-Chlorophenol	95-57-8	1	20.0	20.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	10.0	20.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	10.0	20.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	10.0	20.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	20.0	20.0	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	10.0	20.0	ND	ug/kg	U
2-Methylphenol	95-48-7	1	10.0	20.0	ND	ug/kg	U
Hexachloroethane	67-72-1	1	10.0	20.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	15.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	15.0	20.0	ND	ug/kg	U
Nitrobenzene	98-95-3	1	10.0	20.0	ND	ug/kg	U
Isophorone	78-59-1	1	15.0	20.0	ND	ug/kg	U
2-Nitrophenol	88-75-5	1	10.0	20.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	50.0	100	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	1	10.0	20.0	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	1	50.0	100	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	10.0	20.0	ND	ug/kg	U
Naphthalene	91-20-3	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	100	200	ND	ug/kg	U
4-Chloroaniline	106-47-8	1	50.0	100	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	10.0	20.0	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	1	50.0	100	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	10.0	20.0	ND	ug/kg	U
Hexachlorocyclopentadiene	77-47-4	1	50.0	100	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	1	50.0	100	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	1	50.0	100	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	1	10.0	20.0	ND	ug/kg	U
2-Nitroaniline	88-74-4	1	50.0	100	ND	ug/kg	U
Acenaphthylene	208-96-8	1	10.0	20.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	10.0	20.0	ND	ug/kg	U
2,6-Dinitrotoluene	606-20-2	1	50.0	100	ND	ug/kg	U
Acenaphthene	83-32-9	1	10.0	20.0	ND	ug/kg	U
3-Nitroaniline	99-09-2	1	50.0	100	ND	ug/kg	U



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 11:33

113733-SB1S4
24G0168-04RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 15:30

Instrument: NT14 Analyst: RJL

Analyzed: 08/08/2024 19:54

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2,4-Dinitrophenol	51-28-5	1	100	200	ND	ug/kg	U
Dibenzofuran	132-64-9	1	20.0	20.0	ND	ug/kg	U
4-Nitrophenol	100-02-7	1	50.0	100	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	1	50.0	100	ND	ug/kg	U
Fluorene	86-73-7	1	20.0	20.0	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	1	35.0	50.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	35.0	50.0	ND	ug/kg	U
4-Nitroaniline	100-01-6	1	50.0	100	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	1	100	200	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	10.0	20.0	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	1	20.0	20.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	20.0	20.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	50.0	100	ND	ug/kg	U
Phenanthrene	85-01-8	1	10.0	20.0	ND	ug/kg	U
Anthracene	120-12-7	1	10.0	20.0	ND	ug/kg	U
Carbazole	86-74-8	1	10.0	20.0	ND	ug/kg	U
Di-n-Butylphthalate	84-74-2	1	10.0	20.0	ND	ug/kg	U
Fluoranthene	206-44-0	1	10.0	20.0	ND	ug/kg	U
Pyrene	129-00-0	1	10.0	20.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	10.0	20.0	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	1	10.0	20.0	ND	ug/kg	U
3,3'-Dichlorobenzidine	91-94-1	1	50.0	100	ND	ug/kg	U
Chrysene	218-01-9	1	10.0	20.0	ND	ug/kg	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	40.0	50.0	ND	ug/kg	U
Di-n-Octylphthalate	117-84-0	1	10.0	20.0	ND	ug/kg	U
Benzo(a)fluoranthene, Total		1	30.0	40.0	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	10.0	20.0	ND	ug/kg	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	20.0	20.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	20.0	20.0	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	20.0	20.0	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	10.0	20.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	98.3	%	
Surrogate: Phenol-d5				29-120 %	94.3	%	
Surrogate: 2-Chlorophenol-d4				31-120 %	118	%	
Surrogate: 1,2-Dichlorobenzene-d4				32-120 %	104	%	
Surrogate: Nitrobenzene-d5				30-120 %	96.4	%	
Surrogate: 2-Fluorobiphenyl				35-120 %	84.5	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 11:33

113733-SB1S4

24G0168-04RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 15:30

Instrument: NT14 Analyst: RJL

Analyzed: 08/08/2024 19:54

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: 2,4,6-Tribromophenol		24-134 %	121	%	
Surrogate: p-Terphenyl-d14		37-120 %	118	%	



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Project Manager: Dan McMahon

Reported:
13-Sep-2024 11:33

113733-SB1S4
24G0168-04RE1 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM

Sampled: 07/02/2024 15:30

Instrument: NT14 Analyst: RJL

Analyzed: 08/08/2024 19:54

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0168-04RE1 B 04

Preparation Batch: BMG0260

Sample Size: 12.4 g (wet)

Dry Weight: 10.00 g

Prepared: 07/15/2024

Final Volume: 1 mL

% Solids: 80.65

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Benzyl Alcohol	100-51-6	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	500	500	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	250	250	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	95.3	%	
Surrogate: p-Terphenyl-d14				37-120 %	114	%	



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Reported:
13-Sep-2024 11:33

113733-SB1S5
24G0168-05 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM

Sampled: 07/02/2024 16:15

Instrument: NT14 Analyst: RJL

Analyzed: 08/03/2024 03:08

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0168-05 B 04

Preparation Batch: BMG0260

Sample Size: 12.35 g (wet)

Dry Weight: 10.00 g

Prepared: 07/15/2024

Final Volume: 1 mL

% Solids: 80.96

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	2.5	5.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	2.5	5.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	2.5	5.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	2.5	5.0	ND	ug/kg	U
2-Methylphenol	95-48-7	1	2.5	5.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	10.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	2.5	5.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	10.0	20.0	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	5.0	5.0	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	2.5	5.0	ND	ug/kg	U
N-Nitrosodimethylamine	62-75-9	1	12.5	25.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	2.5	5.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	10.0	20.0	11.0	ug/kg	J
N-Nitrosodiphenylamine	86-30-6	1	2.5	5.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	2.5	5.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	2.5	5.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	2.5	5.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	94.9	%	
Surrogate: p-Terphenyl-d14				37-120 %	106	%	



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Project: PAMP Sediments
Project Number: 113733
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Reported:
13-Sep-2024 11:33

113733-SB1S5
24G0168-05 (Solid)

Butyl Tins

Method: EPA 8270E-SIM
Instrument: NT17 Analyst: JZ

Sampled: 07/02/2024 16:15

Analyzed: 08/05/2024 21:13

Sample Preparation: Preparation Method: EPA 3546 (Microwave)
Preparation Batch: BMG0259
Prepared: 07/15/2024

Sample Size: 6.21 g (wet)

Final Volume: 0.5 mL

Extract ID: 24G0168-05 B 03

Dry Weight: 5.03 g

% Solids: 80.96

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CMH0022
Cleaned: 02-Aug-2024

Initial Volume: 0.5 uL

Final Volume: 0.5 uL

Extract ID: 24G0168-05 B 03

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Tributyltin Ion	36643-28-4	1	1.92	3.84	ND	ug/kg	U
Surrogate: Triphenyltin				30-160 %	93.4	%	
Surrogate: Tripropyltin				30-160 %	72.8	%	



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Reported:

13-Sep-2024 11:33

113733-SB1S5
24G0168-05 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/02/2024 16:15

Instrument: ECD6 Analyst: RT

Analyzed: 07/30/2024 19:02

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 15.44 g (wet)	Extract ID: 24G0168-05 B 02
	Preparation Batch: BMG0258		
	Prepared: 07/15/2024		
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL	Extract ID: 24G0168-05 B 02
	Cleanup Batch: CMG0194		
	Cleaned: 29-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL	Extract ID: 24G0168-05 B 02
	Cleanup Batch: CMG0193		
	Cleaned: 29-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.25	0.50	ND	ug/kg	U
beta-BHC	319-85-7	1	0.25	0.50	ND	ug/kg	U
gamma-BHC (Lindane)	58-89-9	1	0.25	0.50	ND	ug/kg	U
delta-BHC	319-86-8	1	0.25	0.50	ND	ug/kg	U
Heptachlor	76-44-8	1	0.25	0.50	ND	ug/kg	U
Aldrin	309-00-2	1	0.50	0.50	ND	ug/kg	U
Heptachlor Epoxide	1024-57-3	1	0.25	0.50	ND	ug/kg	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.50	0.50	ND	ug/kg	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.25	0.50	ND	ug/kg	U
Endosulfan I	959-98-8	1	0.25	0.50	ND	ug/kg	U
4,4'-DDE	72-55-9	1	0.50	1.00	ND	ug/kg	U
Dieldrin	60-57-1	1	0.50	1.00	ND	ug/kg	U
Endrin	72-20-8	1	0.50	1.00	ND	ug/kg	U
Endosulfan II	33213-65-9	1	0.50	1.00	ND	ug/kg	U
4,4'-DDD	72-54-8	1	0.50	1.00	ND	ug/kg	U
Endrin Aldehyde	7421-93-4	1	0.50	1.00	ND	ug/kg	U
4,4'-DDT	50-29-3	1	0.50	1.00	ND	ug/kg	U
Endosulfan Sulfate	1031-07-8	1	0.50	1.00	ND	ug/kg	U
Endrin Ketone	53494-70-5	1	0.50	1.00	ND	ug/kg	U
Methoxychlor	72-43-5	1	2.50	5.00	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	0.25	0.50	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	0.25	0.50	ND	ug/kg	U
2,4'-DDE	3424-82-6	1	0.50	1.00	ND	ug/kg	U
2,4'-DDD	53-19-0	1	0.50	1.00	ND	ug/kg	U
2,4'-DDT	789-02-6	1	0.50	1.00	ND	ug/kg	U
Oxychlordane	27304-13-8	1	0.50	1.00	ND	ug/kg	U
cis-Nonachlor	5103-73-1	1	0.50	1.00	ND	ug/kg	U
trans-Nonachlor	39765-80-5	1	0.50	1.00	ND	ug/kg	U
Mirex	2385-85-5	1	1.00	1.00	ND	ug/kg	U



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 11:33

113733-SB1S5

24G0168-05 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/02/2024 16:15

Instrument: ECD6 Analyst: RT

Analyzed: 07/30/2024 19:02

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Decachlorobiphenyl		30-160 %	101	%	
Surrogate: Decachlorobiphenyl [2C]		30-160 %	86.9	%	
Surrogate: Tetrachlorometaxylene		30-160 %	71.4	%	
Surrogate: Tetrachlorometaxylene [2C]		30-160 %	68.8	%	



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Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 11:33

113733-SB1S5
24G0168-05 (Solid)

Aroclor PCB

Method: EPA 8082A

Sampled: 07/02/2024 16:15

Instrument: ECD5 Analyst: AA

Analyzed: 07/25/2024 21:41

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 15.44 g (wet) Final Volume: 2.5 mL	Extract ID: 24G0168-05 B 01 Dry Weight: 12.50 g % Solids: 80.96
	Preparation Batch: BMG0257		
	Prepared: 07/16/2024		
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0168-05 B 01
	Cleanup Batch: CMG0174		
	Cleaned: 25-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfuric Acid	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0168-05 B 01
	Cleanup Batch: CMG0172		
	Cleaned: 25-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0168-05 B 01
	Cleanup Batch: CMG0173		
	Cleaned: 25-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	2.0	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	2.0	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	2.0	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1262	37324-23-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1268	11100-14-4	1	2.0	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl					40-126 %	81.8	%
Surrogate: Tetrachlorometaxylene					44-120 %	78.1	%
Surrogate: Decachlorobiphenyl [2C]					40-126 %	84.8	%
Surrogate: Tetrachlorometaxylene [2C]					44-120 %	72.8	%



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 11:33

113733-SB1S5

24G0168-05 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED

Sampled: 07/02/2024 16:15

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/19/2024 17:14

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0168-05 B 05

Preparation Batch: BMG0274

Sample Size: 1.011 g (wet)

Dry Weight: 0.84 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 83.50

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.05	0.24	13.9	mg/kg	
Cadmium	7440-43-9	20	0.04	0.12	0.11	mg/kg	J
Copper	7440-50-8	20	0.21	0.59	35.1	mg/kg	
Selenium	7782-49-2	20	0.21	0.59	1.34	mg/kg	
Zinc	7440-66-6	20	3.5	7.1	78.4	mg/kg	



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 11:33

113733-SB1S5
24G0168-05 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B

Sampled: 07/02/2024 16:15

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 14:06

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0168-05 B 05

Preparation Batch: BMG0274

Sample Size: 1.011 g (wet)

Dry Weight: 0.84 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 83.50

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	20	0.12	0.24	ND	mg/kg	U
Chromium	7440-47-3	100	1.54	2.96	35.3	mg/kg	D
Lead	7439-92-1	20	0.06	0.12	7.55	mg/kg	
Silver	7440-22-4	20	0.03	0.24	0.14	mg/kg	J



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Project Manager: Dan McMahon

Reported:

13-Sep-2024 11:33

113733-SB1S5

24G0168-05 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B

Sampled: 07/02/2024 16:15

Instrument: HYDRA Analyst: ML

Analyzed: 07/15/2024 12:37

Sample Preparation:

Preparation Method: SMM EPA 7471B

Extract ID: 24G0168-05 C

Preparation Batch: BMG0339

Sample Size: 0.229 g (wet)

Dry Weight: 0.19 g

Prepared: 07/13/2024

Final Volume: 50 mL

% Solids: 83.50

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00549	0.0261	0.0695	mg/kg	



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Reported:

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113733-SB1S5

24G0168-05 (Solid)

Wet Chemistry

Method: EPA 9060A m

Sampled: 07/02/2024 16:15

Instrument: Accumet AB150 Analyst: ARR

Analyzed: 08/08/2024 14:22

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0168-05 C

Preparation Batch: BMH0093

Sample Size: 0.5095 g (wet)

Dry Weight: 0.43 g

Prepared: 08/06/2024

Final Volume: 0.5095 mL

% Solids: 83.50

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.39	%	F



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Reported:
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113733-SB1S5
24G0168-05 (Solid)

Wet Chemistry

Method: PSEP 1986

Sampled: 07/02/2024 16:15

Instrument: BAL2 Analyst: LERB

Analyzed: 07/23/2024 15:43

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0168-05

Preparation Batch: BMG0567

Sample Size: 5 g (wet)

Prepared: 07/23/2024

Final Volume: 5 mL

% Solids: 83.50

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Volatile Solids		1	0.01	0.01	1.77	%	



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Reported:
13-Sep-2024 11:33

113733-SB1S5
24G0168-05 (Solid)

Wet Chemistry

Method: SM 2540 G-11

Sampled: 07/02/2024 16:15

Instrument: BAL2 Analyst: LERB

Analyzed: 07/23/2024 15:43

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0168-05

Preparation Batch: BMG0567

Sample Size: 5 g (wet)

Prepared: 07/23/2024

Final Volume: 5 mL

% Solids: 83.50

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	83.50	%	



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Reported:

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113733-SB1S5

24G0168-05RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 16:15

Instrument: NT14 Analyst: RJL

Analyzed: 08/08/2024 20:33

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0168-05RE1 B 04

Preparation Batch: BMG0260

Sample Size: 12.35 g (wet)

Dry Weight: 10.00 g

Prepared: 07/15/2024

Final Volume: 1 mL

% Solids: 80.96

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	10.0	20.0	ND	ug/kg	U
bis(2-chloroethyl) ether	111-44-4	1	35.0	50.0	ND	ug/kg	U
2-Chlorophenol	95-57-8	1	20.0	20.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	10.0	20.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	10.0	20.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	10.0	20.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	20.0	20.0	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	10.0	20.0	ND	ug/kg	U
2-Methylphenol	95-48-7	1	10.0	20.0	ND	ug/kg	U
Hexachloroethane	67-72-1	1	10.0	20.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	15.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	15.0	20.0	ND	ug/kg	U
Nitrobenzene	98-95-3	1	10.0	20.0	ND	ug/kg	U
Isophorone	78-59-1	1	15.0	20.0	ND	ug/kg	U
2-Nitrophenol	88-75-5	1	10.0	20.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	50.0	100	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	1	10.0	20.0	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	1	50.0	100	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	10.0	20.0	ND	ug/kg	U
Naphthalene	91-20-3	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	100	200	ND	ug/kg	U
4-Chloroaniline	106-47-8	1	50.0	100	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	10.0	20.0	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	1	50.0	100	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	10.0	20.0	ND	ug/kg	U
Hexachlorocyclopentadiene	77-47-4	1	50.0	100	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	1	50.0	100	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	1	50.0	100	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	1	10.0	20.0	ND	ug/kg	U
2-Nitroaniline	88-74-4	1	50.0	100	ND	ug/kg	U
Acenaphthylene	208-96-8	1	10.0	20.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	10.0	20.0	ND	ug/kg	U
2,6-Dinitrotoluene	606-20-2	1	50.0	100	ND	ug/kg	U
Acenaphthene	83-32-9	1	10.0	20.0	ND	ug/kg	U
3-Nitroaniline	99-09-2	1	50.0	100	ND	ug/kg	U



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 11:33

113733-SB1S5
24G0168-05RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 16:15

Instrument: NT14 Analyst: RJL

Analyzed: 08/08/2024 20:33

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2,4-Dinitrophenol	51-28-5	1	100	200	ND	ug/kg	U
Dibenzofuran	132-64-9	1	20.0	20.0	ND	ug/kg	U
4-Nitrophenol	100-02-7	1	50.0	100	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	1	50.0	100	ND	ug/kg	U
Fluorene	86-73-7	1	20.0	20.0	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	1	35.0	50.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	35.0	50.0	ND	ug/kg	U
4-Nitroaniline	100-01-6	1	50.0	100	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	1	100	200	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	10.0	20.0	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	1	20.0	20.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	20.0	20.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	50.0	100	ND	ug/kg	U
Phenanthrene	85-01-8	1	10.0	20.0	ND	ug/kg	U
Anthracene	120-12-7	1	10.0	20.0	ND	ug/kg	U
Carbazole	86-74-8	1	10.0	20.0	ND	ug/kg	U
Di-n-Butylphthalate	84-74-2	1	10.0	20.0	ND	ug/kg	U
Fluoranthene	206-44-0	1	10.0	20.0	ND	ug/kg	U
Pyrene	129-00-0	1	10.0	20.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	10.0	20.0	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	1	10.0	20.0	ND	ug/kg	U
3,3'-Dichlorobenzidine	91-94-1	1	50.0	100	ND	ug/kg	U
Chrysene	218-01-9	1	10.0	20.0	ND	ug/kg	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	40.0	50.0	ND	ug/kg	U
Di-n-Octylphthalate	117-84-0	1	10.0	20.0	ND	ug/kg	U
Benzo(a)fluoranthene, Total		1	30.0	40.0	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	10.0	20.0	ND	ug/kg	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	20.0	20.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	20.0	20.0	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	20.0	20.0	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	10.0	20.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	83.4	%	
Surrogate: Phenol-d5				29-120 %	77.4	%	
Surrogate: 2-Chlorophenol-d4				31-120 %	89.7	%	
Surrogate: 1,2-Dichlorobenzene-d4				32-120 %	86.2	%	
Surrogate: Nitrobenzene-d5				30-120 %	90.0	%	
Surrogate: 2-Fluorobiphenyl				35-120 %	78.1	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 11:33

113733-SB1S5

24G0168-05RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 16:15

Instrument: NT14 Analyst: RJL

Analyzed: 08/08/2024 20:33

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: 2,4,6-Tribromophenol		24-134 %	114	%	
Surrogate: p-Terphenyl-d14		37-120 %	108	%	



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Reported:
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113733-SB1S5
24G0168-05RE1 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM

Sampled: 07/02/2024 16:15

Instrument: NT14 Analyst: RJL

Analyzed: 08/08/2024 20:33

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0168-05RE1 B 04

Preparation Batch: BMG0260

Sample Size: 12.35 g (wet)

Dry Weight: 10.00 g

Prepared: 07/15/2024

Final Volume: 1 mL

% Solids: 80.96

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Benzyl Alcohol	100-51-6	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	500	500	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	250	250	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	88.9	%	
Surrogate: p-Terphenyl-d14				37-120 %	106	%	



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Reported:
13-Sep-2024 11:33

113733-SB1S6
24G0168-06 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM

Sampled: 07/02/2024 17:00

Instrument: NT14 Analyst: RJL

Analyzed: 08/03/2024 03:46

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0168-06 B 04

Preparation Batch: BMG0260

Sample Size: 12.22 g (wet)

Dry Weight: 10.02 g

Prepared: 07/15/2024

Final Volume: 1 mL

% Solids: 81.97

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	2.5	5.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	2.5	5.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	2.5	5.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	2.5	5.0	ND	ug/kg	U
2-Methylphenol	95-48-7	1	2.5	5.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	10.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	2.5	5.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	10.0	20.0	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	5.0	5.0	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	2.5	5.0	ND	ug/kg	U
N-Nitrosodimethylamine	62-75-9	1	12.5	25.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	2.5	5.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	10.0	20.0	11.3	ug/kg	J
N-Nitrosodiphenylamine	86-30-6	1	2.5	5.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	2.5	5.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	2.5	5.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	2.5	5.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	106	%	
Surrogate: p-Terphenyl-d14				37-120 %	121	%	*



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Reported:
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113733-SB1S6
24G0168-06 (Solid)

Butyl Tins

Method: EPA 8270E-SIM
Instrument: NT17 Analyst: JZ

Sampled: 07/02/2024 17:00

Analyzed: 08/05/2024 21:27

Sample Preparation: Preparation Method: EPA 3546 (Microwave)
Preparation Batch: BMG0259
Prepared: 07/15/2024

Sample Size: 6.16 g (wet)

Final Volume: 0.5 mL

Extract ID: 24G0168-06 B 03

Dry Weight: 5.05 g

% Solids: 81.97

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CMH0022
Cleaned: 02-Aug-2024

Initial Volume: 0.5 uL

Final Volume: 0.5 uL

Extract ID: 24G0168-06 B 03

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Tributyltin Ion	36643-28-4	1	1.91	3.82	ND	ug/kg	U
Surrogate: Triphenyltin				30-160 %	81.7	%	
Surrogate: Tripropyltin				30-160 %	62.9	%	



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Reported:
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113733-SB1S6
24G0168-06 (Solid)

Chlorinated Pesticides

Method: EPA 8081B			Sampled: 07/02/2024 17:00
Instrument: ECD6 Analyst: RT			Analyzed: 07/30/2024 20:16
Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 24G0168-06 B 02
	Preparation Batch: BMG0258	Sample Size: 15.28 g (wet)	
	Prepared: 07/15/2024	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 24G0168-06 B 02
	Cleanup Batch: CMG0194	Initial Volume: 2.5 uL	
	Cleaned: 29-Jul-2024	Final Volume: 2.5 uL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:24G0168-06 B 02
	Cleanup Batch: CMG0193	Initial Volume: 2.5 uL	
	Cleaned: 29-Jul-2024	Final Volume: 2.5 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.25	0.50	ND	ug/kg	U
beta-BHC	319-85-7	1	0.25	0.50	ND	ug/kg	U
gamma-BHC (Lindane)	58-89-9	1	0.25	0.50	ND	ug/kg	U
delta-BHC	319-86-8	1	0.25	0.50	ND	ug/kg	U
Heptachlor	76-44-8	1	0.25	0.50	ND	ug/kg	U
Aldrin	309-00-2	1	0.50	0.50	ND	ug/kg	U
Heptachlor Epoxide	1024-57-3	1	0.25	0.50	ND	ug/kg	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.50	0.50	ND	ug/kg	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.25	0.50	ND	ug/kg	U
Endosulfan I	959-98-8	1	0.25	0.50	ND	ug/kg	U
4,4'-DDE	72-55-9	1	0.50	1.00	ND	ug/kg	U
Dieldrin	60-57-1	1	0.50	1.00	ND	ug/kg	U
Endrin	72-20-8	1	0.50	1.00	ND	ug/kg	U
Endosulfan II	33213-65-9	1	0.50	1.00	ND	ug/kg	U
4,4'-DDD	72-54-8	1	0.50	1.00	ND	ug/kg	U
Endrin Aldehyde	7421-93-4	1	0.50	1.00	ND	ug/kg	U
4,4'-DDT	50-29-3	1	0.50	1.00	ND	ug/kg	U
Endosulfan Sulfate	1031-07-8	1	0.50	1.00	ND	ug/kg	U
Endrin Ketone	53494-70-5	1	0.50	1.00	ND	ug/kg	U
Methoxychlor	72-43-5	1	2.50	4.99	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	0.25	0.50	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	0.25	0.50	ND	ug/kg	U
2,4'-DDE	3424-82-6	1	0.50	1.00	ND	ug/kg	U
2,4'-DDD	53-19-0	1	0.50	1.00	ND	ug/kg	U
2,4'-DDT	789-02-6	1	0.50	1.00	ND	ug/kg	U
Oxychlordane	27304-13-8	1	0.50	1.00	ND	ug/kg	U
cis-Nonachlor	5103-73-1	1	0.50	1.00	ND	ug/kg	U
trans-Nonachlor	39765-80-5	1	0.50	1.00	ND	ug/kg	U
Mirex	2385-85-5	1	1.00	1.00	ND	ug/kg	U



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 11:33

113733-SB1S6

24G0168-06 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/02/2024 17:00

Instrument: ECD6 Analyst: RT

Analyzed: 07/30/2024 20:16

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Decachlorobiphenyl		30-160 %	102	%	
Surrogate: Decachlorobiphenyl [2C]		30-160 %	82.9	%	
Surrogate: Tetrachlorometaxylene		30-160 %	80.7	%	
Surrogate: Tetrachlorometaxylene [2C]		30-160 %	75.0	%	



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
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113733-SB1S6
24G0168-06 (Solid)

Aroclor PCB

Method: EPA 8082A			Sampled: 07/02/2024 17:00	
Instrument: ECD5 Analyst: AA			Analyzed: 07/27/2024 01:41	
Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 15.28 g (wet) Final Volume: 2.5 mL	Extract ID: 24G0168-06 B 01	
	Preparation Batch: BMG0257		Dry Weight: 12.53 g	
	Prepared: 07/16/2024		% Solids: 81.97	
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0168-06 B 01	
	Cleanup Batch: CMG0174			
	Cleaned: 25-Jul-2024			
Sample Cleanup:	Cleanup Method: Sulfuric Acid	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0168-06 B 01	
	Cleanup Batch: CMG0172			
	Cleaned: 25-Jul-2024			
Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0168-06 B 01	
	Cleanup Batch: CMG0173			
	Cleaned: 25-Jul-2024			

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	2.0	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	2.0	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	2.0	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1262	37324-23-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1268	11100-14-4	1	2.0	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				40-126 %	77.5	%	
Surrogate: Tetrachlorometaxylene				44-120 %	74.7	%	
Surrogate: Decachlorobiphenyl [2C]				40-126 %	81.7	%	
Surrogate: Tetrachlorometaxylene [2C]				44-120 %	73.6	%	



Shannon & Wilson, Inc

5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 11:33

113733-SB1S6

24G0168-06 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED

Sampled: 07/02/2024 17:00

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 14:11

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0168-06 B 05

Preparation Batch: BMG0274

Sample Size: 1.051 g (wet)

Dry Weight: 0.83 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 79.33

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.05	0.24	9.76	mg/kg	
Cadmium	7440-43-9	20	0.04	0.12	0.09	mg/kg	J
Copper	7440-50-8	20	0.21	0.60	27.1	mg/kg	
Selenium	7782-49-2	20	0.22	0.60	0.89	mg/kg	
Zinc	7440-66-6	20	3.5	7.2	65.0	mg/kg	



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 11:33

113733-SB1S6
24G0168-06 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B

Sampled: 07/02/2024 17:00

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 14:11

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0168-06 B 05

Preparation Batch: BMG0274

Sample Size: 1.051 g (wet)

Dry Weight: 0.83 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 79.33

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	20	0.12	0.24	ND	mg/kg	U
Chromium	7440-47-3	20	0.29	0.60	26.4	mg/kg	
Lead	7439-92-1	20	0.06	0.12	5.59	mg/kg	
Silver	7440-22-4	20	0.03	0.24	0.10	mg/kg	J



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 11:33

113733-SB1S6
24G0168-06 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B

Sampled: 07/02/2024 17:00

Instrument: HYDRA Analyst: ML

Analyzed: 07/15/2024 12:40

Sample Preparation:

Preparation Method: SMM EPA 7471B

Extract ID: 24G0168-06 C

Preparation Batch: BMG0339

Sample Size: 0.279 g (wet)

Dry Weight: 0.22 g

Prepared: 07/13/2024

Final Volume: 50 mL

% Solids: 79.33

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00474	0.0226	0.0425	mg/kg	



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Reported:

13-Sep-2024 11:33

113733-SB1S6

24G0168-06 (Solid)

Wet Chemistry

Method: EPA 9060A m

Sampled: 07/02/2024 17:00

Instrument: Accumet AB150 Analyst: ARR

Analyzed: 08/08/2024 14:52

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0168-06 C

Preparation Batch: BMH0093

Sample Size: 0.5031 g (wet)

Dry Weight: 0.40 g

Prepared: 08/06/2024

Final Volume: 0.5031 mL

% Solids: 79.33

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.61	%	F



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Reported:

13-Sep-2024 11:33

113733-SB1S6

24G0168-06 (Solid)

Wet Chemistry

Method: PSEP 1986

Sampled: 07/02/2024 17:00

Instrument: BAL2 Analyst: LERB

Analyzed: 07/23/2024 15:43

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0168-06

Preparation Batch: BMG0567

Sample Size: 5 g (wet)

Prepared: 07/23/2024

Final Volume: 5 mL

% Solids: 79.33

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Volatile Solids		1	0.01	0.01	1.92	%	



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Reported:

13-Sep-2024 11:33

113733-SB1S6

24G0168-06 (Solid)

Wet Chemistry

Method: SM 2540 G-11

Sampled: 07/02/2024 17:00

Instrument: BAL2 Analyst: LERB

Analyzed: 07/23/2024 15:43

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0168-06

Preparation Batch: BMG0567

Sample Size: 5 g (wet)

Prepared: 07/23/2024

Final Volume: 5 mL

% Solids: 79.33

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	79.33	%	



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 11:33

113733-SB1S6
24G0168-06RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E
Instrument: NT14 Analyst: RJL
Sample Preparation: Preparation Method: EPA 3546 (Microwave)
Preparation Batch: BMG0260
Prepared: 07/15/2024
Sample Size: 12.22 g (wet)
Final Volume: 1 mL
Extract ID: 24G0168-06RE1 B 04
Dry Weight: 10.02 g
% Solids: 81.97
Sampled: 07/02/2024 17:00
Analyzed: 08/08/2024 21:11

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	10.0	20.0	ND	ug/kg	U
bis(2-chloroethyl) ether	111-44-4	1	34.9	49.9	ND	ug/kg	U
2-Chlorophenol	95-57-8	1	20.0	20.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	10.0	20.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	10.0	20.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	10.0	20.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	20.0	20.0	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	10.0	20.0	ND	ug/kg	U
2-Methylphenol	95-48-7	1	10.0	20.0	ND	ug/kg	U
Hexachloroethane	67-72-1	1	10.0	20.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	15.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	15.0	20.0	ND	ug/kg	U
Nitrobenzene	98-95-3	1	10.0	20.0	ND	ug/kg	U
Isophorone	78-59-1	1	15.0	20.0	ND	ug/kg	U
2-Nitrophenol	88-75-5	1	10.0	20.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	49.9	99.8	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	1	10.0	20.0	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	1	49.9	99.8	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	10.0	20.0	ND	ug/kg	U
Naphthalene	91-20-3	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	99.8	200	ND	ug/kg	U
4-Chloroaniline	106-47-8	1	49.9	99.8	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	10.0	20.0	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	1	49.9	99.8	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	10.0	20.0	ND	ug/kg	U
Hexachlorocyclopentadiene	77-47-4	1	49.9	99.8	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	1	49.9	99.8	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	1	49.9	99.8	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	1	10.0	20.0	ND	ug/kg	U
2-Nitroaniline	88-74-4	1	49.9	99.8	ND	ug/kg	U
Acenaphthylene	208-96-8	1	10.0	20.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	10.0	20.0	ND	ug/kg	U
2,6-Dinitrotoluene	606-20-2	1	49.9	99.8	ND	ug/kg	U
Acenaphthene	83-32-9	1	10.0	20.0	ND	ug/kg	U
3-Nitroaniline	99-09-2	1	49.9	99.8	ND	ug/kg	U



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 11:33

113733-SB1S6
24G0168-06RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 17:00

Instrument: NT14 Analyst: RJL

Analyzed: 08/08/2024 21:11

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2,4-Dinitrophenol	51-28-5	1	99.8	200	ND	ug/kg	U
Dibenzofuran	132-64-9	1	20.0	20.0	ND	ug/kg	U
4-Nitrophenol	100-02-7	1	49.9	99.8	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	1	49.9	99.8	ND	ug/kg	U
Fluorene	86-73-7	1	20.0	20.0	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	1	34.9	49.9	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	34.9	49.9	ND	ug/kg	U
4-Nitroaniline	100-01-6	1	49.9	99.8	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	1	99.8	200	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	10.0	20.0	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	1	20.0	20.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	20.0	20.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	49.9	99.8	ND	ug/kg	U
Phenanthrene	85-01-8	1	10.0	20.0	ND	ug/kg	U
Anthracene	120-12-7	1	10.0	20.0	ND	ug/kg	U
Carbazole	86-74-8	1	10.0	20.0	ND	ug/kg	U
Di-n-Butylphthalate	84-74-2	1	10.0	20.0	ND	ug/kg	U
Fluoranthene	206-44-0	1	10.0	20.0	ND	ug/kg	U
Pyrene	129-00-0	1	10.0	20.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	10.0	20.0	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	1	10.0	20.0	ND	ug/kg	U
3,3'-Dichlorobenzidine	91-94-1	1	49.9	99.8	ND	ug/kg	U
Chrysene	218-01-9	1	10.0	20.0	ND	ug/kg	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	39.9	49.9	ND	ug/kg	U
Di-n-Octylphthalate	117-84-0	1	10.0	20.0	ND	ug/kg	U
Benzo(a)fluoranthene, Total		1	29.9	39.9	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	10.0	20.0	ND	ug/kg	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	20.0	20.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	20.0	20.0	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	20.0	20.0	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	10.0	20.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	102	%	
Surrogate: Phenol-d5				29-120 %	97.0	%	
Surrogate: 2-Chlorophenol-d4				31-120 %	111	%	
Surrogate: 1,2-Dichlorobenzene-d4				32-120 %	108	%	
Surrogate: Nitrobenzene-d5				30-120 %	102	%	
Surrogate: 2-Fluorobiphenyl				35-120 %	85.2	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 11:33

113733-SB1S6

24G0168-06RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 17:00

Instrument: NT14 Analyst: RJL

Analyzed: 08/08/2024 21:11

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: 2,4,6-Tribromophenol		24-134 %	122	%	
Surrogate: p-Terphenyl-d14		37-120 %	122	%	*



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Project Manager: Dan McMahon

Reported:

13-Sep-2024 11:33

113733-SB1S6

24G0168-06RE1 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM

Sampled: 07/02/2024 17:00

Instrument: NT14 Analyst: RJL

Analyzed: 08/08/2024 21:11

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0168-06RE1 B 04

Preparation Batch: BMG0260

Sample Size: 12.22 g (wet)

Dry Weight: 10.02 g

Prepared: 07/15/2024

Final Volume: 1 mL

% Solids: 81.97

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Benzyl Alcohol	100-51-6	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	499	499	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	250	250	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	99.4	%	
Surrogate: p-Terphenyl-d14				37-120 %	118	%	



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Reported:
13-Sep-2024 11:33

113733-SB1S7
24G0168-07 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM

Sampled: 07/02/2024 17:05

Instrument: NT14 Analyst: RJL

Analyzed: 08/03/2024 04:24

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0168-07 B 04

Preparation Batch: BMG0260

Sample Size: 12 g (wet)

Dry Weight: 10.00 g

Prepared: 07/15/2024

Final Volume: 1 mL

% Solids: 83.32

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	2.5	5.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	2.5	5.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	2.5	5.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	2.5	5.0	ND	ug/kg	U
2-Methylphenol	95-48-7	1	2.5	5.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	10.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	2.5	5.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	10.0	20.0	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	5.0	5.0	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	2.5	5.0	ND	ug/kg	U
N-Nitrosodimethylamine	62-75-9	1	12.5	25.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	2.5	5.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	10.0	20.0	10.2	ug/kg	J
N-Nitrosodiphenylamine	86-30-6	1	2.5	5.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	2.5	5.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	2.5	5.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	2.5	5.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	105	%	
Surrogate: p-Terphenyl-d14				37-120 %	119	%	



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 11:33

113733-SB1S7
24G0168-07 (Solid)

Butyl Tins

Method: EPA 8270E-SIM			Sampled: 07/02/2024 17:05		
Instrument: NT17 Analyst: JZ			Analyzed: 08/05/2024 21:40		
Sample Preparation:	Preparation Method: EPA 3546 (Microwave)			Extract ID: 24G0168-07 B 03	
	Preparation Batch: BMG0259	Sample Size: 6 g (wet)		Dry Weight: 5.00 g	
	Prepared: 07/15/2024	Final Volume: 0.5 mL		% Solids: 83.32	
Sample Cleanup:	Cleanup Method: Silica Gel			Extract ID: 24G0168-07 B 03	
	Cleanup Batch: CMH0022	Initial Volume: 0.5 uL			
	Cleaned: 02-Aug-2024	Final Volume: 0.5 uL			

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Tributyltin Ion	36643-28-4	1	1.93	3.86	ND	ug/kg	U
Surrogate: Triphenyltin				30-160 %	82.2	%	
Surrogate: Tripropyltin				30-160 %	48.7	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 11:33

113733-SB1S7
24G0168-07 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/02/2024 17:05

Instrument: ECD6 Analyst: RT

Analyzed: 07/30/2024 20:34

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 15.01 g (wet)	Extract ID: 24G0168-07 B 02
	Preparation Batch: BMG0258	Final Volume: 2.5 mL	Dry Weight: 12.51 g
	Prepared: 07/15/2024		% Solids: 83.32

Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL	Extract ID: 24G0168-07 B 02
	Cleanup Batch: CMG0194	Final Volume: 2.5 uL	
	Cleaned: 29-Jul-2024		

Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL	Extract ID: 24G0168-07 B 02
	Cleanup Batch: CMG0193	Final Volume: 2.5 uL	
	Cleaned: 29-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.25	0.50	ND	ug/kg	U
beta-BHC	319-85-7	1	0.25	0.50	ND	ug/kg	U
gamma-BHC (Lindane)	58-89-9	1	0.25	0.50	ND	ug/kg	U
delta-BHC	319-86-8	1	0.25	0.50	ND	ug/kg	U
Heptachlor	76-44-8	1	0.25	0.50	ND	ug/kg	U
Aldrin	309-00-2	1	0.50	0.50	ND	ug/kg	U
Heptachlor Epoxide	1024-57-3	1	0.25	0.50	ND	ug/kg	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.50	0.50	ND	ug/kg	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.25	0.50	ND	ug/kg	U
Endosulfan I	959-98-8	1	0.25	0.50	ND	ug/kg	U
4,4'-DDE	72-55-9	1	0.50	1.00	ND	ug/kg	U
Dieldrin	60-57-1	1	0.50	1.00	ND	ug/kg	U
Endrin	72-20-8	1	0.50	1.00	ND	ug/kg	U
Endosulfan II	33213-65-9	1	0.50	1.00	ND	ug/kg	U
4,4'-DDD	72-54-8	1	0.50	1.00	ND	ug/kg	U
Endrin Aldehyde	7421-93-4	1	0.50	1.00	ND	ug/kg	U
4,4'-DDT	50-29-3	1	0.50	1.00	ND	ug/kg	U
Endosulfan Sulfate	1031-07-8	1	0.50	1.00	ND	ug/kg	U
Endrin Ketone	53494-70-5	1	0.50	1.00	ND	ug/kg	U
Methoxychlor	72-43-5	1	2.50	5.00	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	0.25	0.50	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	0.25	0.50	ND	ug/kg	U
2,4'-DDE	3424-82-6	1	0.50	1.00	ND	ug/kg	U
2,4'-DDD	53-19-0	1	0.50	1.00	ND	ug/kg	U
2,4'-DDT	789-02-6	1	0.50	1.00	ND	ug/kg	U
Oxychlordane	27304-13-8	1	0.50	1.00	ND	ug/kg	U
cis-Nonachlor	5103-73-1	1	0.50	1.00	ND	ug/kg	U
trans-Nonachlor	39765-80-5	1	0.50	1.00	ND	ug/kg	U
Mirex	2385-85-5	1	1.00	1.00	ND	ug/kg	U



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 11:33

113733-SB1S7

24G0168-07 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/02/2024 17:05

Instrument: ECD6 Analyst: RT

Analyzed: 07/30/2024 20:34

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Decachlorobiphenyl		30-160 %	101	%	
Surrogate: Decachlorobiphenyl [2C]		30-160 %	83.5	%	
Surrogate: Tetrachlorometaxylene		30-160 %	73.1	%	
Surrogate: Tetrachlorometaxylene [2C]		30-160 %	74.0	%	



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Project Manager: Dan McMahon

Reported:

13-Sep-2024 11:33

113733-SB1S7
24G0168-07 (Solid)

Aroclor PCB

Method: EPA 8082A

Sampled: 07/02/2024 17:05

Instrument: ECD5 Analyst: AA

Analyzed: 07/25/2024 22:23

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 15.03 g (wet)	Extract ID: 24G0168-07 B 01
	Preparation Batch: BMG0257		
	Prepared: 07/16/2024		
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL	Extract ID: 24G0168-07 B 01
	Cleanup Batch: CMG0174		
	Cleaned: 25-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfuric Acid	Initial Volume: 2.5 uL	Extract ID: 24G0168-07 B 01
	Cleanup Batch: CMG0172		
	Cleaned: 25-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL	Extract ID: 24G0168-07 B 01
	Cleanup Batch: CMG0173		
	Cleaned: 25-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	2.0	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	2.0	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	2.0	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1262	37324-23-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1268	11100-14-4	1	2.0	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl					40-126 %	75.9	%
Surrogate: Tetrachlorometaxylene					44-120 %	72.5	%
Surrogate: Decachlorobiphenyl [2C]					40-126 %	79.8	%
Surrogate: Tetrachlorometaxylene [2C]					44-120 %	72.5	%



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Reported:

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113733-SB1S7

24G0168-07 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED

Sampled: 07/02/2024 17:05

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 14:15

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0168-07 B 05

Preparation Batch: BMG0274

Sample Size: 1.011 g (wet)

Dry Weight: 0.82 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 81.31

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.05	0.24	12.8	mg/kg	
Cadmium	7440-43-9	20	0.04	0.12	0.12	mg/kg	J
Copper	7440-50-8	20	0.21	0.61	34.8	mg/kg	
Selenium	7782-49-2	20	0.22	0.61	1.03	mg/kg	
Zinc	7440-66-6	20	3.6	7.3	73.2	mg/kg	



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
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113733-SB1S7
24G0168-07 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B

Sampled: 07/02/2024 17:05

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 14:15

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0168-07 B 05

Preparation Batch: BMG0274

Sample Size: 1.011 g (wet)

Dry Weight: 0.82 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 81.31

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	20	0.12	0.24	ND	mg/kg	U
Chromium	7440-47-3	50	0.79	1.52	29.9	mg/kg	D
Lead	7439-92-1	20	0.06	0.12	7.02	mg/kg	
Silver	7440-22-4	20	0.03	0.24	0.13	mg/kg	J



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 11:33

113733-SB1S7

24G0168-07 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B

Sampled: 07/02/2024 17:05

Instrument: HYDRA Analyst: ML

Analyzed: 07/15/2024 12:42

Sample Preparation:

Preparation Method: SMM EPA 7471B

Extract ID: 24G0168-07 C

Preparation Batch: BMG0339

Sample Size: 0.273 g (wet)

Dry Weight: 0.22 g

Prepared: 07/13/2024

Final Volume: 50 mL

% Solids: 81.31

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00473	0.0225	0.0507	mg/kg	



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Reported:
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113733-SB1S7
24G0168-07 (Solid)

Wet Chemistry

Method: EPA 9060A m

Sampled: 07/02/2024 17:05

Instrument: Accumet AB150 Analyst: ARR

Analyzed: 08/08/2024 15:22

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0168-07 C

Preparation Batch: BMH0093

Sample Size: 0.5089 g (wet)

Dry Weight: 0.41 g

Prepared: 08/06/2024

Final Volume: 0.5089 mL

% Solids: 81.31

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.37	%	F



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Reported:
13-Sep-2024 11:33

113733-SB1S7
24G0168-07 (Solid)

Wet Chemistry

Method: PSEP 1986

Sampled: 07/02/2024 17:05

Instrument: BAL2 Analyst: LERB

Analyzed: 07/23/2024 15:43

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0168-07

Preparation Batch: BMG0567

Sample Size: 5 g (wet)

Prepared: 07/23/2024

Final Volume: 5 mL

% Solids: 81.31

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Volatile Solids		1	0.01	0.01	1.97	%	



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Reported:

13-Sep-2024 11:33

113733-SB1S7

24G0168-07 (Solid)

Wet Chemistry

Method: SM 2540 G-11

Sampled: 07/02/2024 17:05

Instrument: BAL2 Analyst: LERB

Analyzed: 07/23/2024 15:43

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0168-07

Preparation Batch: BMG0567

Sample Size: 5 g (wet)

Prepared: 07/23/2024

Final Volume: 5 mL

% Solids: 81.31

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	81.31	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 11:33

113733-SB1S7

24G0168-07RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 17:05

Instrument: NT14 Analyst: RJL

Analyzed: 08/08/2024 21:50

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0168-07RE1 B 04

Preparation Batch: BMG0260

Sample Size: 12 g (wet)

Dry Weight: 10.00 g

Prepared: 07/15/2024

Final Volume: 1 mL

% Solids: 83.32

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	10.0	20.0	ND	ug/kg	U
bis(2-chloroethyl) ether	111-44-4	1	35.0	50.0	ND	ug/kg	U
2-Chlorophenol	95-57-8	1	20.0	20.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	10.0	20.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	10.0	20.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	10.0	20.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	20.0	20.0	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	10.0	20.0	ND	ug/kg	U
2-Methylphenol	95-48-7	1	10.0	20.0	ND	ug/kg	U
Hexachloroethane	67-72-1	1	10.0	20.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	15.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	15.0	20.0	ND	ug/kg	U
Nitrobenzene	98-95-3	1	10.0	20.0	ND	ug/kg	U
Isophorone	78-59-1	1	15.0	20.0	ND	ug/kg	U
2-Nitrophenol	88-75-5	1	10.0	20.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	50.0	100	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	1	10.0	20.0	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	1	50.0	100	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	10.0	20.0	ND	ug/kg	U
Naphthalene	91-20-3	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	100	200	ND	ug/kg	U
4-Chloroaniline	106-47-8	1	50.0	100	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	10.0	20.0	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	1	50.0	100	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	10.0	20.0	ND	ug/kg	U
Hexachlorocyclopentadiene	77-47-4	1	50.0	100	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	1	50.0	100	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	1	50.0	100	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	1	10.0	20.0	ND	ug/kg	U
2-Nitroaniline	88-74-4	1	50.0	100	ND	ug/kg	U
Acenaphthylene	208-96-8	1	10.0	20.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	10.0	20.0	ND	ug/kg	U
2,6-Dinitrotoluene	606-20-2	1	50.0	100	ND	ug/kg	U
Acenaphthene	83-32-9	1	10.0	20.0	ND	ug/kg	U
3-Nitroaniline	99-09-2	1	50.0	100	ND	ug/kg	U



Shannon & Wilson, Inc
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Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 11:33

113733-SB1S7
24G0168-07RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 17:05

Instrument: NT14 Analyst: RJL

Analyzed: 08/08/2024 21:50

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2,4-Dinitrophenol	51-28-5	1	100	200	ND	ug/kg	U
Dibenzofuran	132-64-9	1	20.0	20.0	ND	ug/kg	U
4-Nitrophenol	100-02-7	1	50.0	100	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	1	50.0	100	ND	ug/kg	U
Fluorene	86-73-7	1	20.0	20.0	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	1	35.0	50.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	35.0	50.0	ND	ug/kg	U
4-Nitroaniline	100-01-6	1	50.0	100	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	1	100	200	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	10.0	20.0	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	1	20.0	20.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	20.0	20.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	50.0	100	ND	ug/kg	U
Phenanthrene	85-01-8	1	10.0	20.0	ND	ug/kg	U
Anthracene	120-12-7	1	10.0	20.0	ND	ug/kg	U
Carbazole	86-74-8	1	10.0	20.0	ND	ug/kg	U
Di-n-Butylphthalate	84-74-2	1	10.0	20.0	ND	ug/kg	U
Fluoranthene	206-44-0	1	10.0	20.0	ND	ug/kg	U
Pyrene	129-00-0	1	10.0	20.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	10.0	20.0	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	1	10.0	20.0	ND	ug/kg	U
3,3'-Dichlorobenzidine	91-94-1	1	50.0	100	ND	ug/kg	U
Chrysene	218-01-9	1	10.0	20.0	ND	ug/kg	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	40.0	50.0	ND	ug/kg	U
Di-n-Octylphthalate	117-84-0	1	10.0	20.0	ND	ug/kg	U
Benzo(a)fluoranthene, Total		1	30.0	40.0	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	10.0	20.0	ND	ug/kg	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	20.0	20.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	20.0	20.0	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	20.0	20.0	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	10.0	20.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	100	%	
Surrogate: Phenol-d5				29-120 %	94.0	%	
Surrogate: 2-Chlorophenol-d4				31-120 %	110	%	
Surrogate: 1,2-Dichlorobenzene-d4				32-120 %	106	%	
Surrogate: Nitrobenzene-d5				30-120 %	101	%	
Surrogate: 2-Fluorobiphenyl				35-120 %	85.2	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 11:33

113733-SB1S7

24G0168-07RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 17:05

Instrument: NT14 Analyst: RJL

Analyzed: 08/08/2024 21:50

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: 2,4,6-Tribromophenol		24-134 %	118	%	
Surrogate: p-Terphenyl-d14		37-120 %	120	%	



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Project: PAMP Sediments
Project Number: 113733
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Reported:
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113733-SB1S7
24G0168-07RE1 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM

Sampled: 07/02/2024 17:05

Instrument: NT14 Analyst: RJL

Analyzed: 08/08/2024 21:50

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0168-07RE1 B 04

Preparation Batch: BMG0260

Sample Size: 12 g (wet)

Dry Weight: 10.00 g

Prepared: 07/15/2024

Final Volume: 1 mL

% Solids: 83.32

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Benzyl Alcohol	100-51-6	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	500	500	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	250	250	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	99.2	%	
Surrogate: p-Terphenyl-d14				37-120 %	116	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 11:33

113733-SB1S12

24G0168-08 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM

Sampled: 07/02/2024 14:00

Instrument: NT14 Analyst: RJL

Analyzed: 08/03/2024 05:02

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0168-08 B 04

Preparation Batch: BMG0260

Sample Size: 12.4 g (wet)

Dry Weight: 10.01 g

Prepared: 07/15/2024

Final Volume: 1 mL

% Solids: 80.71

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	2.5	5.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	2.5	5.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	2.5	5.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	2.5	5.0	ND	ug/kg	U
2-Methylphenol	95-48-7	1	2.5	5.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	10.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	2.5	5.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	10.0	20.0	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	5.0	5.0	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	2.5	5.0	ND	ug/kg	U
N-Nitrosodimethylamine	62-75-9	1	12.5	25.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	2.5	5.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	10.0	20.0	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	2.5	5.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	2.5	5.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	2.5	5.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	2.5	5.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	95.6	%	
Surrogate: p-Terphenyl-d14				37-120 %	109	%	



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 11:33

113733-SB1S12
24G0168-08 (Solid)

Butyl Tins

Method: EPA 8270E-SIM
Instrument: NT17 Analyst: JZ

Sampled: 07/02/2024 14:00

Analyzed: 08/05/2024 21:54

Sample Preparation: Preparation Method: EPA 3546 (Microwave)
Preparation Batch: BMG0259
Prepared: 07/15/2024

Sample Size: 6.23 g (wet)

Final Volume: 0.5 mL

Extract ID: 24G0168-08 B 03

Dry Weight: 5.03 g

% Solids: 80.71

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CMH0022
Cleaned: 02-Aug-2024

Initial Volume: 0.5 uL

Final Volume: 0.5 uL

Extract ID: 24G0168-08 B 03

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Tributyltin Ion	36643-28-4	1	1.92	3.84	ND	ug/kg	U
Surrogate: Triphenyltin				30-160 %	110	%	
Surrogate: Tripropyltin				30-160 %	60.1	%	



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 11:33

113733-SB1S12
24G0168-08 (Solid)

Chlorinated Pesticides

Method: EPA 8081B			Sampled: 07/02/2024 14:00	
Instrument: ECD6 Analyst: RT			Analyzed: 07/30/2024 20:53	
Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 15.5 g (wet)	Extract ID: 24G0168-08 B 02	
	Preparation Batch: BMG0258		Dry Weight: 12.51 g	
	Prepared: 07/15/2024		% Solids: 80.71	
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL	Extract ID: 24G0168-08 B 02	
	Cleanup Batch: CMG0194			
	Cleaned: 29-Jul-2024			
Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL	Extract ID: 24G0168-08 B 02	
	Cleanup Batch: CMG0193			
	Cleaned: 29-Jul-2024			

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.25	0.50	ND	ug/kg	U
beta-BHC	319-85-7	1	0.25	0.50	ND	ug/kg	U
gamma-BHC (Lindane)	58-89-9	1	0.25	0.50	ND	ug/kg	U
delta-BHC	319-86-8	1	0.25	0.50	ND	ug/kg	U
Heptachlor	76-44-8	1	0.25	0.50	ND	ug/kg	U
Aldrin	309-00-2	1	0.50	0.50	ND	ug/kg	U
Heptachlor Epoxide	1024-57-3	1	0.25	0.50	ND	ug/kg	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.50	0.50	ND	ug/kg	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.25	0.50	ND	ug/kg	U
Endosulfan I	959-98-8	1	0.25	0.50	ND	ug/kg	U
4,4'-DDE	72-55-9	1	0.50	1.00	ND	ug/kg	U
Dieldrin	60-57-1	1	0.50	1.00	ND	ug/kg	U
Endrin	72-20-8	1	0.50	1.00	ND	ug/kg	U
Endosulfan II	33213-65-9	1	0.50	1.00	ND	ug/kg	U
4,4'-DDD	72-54-8	1	0.50	1.00	0.77	ug/kg	J
Endrin Aldehyde	7421-93-4	1	0.50	1.00	ND	ug/kg	U
4,4'-DDT	50-29-3	1	0.50	1.00	ND	ug/kg	U
Endosulfan Sulfate	1031-07-8	1	0.50	1.00	ND	ug/kg	U
Endrin Ketone	53494-70-5	1	0.50	1.00	ND	ug/kg	U
Methoxychlor	72-43-5	1	2.50	5.00	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	0.25	0.50	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	0.25	0.50	0.28	ug/kg	J
2,4'-DDE	3424-82-6	1	0.50	1.00	ND	ug/kg	U
2,4'-DDD	53-19-0	1	0.50	1.00	ND	ug/kg	U
2,4'-DDT	789-02-6	1	0.50	1.00	ND	ug/kg	U
Oxychlordane	27304-13-8	1	0.50	1.00	ND	ug/kg	U
cis-Nonachlor	5103-73-1	1	0.50	1.00	ND	ug/kg	U
trans-Nonachlor	39765-80-5	1	0.50	1.00	ND	ug/kg	U
Mirex	2385-85-5	1	1.00	1.00	ND	ug/kg	U



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Reported:
13-Sep-2024 11:33

113733-SB1S12
24G0168-08 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/02/2024 14:00

Instrument: ECD6 Analyst: RT

Analyzed: 07/30/2024 20:53

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Decachlorobiphenyl		30-160 %	102	%	
Surrogate: Decachlorobiphenyl [2C]		30-160 %	86.5	%	
Surrogate: Tetrachlorometaxylene		30-160 %	70.8	%	
Surrogate: Tetrachlorometaxylene [2C]		30-160 %	70.0	%	



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Project Manager: Dan McMahon

Reported:

13-Sep-2024 11:33

113733-SB1S12

24G0168-08 (Solid)

Aroclor PCB

Method: EPA 8082A

Sampled: 07/02/2024 14:00

Instrument: ECD5 Analyst: AA

Analyzed: 07/25/2024 22:44

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 15.5 g (wet)	Extract ID: 24G0168-08 B 01
	Preparation Batch: BMG0257		
	Prepared: 07/16/2024		
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL	Extract ID: 24G0168-08 B 01
	Cleanup Batch: CMG0174		
	Cleaned: 25-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfuric Acid	Initial Volume: 2.5 uL	Extract ID: 24G0168-08 B 01
	Cleanup Batch: CMG0172		
	Cleaned: 25-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL	Extract ID: 24G0168-08 B 01
	Cleanup Batch: CMG0173		
	Cleaned: 25-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	2.0	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	2.0	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	2.0	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1262	37324-23-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1268	11100-14-4	1	2.0	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				40-126 %	70.2	%	
Surrogate: Tetrachlorometaxylene				44-120 %	70.8	%	
Surrogate: Decachlorobiphenyl [2C]				40-126 %	72.4	%	
Surrogate: Tetrachlorometaxylene [2C]				44-120 %	68.2	%	



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Reported:

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113733-SB1S12

24G0168-08 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED

Sampled: 07/02/2024 14:00

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 14:20

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0168-08 B 05

Preparation Batch: BMG0274

Sample Size: 1.066 g (wet)

Dry Weight: 0.81 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 75.57

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.05	0.25	12.6	mg/kg	
Cadmium	7440-43-9	20	0.04	0.12	0.15	mg/kg	
Copper	7440-50-8	20	0.22	0.62	43.3	mg/kg	
Selenium	7782-49-2	20	0.22	0.62	1.28	mg/kg	
Zinc	7440-66-6	20	3.6	7.4	94.4	mg/kg	



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Project: PAMP Sediments
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Reported:
13-Sep-2024 11:33

113733-SB1S12
24G0168-08 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B

Sampled: 07/02/2024 14:00

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 14:20

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0168-08 B 05

Preparation Batch: BMG0274

Sample Size: 1.066 g (wet)

Dry Weight: 0.81 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 75.57

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	20	0.13	0.25	ND	mg/kg	U
Chromium	7440-47-3	50	0.81	1.55	34.6	mg/kg	D
Lead	7439-92-1	20	0.06	0.12	9.27	mg/kg	
Silver	7440-22-4	20	0.03	0.25	0.15	mg/kg	J



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Reported:

13-Sep-2024 11:33

113733-SB1S12

24G0168-08 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B

Sampled: 07/02/2024 14:00

Instrument: HYDRA Analyst: ML

Analyzed: 07/15/2024 12:44

Sample Preparation:

Preparation Method: SMM EPA 7471B

Extract ID: 24G0168-08 C

Preparation Batch: BMG0339

Sample Size: 0.287 g (wet)

Dry Weight: 0.22 g

Prepared: 07/13/2024

Final Volume: 50 mL

% Solids: 75.57

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00484	0.0231	0.0641	mg/kg	



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Reported:

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113733-SB1S12

24G0168-08 (Solid)

Wet Chemistry

Method: EPA 9060A m

Sampled: 07/02/2024 14:00

Instrument: Accumet AB150 Analyst: ARR

Analyzed: 08/08/2024 15:53

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0168-08 C

Preparation Batch: BMH0093

Sample Size: 0.2134 g (wet)

Dry Weight: 0.16 g

Prepared: 08/06/2024

Final Volume: 0.2134 mL

% Solids: 75.57

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.46	%	F



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Reported:
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113733-SB1S12
24G0168-08 (Solid)

Wet Chemistry

Method: PSEP 1986

Sampled: 07/02/2024 14:00

Instrument: BAL2 Analyst: LERB

Analyzed: 07/23/2024 15:43

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0168-08

Preparation Batch: BMG0567

Sample Size: 5 g (wet)

Prepared: 07/23/2024

Final Volume: 5 mL

% Solids: 75.57

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Volatile Solids		1	0.01	0.01	2.52	%	



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Reported:

13-Sep-2024 11:33

113733-SB1S12

24G0168-08 (Solid)

Wet Chemistry

Method: SM 2540 G-11

Sampled: 07/02/2024 14:00

Instrument: BAL2 Analyst: LERB

Analyzed: 07/23/2024 15:43

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0168-08

Preparation Batch: BMG0567

Sample Size: 5 g (wet)

Prepared: 07/23/2024

Final Volume: 5 mL

% Solids: 75.57

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	75.57	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 11:33

113733-SB1S12
24G0168-08RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 14:00

Instrument: NT14 Analyst: RJL

Analyzed: 08/08/2024 22:28

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0168-08RE1 B 04

Preparation Batch: BMG0260

Sample Size: 12.4 g (wet)

Dry Weight: 10.01 g

Prepared: 07/15/2024

Final Volume: 1 mL

% Solids: 80.71

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	10.0	20.0	ND	ug/kg	U
bis(2-chloroethyl) ether	111-44-4	1	35.0	50.0	ND	ug/kg	U
2-Chlorophenol	95-57-8	1	20.0	20.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	10.0	20.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	10.0	20.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	10.0	20.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	20.0	20.0	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	10.0	20.0	ND	ug/kg	U
2-Methylphenol	95-48-7	1	10.0	20.0	ND	ug/kg	U
Hexachloroethane	67-72-1	1	10.0	20.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	15.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	15.0	20.0	ND	ug/kg	U
Nitrobenzene	98-95-3	1	10.0	20.0	ND	ug/kg	U
Isophorone	78-59-1	1	15.0	20.0	ND	ug/kg	U
2-Nitrophenol	88-75-5	1	10.0	20.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	50.0	99.9	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	1	10.0	20.0	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	1	50.0	99.9	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	10.0	20.0	ND	ug/kg	U
Naphthalene	91-20-3	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	99.9	200	ND	ug/kg	U
4-Chloroaniline	106-47-8	1	50.0	99.9	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	10.0	20.0	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	1	50.0	99.9	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	10.0	20.0	ND	ug/kg	U
Hexachlorocyclopentadiene	77-47-4	1	50.0	99.9	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	1	50.0	99.9	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	1	50.0	99.9	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	1	10.0	20.0	ND	ug/kg	U
2-Nitroaniline	88-74-4	1	50.0	99.9	ND	ug/kg	U
Acenaphthylene	208-96-8	1	10.0	20.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	10.0	20.0	ND	ug/kg	U
2,6-Dinitrotoluene	606-20-2	1	50.0	99.9	ND	ug/kg	U
Acenaphthene	83-32-9	1	10.0	20.0	ND	ug/kg	U
3-Nitroaniline	99-09-2	1	50.0	99.9	ND	ug/kg	U



Shannon & Wilson, Inc
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Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 11:33

113733-SB1S12
24G0168-08RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 14:00

Instrument: NT14 Analyst: RJL

Analyzed: 08/08/2024 22:28

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2,4-Dinitrophenol	51-28-5	1	99.9	200	ND	ug/kg	U
Dibenzofuran	132-64-9	1	20.0	20.0	ND	ug/kg	U
4-Nitrophenol	100-02-7	1	50.0	99.9	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	1	50.0	99.9	ND	ug/kg	U
Fluorene	86-73-7	1	20.0	20.0	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	1	35.0	50.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	35.0	50.0	ND	ug/kg	U
4-Nitroaniline	100-01-6	1	50.0	99.9	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	1	99.9	200	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	10.0	20.0	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	1	20.0	20.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	20.0	20.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	50.0	99.9	ND	ug/kg	U
Phenanthrene	85-01-8	1	10.0	20.0	ND	ug/kg	U
Anthracene	120-12-7	1	10.0	20.0	ND	ug/kg	U
Carbazole	86-74-8	1	10.0	20.0	ND	ug/kg	U
Di-n-Butylphthalate	84-74-2	1	10.0	20.0	ND	ug/kg	U
Fluoranthene	206-44-0	1	10.0	20.0	ND	ug/kg	U
Pyrene	129-00-0	1	10.0	20.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	10.0	20.0	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	1	10.0	20.0	ND	ug/kg	U
3,3'-Dichlorobenzidine	91-94-1	1	50.0	99.9	ND	ug/kg	U
Chrysene	218-01-9	1	10.0	20.0	ND	ug/kg	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	40.0	50.0	ND	ug/kg	U
Di-n-Octylphthalate	117-84-0	1	10.0	20.0	ND	ug/kg	U
Benzo(a)fluoranthene, Total		1	30.0	40.0	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	10.0	20.0	ND	ug/kg	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	20.0	20.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	20.0	20.0	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	20.0	20.0	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	10.0	20.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	90.9	%	
Surrogate: Phenol-d5				29-120 %	86.2	%	
Surrogate: 2-Chlorophenol-d4				31-120 %	99.8	%	
Surrogate: 1,2-Dichlorobenzene-d4				32-120 %	95.2	%	
Surrogate: Nitrobenzene-d5				30-120 %	90.4	%	
Surrogate: 2-Fluorobiphenyl				35-120 %	76.8	%	



Shannon & Wilson, Inc

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Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 11:33

113733-SB1S12
24G0168-08RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 14:00

Instrument: NT14 Analyst: RJL

Analyzed: 08/08/2024 22:28

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: 2,4,6-Tribromophenol		24-134 %	96.8	%	
Surrogate: p-Terphenyl-d14		37-120 %	110	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 11:33

113733-SB1S12
24G0168-08RE1 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM

Sampled: 07/02/2024 14:00

Instrument: NT14 Analyst: RJL

Analyzed: 08/08/2024 22:28

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0168-08RE1 B 04

Preparation Batch: BMG0260

Sample Size: 12.4 g (wet)

Dry Weight: 10.01 g

Prepared: 07/15/2024

Final Volume: 1 mL

% Solids: 80.71

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Benzyl Alcohol	100-51-6	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	500	500	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	250	250	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	90.4	%	
Surrogate: p-Terphenyl-d14				37-120 %	106	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 11:33

113733-SB1S1

24G0168-01 (Solid)

Geotechnical Methods

Method: PSEP-PS

Sampled: 07/02/2024 13:50

Analysis by: AmTest Laboratories

Instrument: ALAB Analyst:

Analyzed: 08/26/2024 00:00

Sample Preparation:

Preparation Method: No Prep Geo

Preparation Batch: B260824

Prepared: 08/26/2024

Extract ID: 24G0168-01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phi Size < -2.25	GS_MFG	1	0.1	6.2	%	
Phi Size -2.25 to -2	GS_FG	1	0.1	0.5	%	
Phi Size -2 to -1	GS_VFG	1	0.1	6.3	%	
Phi Size -1 to 0	GS_VCS	1	0.1	2.1	%	
Phi Size 0 to 1	GS_CS	1	0.1	0.9	%	
Phi Size 1 to 2	GS_MS	1	0.1	0.6	%	
Phi Size 2 to 3	GS_FS	1	0.1	0.3	%	
Phi Size 3 to 4	GS_VFS	1	0.1	1.8	%	
Phi Size 4 to 5	GS_CSILT	1	0.1	41.1	%	
Phi Size 5 to 6	GS_MSILT	1	0.1	10.5	%	
Phi Size 6 to 7	GS_FSILT	1	0.1	9.2	%	
Phi Size 7 to 8	GS_VFSILT	1	0.1	5.6	%	
Phi Size 8 to 9	GS_CCLAY	1	0.1	4	%	
Phi Size 9 to 10	GS_MCLAY	1	0.1	2.8	%	
Phi Size >10	GS_FCLAY	1	0.1	8.2	%	



Shannon & Wilson, Inc

5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 11:33

113733-SB1S2

24G0168-02 (Solid)

Geotechnical Methods

Method: PSEP-PS

Sampled: 07/02/2024 13:55

Analysis by: AmTest Laboratories

Instrument: ALAB Analyst:

Analyzed: 08/26/2024 00:00

Sample Preparation:

Preparation Method: No Prep Geo

Preparation Batch: B260824

Prepared: 08/26/2024

Extract ID: 24G0168-02

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phi Size < -2.25	GS_MFG	1	0.1	1.3	%	
Phi Size -2.25 to -2	GS_FG	1	0.1	0.8	%	
Phi Size -2 to -1	GS_VFG	1	0.1	2.2	%	
Phi Size -1 to 0	GS_VCS	1	0.1	1.1	%	
Phi Size 0 to 1	GS_CS	1	0.1	1	%	
Phi Size 1 to 2	GS_MS	1	0.1	1.4	%	
Phi Size 2 to 3	GS_FS	1	0.1	1.5	%	
Phi Size 3 to 4	GS_VFS	1	0.1	3.3	%	
Phi Size 4 to 5	GS_CSILT	1	0.1	50.8	%	
Phi Size 5 to 6	GS_MSILT	1	0.1	14.8	%	
Phi Size 6 to 7	GS_FSILT	1	0.1	8	%	
Phi Size 7 to 8	GS_VFSILT	1	0.1	3	%	
Phi Size 8 to 9	GS_CCLAY	1	0.1	2.9	%	
Phi Size 9 to 10	GS_MCLAY	1	0.1	1.9	%	
Phi Size >10	GS_FCLAY	1	0.1	6	%	



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Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 11:33

113733-SB1S3
24G0168-03 (Solid)

Geotechnical Methods

Method: PSEP-PS

Sampled: 07/02/2024 14:10

Analysis by: AmTest Laboratories

Instrument: ALAB Analyst:

Analyzed: 08/26/2024 00:00

Sample Preparation: Preparation Method: No Prep Geo
Preparation Batch: B260824
Prepared: 08/26/2024

Extract ID: 24G0168-03

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phi Size < -2.25	GS_MFG	1	0.1	0.2	%	
Phi Size -2.25 to -2	GS_FG	1	0.1	0.1	%	
Phi Size -2 to -1	GS_VFG	1	0.1	0.4	%	
Phi Size -1 to 0	GS_VCS	1	0.1	0.3	%	
Phi Size 0 to 1	GS_CS	1	0.1	0.2	%	
Phi Size 1 to 2	GS_MS	1	0.1	0.5	%	
Phi Size 2 to 3	GS_FS	1	0.1	0.4	%	
Phi Size 3 to 4	GS_VFS	1	0.1	2.7	%	
Phi Size 4 to 5	GS_CSILT	1	0.1	42.3	%	
Phi Size 5 to 6	GS_MSILT	1	0.1	17.8	%	
Phi Size 6 to 7	GS_FSILT	1	0.1	11.6	%	
Phi Size 7 to 8	GS_VFSILT	1	0.1	6.7	%	
Phi Size 8 to 9	GS_CCLAY	1	0.1	4.7	%	
Phi Size 9 to 10	GS_MCLAY	1	0.1	2.9	%	
Phi Size >10	GS_FCLAY	1	0.1	9.2	%	



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 11:33

113733-SB1S4
24G0168-04 (Solid)

Geotechnical Methods

Method: PSEP-PS

Sampled: 07/02/2024 15:30

Analysis by: AmTest Laboratories

Instrument: ALAB Analyst:

Analyzed: 08/26/2024 00:00

Sample Preparation: Preparation Method: No Prep Geo
Preparation Batch: B260824
Prepared: 08/26/2024

Extract ID: 24G0168-04

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phi Size < -2.25	GS_MFG	1	0.1	14.1	%	
Phi Size -2.25 to -2	GS_FG	1	0.1	ND	%	U
Phi Size -2 to -1	GS_VFG	1	0.1	0.2	%	
Phi Size -1 to 0	GS_VCS	1	0.1	0.3	%	
Phi Size 0 to 1	GS_CS	1	0.1	0.3	%	
Phi Size 1 to 2	GS_MS	1	0.1	0.2	%	
Phi Size 2 to 3	GS_FS	1	0.1	0.4	%	
Phi Size 3 to 4	GS_VFS	1	0.1	3.8	%	
Phi Size 4 to 5	GS_CSILT	1	0.1	45.5	%	
Phi Size 5 to 6	GS_MSILT	1	0.1	14.7	%	
Phi Size 6 to 7	GS_FSILT	1	0.1	5.6	%	
Phi Size 7 to 8	GS_VFSILT	1	0.1	4.4	%	
Phi Size 8 to 9	GS_CCLAY	1	0.1	2.7	%	
Phi Size 9 to 10	GS_MCLAY	1	0.1	1.5	%	
Phi Size >10	GS_FCLAY	1	0.1	6.3	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 11:33

113733-SB1S5

24G0168-05 (Solid)

Geotechnical Methods

Method: PSEP-PS

Sampled: 07/02/2024 16:15

Analysis by: AmTest Laboratories

Instrument: ALAB Analyst:

Analyzed: 08/26/2024 00:00

Sample Preparation:

Preparation Method: No Prep Geo

Preparation Batch: B260824

Prepared: 08/26/2024

Extract ID: 24G0168-05

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phi Size < -2.25	GS_MFG	1	0.1	0.6	%	
Phi Size -2.25 to -2	GS_FG	1	0.1	0.6	%	
Phi Size -2 to -1	GS_VFG	1	0.1	0.6	%	
Phi Size -1 to 0	GS_VCS	1	0.1	0.4	%	
Phi Size 0 to 1	GS_CS	1	0.1	ND	%	U
Phi Size 1 to 2	GS_MS	1	0.1	ND	%	U
Phi Size 2 to 3	GS_FS	1	0.1	0.2	%	
Phi Size 3 to 4	GS_VFS	1	0.1	8.5	%	
Phi Size 4 to 5	GS_CSILT	1	0.1	57.1	%	
Phi Size 5 to 6	GS_MSILT	1	0.1	7.7	%	
Phi Size 6 to 7	GS_FSILT	1	0.1	6.7	%	
Phi Size 7 to 8	GS_VFSILT	1	0.1	4.4	%	
Phi Size 8 to 9	GS_CCLAY	1	0.1	3.3	%	
Phi Size 9 to 10	GS_MCLAY	1	0.1	2	%	
Phi Size >10	GS_FCLAY	1	0.1	7.9	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 11:33

113733-SB1S6

24G0168-06 (Solid)

Geotechnical Methods

Method: PSEP-PS

Sampled: 07/02/2024 17:00

Analysis by: AmTest Laboratories

Instrument: ALAB Analyst:

Analyzed: 08/26/2024 00:00

Sample Preparation:

Preparation Method: No Prep Geo

Preparation Batch: B260824

Prepared: 08/26/2024

Extract ID: 24G0168-06

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phi Size < -2.25	GS_MFG	1	0.1	0.4	%	
Phi Size -2.25 to -2	GS_FG	1	0.1	0.2	%	
Phi Size -2 to -1	GS_VFG	1	0.1	0.5	%	
Phi Size -1 to 0	GS_VCS	1	0.1	0.3	%	
Phi Size 0 to 1	GS_CS	1	0.1	0.5	%	
Phi Size 1 to 2	GS_MS	1	0.1	1	%	
Phi Size 2 to 3	GS_FS	1	0.1	1.8	%	
Phi Size 3 to 4	GS_VFS	1	0.1	20.3	%	
Phi Size 4 to 5	GS_CSILT	1	0.1	42.0	%	
Phi Size 5 to 6	GS_MSILT	1	0.1	9.7	%	
Phi Size 6 to 7	GS_FSILT	1	0.1	6.7	%	
Phi Size 7 to 8	GS_VFSILT	1	0.1	3.8	%	
Phi Size 8 to 9	GS_CCLAY	1	0.1	2.9	%	
Phi Size 9 to 10	GS_MCLAY	1	0.1	1.9	%	
Phi Size >10	GS_FCLAY	1	0.1	7.8	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 11:33

113733-SB1S7

24G0168-07 (Solid)

Geotechnical Methods

Method: PSEP-PS

Sampled: 07/02/2024 17:05

Analysis by: AmTest Laboratories

Instrument: ALAB Analyst:

Analyzed: 08/26/2024 00:00

Sample Preparation:

Preparation Method: No Prep Geo

Preparation Batch: B260824

Prepared: 08/26/2024

Extract ID: 24G0168-07

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phi Size < -2.25	GS_MFG	1	0.1	ND	%	U
Phi Size -2.25 to -2	GS_FG	1	0.1	ND	%	U
Phi Size -2 to -1	GS_VFG	1	0.1	ND	%	U
Phi Size -1 to 0	GS_VCS	1	0.1	0.3	%	
Phi Size 0 to 1	GS_CS	1	0.1	0.2	%	
Phi Size 1 to 2	GS_MS	1	0.1	0.4	%	
Phi Size 2 to 3	GS_FS	1	0.1	1.2	%	
Phi Size 3 to 4	GS_VFS	1	0.1	15.9	%	
Phi Size 4 to 5	GS_CSILT	1	0.1	42.0	%	
Phi Size 5 to 6	GS_MSILT	1	0.1	12.3	%	
Phi Size 6 to 7	GS_FSILT	1	0.1	9.5	%	
Phi Size 7 to 8	GS_VFSILT	1	0.1	5	%	
Phi Size 8 to 9	GS_CCLAY	1	0.1	3.3	%	
Phi Size 9 to 10	GS_MCLAY	1	0.1	2	%	
Phi Size >10	GS_FCLAY	1	0.1	7.8	%	



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 11:33

113733-SB1S12
24G0168-08 (Solid)

Geotechnical Methods

Method: PSEP-PS

Sampled: 07/02/2024 14:00

Analysis by: AmTest Laboratories

Instrument: ALAB Analyst:

Analyzed: 08/26/2024 00:00

Sample Preparation: Preparation Method: No Prep Geo
Preparation Batch: B260824
Prepared: 08/26/2024

Extract ID: 24G0168-08

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phi Size < -2.25	GS_MFG	1	0.1	28.6	%	
Phi Size -2.25 to -2	GS_FG	1	0.1	1.2	%	
Phi Size -2 to -1	GS_VFG	1	0.1	4.3	%	
Phi Size -1 to 0	GS_VCS	1	0.1	4.3	%	
Phi Size 0 to 1	GS_CS	1	0.1	8.6	%	
Phi Size 1 to 2	GS_MS	1	0.1	10.0	%	
Phi Size 2 to 3	GS_FS	1	0.1	1.1	%	
Phi Size 3 to 4	GS_VFS	1	0.1	0.9	%	
Phi Size 4 to 5	GS_CSILT	1	0.1	15.3	%	
Phi Size 5 to 6	GS_MSILT	1	0.1	6.5	%	
Phi Size 6 to 7	GS_FSILT	1	0.1	5.6	%	
Phi Size 7 to 8	GS_VFSILT	1	0.1	3.7	%	
Phi Size 8 to 9	GS_CCLAY	1	0.1	2.8	%	
Phi Size 9 to 10	GS_MCLAY	1	0.1	1.6	%	
Phi Size >10	GS_FCLAY	1	0.1	5.6	%	



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 11:33

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0260 - EPA 8270E

Instrument: NT14 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0260-BLK1)						Prepared: 15-Jul-2024 Analyzed: 02-Aug-2024 14:14					
Phenol	ND	10.0	20.0	ug/kg							U
bis(2-chloroethyl) ether	ND	35.0	50.0	ug/kg							U
2-Chlorophenol	ND	20.0	20.0	ug/kg							U
1,3-Dichlorobenzene	ND	10.0	20.0	ug/kg							U
1,4-Dichlorobenzene	ND	10.0	20.0	ug/kg							U
1,2-Dichlorobenzene	ND	10.0	20.0	ug/kg							U
Benzyl Alcohol	ND	20.0	20.0	ug/kg							U
2,2'-Oxybis(1-chloropropane)	ND	10.0	20.0	ug/kg							U
2-Methylphenol	ND	10.0	20.0	ug/kg							U
Hexachloroethane	ND	10.0	20.0	ug/kg							U
N-Nitroso-di-n-Propylamine	ND	15.0	20.0	ug/kg							U
4-Methylphenol	ND	15.0	20.0	ug/kg							U
Nitrobenzene	ND	10.0	20.0	ug/kg							U
Isophorone	ND	15.0	20.0	ug/kg							U
2-Nitrophenol	ND	10.0	20.0	ug/kg							U
2,4-Dimethylphenol	ND	50.0	100	ug/kg							U
Bis(2-Chloroethoxy)methane	ND	10.0	20.0	ug/kg							U
2,4-Dichlorophenol	ND	50.0	100	ug/kg							U
1,2,4-Trichlorobenzene	ND	10.0	20.0	ug/kg							U
Naphthalene	ND	10.0	20.0	ug/kg							U
Benzoic acid	ND	100	200	ug/kg							U
4-Chloroaniline	ND	50.0	100	ug/kg							U
Hexachlorobutadiene	ND	10.0	20.0	ug/kg							U
4-Chloro-3-Methylphenol	ND	50.0	100	ug/kg							U
2-Methylnaphthalene	ND	10.0	20.0	ug/kg							U
Hexachlorocyclopentadiene	ND	50.0	100	ug/kg							U
2,4,6-Trichlorophenol	ND	50.0	100	ug/kg							U
2,4,5-Trichlorophenol	ND	50.0	100	ug/kg							U
2-Chloronaphthalene	ND	10.0	20.0	ug/kg							U
2-Nitroaniline	ND	50.0	100	ug/kg							U
Acenaphthylene	ND	10.0	20.0	ug/kg							U
Dimethylphthalate	ND	10.0	20.0	ug/kg							U
2,6-Dinitrotoluene	ND	50.0	100	ug/kg							U
Acenaphthene	ND	10.0	20.0	ug/kg							U
3-Nitroaniline	ND	50.0	100	ug/kg							U



Shannon & Wilson, Inc
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Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 11:33

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0260 - EPA 8270E

Instrument: NT14 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0260-BLK1)						Prepared: 15-Jul-2024 Analyzed: 02-Aug-2024 14:14					
2,4-Dinitrophenol	ND	100	200	ug/kg							U
Dibenzofuran	ND	20.0	20.0	ug/kg							U
4-Nitrophenol	ND	50.0	100	ug/kg							U
2,4-Dinitrotoluene	ND	50.0	100	ug/kg							U
Fluorene	ND	20.0	20.0	ug/kg							U
4-Chlorophenylphenyl ether	ND	35.0	50.0	ug/kg							U
Diethyl phthalate	ND	35.0	50.0	ug/kg							U
4-Nitroaniline	ND	50.0	100	ug/kg							U
4,6-Dinitro-2-methylphenol	ND	100	200	ug/kg							U
N-Nitrosodiphenylamine	ND	10.0	20.0	ug/kg							U
4-Bromophenyl phenyl ether	ND	20.0	20.0	ug/kg							U
Hexachlorobenzene	ND	20.0	20.0	ug/kg							U
Pentachlorophenol	ND	50.0	100	ug/kg							U
Phenanthrene	ND	10.0	20.0	ug/kg							U
Anthracene	ND	10.0	20.0	ug/kg							U
Carbazole	ND	10.0	20.0	ug/kg							U
Di-n-Butylphthalate	ND	10.0	20.0	ug/kg							U
Fluoranthene	ND	10.0	20.0	ug/kg							U
Pyrene	ND	10.0	20.0	ug/kg							U
Butylbenzylphthalate	ND	10.0	20.0	ug/kg							U
Benzo(a)anthracene	ND	10.0	20.0	ug/kg							U
3,3'-Dichlorobenzidine	ND	50.0	100	ug/kg							U
Chrysene	ND	10.0	20.0	ug/kg							U
bis(2-Ethylhexyl)phthalate	ND	40.0	50.0	ug/kg							U
Di-n-Octylphthalate	ND	10.0	20.0	ug/kg							U
Benzo(a)fluoranthene, Total	ND	30.0	40.0	ug/kg							U
Benzo(a)pyrene	ND	10.0	20.0	ug/kg							U
Indeno(1,2,3-cd)pyrene	ND	20.0	20.0	ug/kg							U
Dibenzo(a,h)anthracene	ND	20.0	20.0	ug/kg							U
Benzo(g,h,i)perylene	ND	20.0	20.0	ug/kg							U
1-Methylnaphthalene	ND	10.0	20.0	ug/kg							U
Surrogate: 2-Fluorophenol	764			ug/kg	750		102	27-120			
Surrogate: Phenol-d5	758			ug/kg	750		101	29-120			
Surrogate: 2-Chlorophenol-d4	795			ug/kg	750		106	31-120			
Surrogate: 1,2-Dichlorobenzene-d4	514			ug/kg	500		103	32-120			



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Project: PAMP Sediments
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Reported:
13-Sep-2024 11:33

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0260 - EPA 8270E

Instrument: NT14 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0260-BLK1)					Prepared: 15-Jul-2024 Analyzed: 02-Aug-2024 14:14						
Surrogate: Nitrobenzene-d5	564			ug/kg	500		113	30-120			
Surrogate: 2-Fluorobiphenyl	543			ug/kg	500		109	35-120			
Surrogate: 2,4,6-Tribromophenol	696			ug/kg	750		92.8	24-134			
Surrogate: p-Terphenyl-d14	664			ug/kg	500		133	37-120			*



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Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 11:33

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0260 - EPA 8270E

Instrument: NT14 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0260-BS1)					Prepared: 15-Jul-2024 Analyzed: 02-Aug-2024 14:53						
Phenol	392	10.0	20.0	ug/kg	500		78.5	31-120			
bis(2-chloroethyl) ether	436	35.0	50.0	ug/kg	500		87.2	36-120			
2-Chlorophenol	373	20.0	20.0	ug/kg	500		74.7	39-120			
1,3-Dichlorobenzene	389	10.0	20.0	ug/kg	500		77.7	40-120			
1,4-Dichlorobenzene	431	10.0	20.0	ug/kg	500		86.1	39-120			
1,2-Dichlorobenzene	395	10.0	20.0	ug/kg	500		79.1	40-120			
Benzyl Alcohol	349	20.0	20.0	ug/kg	500		69.8	19-120			Q
2,2'-Oxybis(1-chloropropane)	465	10.0	20.0	ug/kg	500		93.0	32-120			
2-Methylphenol	396	10.0	20.0	ug/kg	500		79.1	11-120			
Hexachloroethane	469	10.0	20.0	ug/kg	500		93.8	38-120			
N-Nitroso-di-n-Propylamine	391	15.0	20.0	ug/kg	500		78.2	24-120			
4-Methylphenol	419	15.0	20.0	ug/kg	500		83.8	29-120			
Nitrobenzene	457	10.0	20.0	ug/kg	500		91.4	36-120			
Isophorone	560	15.0	20.0	ug/kg	500		112	37-126			
2-Nitrophenol	359	10.0	20.0	ug/kg	500		71.7	30-120			
2,4-Dimethylphenol	548	50.0	100	ug/kg	1500		36.5	10-120			
Bis(2-Chloroethoxy)methane	482	10.0	20.0	ug/kg	500		96.5	39-126			
2,4-Dichlorophenol	1210	50.0	100	ug/kg	1500		80.8	28-120			
1,2,4-Trichlorobenzene	388	10.0	20.0	ug/kg	500		77.6	35-120			
Naphthalene	423	10.0	20.0	ug/kg	500		84.7	41-120			
Benzoic acid	1240	100	200	ug/kg	2250		55.1	10-120			
4-Chloroaniline	924	50.0	100	ug/kg	1500		61.6	10-120			
Hexachlorobutadiene	405	10.0	20.0	ug/kg	500		80.9	37-120			
4-Chloro-3-Methylphenol	1270	50.0	100	ug/kg	1500		84.8	32-120			
2-Methylnaphthalene	394	10.0	20.0	ug/kg	500		78.8	43-120			
Hexachlorocyclopentadiene	1250	50.0	100	ug/kg	1500		83.2	10-120			
2,4,6-Trichlorophenol	1270	50.0	100	ug/kg	1500		84.7	40-120			
2,4,5-Trichlorophenol	1390	50.0	100	ug/kg	1500		92.9	51.5-129			
2-Chloronaphthalene	418	10.0	20.0	ug/kg	500		83.6	40-120			
2-Nitroaniline	1320	50.0	100	ug/kg	1500		88.1	40-152			
Acenaphthylene	393	10.0	20.0	ug/kg	500		78.6	42-120			
Dimethylphthalate	451	10.0	20.0	ug/kg	500		90.3	43-120			
2,6-Dinitrotoluene	1540	50.0	100	ug/kg	1500		102	31-156			
Acenaphthene	440	10.0	20.0	ug/kg	500		87.9	45-120			
3-Nitroaniline	997	50.0	100	ug/kg	1500		66.4	22-120			



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 11:33

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0260 - EPA 8270E

Instrument: NT14 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0260-BS1)						Prepared: 15-Jul-2024 Analyzed: 02-Aug-2024 14:53					
2,4-Dinitrophenol	1890	100	200	ug/kg	2750		68.8	13-160			Q
Dibenzofuran	389	20.0	20.0	ug/kg	500		77.8	43-120			
4-Nitrophenol	1410	50.0	100	ug/kg	1500		94.2	18-154			Q
2,4-Dinitrotoluene	1380	50.0	100	ug/kg	1500		91.8	44-150			
Fluorene	441	20.0	20.0	ug/kg	500		88.3	40-120			
4-Chlorophenylphenyl ether	455	35.0	50.0	ug/kg	500		91.1	36-141			
Diethyl phthalate	500	35.0	50.0	ug/kg	500		99.9	43-140			
4-Nitroaniline	1320	50.0	100	ug/kg	1500		87.7	15-120			
4,6-Dinitro-2-methylphenol	2430	100	200	ug/kg	2750		88.5	33-144			
N-Nitrosodiphenylamine	406	10.0	20.0	ug/kg	500		81.2	17-120			
4-Bromophenyl phenyl ether	451	20.0	20.0	ug/kg	500		90.1	39-120			
Hexachlorobenzene	429	20.0	20.0	ug/kg	500		85.9	33-120			
Pentachlorophenol	1140	50.0	100	ug/kg	1500		75.8	33-133			Q
Phenanthrene	425	10.0	20.0	ug/kg	500		85.0	49-120			
Anthracene	425	10.0	20.0	ug/kg	500		85.0	37-120			
Carbazole	616	10.0	20.0	ug/kg	500		123	30-135			
Di-n-Butylphthalate	543	10.0	20.0	ug/kg	500		109	48-126			
Fluoranthene	439	10.0	20.0	ug/kg	500		87.7	38-127			
Pyrene	433	10.0	20.0	ug/kg	500		86.6	39-122			
Butylbenzylphthalate	527	10.0	20.0	ug/kg	500		105	45-132			
Benzo(a)anthracene	434	10.0	20.0	ug/kg	500		86.7	44-120			
3,3'-Dichlorobenzidine	465	50.0	100	ug/kg	1000		46.5	10-120			
Chrysene	443	10.0	20.0	ug/kg	500		88.7	47-120			
bis(2-Ethylhexyl)phthalate	503	40.0	50.0	ug/kg	500		101	10-130			
Di-n-Octylphthalate	467	10.0	20.0	ug/kg	500		93.5	10-124			
Benzo(a)fluoranthene, Total	880	30.0	40.0	ug/kg	1000		88.0	30-160			
Benzo(a)pyrene	440	10.0	20.0	ug/kg	500		88.0	37-120			
Indeno(1,2,3-cd)pyrene	377	20.0	20.0	ug/kg	500		75.5	30-160			
Dibenzo(a,h)anthracene	402	20.0	20.0	ug/kg	500		80.5	30-160			
Benzo(g,h,i)perylene	448	20.0	20.0	ug/kg	500		89.7	10-150			
1-Methylnaphthalene	411	10.0	20.0	ug/kg	500		82.3	42-120			
Surrogate: 2-Fluorophenol	754			ug/kg	750		101	27-120			
Surrogate: Phenol-d5	770			ug/kg	750		103	29-120			
Surrogate: 2-Chlorophenol-d4	768			ug/kg	750		102	31-120			
Surrogate: 1,2-Dichlorobenzene-d4	484			ug/kg	500		96.7	32-120			



Shannon & Wilson, Inc

5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 11:33

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0260 - EPA 8270E

Instrument: NT14 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0260-BS1)											
Prepared: 15-Jul-2024 Analyzed: 02-Aug-2024 14:53											
Surrogate: Nitrobenzene-d5	561			ug/kg	500		112	30-120			
Surrogate: 2-Fluorobiphenyl	511			ug/kg	500		102	35-120			
Surrogate: 2,4,6-Tribromophenol	815			ug/kg	750		109	24-134			
Surrogate: p-Terphenyl-d14	578			ug/kg	500		116	37-120			



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Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0260 - EPA 8270E

Instrument: NT14 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMG0260-BSD1)						Prepared: 15-Jul-2024 Analyzed: 02-Aug-2024 15:32					
Phenol	451	10.0	20.0	ug/kg	500		90.3	31-120	14.00	30	
bis(2-chloroethyl) ether	493	35.0	50.0	ug/kg	500		98.6	36-120	12.30	30	
2-Chlorophenol	438	20.0	20.0	ug/kg	500		87.6	39-120	16.00	30	
1,3-Dichlorobenzene	433	10.0	20.0	ug/kg	500		86.5	40-120	10.70	30	
1,4-Dichlorobenzene	488	10.0	20.0	ug/kg	500		97.6	39-120	12.50	30	
1,2-Dichlorobenzene	460	10.0	20.0	ug/kg	500		91.9	40-120	15.00	30	
Benzyl Alcohol	368	20.0	20.0	ug/kg	500		73.7	19-120	5.36	30	Q
2,2'-Oxybis(1-chloropropane)	505	10.0	20.0	ug/kg	500		101	32-120	8.26	30	
2-Methylphenol	464	10.0	20.0	ug/kg	500		92.7	11-120	15.80	30	
Hexachloroethane	520	10.0	20.0	ug/kg	500		104	38-120	10.40	30	
N-Nitroso-di-n-Propylamine	450	15.0	20.0	ug/kg	500		90.0	24-120	14.00	30	
4-Methylphenol	489	15.0	20.0	ug/kg	500		97.8	29-120	15.50	30	
Nitrobenzene	512	10.0	20.0	ug/kg	500		102	36-120	11.30	30	
Isophorone	709	15.0	20.0	ug/kg	500		142	37-126	23.60	30	*
2-Nitrophenol	407	10.0	20.0	ug/kg	500		81.5	30-120	12.80	30	
2,4-Dimethylphenol	876	50.0	100	ug/kg	1500		58.4	10-120	46.10	30	*
Bis(2-Chloroethoxy)methane	531	10.0	20.0	ug/kg	500		106	39-126	9.52	30	
2,4-Dichlorophenol	1520	50.0	100	ug/kg	1500		102	28-120	22.80	30	
1,2,4-Trichlorobenzene	444	10.0	20.0	ug/kg	500		88.7	35-120	13.30	30	
Naphthalene	473	10.0	20.0	ug/kg	500		94.6	41-120	11.10	30	
Benzoic acid	1410	100	200	ug/kg	2250		62.5	10-120	12.70	30	
4-Chloroaniline	1020	50.0	100	ug/kg	1500		67.8	10-120	9.53	30	
Hexachlorobutadiene	465	10.0	20.0	ug/kg	500		92.9	37-120	13.80	30	
4-Chloro-3-Methylphenol	1430	50.0	100	ug/kg	1500		95.5	32-120	11.80	30	
2-Methylnaphthalene	451	10.0	20.0	ug/kg	500		90.1	43-120	13.40	30	
Hexachlorocyclopentadiene	1400	50.0	100	ug/kg	1500		93.5	10-120	11.60	30	
2,4,6-Trichlorophenol	1420	50.0	100	ug/kg	1500		94.9	40-120	11.30	30	
2,4,5-Trichlorophenol	1530	50.0	100	ug/kg	1500		102	51.5-129	9.27	30	
2-Chloronaphthalene	461	10.0	20.0	ug/kg	500		92.1	40-120	9.76	30	
2-Nitroaniline	1450	50.0	100	ug/kg	1500		96.8	40-152	9.44	30	
Acenaphthylene	440	10.0	20.0	ug/kg	500		88.0	42-120	11.40	30	
Dimethylphthalate	501	10.0	20.0	ug/kg	500		100	43-120	10.50	30	
2,6-Dinitrotoluene	1700	50.0	100	ug/kg	1500		114	31-156	10.30	30	
Acenaphthene	495	10.0	20.0	ug/kg	500		99.0	45-120	11.80	30	
3-Nitroaniline	1090	50.0	100	ug/kg	1500		72.8	22-120	9.13	30	



Shannon & Wilson, Inc
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Project: PAMP Sediments
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Project Manager: Dan McMahon

Reported:
13-Sep-2024 11:33

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0260 - EPA 8270E

Instrument: NT14 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMG0260-BSD1) Prepared: 15-Jul-2024 Analyzed: 02-Aug-2024 15:32											
2,4-Dinitrophenol	2170	100	200	ug/kg	2750		78.9	13-160	13.70	30	Q
Dibenzofuran	441	20.0	20.0	ug/kg	500		88.1	43-120	12.50	30	
4-Nitrophenol	1410	50.0	100	ug/kg	1500		93.9	18-154	0.30	30	Q
2,4-Dinitrotoluene	1580	50.0	100	ug/kg	1500		105	44-150	13.60	30	
Fluorene	494	20.0	20.0	ug/kg	500		98.9	40-120	11.30	30	
4-Chlorophenylphenyl ether	517	35.0	50.0	ug/kg	500		103	36-141	12.70	30	
Diethyl phthalate	578	35.0	50.0	ug/kg	500		116	43-140	14.50	30	
4-Nitroaniline	1510	50.0	100	ug/kg	1500		100	15-120	13.50	30	
4,6-Dinitro-2-methylphenol	2770	100	200	ug/kg	2750		101	33-144	13.00	30	
N-Nitrosodiphenylamine	470	10.0	20.0	ug/kg	500		93.9	17-120	14.50	30	
4-Bromophenyl phenyl ether	516	20.0	20.0	ug/kg	500		103	39-120	13.60	30	
Hexachlorobenzene	484	20.0	20.0	ug/kg	500		96.9	33-120	12.10	30	
Pentachlorophenol	1260	50.0	100	ug/kg	1500		84.0	33-133	10.30	30	Q
Phenanthrene	481	10.0	20.0	ug/kg	500		96.3	49-120	12.40	30	
Anthracene	475	10.0	20.0	ug/kg	500		95.1	37-120	11.20	30	
Carbazole	696	10.0	20.0	ug/kg	500		139	30-135	12.10	30	*
Di-n-Butylphthalate	609	10.0	20.0	ug/kg	500		122	48-126	11.40	30	
Fluoranthene	502	10.0	20.0	ug/kg	500		100	38-127	13.40	30	
Pyrene	496	10.0	20.0	ug/kg	500		99.2	39-122	13.60	30	
Butylbenzylphthalate	600	10.0	20.0	ug/kg	500		120	45-132	13.00	30	
Benzo(a)anthracene	497	10.0	20.0	ug/kg	500		99.5	44-120	13.70	30	
3,3'-Dichlorobenzidine	590	50.0	100	ug/kg	1000		59.0	10-120	23.60	30	
Chrysene	506	10.0	20.0	ug/kg	500		101	47-120	13.30	30	
bis(2-Ethylhexyl)phthalate	552	40.0	50.0	ug/kg	500		110	10-130	9.28	30	
Di-n-Octylphthalate	512	10.0	20.0	ug/kg	500		102	10-124	9.11	30	
Benzo(a)fluoranthene, Total	986	30.0	40.0	ug/kg	1000		98.6	30-160	11.40	30	
Benzo(a)pyrene	506	10.0	20.0	ug/kg	500		101	37-120	13.90	30	
Indeno(1,2,3-cd)pyrene	441	20.0	20.0	ug/kg	500		88.1	30-160	15.50	30	
Dibenzo(a,h)anthracene	467	20.0	20.0	ug/kg	500		93.5	30-160	14.90	30	
Benzo(g,h,i)perylene	512	20.0	20.0	ug/kg	500		102	10-150	13.20	30	
1-Methylnaphthalene	465	10.0	20.0	ug/kg	500		93.0	42-120	12.20	30	
Surrogate: 2-Fluorophenol	733			ug/kg	750		97.7	27-120			
Surrogate: Phenol-d5	741			ug/kg	750		98.8	29-120			
Surrogate: 2-Chlorophenol-d4	741			ug/kg	750		98.8	31-120			
Surrogate: 1,2-Dichlorobenzene-d4	460			ug/kg	500		92.0	32-120			



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Reported:
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Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0260 - EPA 8270E

Instrument: NT14 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMG0260-BSD1)											
Prepared: 15-Jul-2024 Analyzed: 02-Aug-2024 15:32											
Surrogate: Nitrobenzene-d5	529			ug/kg	500		106	30-120			
Surrogate: 2-Fluorobiphenyl	479			ug/kg	500		95.7	35-120			
Surrogate: 2,4,6-Tribromophenol	805			ug/kg	750		107	24-134			
Surrogate: p-Terphenyl-d14	553			ug/kg	500		111	37-120			



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Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0260 - EPA 8270E

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - SIM - Quality Control

Batch BMG0260 - EPA 8270E-SIM

Instrument: NT14 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0260-BLK2)						Prepared: 15-Jul-2024 Analyzed: 02-Aug-2024 14:14					
Phenol	2.7	2.5	5.0	ug/kg							J
1,3-Dichlorobenzene	ND	2.5	5.0	ug/kg							U
1,4-Dichlorobenzene	ND	2.5	5.0	ug/kg							U
1,2-Dichlorobenzene	ND	2.5	5.0	ug/kg							U
Benzyl Alcohol	ND	10.0	20.0	ug/kg							U
Benzoic acid	ND	50.0	100	ug/kg							U
2-Methylphenol	ND	2.5	5.0	ug/kg							U
N-Nitroso-di-n-Propylamine	ND	10.0	20.0	ug/kg							U
4-Methylphenol	ND	2.5	5.0	ug/kg							U
2,4-Dimethylphenol	ND	10.0	20.0	ug/kg							U
1,2,4-Trichlorobenzene	ND	5.0	5.0	ug/kg							U
Hexachlorobutadiene	ND	2.5	5.0	ug/kg							U
N-Nitrosodimethylamine	ND	12.5	25.0	ug/kg							U
Dimethylphthalate	ND	2.5	5.0	ug/kg							U
Diethyl phthalate	18.8	10.0	20.0	ug/kg							J
N-Nitrosodiphenylamine	ND	2.5	5.0	ug/kg							U
Hexachlorobenzene	ND	2.5	5.0	ug/kg							U
Pentachlorophenol	ND	10.0	20.0	ug/kg							U
Butylbenzylphthalate	ND	2.5	5.0	ug/kg							U
Dibenzo(a,h)anthracene	ND	2.5	5.0	ug/kg							U
Surrogate: 2-Fluorophenol	740			ug/kg	750		98.6	27-120			
Surrogate: p-Terphenyl-d14	669			ug/kg	500		134	37-120			*



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Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - SIM - Quality Control

Batch BMG0260 - EPA 8270E-SIM

Instrument: NT14 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0260-BS2)						Prepared: 15-Jul-2024 Analyzed: 02-Aug-2024 14:53					
Phenol	378	2.5	5.0	ug/kg	500		75.6	30-160			
1,3-Dichlorobenzene	378	2.5	5.0	ug/kg	500		75.6	30-120			
1,4-Dichlorobenzene	415	2.5	5.0	ug/kg	500		83.1	36-120			
1,2-Dichlorobenzene	384	2.5	5.0	ug/kg	500		76.8	36-120			
Benzyl Alcohol	361	10.0	20.0	ug/kg	500		72.3	25-123			
Benzoic acid	1490	50.0	100	ug/kg	2250		66.2	10-160			
2-Methylphenol	397	2.5	5.0	ug/kg	500		79.3	26-120			
N-Nitroso-di-n-Propylamine	380	10.0	20.0	ug/kg	500		76.0	30-160			
4-Methylphenol	432	2.5	5.0	ug/kg	500		86.3	30-160			
2,4-Dimethylphenol	521	10.0	20.0	ug/kg	1500		34.7	10-120			
1,2,4-Trichlorobenzene	373	5.0	5.0	ug/kg	500		74.6	35-120			
Hexachlorobutadiene	385	2.5	5.0	ug/kg	500		77.0	34-120			
N-Nitrosodimethylamine	767	12.5	25.0	ug/kg	1500		51.1	30-160			
Dimethylphthalate	437	2.5	5.0	ug/kg	500		87.3	38-120			
Diethyl phthalate	498	10.0	20.0	ug/kg	500		99.6	55-120			
N-Nitrosodiphenylamine	415	2.5	5.0	ug/kg	500		82.9	27-120			
Hexachlorobenzene	431	2.5	5.0	ug/kg	500		86.2	32-120			
Pentachlorophenol	1310	10.0	20.0	ug/kg	1500		87.5	26-120			E
Butylbenzylphthalate	464	2.5	5.0	ug/kg	500		92.8	32-142			
Dibenzo(a,h)anthracene	423	2.5	5.0	ug/kg	500		84.7	28-125			Q
Surrogate: 2-Fluorophenol	733			ug/kg	750		97.7	27-120			
Surrogate: p-Terphenyl-d14	592			ug/kg	500		118	37-120			



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Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - SIM - Quality Control

Batch BMG0260 - EPA 8270E-SIM

Instrument: NT14 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMG0260-BSD2)						Prepared: 15-Jul-2024 Analyzed: 02-Aug-2024 15:32					
Phenol	428	2.5	5.0	ug/kg	500		85.6	30-160	12.40	30	
1,3-Dichlorobenzene	422	2.5	5.0	ug/kg	500		84.4	30-120	11.00	30	
1,4-Dichlorobenzene	466	2.5	5.0	ug/kg	500		93.2	36-120	11.50	30	
1,2-Dichlorobenzene	434	2.5	5.0	ug/kg	500		86.8	36-120	12.20	30	
Benzyl Alcohol	399	10.0	20.0	ug/kg	500		79.8	25-123	9.91	30	
Benzoic acid	1620	50.0	100	ug/kg	2250		71.9	10-160	8.17	30	
2-Methylphenol	478	2.5	5.0	ug/kg	500		95.5	26-120	18.50	30	
N-Nitroso-di-n-Propylamine	433	10.0	20.0	ug/kg	500		86.7	30-160	13.10	30	
4-Methylphenol	504	2.5	5.0	ug/kg	500		101	30-160	15.50	30	
2,4-Dimethylphenol	827	10.0	20.0	ug/kg	1500		55.1	10-120	45.50	30	*
1,2,4-Trichlorobenzene	420	5.0	5.0	ug/kg	500		84.0	35-120	11.90	30	
Hexachlorobutadiene	436	2.5	5.0	ug/kg	500		87.3	34-120	12.50	30	
N-Nitrosodimethylamine	861	12.5	25.0	ug/kg	1500		57.4	30-160	11.60	30	
Dimethylphthalate	490	2.5	5.0	ug/kg	500		97.9	38-120	11.40	30	
Diethyl phthalate	568	10.0	20.0	ug/kg	500		114	55-120	13.20	30	
N-Nitrosodiphenylamine	481	2.5	5.0	ug/kg	500		96.2	27-120	14.90	30	
Hexachlorobenzene	496	2.5	5.0	ug/kg	500		99.2	32-120	14.10	30	
Pentachlorophenol	1500	10.0	20.0	ug/kg	1500		99.8	26-120	13.10	30	E
Butylbenzylphthalate	513	2.5	5.0	ug/kg	500		103	32-142	10.10	30	
Dibenzo(a,h)anthracene	483	2.5	5.0	ug/kg	500		96.6	28-125	13.10	30	Q
Surrogate: 2-Fluorophenol	717			ug/kg	750		95.6	27-120			
Surrogate: p-Terphenyl-d14	554			ug/kg	500		111	37-120			



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 11:33

Analysis by: Analytical Resources, LLC

Butyl Tins - Quality Control

Batch BMG0259 - EPA 8270E-SIM

Instrument: NT17 Analyst: JZ

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0259-BLK1)					Prepared: 15-Jul-2024 Analyzed: 05-Aug-2024 17:21					
Tributyltin Ion	ND	1.93	3.86	ug/kg						U
Surrogate: Triphenyltin	28.8			ug/kg	45.2		63.7 30-160			
Surrogate: Tripropyltin	20.7			ug/kg	43.7		47.3 30-160			



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Analysis by: Analytical Resources, LLC

Butyl Tins - Quality Control

Batch BMG0259 - EPA 8270E-SIM

Instrument: NT17 Analyst: JZ

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0259-BS1)					Prepared: 15-Jul-2024 Analyzed: 05-Aug-2024 18:03					
Tributyltin Ion	31.0	1.93	3.86	ug/kg	44.6	69.5	30-160			
Surrogate: Triphenyltin	35.0			ug/kg	45.2	77.4	30-160			
Surrogate: Tripropyltin	26.2			ug/kg	43.7	59.9	30-160			



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Analysis by: Analytical Resources, LLC

Butyl Tins - Quality Control

Batch BMG0259 - EPA 8270E-SIM

Instrument: NT17 Analyst: JZ

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMG0259-BSD1)					Prepared: 15-Jul-2024 Analyzed: 05-Aug-2024 18:16					
Tributyltin Ion	33.5	1.93	3.86	ug/kg	44.6	75.2	30-160	7.85	30	
Surrogate: Triphenyltin	37.1			ug/kg	45.2	82.1	30-160			
Surrogate: Tripropyltin	25.8			ug/kg	43.7	58.9	30-160			



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 11:33

Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BMG0258 - EPA 8081B

Instrument: ECD6 Analyst: RT/JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0258-BLK1) Prepared: 15-Jul-2024 Analyzed: 18-Aug-2024 02:40											
alpha-BHC	ND	0.25	0.50	ug/kg							U
beta-BHC	ND	0.25	0.50	ug/kg							U
gamma-BHC (Lindane)	ND	0.25	0.50	ug/kg							U
delta-BHC	ND	0.25	0.50	ug/kg							U
Heptachlor	ND	0.25	0.50	ug/kg							U
Aldrin	ND	0.50	0.50	ug/kg							U
Heptachlor Epoxide	ND	0.25	0.50	ug/kg							U
trans-Chlordane (beta-Chlordane)	ND	0.50	0.50	ug/kg							U
cis-Chlordane (alpha-chlordane)	ND	0.25	0.50	ug/kg							U
Endosulfan I	ND	0.25	0.50	ug/kg							U
4,4'-DDE	ND	0.50	1.00	ug/kg							U
Dieldrin	ND	0.50	1.00	ug/kg							U
Endrin	ND	0.50	1.00	ug/kg							U
Endosulfan II	ND	0.50	1.00	ug/kg							U
4,4'-DDD	ND	0.50	1.00	ug/kg							U
Endrin Aldehyde	ND	0.50	1.00	ug/kg							U
4,4'-DDT	ND	0.50	1.00	ug/kg							U
Endosulfan Sulfate	ND	0.50	1.00	ug/kg							U
Endrin Ketone	ND	0.50	1.00	ug/kg							U
Methoxychlor	ND	2.50	5.00	ug/kg							U
Hexachlorobutadiene	ND	0.25	0.50	ug/kg							U
Hexachlorobenzene	ND	0.25	0.50	ug/kg							U
2,4'-DDE	ND	0.50	1.00	ug/kg							U
2,4'-DDD	ND	0.50	1.00	ug/kg							U
2,4'-DDT	ND	0.50	1.00	ug/kg							U
Oxychlordane	ND	0.50	1.00	ug/kg							U
cis-Nonachlor	ND	0.50	1.00	ug/kg							U
trans-Nonachlor	ND	0.50	1.00	ug/kg							U
Mirex	ND	1.00	1.00	ug/kg							U
Surrogate: Decachlorobiphenyl	9.10			ug/kg	8.00		114	30-160			
Surrogate: Decachlorobiphenyl [2C]	8.94			ug/kg	8.00		112	30-160			
Surrogate: Tetrachlorometaxylene	27.5			ug/kg	8.00		344	30-160			*
Surrogate: Tetrachlorometaxylene [2C]	7.14			ug/kg	8.00		89.3	30-160			



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Reported:
13-Sep-2024 11:33

Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BMG0258 - EPA 8081B

Instrument: ECD6 Analyst: RT/JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0258-BS1)						Prepared: 15-Jul-2024 Analyzed: 18-Aug-2024 03:00					
alpha-BHC [2C]	3.72	0.25	0.50	ug/kg	4.00		92.9	28-120			
beta-BHC [2C]	3.89	0.25	0.50	ug/kg	4.00		97.2	33-120			
gamma-BHC (Lindane) [2C]	3.75	0.25	0.50	ug/kg	4.00		93.8	30-124			
delta-BHC	4.07	0.25	0.50	ug/kg	4.00		102	30-120			
Heptachlor	4.23	0.25	0.50	ug/kg	4.00		106	26-120			
Aldrin	3.46	0.50	0.50	ug/kg	4.00		86.5	26-120			
Heptachlor Epoxide	3.77	0.25	0.50	ug/kg	4.00		94.3	26-120			
trans-Chlordane (beta-Chlordane) [2C]	3.80	0.50	0.50	ug/kg	4.00		95.0	21-120			
cis-Chlordane (alpha-chlordane) [2C]	3.75	0.25	0.50	ug/kg	4.00		93.7	39-120			
Endosulfan I [2C]	3.74	0.25	0.50	ug/kg	4.00		93.4	17-143			
4,4'-DDE [2C]	7.72	0.50	1.00	ug/kg	8.00		96.5	35-120			
Dieldrin [2C]	7.74	0.50	1.00	ug/kg	8.00		96.7	10-140			
Endrin [2C]	9.79	0.50	1.00	ug/kg	8.00		122	45-120			*
Endosulfan II [2C]	9.52	0.50	1.00	ug/kg	8.00		119	10-139			
4,4'-DDD [2C]	9.55	0.50	1.00	ug/kg	8.00		119	50-120			
Endrin Aldehyde [2C]	7.27	0.50	1.00	ug/kg	8.00		90.9	10-120			
4,4'-DDT	9.87	0.50	1.00	ug/kg	8.00		123	39-120			*
Endosulfan Sulfate [2C]	10.0	0.50	1.00	ug/kg	8.00		125	38-120			*
Endrin Ketone [2C]	9.50	0.50	1.00	ug/kg	8.00		119	17-120			
Methoxychlor [2C]	47.1	2.50	5.00	ug/kg	40.0		118	10-140			
Hexachlorobutadiene [2C]	3.06	0.25	0.50	ug/kg	4.00		76.6	15-120			
Hexachlorobenzene [2C]	3.23	0.25	0.50	ug/kg	4.00		80.7	26-128			
Surrogate: Decachlorobiphenyl	9.86			ug/kg	8.00		123	30-160			
Surrogate: Decachlorobiphenyl [2C]	9.54			ug/kg	8.00		119	30-160			
Surrogate: Tetrachlorometaxylene	11.0			ug/kg	8.00		137	30-160			
Surrogate: Tetrachlorometaxylene [2C]	7.29			ug/kg	8.00		91.1	30-160			



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Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BMG0258 - EPA 8081B

Instrument: ECD6 Analyst: RT

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0258-BS2) Prepared: 15-Jul-2024 Analyzed: 30-Jul-2024 13:29										
2,4'-DDE	9.02	0.50	1.00	ug/kg	8.00		113 30-160			
2,4'-DDD	8.42	0.50	1.00	ug/kg	8.00		105 30-160			
2,4'-DDT	9.21	0.50	1.00	ug/kg	8.00		115 30-160			
Oxychlordane	8.46	0.50	1.00	ug/kg	8.00		106 30-160			P1
cis-Nonachlor	7.83	0.50	1.00	ug/kg	8.00		97.9 30-160			
trans-Nonachlor	7.86	0.50	1.00	ug/kg	8.00		98.2 30-160			
Mirex	6.76	1.00	1.00	ug/kg	8.00		84.5 30-160			P1
Surrogate: Decachlorobiphenyl	6.78			ug/kg	8.00		84.7 30-160			
Surrogate: Decachlorobiphenyl [2C]	7.93			ug/kg	8.00		99.1 30-160			
Surrogate: Tetrachlorometaxylene	4.91			ug/kg	8.00		61.4 30-160			
Surrogate: Tetrachlorometaxylene [2C]	6.31			ug/kg	8.00		78.9 30-160			



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Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BMG0258 - EPA 8081B

Instrument: ECD6 Analyst: RT/JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0258-BS3)										
Prepared: 15-Jul-2024 Analyzed: 18-Aug-2024 03:21										
2,4'-DDE	6.65	0.50	1.00	ug/kg	8.00		83.1 30-160			
2,4'-DDD [2C]	7.33	0.50	1.00	ug/kg	8.00		91.6 30-160			
2,4'-DDT [2C]	7.73	0.50	1.00	ug/kg	8.00		96.6 30-160			
Oxychlorane	6.05	0.50	1.00	ug/kg	8.00		75.6 30-160			
cis-Nonachlor [2C]	7.52	0.50	1.00	ug/kg	8.00		94.0 30-160			
trans-Nonachlor [2C]	7.46	0.50	1.00	ug/kg	8.00		93.2 30-160			
Mirex [2C]	7.65	1.00	1.00	ug/kg	8.00		95.6 30-160			
Surrogate: Decachlorobiphenyl	9.73			ug/kg	8.00		122 30-160			
Surrogate: Decachlorobiphenyl [2C]	10.4			ug/kg	8.00		130 30-160			
Surrogate: Tetrachlorometaxylene	7.58			ug/kg	8.00		94.8 30-160			
Surrogate: Tetrachlorometaxylene [2C]	7.65			ug/kg	8.00		95.6 30-160			



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Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BMG0258 - EPA 8081B

Instrument: ECD6 Analyst: RT/JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMG0258-BS1)						Prepared: 15-Jul-2024 Analyzed: 18-Aug-2024 03:41					
alpha-BHC [2C]	3.63	0.25	0.50	ug/kg	4.00		90.8	28-120	2.25	30	
beta-BHC [2C]	3.75	0.25	0.50	ug/kg	4.00		93.7	33-120	3.74	30	
gamma-BHC (Lindane) [2C]	3.85	0.25	0.50	ug/kg	4.00		96.3	30-124	2.71	30	
delta-BHC	3.84	0.25	0.50	ug/kg	4.00		96.1	30-120	5.83	30	
Heptachlor	4.01	0.25	0.50	ug/kg	4.00		100	26-120	5.28	30	
Aldrin	3.35	0.50	0.50	ug/kg	4.00		83.8	26-120	3.13	30	
Heptachlor Epoxide	3.67	0.25	0.50	ug/kg	4.00		91.8	26-120	2.64	30	
trans-Chlordane (beta-Chlordane) [2C]	3.65	0.50	0.50	ug/kg	4.00		91.2	21-120	4.04	30	
cis-Chlordane (alpha-chlordane) [2C]	3.66	0.25	0.50	ug/kg	4.00		91.5	39-120	2.33	30	
Endosulfan I [2C]	3.65	0.25	0.50	ug/kg	4.00		91.3	17-143	2.31	30	
4,4'-DDE [2C]	7.50	0.50	1.00	ug/kg	8.00		93.8	35-120	2.84	30	
Dieldrin [2C]	7.53	0.50	1.00	ug/kg	8.00		94.2	10-140	2.64	30	
Endrin [2C]	10.2	0.50	1.00	ug/kg	8.00		128	45-120	4.50	30	*
Endosulfan II [2C]	9.88	0.50	1.00	ug/kg	8.00		124	10-139	3.71	30	
4,4'-DDD [2C]	10.1	0.50	1.00	ug/kg	8.00		126	50-120	5.44	30	*
Endrin Aldehyde [2C]	6.98	0.50	1.00	ug/kg	8.00		87.2	10-120	4.10	30	
4,4'-DDT [2C]	10.1	0.50	1.00	ug/kg	8.00		126	39-120	4.98	30	*
Endosulfan Sulfate [2C]	10.5	0.50	1.00	ug/kg	8.00		131	38-120	4.48	30	*
Endrin Ketone [2C]	10.3	0.50	1.00	ug/kg	8.00		129	17-120	8.47	30	*
Methoxychlor [2C]	50.1	2.50	5.00	ug/kg	40.0		125	10-140	6.20	30	
Hexachlorobutadiene [2C]	3.20	0.25	0.50	ug/kg	4.00		80.1	15-120	4.45	30	
Hexachlorobenzene [2C]	3.13	0.25	0.50	ug/kg	4.00		78.3	26-128	3.06	30	
Surrogate: Decachlorobiphenyl	9.71			ug/kg	8.00		121	30-160			
Surrogate: Decachlorobiphenyl [2C]	9.79			ug/kg	8.00		122	30-160			
Surrogate: Tetrachlorometaxylene	6.87			ug/kg	8.00		85.8	30-160			
Surrogate: Tetrachlorometaxylene [2C]	6.76			ug/kg	8.00		84.5	30-160			



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Project: PAMP Sediments
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Project Manager: Dan McMahon

Reported:
13-Sep-2024 11:33

Analysis by: Analytical Resources, LLC

Aroclor PCB - Quality Control

Batch BMG0257 - EPA 8082A

Instrument: ECD5 Analyst: AA

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0257-BLK1) Prepared: 16-Jul-2024 Analyzed: 25-Jul-2024 15:28											
Aroclor 1016	ND	2.0	4.0	ug/kg							U
Aroclor 1221	ND	2.0	4.0	ug/kg							U
Aroclor 1232	ND	2.0	4.0	ug/kg							U
Aroclor 1242	ND	2.0	4.0	ug/kg							U
Aroclor 1248	ND	2.0	4.0	ug/kg							U
Aroclor 1254	ND	2.0	4.0	ug/kg							U
Aroclor 1260	ND	2.0	4.0	ug/kg							U
Aroclor 1262	ND	2.0	4.0	ug/kg							U
Aroclor 1268	ND	2.0	4.0	ug/kg							U
Surrogate: Decachlorobiphenyl	5.99			ug/kg	8.00		74.8	40-126			
Surrogate: Tetrachlorometaxylene	5.84			ug/kg	8.00		72.9	44-120			
Surrogate: Decachlorobiphenyl [2C]	6.26			ug/kg	8.00		78.3	40-126			
Surrogate: Tetrachlorometaxylene [2C]	5.72			ug/kg	8.00		71.5	44-120			



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Analysis by: Analytical Resources, LLC

Aroclor PCB - Quality Control

Batch BMG0257 - EPA 8082A

Instrument: ECD5 Analyst: AA

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0257-BS1)										
Prepared: 16-Jul-2024 Analyzed: 25-Jul-2024 15:48										
Aroclor 1016	92.3	2.0	4.0	ug/kg	101		91.6 56-120			
Aroclor 1260	92.1	2.0	4.0	ug/kg	101		91.3 58-120			
Surrogate: Decachlorobiphenyl	6.81			ug/kg	8.00		85.1 40-126			
Surrogate: Tetrachlorometaxylene	6.67			ug/kg	8.00		83.3 44-120			
Surrogate: Decachlorobiphenyl [2C]	7.06			ug/kg	8.00		88.3 40-126			
Surrogate: Tetrachlorometaxylene [2C]	6.43			ug/kg	8.00		80.4 44-120			



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Analysis by: Analytical Resources, LLC

Aroclor PCB - Quality Control

Batch BMG0257 - EPA 8082A

Instrument: ECD5 Analyst: AA

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMG0257-BSD1)						Prepared: 16-Jul-2024 Analyzed: 25-Jul-2024 16:09					
Aroclor 1016	99.3	2.0	4.0	ug/kg	101		98.5	56-120	7.32	30	
Aroclor 1260	98.9	2.0	4.0	ug/kg	101		98.1	58-120	7.19	30	
Surrogate: Decachlorobiphenyl	7.08			ug/kg	8.00		88.5	40-126			
Surrogate: Tetrachlorometaxylene	7.04			ug/kg	8.00		88.0	44-120			
Surrogate: Decachlorobiphenyl [2C]	7.42			ug/kg	8.00		92.8	40-126			
Surrogate: Tetrachlorometaxylene [2C]	6.75			ug/kg	8.00		84.4	44-120			



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Aroclor PCB - Quality Control

Batch BMG0257 - EPA 8082A

Instrument: ECD5 Analyst: AA

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BMG0257-MS1)		Source: 24G0168-08		Prepared: 16-Jul-2024 Analyzed: 25-Jul-2024 16:29							
Aroclor 1016	95.7	2.0	4.0	ug/kg	101	ND	94.8	56-120			
Aroclor 1260	95.0	2.0	4.0	ug/kg	101	ND	94.1	58-120			
Surrogate: Decachlorobiphenyl	6.49			ug/kg	8.00		81.1	40-126			
Surrogate: Tetrachlorometaxylene	6.65			ug/kg	8.00		83.1	44-120			
Surrogate: Decachlorobiphenyl [2C]	6.76			ug/kg	8.00		84.6	40-126			
Surrogate: Tetrachlorometaxylene [2C]	6.44			ug/kg	8.00		80.5	44-120			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.



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Analysis by: Analytical Resources, LLC

Aroclor PCB - Quality Control

Batch BMG0257 - EPA 8082A

Instrument: ECD5 Analyst: AA

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BMG0257-MSD1)		Source: 24G0168-08		Prepared: 16-Jul-2024 Analyzed: 25-Jul-2024 16:50							
Aroclor 1016	83.7	2.0	4.0	ug/kg	101	ND	82.9	56-120	13.40	30	
Aroclor 1260	82.9	2.0	4.0	ug/kg	101	ND	82.1	58-120	13.60	30	
Surrogate: Decachlorobiphenyl	5.58			ug/kg	8.00		69.8	40-126			
Surrogate: Tetrachlorometaxylene	5.73			ug/kg	8.00		71.6	44-120			
Surrogate: Decachlorobiphenyl [2C]	5.77			ug/kg	8.00		72.2	40-126			
Surrogate: Tetrachlorometaxylene [2C]	5.50			ug/kg	8.00		68.8	44-120			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 11:33

Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BMG0274 - EPA 6020B

Instrument: ICPMS1 Analyst: DOE

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0274-BLK1) Prepared: 11-Jul-2024 Analyzed: 18-Jul-2024 11:37												
Antimony	121	ND	0.10	0.20	mg/kg							U
Chromium	52	ND	0.26	0.50	mg/kg							U
Chromium	53	ND	0.24	0.50	mg/kg							U
Lead	208	ND	0.05	0.10	mg/kg							U
Silver	107	ND	0.02	0.20	mg/kg							U
Arsenic	75a	ND	0.04	0.20	mg/kg							U
Cadmium	111	ND	0.03	0.10	mg/kg							U
Copper	63	ND	0.17	0.50	mg/kg							U
Selenium	78	ND	0.18	0.50	mg/kg							U
Zinc	66	ND	2.9	6.0	mg/kg							U
LCS (BMG0274-BS1) Prepared: 11-Jul-2024 Analyzed: 18-Jul-2024 11:42												
Antimony	121	23.7	0.10	0.20	mg/kg	25.0		94.8	80-120			
Chromium	52	26.1	0.26	0.50	mg/kg	25.0		104	80-120			
Chromium	53	24.6	0.24	0.50	mg/kg	25.0		98.3	80-120			
Lead	208	27.2	0.05	0.10	mg/kg	25.0		109	80-120			
Silver	107	25.5	0.02	0.20	mg/kg	25.0		102	80-120			
Arsenic	75a	24.3	0.04	0.20	mg/kg	25.0		97.2	80-120			
Cadmium	111	24.6	0.03	0.10	mg/kg	25.0		98.4	80-120			
Copper	63	26.2	0.17	0.50	mg/kg	25.0		105	80-120			
Selenium	78	76.8	0.18	0.50	mg/kg	80.0		96.1	80-120			
Zinc	66	79.7	2.9	6.0	mg/kg	80.0		99.6	80-120			
Duplicate (BMG0274-DUP1) Source: 24G0168-01 Prepared: 11-Jul-2024 Analyzed: 18-Jul-2024 12:05												
Antimony	121	ND	0.13	0.25	mg/kg		ND					U
Lead	208	8.46	0.07	0.13	mg/kg		9.34			9.84	20	
Silver	107	0.14	0.03	0.25	mg/kg		0.15			8.56	20	J
Arsenic	75a	13.4	0.05	0.25	mg/kg		14.6			8.22	20	
Cadmium	111	0.13	0.04	0.13	mg/kg		0.15			12.20	20	
Copper	63	41.6	0.22	0.63	mg/kg		45.1			8.21	20	
Selenium	78	1.09	0.23	0.63	mg/kg		1.44			27.80	20	L
Zinc	66	88.9	3.7	7.6	mg/kg		96.8			8.53	20	
Duplicate (BMG0274-DUP2) Source: 24G0168-01 Prepared: 11-Jul-2024 Analyzed: 19-Jul-2024 22:00												
Chromium	52	31.7	0.82	1.58	mg/kg		34.2			7.72	20	D
Matrix Spike (BMG0274-MS1) Source: 24G0168-01 Prepared: 11-Jul-2024 Analyzed: 18-Jul-2024 12:09												



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Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BMG0274 - EPA 6020B

Instrument: ICPMS1 Analyst: DOE

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BMG0274-MS1)		Source: 24G0168-01			Prepared: 11-Jul-2024 Analyzed: 18-Jul-2024 12:09							
Antimony	121	1.08	0.13	0.25	mg/kg	31.5	ND	3.4	75-125			*
Lead	208	39.8	0.07	0.13	mg/kg	31.5	9.34	96.6	75-125			
Silver	107	18.8	0.03	0.25	mg/kg	31.5	0.15	59.3	75-125			*
Arsenic	75a	43.6	0.05	0.25	mg/kg	31.5	14.6	92.2	75-125			
Cadmium	111	31.5	0.04	0.13	mg/kg	31.5	0.15	99.5	75-125			
Copper	63	72.2	0.22	0.63	mg/kg	31.5	45.1	86.0	75-125			
Selenium	78	92.3	0.23	0.63	mg/kg	101	1.44	90.2	75-125			
Zinc	66	191	3.7	7.6	mg/kg	101	96.8	93.2	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike (BMG0274-MS2)		Source: 24G0168-01			Prepared: 11-Jul-2024 Analyzed: 19-Jul-2024 22:04							
Chromium	52	57.6	0.82	1.57	mg/kg	31.5	34.2	74.2	75-125			*, D

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Post Spike (BMG0274-PS1)		Source: 24G0168-01			Prepared: 11-Jul-2024 Analyzed: 18-Jul-2024 12:14							
Antimony	121	475			mg/kg	500	ND	94.9	80-120			
Silver	107	518			mg/kg	500	0.15	103	80-120			

Post Spike (BMG0274-PS2)		Source: 24G0168-01			Prepared: 11-Jul-2024 Analyzed: 19-Jul-2024 22:09							
Chromium	52	1680			mg/kg	1250	34.2	90.9	80-120			D



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Reported:
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Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BMG0339 - EPA 7471B

Instrument: HYDRA Analyst: ML

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0339-BLK1)					Prepared: 13-Jul-2024 Analyzed: 15-Jul-2024 11:39						
Mercury	ND	0.00525	0.0250	mg/kg							U
LCS (BMG0339-BS1)					Prepared: 13-Jul-2024 Analyzed: 15-Jul-2024 11:41						
Mercury	0.523	0.00525	0.0250	mg/kg	0.500		105	80-120			
Duplicate (BMG0339-DUP1)					Source: 24G0168-01 Prepared: 13-Jul-2024 Analyzed: 15-Jul-2024 12:21						
Mercury	0.0874	0.00682	0.0325	mg/kg		0.0853			2.38	20	
Matrix Spike (BMG0339-MS1)					Source: 24G0168-01 Prepared: 13-Jul-2024 Analyzed: 15-Jul-2024 12:23						
Mercury	0.492	0.00692	0.0330	mg/kg	0.330	0.0853	123	75-125			

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Reported:
13-Sep-2024 11:33

Analysis by: Analytical Resources, LLC

Wet Chemistry - Quality Control

Batch BMG0567 - PSEP 1986

Instrument: BAL2 Analyst: LERB

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0567-BLK1)						Prepared: 23-Jul-2024 Analyzed: 23-Jul-2024 15:43					
Volatile Solids	ND	0.01	0.01	%							U
Total Solids	ND	0.04	0.04	%							U



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Analysis by: Analytical Resources, LLC

Wet Chemistry - Quality Control

Batch BMH0093 - EPA 9060A m

Instrument: Accumet AB150 Analyst: ARR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMH0093-BLK1)					Prepared: 06-Aug-2024 Analyzed: 07-Aug-2024 20:10						
Total Organic Carbon	ND	0.02	0.02	%							U
LCS (BMH0093-BS1)					Prepared: 06-Aug-2024 Analyzed: 07-Aug-2024 22:11						
Total Organic Carbon	44.8	0.02	0.02	%	44.4		101	80-120			
Duplicate (BMH0093-DUP1)					Source: 24G0168-01 Prepared: 06-Aug-2024 Analyzed: 08-Aug-2024 03:13						
Total Organic Carbon	0.49	0.02	0.02	%		0.51			5.14	20	
Duplicate (BMH0093-DUP2)					Source: 24G0168-01 Prepared: 06-Aug-2024 Analyzed: 08-Aug-2024 03:44						
Total Organic Carbon	0.49	0.02	0.02	%		0.51			4.59	20	
Matrix Spike (BMH0093-MS1)					Source: 24G0168-01 Prepared: 06-Aug-2024 Analyzed: 08-Aug-2024 04:14						
Total Organic Carbon	1.33	0.02	0.02	%	0.868	0.51	94.4	75-125			

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Certified Analyses included in this Report

Analyte	Certifications
EPA 6020B in Solid	
Silver-107	NELAP,DoD-ELAP,WADOE
Chromium-52	NELAP,DoD-ELAP,WADOE,ADEC
Chromium-53	NELAP,DoD-ELAP,WADOE,ADEC
Lead-208	NELAP,DoD-ELAP,WADOE,ADEC
Antimony-121	NELAP,DoD-ELAP,WADOE
EPA 6020B UCT-KED in Solid	
Arsenic-75a	NELAP,DoD-ELAP,WADOE,ADEC
Cadmium-111	NELAP,DoD-ELAP,WADOE,ADEC
Copper-63	NELAP,DoD-ELAP,WADOE
Selenium-78	NELAP,DoD-ELAP,WADOE
Zinc-66	NELAP,DoD-ELAP,WADOE
EPA 7471B in Solid	
Mercury	WADOE,NELAP,DoD-ELAP
EPA 8081B in Solid	
alpha-BHC	DoD-ELAP,NELAP,WADOE
alpha-BHC [2C]	DoD-ELAP,NELAP,WADOE
beta-BHC	DoD-ELAP,NELAP,WADOE
beta-BHC [2C]	DoD-ELAP,NELAP,WADOE
gamma-BHC (Lindane)	DoD-ELAP,NELAP,WADOE
gamma-BHC (Lindane) [2C]	DoD-ELAP,NELAP,WADOE
delta-BHC	DoD-ELAP,NELAP,WADOE
delta-BHC [2C]	DoD-ELAP,NELAP,WADOE
Heptachlor	DoD-ELAP,NELAP,WADOE
Heptachlor [2C]	DoD-ELAP,NELAP,WADOE
Aldrin	DoD-ELAP,NELAP,WADOE
Aldrin [2C]	DoD-ELAP,NELAP,WADOE
Heptachlor Epoxide	DoD-ELAP,NELAP,WADOE
Heptachlor Epoxide [2C]	DoD-ELAP,NELAP,WADOE
trans-Chlordane (beta-Chlordane)	DoD-ELAP,NELAP



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trans-Chlordane (beta-Chlordane)	DoD-ELAP,NELAP
cis-Chlordane (alpha-chlordane)	DoD-ELAP,NELAP,WADOE
cis-Chlordane (alpha-chlordane)	DoD-ELAP,NELAP,WADOE
Endosulfan I	DoD-ELAP,NELAP,WADOE
Endosulfan I [2C]	DoD-ELAP,NELAP,WADOE
4,4'-DDE	DoD-ELAP,NELAP,WADOE
4,4'-DDE [2C]	DoD-ELAP,NELAP,WADOE
Dieldrin	DoD-ELAP,NELAP,WADOE
Dieldrin [2C]	DoD-ELAP,NELAP,WADOE
Endrin	DoD-ELAP,NELAP,WADOE
Endrin [2C]	DoD-ELAP,NELAP,WADOE
Endosulfan II	DoD-ELAP,NELAP,WADOE
Endosulfan II [2C]	DoD-ELAP,NELAP,WADOE
4,4'-DDD	DoD-ELAP,NELAP,WADOE
4,4'-DDD [2C]	DoD-ELAP,NELAP,WADOE
Endrin Aldehyde	DoD-ELAP,NELAP,WADOE
Endrin Aldehyde [2C]	DoD-ELAP,NELAP,WADOE
4,4'-DDT	DoD-ELAP,NELAP,WADOE
4,4'-DDT [2C]	DoD-ELAP,NELAP,WADOE
Endosulfan Sulfate	DoD-ELAP,NELAP,WADOE
Endosulfan Sulfate [2C]	DoD-ELAP,NELAP,WADOE
Endrin Ketone	DoD-ELAP,NELAP,WADOE
Endrin Ketone [2C]	DoD-ELAP,NELAP,WADOE
Methoxychlor	DoD-ELAP,NELAP,WADOE
Methoxychlor [2C]	DoD-ELAP,NELAP,WADOE
Hexachlorobutadiene	DoD-ELAP,NELAP,WADOE
Hexachlorobutadiene [2C]	DoD-ELAP,NELAP,WADOE
Hexachlorobenzene	DoD-ELAP,NELAP,WADOE
Hexachlorobenzene [2C]	DoD-ELAP,NELAP,WADOE
2,4'-DDE	DoD-ELAP,NELAP,WADOE
2,4'-DDE [2C]	DoD-ELAP,NELAP,WADOE
2,4'-DDD	DoD-ELAP,NELAP,WADOE
2,4'-DDD [2C]	DoD-ELAP,NELAP,WADOE



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2,4'-DDT	DoD-ELAP,NELAP,WADOE
2,4'-DDT [2C]	DoD-ELAP,NELAP,WADOE
Oxychlorthane	DoD-ELAP,NELAP,WADOE
Oxychlorthane [2C]	DoD-ELAP,NELAP,WADOE
cis-Nonachlor	DoD-ELAP,NELAP,WADOE
cis-Nonachlor [2C]	DoD-ELAP,NELAP,WADOE
trans-Nonachlor	DoD-ELAP,NELAP,WADOE
trans-Nonachlor [2C]	DoD-ELAP,NELAP,WADOE
Mirex	DoD-ELAP,NELAP,WADOE
Mirex [2C]	DoD-ELAP,NELAP,WADOE

EPA 8082A in Solid

Aroclor 1016	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1016 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1242	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1242 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1248	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1248 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1260	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1260 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1262	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1262 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1268	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1268 [2C]	WADOE,DoD-ELAP,NELAP,ADEC

EPA 8270E in Solid

Phenol	DoD-ELAP,NELAP,WADOE
bis(2-chloroethyl) ether	DoD-ELAP,NELAP,WADOE
2-Chlorophenol	DoD-ELAP,NELAP,WADOE



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1,3-Dichlorobenzene	DoD-ELAP,NELAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,NELAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,NELAP,WADOE
Benzyl Alcohol	DoD-ELAP,NELAP,WADOE
2,2'-Oxybis(1-chloropropane)	DoD-ELAP,NELAP
2-Methylphenol	DoD-ELAP,NELAP,WADOE
Hexachloroethane	DoD-ELAP,NELAP,WADOE
N-Nitroso-di-n-Propylamine	DoD-ELAP,NELAP,WADOE
4-Methylphenol	DoD-ELAP,NELAP,WADOE
Nitrobenzene	DoD-ELAP,NELAP,WADOE
Isophorone	DoD-ELAP,NELAP,WADOE
2-Nitrophenol	DoD-ELAP,NELAP,WADOE
2,4-Dimethylphenol	DoD-ELAP,NELAP,WADOE
Bis(2-Chloroethoxy)methane	DoD-ELAP,NELAP,WADOE
2,4-Dichlorophenol	DoD-ELAP,NELAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,NELAP,WADOE
Naphthalene	DoD-ELAP,NELAP,WADOE,ADEC
Benzoic acid	DoD-ELAP,NELAP,WADOE
4-Chloroaniline	DoD-ELAP,NELAP,WADOE
Hexachlorobutadiene	DoD-ELAP,NELAP,WADOE
4-Chloro-3-Methylphenol	DoD-ELAP,NELAP,WADOE
2-Methylnaphthalene	DoD-ELAP,NELAP,WADOE,ADEC
Hexachlorocyclopentadiene	DoD-ELAP,NELAP,WADOE
2,4,6-Trichlorophenol	DoD-ELAP,NELAP,WADOE
2,4,5-Trichlorophenol	DoD-ELAP,NELAP,WADOE
2-Chloronaphthalene	DoD-ELAP,NELAP,WADOE
2-Nitroaniline	DoD-ELAP,NELAP,WADOE
Acenaphthylene	DoD-ELAP,NELAP,WADOE,ADEC
Dimethylphthalate	DoD-ELAP,NELAP,WADOE
2,6-Dinitrotoluene	DoD-ELAP,NELAP,WADOE
Acenaphthene	DoD-ELAP,NELAP,WADOE,ADEC
3-Nitroaniline	DoD-ELAP,NELAP,WADOE
2,4-Dinitrophenol	DoD-ELAP,NELAP,WADOE



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Dibenzofuran	DoD-ELAP,NELAP,WADOE,ADEC
4-Nitrophenol	DoD-ELAP,NELAP,WADOE
2,4-Dinitrotoluene	DoD-ELAP,NELAP,WADOE
Fluorene	DoD-ELAP,NELAP,WADOE,ADEC
4-Chlorophenylphenyl ether	DoD-ELAP,NELAP
Diethyl phthalate	DoD-ELAP,NELAP,WADOE
4-Nitroaniline	DoD-ELAP,NELAP,WADOE
4,6-Dinitro-2-methylphenol	DoD-ELAP,NELAP,WADOE
N-Nitrosodiphenylamine	DoD-ELAP,NELAP,WADOE
4-Bromophenyl phenyl ether	DoD-ELAP,NELAP,WADOE
Hexachlorobenzene	DoD-ELAP,NELAP,WADOE
Pentachlorophenol	DoD-ELAP,NELAP,WADOE
Phenanthrene	DoD-ELAP,NELAP,WADOE,ADEC
Anthracene	DoD-ELAP,NELAP,WADOE,ADEC
Carbazole	DoD-ELAP,NELAP,WADOE,ADEC
Di-n-Butylphthalate	DoD-ELAP,NELAP,WADOE
Fluoranthene	DoD-ELAP,NELAP,WADOE,ADEC
Pyrene	DoD-ELAP,NELAP,WADOE,ADEC
Butylbenzylphthalate	DoD-ELAP,NELAP,WADOE
Benzo(a)anthracene	DoD-ELAP,NELAP,WADOE,ADEC
3,3'-Dichlorobenzidine	DoD-ELAP,NELAP,WADOE
Chrysene	DoD-ELAP,NELAP,WADOE,ADEC
bis(2-Ethylhexyl)phthalate	DoD-ELAP,NELAP,WADOE
Di-n-Octylphthalate	DoD-ELAP,NELAP,WADOE
Benzofluoranthenes, Total	WADOE,ADEC
Benzo(a)pyrene	DoD-ELAP,NELAP,WADOE,ADEC
Indeno(1,2,3-cd)pyrene	DoD-ELAP,NELAP,WADOE,ADEC
Dibenzo(a,h)anthracene	DoD-ELAP,NELAP,WADOE,ADEC
Benzo(g,h,i)perylene	DoD-ELAP,NELAP,WADOE,ADEC
1-Methylnaphthalene	DoD-ELAP,NELAP,WADOE,ADEC

EPA 8270E-SIM in Solid

Tributyltin Ion	NELAP,WADOE,DoD-ELAP
Phenol	NELAP,WADOE



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1,3-Dichlorobenzene	NELAP,WADOE
1,4-Dichlorobenzene	NELAP,WADOE
1,2-Dichlorobenzene	NELAP,WADOE
Benzyl Alcohol	NELAP,WADOE
2-Methylphenol	NELAP,WADOE
N-Nitroso-di-n-Propylamine	NELAP,WADOE
4-Methylphenol	NELAP,WADOE
2,4-Dimethylphenol	NELAP,WADOE
1,2,4-Trichlorobenzene	NELAP,WADOE
Hexachlorobutadiene	NELAP,WADOE
N-Nitrosodimethylamine	NELAP,WADOE
Dimethylphthalate	NELAP,WADOE
Diethyl phthalate	NELAP,WADOE
N-Nitrosodiphenylamine	NELAP,WADOE
Hexachlorobenzene	NELAP,WADOE
Pentachlorophenol	NELAP,WADOE
Butylbenzylphthalate	NELAP,WADOE
Dibenzo(a,h)anthracene	NELAP,WADOE

EPA 9060A m in Solid

Total Organic Carbon	NELAP,WADOE

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2025
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program, PJLA Testing	66169	02/28/2025
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2025
WADOE	WA Dept of Ecology	C558	06/30/2025
WA-DW	Ecology - Drinking Water	C558	06/30/2025



Shannon & Wilson, Inc

5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 11:33

Notes and Definitions

*	Flagged value is not within established control limits.
D	The reported value is from a dilution
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
F	Samples were frozen prior to analysis to extend hold time.
J	Estimated concentration value detected below the reporting limit.
L	Analyte concentration is ≤ 5 times the reporting limit and the replicate control limit defaults to $\pm$ RL instead of 20% RPD
P1	The reported value is greater than 40% difference between the concentrations determined on two GC columns where applicable.
Q	Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria ($<20\%$ RSD, $<20\%$ drift or minimum RRF)
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.

ADEC Contaminated Sites Program Laboratory Data Review Checklist

Completed By:	Ashley Jaramillo	CS Site Name:	NA	Lab Name:	Analytical Resources, LLC.
Title:	Senior Chemist	ADEC File No.:	NA	Lab Report No.:	24G0168
Consulting Firm:	Shannon & Wilson, Inc.	Hazard ID No.:	NA	Lab Report Date:	9/13/24

Note: Any N/A or No box checked must have an explanation in the comments box.

1. Laboratory

- a. Did an ADEC Contaminated Sites Laboratory Approval Program (CS-LAP) approved laboratory receive and perform all of the submitted sample analyses?

Yes ☐ No ☒ N/A ☐

Comments: Project samples were sent to Analytical Resources, LLC (ARI) Tukwila, Washington for the analysis of Grain Size by PSEP-PS, total solids by SM 2540, total volatile solids by PSEP 1986, SVOCs by 8270E, SVOC-SIM by 8270E-SIM, tributyltin (TBT) by 8270E-SIM, pesticide by 8081B, PCBs by 8082A, TOC by 9060A, metals by 6020B, and mercury by 7471. ARI is certified under DEC approval 17-015 dated 4/13/2023, expiring 3/28/2025. Grain Size by PSEP-PS was subcontracted to AMTEST Laboratories (AMTEST) in Tukwila, Washinton. The DEC CS project does not certify for this analysis.

- b. If the samples were transferred to another “network” laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses CS-LAP approved?

Yes ☐ No ☒ N/A ☐

Comments: Grain Size by PSEP-PS was subcontracted to AMTEST in Tukwila, Washinton. The DEC CS project does not certify for this analysis.

2. Chain of Custody (CoC)

- a. Is the CoC information completed, signed, and dated (including released/received by)?

Yes ☒ No ☐ N/A ☐

Comments:

CS Site Name: NA

Lab Report No.: 24G0168

b. Were the correct analyses requested?

Yes ☒ No ☐ N/A ☐

Analyses requested: No methods were listed on the CoC for Grain size, total solids, total volatile solids, SVOCs, SVOC-SIM, TBT, pesticides, PDBs, TOC, metals, and mercury. The laboratories analyzed Grain Size by PSEP-PS, total solids by SM 2540, total volatile solids by PSEP 1986, SVOCs by 8270E, SVOC-SIM by 8270E-SIM, TBT by 8270E-SIM, pesticide by 8081B, PCBs by 8082A, TOC by 9060A, metals by 6020B, and mercury by 7471.

Comments: These are the correct methods for this project. Data quality and/or usability not affected.

3. Laboratory Sample Receipt Documentation

a. Is the sample/cooler temperature documented and within range at receipt (0° to 6° C)?

Yes ☒ No ☐ N/A ☐

Cooler temperature(s): Cooler temperatures were not reported, rather a temperature blank was included with the samples in the cooler and is used to access temperature preservation. The temperature blank was 2.4°C at sample login at ARI. The temperature blank was 1.2°C at sample login at AMTEST.

Sample temperature(s): Sample temperatures were not reported.

Comments: The temperature blank was within the acceptable temperature range.

b. Is the sample preservation acceptable – acidified waters, methanol preserved soil (GRO, BTEX, VOCs, etc.)?

Yes ☐ No ☐ N/A ☒

Comments: Sample preservation not required.

c. Is the sample condition documented – broken, leaking, zero headspace (VOA vials); canister vacuum/pressure checked and no open valves, etc.?

Yes ☒ No ☐ N/A ☐

Comments: Samples were noted to be in good condition.

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, canister not holding a vacuum, etc.?

Yes ☐ No ☐ N/A ☒

Comments: No discrepancies were noted by the laboratory at sample login.

e. Is the data quality or usability affected?

Yes ☐ No ☒ N/A ☐

Comments: No laboratory sample receipt documentation discrepancies were noted at sample login.

4. Case Narrative

- a. Is the case narrative present and understandable?

Yes ☒ No ☐ N/A ☐

Comments: Click or tap here to enter text.

- b. Are there discrepancies, errors, or QC failures identified by the lab?

Yes ☒ No ☐ N/A ☐

Comments:

The samples were submitted to AMTEST Laboratories for grainsize analysis. The AMTEST report is included with the ARI laboratory report in its entirety. Data quality and/or usability not affected.

Initial and continuing SVOC calibrations were within method requirements, with accepted excursions low outside the 20% window for benzyl alcohol, 2,4-dinitrophenol, 4-nitrophenol and pentachlorophenol. Associated positive results have been "Q"-flagged. Evaluation of ICV or CCV is outside of the scope of a stage 2a data review and the laboratory didn't indicate an effect on project data due to the discrepancy, therefore sample results are not considered affected.

The SVOC surrogate recoveries outside of control limits are flagged on the summary sheets. See section 6.d. for details regarding impacts to data quality and/or usability.

The SVOC blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent differences (RPD) outside of control limits are flagged on the summary sheet. See section 6.b. for details regarding impacts to data quality and/or usability.

SVOC batch BMG0260 matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent differences (RPD) outside of advisory control limits are flagged on the summary sheet, reported under work order 24G0167. As this data is reported in another work order, we do not discuss this case narrative entry further.

Initial and continuing SVOC-SIM calibrations were within method requirements, with accepted excursions low outside the 20% window for dibenzo(a,h)anthracene. Associated positive results have been "Q"-flagged. Evaluation of ICV or CCV is outside of the scope of a stage 2a data review and the laboratory didn't indicate an effect on project data due to the discrepancy, therefore sample results are not considered affected.

The SVOC-SIM surrogate recoveries outside of control limits are flagged on the summary sheets. See section 6.d. for details regarding impacts to data quality and/or usability.

CS Site Name: NA

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The SVOC-SIM blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent differences (RPD) outside of control limits are flagged on the summary sheet. See section 6.b. for details regarding impacts to data quality and/or usability.

SVOC-SIM batch BMG0260 matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent differences (RPD) outside of advisory control limits are flagged on the summary sheet, reported under work order 24G0167. As this data is reported in another work order, we do not discuss this case narrative entry further.

TBT batch BMG0259 matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent differences (RPD) outside of advisory control limits are flagged on the summary sheet, reported under work order 24G0178. As this data is reported in another work order, we do not discuss this case narrative entry further.

Initial and continuing pesticide calibrations were within method requirements with exceptions. Response was noted to be high of limits on the STX-CLP column for some standards for 2,4'-DDD, 2,4'-DDE, 2,4'-DDT, 4,4'-DDD, 4,4'-DDT, cis-nonachlor, Endosulfan II, Endosulfan Sulfate, Endrin, Endrin Aldehyde, Endrin Ketone, Heptachlor, Methoxychlor, Oxychlorane and trans-Nonachlor. Response was noted low on the STX-CLP column for hexachlorobutadiene. On the CLP2 column, some standards had low response for 4,4'-DDT, decachlorobiphenyl, Dieldrin, Endrin Aldehyde, Endrin Ketone and Methoxychlor. Evaluation of ICV or CCV is outside of the scope of a stage 2a data review and the laboratory didn't indicate an effect on project data due to the discrepancy, therefore sample results are not considered affected.

The pesticide internal standard areas for hexabromobiphenyl (HBB) on the STX-CLP column were low of limits for 113733-SB1S1, 113733-SB1S2, 113733-SB1S3, 113733-SB1S4, 113733-SB1S5, 113733-SB1S6, 113733-SB1S7, 113733-SB1S12, SMG0341-CCV5, SMG0341-CCV6, SMG0341-PEM3, and SMG0341-PEM4. Evaluation of the internal standard is outside the scope of a stage 2a data review and the laboratory didn't indicate an effect on project data due to this discrepancy, therefore samples results are not considered affected.

The pesticide surrogate recoveries outside of control limits are flagged on the summary sheets. See section 6.d. for details regarding impacts to data quality and/or usability.

The pesticide blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries high of control limits are flagged on the summary sheet. See section 6.b. for details regarding impacts to data quality and/or usability.

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Pesticide batch BMG058 matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent differences (RPD) outside of advisory control limits are flagged on the summary sheet, reported under work order 24G0167. As this data is reported in another work order, we do not discuss this case narrative entry further.

Pesticide results that have been "P1"-flagged indicate a greater than 40% difference between the results on the two analytical columns. P1 flags in quality control samples do not affect project data. The P1 flag was applied to 4,4'-DDD in 113733-SB1S4. Consequently, the result of this analyte in the noted sample is considered an estimate, however, this analyte in the noted sample has been previously flagged due to a LCS/CLSD recovery failure, see 6.b.iii, below. No additional flags were added due to this discrepancy.

The total metals matrix spike (MS) percent recoveries outside of advisory control limits are flagged on the summary sheet. The post spike had an acceptable recovery. See section 6.c. for details regarding impacts to data quality and/or usability.

The batch BMG0467 solids replicates (DUP1, DUP2) relative percent differences (RPD) were within advisory control limits, reported under work order 24G0167. As this data is reported in another work order, we do not discuss this case narrative entry further.

AMTEST

No CoC was included with the AMTEST lab report. No data quality control discrepancies were noted in the laboratory report, data quality and/or usability not affected.

- c. Were all the corrective actions documented?

Yes ☐ No ☐ N/A ☒

Comments: Corrective actions not required.

- d. What is the effect on data quality/usability according to the case narrative?

Comments: Effect on data quality and/or usability due to discrepancies, errors, or QC failures identified by the lab in the case narrative are either discussed above in Section 4.b. or elsewhere in this checklist.

5. Sample Results

- a. Are the correct analyses performed/reported as requested on CoC?

Yes ☒ No ☐ N/A ☐

Comments: No methods were listed on the CoC for Grain size, total solids, total volatile solids, SVOCs, SVOC-SIM, TBT, pesticides, PDBs, TOC, metals, and mercury. The laboratories analyzed Grain Size by PSEP-PS, total solids by SM 2540, total volatile solids by PSEP 1986, SVOCs by 8270E, SVOC-SIM by

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8270E-SIM, TBT by 8270E-SIM, pesticide by 8081B, PCBs by 8082A, TOC by 9060A, metals by 6020B, and mercury by 7471. These are the correct methods for this project. Data quality and/or usability not affected.

- b. Are all applicable holding times met?

Yes ☒ No ☐ N/A ☐

Comments: Click or tap here to enter text.

- c. Are all soils reported on a dry weight basis?

Yes ☒ No ☐ N/A ☐

Comments: Click or tap here to enter text.

- d. Are the reported limits of quantitation (LoQ) or limits of detections (LOD), or reporting limits (RL) less than the Cleanup Level or the action level for the project?

Yes ☐ No ☒ N/A ☐

Comments: Analytical sensitivity was evaluated to verify that LODs met applicable DEC migration to groundwater cleanup levels for non-detect results, as appropriate. Analytes with LODs that do not meet applicable cleanup levels are bolded in the analytical results table. Data quality and/or usability may be affected as these analytes cannot be detected, if present, at their respective cleanup level.

- e. Is the data quality or usability affected?

Yes ☒ No ☐ N/A ☐

Comments: See 5.d. above.

6. QC Samples

- a. Method Blank

- i. Was one method blank reported per matrix, analysis, and 20 samples?

Yes ☒ No ☐ N/A ☐

Comments: Click or tap here to enter text.

- ii. Are all method blank results less than LOQ (or RL)?

Yes ☒ No ☐

Comments: However, SVOC-SIM analytes phenol and diethyl phthalate were detected in the method blank sample for batch BMG0260 at concentrations below the LOQ. Phenol was detected within ten times the concentration detected in the method blank sample in associated project samples 113733-SB1S1 and 113733-SB1S2. Diethyl phthalate was detected within ten times the concentration detected in the method blank sample in associated project samples 113733-SB1S4, 113733-SB1S5, 113733-SB1S6, and 113733-SB1S7. Consequently, phenol and diethyl phthalate results in the noted samples are considered not detected at the

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LOQ and are flagged 'B*' in the analytical table. Data quality is affected as noted, however, data is considered usable with applied flags.

- iii. If above LoQ or RL, what samples are affected?

Comments: See 6.a.ii, above.

- iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes ☒ No ☐ N/A ☐

Comments: See 6.a.ii, above.

- v. Data quality or usability affected?

Yes ☒ No ☐ N/A ☐

Comments: See 6.a.ii, above.

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

- i. Organics – Are one LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

Yes ☐ No ☒ N/A ☐

Comments: LCS/LCSDs were reported for SVOC, SVOC-SIM, TBT, pesticide, and PCB analyses.

- ii. Metals/Inorganics – Are one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes ☐ No ☐ N/A ☐

Comments:

A LCS was reported for metals, mercury, and TOC analyses.

A laboratory duplicate sample was reported for metals, mercury, TOC, volatile solids, and total solids.

- iii. Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes ☐ No ☒ N/A ☐

Comments: The LCSD %Rs for SVOC analytes isophorone and carbazole were above laboratory limits in batch BMF0260. These analytes were not detected in associated project samples. Data quality and/or usability not affected.

The LCS and/or LCSD %Rs for pesticide analytes endrin, 4,4'-DDD, 4,4'-DDT, endosulfan sulfate, and endrin ketone were above laboratory limits in batch BMG0258. 4,4'-DDD was detected in associated project

samples 113733-SB1S12 and 113733-SB1S4, consequently, the 4,4'-DDD result in the noted samples are considered an estimate, biased high, and is flagged 'JH*' in the analytical table. Data quality is considered affected; however, data is considered usable with applied flags. Endrin, 4,4'-DDT, endosulfan sulfate, and endrin ketone were not detected in associated project samples. Data quality and/or usability not affected.

- iv. Precision – Are all relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? Was the RPD reported from LCS/LCSD, and or sample/sample duplicate? (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes ☐ No ☒ N/A ☐

Comments: The LCS/LCSD RPDs for SVOC and SVOC-SIM analytes 2,4-dimethylphenol were outside of laboratory criteria in batch BMG0260. 2,4-dimethylphenol was not detected in associated project samples. Consequently, the results of this analyte in samples 113733-SB1S1, 113733-SB1S2, 113733-SB1S3, 113733-SB1S4, 113733-SB1S5, 113733-SB1S6, 113733-SB1S7, and 113733-SB1S12 are considered estimates, no direction of bias, and are flagged 'J*' in the analytical table. Data quality is considered affected; however, data is considered usable with applied flags.

The laboratory duplicate RPD for metals analyte selenium was outside laboratory limits in sample 113733-SB1S1. Selenium is detected in this sample. Consequently, the selenium result in this sample is considered an estimate, no direction of bias, and is flagged 'J*' in the analytical table. Data quality is considered affected; however, data is considered usable with applied flags.

- v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments: See 6.b.iii and 6.b.iv, above.

- vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes ☒ No ☐ N/A ☐

Comments: See 6.b.iii and 6.b.iv, above.

- vii. Is the data quality or usability affected?

Yes ☒ No ☐ N/A ☐

Comments: See 6.b.iii and 6.b.iv, above.

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c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

- i. Organics – Are one MS/MSD reported per matrix, analysis and 20 samples?

Yes ☐ No ☒ N/A ☐

Comments: MS/MSD samples were reported for PCB analyses.

- ii. Metals/Inorganics – Are one MS/MSD reported per matrix, analysis and 20 samples?

Yes ☐ No ☒ N/A ☐

Comments: MS samples were reported for metals, mercury, and TOC analyses.

- iii. Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable?

Yes ☐ No ☒ N/A ☐

Comments: The MS %Rs for metals analyte antimony was <10% for parent sample 113733-SB1S1. Consequently, the antimony result in the noted parent sample is considered unusable and is flagged 'R*' as rejected in the analytical table.

The MS %Rs for metals analytes silver and chromium-52 were below laboratory limits in parent sample 113733-SB1S1. These analytes were detected in the noted samples. Consequently, the silver result in the noted parent sample is considered an estimated, biased low, and flagged 'JL*' in the analytical table. Data quality is affected as noted, however, data is considered usable with applied flags. However, the native concentration of chromium-52 was equivalent to the spiking concentration. This may introduce significant uncertainty in the recovery calculations. The chromium-52 result is not affected.

- iv. Precision – Are all relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from MS/MSD, and or sample/sample duplicate.

Yes ☒ No ☐ N/A ☐

Comments:

- v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments: See 6.c.iii above.

- vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes ☒ No ☐ N/A ☐

Comments: See 6.c.iii above.

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vii. Is the data quality or usability affected?

Yes ☒ No ☐ N/A ☐

Comments: See 6.c.iii above.

d. Surrogates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only

i. Are surrogate/IDA recoveries reported for organic analyses – field, QC, and laboratory samples?

Yes ☒ No ☐ N/A ☐

Comments: Click or tap here to enter text.

ii. Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods 50-150 %R for field samples and 60-120 %R for QC samples; all other analyses see the laboratory report pages)

Yes ☐ No ☒ N/A ☐

Comments: The SVOC surrogate p-Terphenyl-d14 was recovered above the laboratory limits in samples 113733-SB1S1 and 113733-SB1S6. p-Terphenyl-d14 controls the following analytes: 3,3-Dichlorobenzidine, Benzo(a)Anthracene, Benzo[a]pyrene, Benzo[fluoranthene], Total, Benzo[g,h,i]perylene, bis(2-Ethylhexyl)phthalate, Butylbenzylphthalate, Chrysene, Dibenzo[a,h]anthracene, di-n-Octylphthalate, Indeno[1,2,3-c,d]pyrene, and Pyrene. These analytes were not detected in the noted project samples. Data quality and/or usability not affected.

The SVOC surrogate p-Terphenyl-d14 was recovered above the laboratory limits in method blank sample for batch BMG0260. Surrogate recovery failures in the quality control sample does not affect project sample results. Data quality and/or usability not affected.

The SVOC-SIM surrogate p-Terphenyl-d14 was recovered above the laboratory limits in samples 113733-SB1S1 and 113733-SB1S6. p-Terphenyl-d14 controls the following analytes: Butylbenzylphthalate, and Dibenzo[a,h]anthracene. These analytes were not detected in the noted project samples. Data quality and/or usability not affected.

The SVOC-SIM surrogate p-Terphenyl-d14 was recovered above the laboratory limits in method blank sample for batch BMG0260. Surrogate recovery failures in the quality control sample does not affect project sample results. Data quality and/or usability not affected.

Pesticide surrogate tetrachlorometaxylene was recovered above the laboratory limits in method blank samples for batch BMG0258. Surrogate recovery failures in the quality control sample does not affect project sample results. Data quality and/or usability not affected.

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- iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined?

Yes ☐ No ☐ N/A ☒

Comments: See 6.d.ii above.

- iv. Is the data quality or usability affected?

Yes ☐ No ☒ N/A ☐

Comments: See 6.d.ii above.

e. Trip Blanks

- i. Is one trip blank reported per matrix, analysis, and for each cooler containing volatile samples? Yes ☐ No ☐ N/A ☒

Comments: Volatile analyses were not included with this work order. No trip blank required.

- ii. Are all results less than LoQ or RL?

Yes ☐ No ☐ N/A ☒

Comments: Volatile analyses were not included with this work order. No trip blank required.

- iii. If above LoQ or RL, what samples are affected?

Comments: Not applicable. Volatile analyses were not included with this work order. No trip blank required.

- iv. Is the data quality or usability affected?

Yes ☐ No ☒ N/A ☐

Comments: Volatile analyses were not included with this work order. No trip blank required.

f. Field Duplicate

- i. Are one field duplicate submitted per matrix, analysis, and 10 project samples?

Yes ☒ No ☐ N/A ☐

Comments: Click or tap here to enter text.

- ii. Was the duplicate submitted blind to lab?

Yes ☐ No ☐ N/A ☐

Comments: 113733-SB1S12 is the field duplicate of 113733-SB1S2.

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- iii. Precision – All relative percent differences (RPD) less than specified project objectives? (Recommended: 30% water or air, 50% soil)

$$RPD (\%) = \left| \frac{R_1 - R_2}{\left(\frac{R_1 + R_2}{2}\right)} \right| \times 100$$

Where R_1 = Sample Concentration

R_2 = Field Duplicate Concentration

Is the data quality or usability affected? (Explain)

Yes ☒ No ☐ N/A ☐

Comments: Where calculable, analytical results met the comparison criterion (< 50% for soil) for the field duplicate pair.

- iv. Is the data quality or usability affected? (Explain)

Yes ☐ No ☒ N/A ☐

Comments: Field duplicate RPDs were within limits were calculable.

g. Decontamination or Equipment Blanks

- i. Were decontamination or equipment blanks collected?

Yes ☐ No ☐ N/A ☒

Comments: Samples were not collected with reusable equipment; equipment blank not required.

- ii. Are all results less than LoQ or RL?

Yes ☐ No ☐ N/A ☒

Comments: Samples were not collected with reusable equipment; equipment blank not required.

- iii. If above LoQ or RL, specify what samples are affected.

Comments: Not applicable. Samples were not collected with reusable equipment; equipment blank not required.

- iv. Are data quality or usability affected?

Yes ☐ No ☒ N/A ☐

Comments: Samples were not collected with reusable equipment; equipment blank not required.

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7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

- a. Are they defined and appropriate?

Yes ☒ No ☐ N/A ☐

Comments: Some analytes were run at a dilution. These analytes are flagged with a 'D' in the analytical report; however, these flags do not appear in the analytical table.

Samples for the analysis of TOC were frozen prior to analysis to extend holding time are flagged 'F' by the lab. These flags appear in the laboratory report, but do not appear in the analytical table. The results are not affected.

See 4.b. above for other flags.



Analytical Resources, LLC
Analytical Chemists and Consultants
Tukwila, WA

13 September 2024

Dan McMahon
Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage, AK 99518

RE: PAMP Sediments (113733)

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)
24G0170

Associated SDG ID(s)
N/A

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, LLC

Susan Dunnihoo, Director, Client Services

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Chain of Custody Record & Laboratory Analysis Request

AR Assigned Number: 24G0170		Turn-around Requested: standard		Date:	
AR Client Company: Shannon & Wilson, Inc.		Phone: 907-433-3223		Page: of	
Client Contact: Dan McMahon		No. of Coolers:		Cooler Temps:	
Client Project Name: PAMP Sediment				Analysis Requested	
Client Project #: 113733		Samplers: AJR		Notes/Comments	
Sample ID	Date	Time	Matrix	No. Containers	
113733-SB2S1	07/01/24	10:00	Sed	3	
113733-SB2S2	07/01/24	10:03	Sed	3	
113733-SB2S3	07/01/24	10:30	Sed	3	
113733-SB2S4	07/01/24	10:35	Sed	3	
113733-SB2S5	07/01/24	10:55	Sed	3	
113733-SB2S6	07/01/24	11:30	Sed	3	
Comments/Special Instructions		Relinquished by: (Signature) <i>ap</i>		Received by: (Signature) <i>ES</i>	
		Printed Name: <i>Aluc Rizzo</i>		Printed Name: <i>Emma Stewart</i>	
		Company: <i>STW</i>		Company: <i>ARI</i>	
		Date & Time: <i>7/8/24 000</i>		Date & Time: <i>7/9/24 1130</i>	



Analytical Resources, LLC
 Analytical Chemists and Consultants
 4611 South 134th Place, Suite 100
 Tukwila, WA 98168
 206-695-6200 206-695-6202 (fax)

Limits of Liability: Analytical Resources, LLC (AR) will perform all requested services in accordance with appropriate methodology following AR Standard Operating Procedures and the AR Quality Assurance Program. This program meets standards for the industry. The total liability of AR, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by AR release AR from any liability in excess thereof, notwithstanding any provision to the contrary in any contract, purchase order or co-signed agreement between AR and the Client.

Sample Retention Policy: Unless specified by work order or contract, all water/soil samples submitted to AR will be discarded or returned, no sooner than 90 days after receipt or 60 days after submission of hard copy data, whichever is longer. Sediment samples submitted under PSDDA/PSEP/SMS protocol will be stored frozen for up to one year and then discarded.



Analytical Resources, LLC
Analytical Chemists and Consultants

SUBCONTRACT ORDER
To: AmTest Laboratories
ARI Work Order:24G0170

SENDING LABORATORY:

Analytical Resources, LLC
4611 S. 134th Place, Suite 100
Tukwila, WA 98168
Phone: (206) 695-6200
Fax: (206) 695-6202
Project Manager: Susan Dunnihoo
E-Mail: sue.dunnihoo@arilabs.com

RECEIVING LABORATORY:

AmTest Laboratories
13600 NE 126th Pl Suite C
Kirkland, WA 98034
Phone :425-885-1664
Fax: -

PLEASE SEND DATA AND INVOICE TO subdata@arilabs.com

Analysis	Due	Expires	Sub Laboratory ID	Comments

Sample ID: 24G0170-01

Sampled: 07/01/24 10:00 Matrix: Solid

Grainsize PSEP (Subc) 07/23/24 12/31/24 02:48

Containers Supplied:

24G0170-01 A
Ziploc Bag, Quart

Sample ID: 24G0170-02

Sampled: 07/01/24 10:03 Matrix: Solid

Grainsize PSEP (Subc) 07/23/24 12/31/24 02:51

Containers Supplied:

24G0170-02 A
Ziploc Bag, Quart

Sample ID: 24G0170-03

Sampled: 07/01/24 10:30 Matrix: Solid

Grainsize PSEP (Subc) 07/23/24 12/31/24 03:18

Containers Supplied:

24G0170-03 A
Ziploc Bag, Quart

Sample ID: 24G0170-04

Sampled: 07/01/24 10:35 Matrix: Solid

Grainsize PSEP (Subc) 07/23/24 12/31/24 03:23

Containers Supplied:

24G0170-04 A
Ziploc Bag, Quart

1.2°C

Released By *Matt Drew* 07/11/24 1245

Date

Received By *SF*

Date

7/11/24 1245

Released By

Date

Received By

Date

Printed: 7/9/2024 1:02:37PM



SUBCONTRACT ORDER
To: AmTest Laboratories
ARI Work Order:24G0170

Analysis	Due	Expires	Sub Laboratory ID	Comments
Sample ID: 24G0170-05 Sampled: 07/01/24 10:55 Matrix: Solid				
Grainsize PSEP (Subc)	07/23/24	12/31/24 03:43		
Containers Supplied:				
24G0170-05 A Ziploc Bag, Quart				
Sample ID: 24G0170-06 Sampled: 07/01/24 11:30 Matrix: Solid				
Grainsize PSEP (Subc)	07/23/24	12/31/24 04:18		
Containers Supplied:				
24G0170-06 A Ziploc Bag, Quart				

1.2°C

Matt Dwyer

07/11/24

1245

SF

7/11/24

1245

Released By

Date

Received By

Date

Released By

Date

Received By

Date

Printed: 7/9/2024 1:02:37PM



Shannon & Wilson, Inc

5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 12:28

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
113733-SB2S1	24G0170-01	Solid	01-Jul-2024 10:00	09-Jul-2024 11:37
113733-SB2S2	24G0170-02	Solid	01-Jul-2024 10:03	09-Jul-2024 11:37
113733-SB2S3	24G0170-03	Solid	01-Jul-2024 10:30	09-Jul-2024 11:37
113733-SB2S4	24G0170-04	Solid	01-Jul-2024 10:35	09-Jul-2024 11:37
113733-SB2S5	24G0170-05	Solid	01-Jul-2024 10:55	09-Jul-2024 11:37
113733-SB2S6	24G0170-06	Solid	01-Jul-2024 11:30	09-Jul-2024 11:37



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 12:28

Work Order Case Narrative

Client: Shannon & Wilson, Inc
Project: PAMP Sediments
Work Order: 24G0170

Sample receipt

Samples as listed on the preceding page were received 09-Jul-2024 11:37 under ARI work order 24G0170. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Grainsize

The samples were submitted to AmTest Laboratories for grainsize analysis. The AmTest report is included here in its entirety.

Semivolatiles - EPA Method SW8270E

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements, with accepted excursions outside the 20% window. Associated positive results have been "Q"-flagged. Response for all flagged compounds were high of control limits in the ICV.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries outside of control limits are flagged on the summary sheet. The relative percent differences (RPD) were within control limits.

The matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent differences (RPD) outside advisory control limits are flagged on the summary sheet.

Semivolatiles - EPA Method SW8270E-SIM

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements, with accepted excursions outside the 20% window. Associated positive results have been "Q"-flagged. Response for all flagged compounds were low of control limits in the ICV.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 12:28

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent differences (RPD) were within control limits.

The matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD) were within advisory control limits.

Butyl Tin(s)- EPA Method SW8270E-SIM

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent differences (RPD) were within control limits.

The batch BMG0255 matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD) were within advisory control limits, reported under work order 24G0181.

Chlorinated Pesticides - EPA Method SW8081B

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements with excursions. Several standards had response outside limits high on the STX-CLP column for 2,4'-DDD, 2,4'-DDE, 2,4'-DDT, 4,4'-DDD, 4,4'-DDT, cis-Nonachlor, Endosulfan II, Endosulfan Sulfate, Endrin, Endrin Aldehyde, Endrin Ketone, Heptachlor, Methoxychlor, Mirex, Oxychlorane, and trans-Nonachlor. Response was noted low for hexachlorobutadiene in SMG0367-ICV1. Several standards had response high of limits on the CLP2 column for 2,4'-DDD, 2,4'-DDT and endrin ketone, and low of limits for decachlorobiphenyl (DCBP) and dieldrin.

The internal standard areas for hexabromobiphenyl (HBB) were low of limits on the STX-CLP column in 113733-SB2S2, 113733-SB2S3, 113733-SB2S5, SMG0367-CCV4, SMG0367-CCV6, and SMG0367-PEM3.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.



Shannon & Wilson, Inc

5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 12:28

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent differences (RPD) outside of control limits are flagged on the summary sheet.

The batch BMG0254 matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD) were within advisory control limits, reported under work order 24G0171.

Results that have been "P1"-flagged indicate a greater than 40% difference between the results on the two analytical columns.

PCB Aroclors - EPA Method SW8082A

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent differences (RPD) were within control limits.

The matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD) were within advisory control limits.

Total Metals - EPA Method 6020B

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations including interference checks were within method requirements for reported elements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

The batch BMG0274 duplicate (DUP) relative percent differences (RPD) were within advisory control limits, reported under work order 24G0168.

The batch BMG0274 matrix spike (MS) percent recoveries outside of advisory control limits are flagged on the summary sheet, reported under work order 24G0168. The post spike had an acceptable recovery.

Total Mercury - EPA Method 7471B



Shannon & Wilson, Inc

5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 12:28

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

The batch BMG0449 matrix spike (MS) percent recoveries and the duplicate (DUP) relative percent difference (RPD) were within advisory control limits, reported under work order 24G0168.

Wet Chemistry

The sample(s) were prepared and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The TOC blank spike (BS/LCS) percent recoveries were within control limits.

The TOC reference material (SRM) percent recoveries were within control limits.

The solids replicates (DUP1, DUP2) relative percent differences (RPD) were within advisory control limits.

The TOC batch BMG0790 matrix spike (MS) percent recovery (98.6%) and the replicate (DUP 1 11.8%, DUP2 4.2%) relative percent differences (RPD) were within advisory control limits, run on a non-project sediment.



Cooler Receipt Form

ARI Client: Shannon + Wilson

Project Name: PAMP SEDIMENT

COC No(s): NA

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: NA

Assigned ARI Job No: 24G0170

Tracking No: NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler? YES NO

Were custody papers included with the cooler? YES NO

Were custody papers properly filled out (ink, signed, etc.) YES NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 11:37

1.2

If cooler temperature is out of compliance fill-out form 00070F

Temp Gun ID#: 8117

Cooler Accepted by: E.S. Date: 7/9/24 Time: 11:37

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES NO SA 7/9/24

What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: NA

Was sufficient ice used (if appropriate)? YES NO

How were bottles sealed in plastic bags? Individually Grouped Not

Did all bottles arrive in good condition (unbroken)? YES NO

Were all bottle labels complete and legible? YES NO

Did the number of containers listed on COC match with the number of containers received? YES NO

Did all bottle labels and tags agree with custody papers? YES NO

Were all bottles used correct for the requested analyses? YES NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs) ... NA YES NO

Were all VOC vials free of air bubbles? NA YES NO

Was sufficient amount of sample sent in each bottle? YES NO

Date VOC Trip Blank was made at ARI: NA

Were the sample(s) split by ARI? NA YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: SA Date: 7/9/24 Time: 1254 Labels checked by: SA

**** Notify Project Manager of discrepancies or concerns ****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: _____ Date: _____

Am Test Inc.
13600 NE 126th Place Suite C
Kirkland, WA
(425) 885-1664
www.amtestlab.com



***Professional
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September 13, 2024

Susan Dunnihoo
4611 S 134th Pl Suite 100
Tukwila, WA 98168

Project: ARI GRAIN SIZES
Project Number: 24G0170
Project Manager: Susan Dunnihoo
RE: ARI GRAIN SIZES

Enclosed are the results of analyses for samples received by our laboratory on 7/11/2024.
Please feel free to contact me with any questions or considerations regarding this report.

Sincerely,

A handwritten signature in black ink that reads "Aaron Young". The signature is fluid and cursive, with the first name "Aaron" and the last name "Young" clearly distinguishable.

ElementStationManager For Aaron Young
President

Am Test Inc.
13600 NE 126th Place Suite C
Kirkland, WA
(425) 885-1664
www.amtestlab.com



**Professional
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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 09/13/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0170

Reported Samples

Lab ID	Sample	Matrix	Qualifiers	Date Sampled	Date Received
A24G0245-01	24G0170-01	Solid		07/01/2024	07/11/2024
A24G0245-02	24G0170-02	Solid		07/01/2024	07/11/2024
A24G0245-03	24G0170-03	Solid		07/01/2024	07/11/2024
A24G0245-04	24G0170-04	Solid		07/01/2024	07/11/2024
A24G0245-05	24G0170-05	Solid		07/01/2024	07/11/2024
A24G0245-06	24G0170-06	Solid		07/01/2024	07/11/2024

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**Professional
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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 09/13/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0170

AMTEST Identification Number: A24G0245-01
Client Identification: 24G0170-01
Sampling Date: 07/01/24 10:00

Conventional Chemistry Parameters by APHA/EPA Methods

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
% Solids	77.4	%			SM 2540G_2011	HV	08/26/2024

Full Grain Size (Hydrometer/Sieve)

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
PHI -2.25 (4.75 mm) Gravel	0.400	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI -2.00 (4.00 mm)	0.300	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI -1.00 (2.00 mm)	0.800	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI 0.00 (1.00 mm) Sand	0.400	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +1.00 (0.50 mm)	0.400	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +2.00 (0.25 mm)	0.400	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +3.00 (0.125 mm)	0.400	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +4.00 (0.063 mm)	6.40	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +5.00 (0.032 mm) Silt	52.2	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +6.00 (0.016 mm)	17.2	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +7.00 (0.008 mm)	6.70	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +8.00 (0.004 mm)	4.50	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +9.00 (0.002 mm) Clay	1.70	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI +10.0 (0.001 mm)	0.700	%		0.100	PSEP 1986 P.9	HV	08/26/2024
PHI >10.0 (< 0.001 mm)	7.50	%		0.100	PSEP 1986 P.9	HV	08/26/2024

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**Professional
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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 09/13/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0170

AMTEST Identification Number: A24G0245-02
Client Identification: 24G0170-02
Sampling Date: 07/01/24 10:03

Conventional Chemistry Parameters by APHA/EPA Methods

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
% Solids	78.0	%			SM 2540G_2011	HV	09/10/2024

Full Grain Size (Hydrometer/Sieve)

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
PHI -2.25 (4.75 mm) Gravel	0.400	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI -2.00 (4.00 mm)	0.300	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI -1.00 (2.00 mm)	0.100	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI 0.00 (1.00 mm) Sand	0.200	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +1.00 (0.50 mm)	0.400	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +2.00 (0.25 mm)	0.500	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +3.00 (0.125 mm)	0.200	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +4.00 (0.063 mm)	2.20	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +5.00 (0.032 mm) Silt	48.7	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +6.00 (0.016 mm)	12.0	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +7.00 (0.008 mm)	9.00	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +8.00 (0.004 mm)	6.30	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +9.00 (0.002 mm) Clay	4.70	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +10.0 (0.001 mm)	2.90	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI >10.0 (< 0.001 mm)	12.0	%		0.100	PSEP 1986 P.9	HV	09/10/2024

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**Professional
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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 09/13/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0170

AMTEST Identification Number: A24G0245-03
Client Identification: 24G0170-03
Sampling Date: 07/01/24 10:30

Conventional Chemistry Parameters by APHA/EPA Methods

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
% Solids	78.6	%			SM 2540G_2011	HV	09/10/2024

Full Grain Size (Hydrometer/Sieve)

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
PHI -2.25 (4.75 mm) Gravel	0.100	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI -2.00 (4.00 mm)	0.100	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI -1.00 (2.00 mm)	ND	%	U	0.100	PSEP 1986 P.9	HV	09/10/2024
PHI 0.00 (1.00 mm) Sand	ND	%	U	0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +1.00 (0.50 mm)	ND	%	U	0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +2.00 (0.25 mm)	0.100	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +3.00 (0.125 mm)	0.200	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +4.00 (0.063 mm)	3.00	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +5.00 (0.032 mm) Silt	44.0	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +6.00 (0.016 mm)	18.5	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +7.00 (0.008 mm)	11.6	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +8.00 (0.004 mm)	5.60	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +9.00 (0.002 mm) Clay	3.90	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +10.0 (0.001 mm)	2.10	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI >10.0 (< 0.001 mm)	10.8	%		0.100	PSEP 1986 P.9	HV	09/10/2024

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**Professional
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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 09/13/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0170

AMTEST Identification Number: A24G0245-04
Client Identification: 24G0170-04
Sampling Date: 07/01/24 10:35

Conventional Chemistry Parameters by APHA/EPA Methods

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
% Solids	78.0	%			SM 2540G_2011	HV	09/10/2024

Full Grain Size (Hydrometer/Sieve)

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
PHI -2.25 (4.75 mm) Gravel	ND	%	U	0.100	PSEP 1986 P.9	HV	09/10/2024
PHI -2.00 (4.00 mm)	ND	%	U	0.100	PSEP 1986 P.9	HV	09/10/2024
PHI -1.00 (2.00 mm)	ND	%	U	0.100	PSEP 1986 P.9	HV	09/10/2024
PHI 0.00 (1.00 mm) Sand	0.100	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +1.00 (0.50 mm)	0.100	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +2.00 (0.25 mm)	0.100	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +3.00 (0.125 mm)	0.100	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +4.00 (0.063 mm)	2.90	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +5.00 (0.032 mm) Silt	53.6	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +6.00 (0.016 mm)	13.3	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +7.00 (0.008 mm)	7.50	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +8.00 (0.004 mm)	6.90	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +9.00 (0.002 mm) Clay	3.70	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +10.0 (0.001 mm)	2.10	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI >10.0 (< 0.001 mm)	9.60	%		0.100	PSEP 1986 P.9	HV	09/10/2024

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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 09/13/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0170

AMTEST Identification Number: A24G0245-05
Client Identification: 24G0170-05
Sampling Date: 07/01/24 10:55

Conventional Chemistry Parameters by APHA/EPA Methods

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
% Solids	74.4	%			SM 2540G_2011	HV	09/10/2024

Full Grain Size (Hydrometer/Sieve)

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
PHI -2.25 (4.75 mm) Gravel	1.70	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI -2.00 (4.00 mm)	0.700	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI -1.00 (2.00 mm)	2.40	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI 0.00 (1.00 mm) Sand	0.900	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +1.00 (0.50 mm)	0.500	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +2.00 (0.25 mm)	0.400	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +3.00 (0.125 mm)	0.300	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +4.00 (0.063 mm)	4.50	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +5.00 (0.032 mm) Silt	38.4	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +6.00 (0.016 mm)	20.6	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +7.00 (0.008 mm)	8.90	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +8.00 (0.004 mm)	5.40	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +9.00 (0.002 mm) Clay	3.40	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +10.0 (0.001 mm)	1.80	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI >10.0 (< 0.001 mm)	10.1	%		0.100	PSEP 1986 P.9	HV	09/10/2024

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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 09/13/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0170

AMTEST Identification Number: A24G0245-06
Client Identification: 24G0170-06
Sampling Date: 07/01/24 11:30

Conventional Chemistry Parameters by APHA/EPA Methods

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
% Solids	78.6	%			SM 2540G_2011	HV	09/10/2024

Full Grain Size (Hydrometer/Sieve)

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
PHI -2.25 (4.75 mm) Gravel	ND	%	U	0.100	PSEP 1986 P.9	HV	09/10/2024
PHI -2.00 (4.00 mm)	0.100	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI -1.00 (2.00 mm)	ND	%	U	0.100	PSEP 1986 P.9	HV	09/10/2024
PHI 0.00 (1.00 mm) Sand	ND	%	U	0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +1.00 (0.50 mm)	ND	%	U	0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +2.00 (0.25 mm)	0.100	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +3.00 (0.125 mm)	0.300	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +4.00 (0.063 mm)	3.20	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +5.00 (0.032 mm) Silt	39.3	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +6.00 (0.016 mm)	19.5	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +7.00 (0.008 mm)	11.1	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +8.00 (0.004 mm)	6.80	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +9.00 (0.002 mm) Clay	4.70	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +10.0 (0.001 mm)	2.90	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI >10.0 (< 0.001 mm)	11.9	%		0.100	PSEP 1986 P.9	HV	09/10/2024

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Date Received: 07/11/24
Date Reported: 09/13/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0170

Quality Control

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBH0391 - No Prep - WC Soil										
Duplicate (BBH0391-DUP1)			Source: A24G0431-03		Prepared & Analyzed: 08/26/24					
% Solids	41.7			%		42.0			0.7	20
Duplicate (BBH0391-DUP2)			Source: A24G0243-07		Prepared & Analyzed: 08/26/24					
% Solids	77.9			%		78.4			0.6	20
Duplicate (BBH0391-DUP3)			Source: A24G0243-07		Prepared & Analyzed: 08/26/24					
% Solids	78.4			%		78.4			0.04	20
Duplicate (BBH0391-DUP4)			Source: A24H0352-01		Prepared & Analyzed: 08/26/24					
% Solids	74.6			%		75.4			1	20
Duplicate (BBH0391-DUP5)			Source: A24H0352-01		Prepared & Analyzed: 08/26/24					
% Solids	75.8			%		75.4			0.5	20
Batch: BBI0132 - No Prep - WC Soil										
Duplicate (BBI0132-DUP1)			Source: A24G0246-04		Prepared & Analyzed: 09/10/24					
% Solids	75.4			%		75.4			0.07	20
Duplicate (BBI0132-DUP2)			Source: A24G0246-04		Prepared & Analyzed: 09/10/24					
% Solids	75.2			%		75.4			0.3	20
Duplicate (BBI0132-DUP3)			Source: A24G0248-02		Prepared & Analyzed: 09/10/24					
% Solids	73.4			%		73.6			0.3	20
Duplicate (BBI0132-DUP4)			Source: A24G0248-02		Prepared & Analyzed: 09/10/24					
% Solids	72.9			%		73.6			1	20

Quality Control

Full Grain Size (Hydrometer/Sieve)

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

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Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0170

Quality Control
(Continued)

Full Grain Size (Hydrometer/Sieve) (Continued)

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

Batch: BBH0423 - Hydrometer/Sieve

Duplicate (BBH0423-DUP1)			Source: A24H0352-01			Prepared & Analyzed: 08/26/24				
PHI +1.00 (0.50 mm)	9.50		0.100	%		13.3			33	200
PHI +10.0 (0.001 mm)	0.300		0.100	%		0.700			80	200
PHI +2.00 (0.25 mm)	19.3		0.100	%		19.3			0	200
PHI +3.00 (0.125 mm)	13.2		0.100	%		12.9			2	200
PHI +4.00 (0.063 mm)	15.6		0.100	%		11.0			35	200
PHI +5.00 (0.032 mm) Silt	12.9		0.100	%		11.1			15	200
PHI +6.00 (0.016 mm)	3.40		0.100	%		5.60			49	200
PHI +7.00 (0.008 mm)	4.20		0.100	%		2.30			58	200
PHI +8.00 (0.004 mm)	3.10		0.100	%		2.80			10	200
PHI +9.00 (0.002 mm) Clay	1.00		0.100	%		1.40			33	200
PHI >10.0 (< 0.001 mm)	3.20		0.100	%		2.40			29	200
PHI 0.00 (1.00 mm) Sand	7.00		0.100	%		9.10			26	200
PHI -1.00 (2.00 mm)	3.90		0.100	%		4.30			10	200
PHI -2.00 (4.00 mm)	0.500		0.100	%		0.300			50	200
PHI -2.25 (4.75 mm) Gravel	2.80		0.100	%		3.40			19	200

Duplicate (BBH0423-DUP2)			Source: A24H0352-01			Prepared & Analyzed: 08/26/24				
PHI +1.00 (0.50 mm)	7.10		0.100	%		13.3			61	200
PHI +10.0 (0.001 mm)	0.700		0.100	%		0.700			0	200
PHI +2.00 (0.25 mm)	21.0		0.100	%		19.3			8	200
PHI +3.00 (0.125 mm)	17.9		0.100	%		12.9			32	200
PHI +4.00 (0.063 mm)	18.0		0.100	%		11.0			48	200
PHI +5.00 (0.032 mm) Silt	3.90		0.100	%		11.1			96	200
PHI +6.00 (0.016 mm)	4.30		0.100	%		5.60			26	200
PHI +7.00 (0.008 mm)	4.00		0.100	%		2.30			54	200
PHI +8.00 (0.004 mm)	2.60		0.100	%		2.80			7	200
PHI +9.00 (0.002 mm) Clay	1.30		0.100	%		1.40			7	200
PHI >10.0 (< 0.001 mm)	2.40		0.100	%		2.40			0	200
PHI 0.00 (1.00 mm) Sand	3.70		0.100	%		9.10			84	200
PHI -1.00 (2.00 mm)	2.50		0.100	%		4.30			53	200
PHI -2.00 (4.00 mm)	0.300		0.100	%		0.300			0	200
PHI -2.25 (4.75 mm) Gravel	10.2		0.100	%		3.40			100	200

Batch: BBI0164 - Hydrometer/Sieve

Duplicate (BBI0164-DUP1)			Source: A24G0246-04			Prepared & Analyzed: 09/10/24				

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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 09/13/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0170

Quality Control
(Continued)

Full Grain Size (Hydrometer/Sieve) (Continued)

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

Batch: BBI0164 - Hydrometer/Sieve (Continued)

Duplicate (BBI0164-DUP1)			Source: A24G0246-04			Prepared & Analyzed: 09/10/24				
PHI +1.00 (0.50 mm)	ND	U	0.100	%		0.200			200	200
PHI +10.0 (0.001 mm)	3.40		0.100	%		3.80			11	200
PHI +2.00 (0.25 mm)	ND	U	0.100	%		0.100			200	200
PHI +3.00 (0.125 mm)	ND	U	0.100	%		0.100			200	200
PHI +4.00 (0.063 mm)	1.20		0.100	%		1.90			45	200
PHI +5.00 (0.032 mm) Silt	50.9		0.100	%		50.4			1	200
PHI +6.00 (0.016 mm)	8.60		0.100	%		5.70			41	200
PHI +7.00 (0.008 mm)	10.3		0.100	%		8.40			20	200
PHI +8.00 (0.004 mm)	8.00		0.100	%		10.1			23	200
PHI +9.00 (0.002 mm) Clay	5.00		0.100	%		5.70			13	200
PHI >10.0 (< 0.001 mm)	12.3		0.100	%		13.6			10	200
PHI 0.00 (1.00 mm) Sand	0.200		0.100	%		ND			200	200
PHI -1.00 (2.00 mm)	ND	U	0.100	%		ND				200
PHI -2.00 (4.00 mm)	ND	U	0.100	%		ND				200
PHI -2.25 (4.75 mm) Gravel	0.100		0.100	%		ND			200	200

Duplicate (BBI0164-DUP2)			Source: A24G0246-04			Prepared & Analyzed: 09/10/24				
PHI +1.00 (0.50 mm)	ND	U	0.100	%		0.200			200	200
PHI +10.0 (0.001 mm)	3.40		0.100	%		3.80			11	200
PHI +2.00 (0.25 mm)	ND	U	0.100	%		0.100			200	200
PHI +3.00 (0.125 mm)	0.100		0.100	%		0.100			0	200
PHI +4.00 (0.063 mm)	1.80		0.100	%		1.90			5	200
PHI +5.00 (0.032 mm) Silt	49.3		0.100	%		50.4			2	200
PHI +6.00 (0.016 mm)	10.2		0.100	%		5.70			57	200
PHI +7.00 (0.008 mm)	10.4		0.100	%		8.40			21	200
PHI +8.00 (0.004 mm)	7.10		0.100	%		10.1			35	200
PHI +9.00 (0.002 mm) Clay	5.30		0.100	%		5.70			7	200
PHI >10.0 (< 0.001 mm)	11.7		0.100	%		13.6			15	200
PHI 0.00 (1.00 mm) Sand	ND	U	0.100	%		ND				200
PHI -1.00 (2.00 mm)	ND	U	0.100	%		ND				200
PHI -2.00 (4.00 mm)	ND	U	0.100	%		ND				200
PHI -2.25 (4.75 mm) Gravel	0.700		0.100	%		ND			200	200

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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 09/13/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0170

Notes and Definitions

Item	Definition
U	The compound was analyzed for but was not detected (Non-detect) at or above the MRL/MDL.
Dry	Sample results reported on a dry weight basis.
ND	Analyte NOT DETECTED at or above the reporting limit.
RPD	Relative Percent Difference
%REC	Percent Recovery
Source	Sample that was matrix spiked or duplicated.



A24G0245

SUBCONTRACT ORDER
To: AmTest Laboratories
ARI Work Order:24G0170

SENDING LABORATORY:

Analytical Resources, LLC
4611 S. 134th Place, Suite 100
Tukwila, WA 98168
Phone: (206) 695-6200
Fax: (206) 695-6202
Project Manager: Susan Dunnihoo
E-Mail: sue.dunnihoo@arilabs.com

RECEIVING LABORATORY:

AmTest Laboratories
13600 NE 126th Pl Suite C
Kirkland, WA 98034
Phone :425-885-1664
Fax: -

PLEASE SEND DATA AND INVOICE TO subdata@arilabs.com

Analysis	Due	Expires	Sub Laboratory ID	Comments
Sample ID: 24G0170-01				
Sampled: 07/01/24 10:00 Matrix: Solid			01	
Grainsize PSEP (Subc)	07/23/24	12/31/24 02:48		
<i>Containers Supplied:</i>				
24G0170-01 A Ziploc Bag, Quart				
Sample ID: 24G0170-02				
Sampled: 07/01/24 10:03 Matrix: Solid			02	
Grainsize PSEP (Subc)	07/23/24	12/31/24 02:51		
<i>Containers Supplied:</i>				
24G0170-02 A Ziploc Bag, Quart				
Sample ID: 24G0170-03				
Sampled: 07/01/24 10:30 Matrix: Solid			03	
Grainsize PSEP (Subc)	07/23/24	12/31/24 03:18		
<i>Containers Supplied:</i>				
24G0170-03 A Ziploc Bag, Quart				
Sample ID: 24G0170-04				
Sampled: 07/01/24 10:35 Matrix: Solid			04	
Grainsize PSEP (Subc)	07/23/24	12/31/24 03:23		
<i>Containers Supplied:</i>				
24G0170-04 A Ziploc Bag, Quart				

1.2°C

Released By *Matt Dunn* 07/11/24 1245 Date Received By *SF* 7/11/24 1245 Date

Released By Date Received By Date



SUBCONTRACT ORDER
To: AmTest Laboratories
ARI Work Order:24G0170

Analysis	Due	Expires	Sub Laboratory ID	Comments
Sample ID: 24G0170-05 Sampled: 07/01/24 10:55 Matrix: Solid			05	
Grainsize PSEP (Subc)	07/23/24	12/31/24 03:43		
Containers Supplied:				
24G0170-05 A Ziploc Bag, Quart				
Sample ID: 24G0170-06 Sampled: 07/01/24 11:30 Matrix: Solid			06	
Grainsize PSEP (Subc)	07/23/24	12/31/24 04:18		
Containers Supplied:				
24G0170-06 A Ziploc Bag, Quart				

Released By

Date

Received By

Date

Released By

Date

Received By

Date



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 12:28

113733-SB2S1
24G0170-01 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/01/2024 10:00

Instrument: NT10 Analyst: RJL

Analyzed: 07/27/2024 17:53

Sample Preparation: Preparation Method: EPA 3546 (Microwave)
Preparation Batch: BMG0256
Prepared: 07/12/2024

Sample Size: 12.37 g (wet)
Final Volume: 1 mL

Extract ID: 24G0170-01 B 04
Dry Weight: 10.00 g
% Solids: 80.87

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	10.0	20.0	ND	ug/kg	U
bis(2-chloroethyl) ether	111-44-4	1	35.0	50.0	ND	ug/kg	U
2-Chlorophenol	95-57-8	1	20.0	20.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	10.0	20.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	10.0	20.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	10.0	20.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	20.0	20.0	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	10.0	20.0	ND	ug/kg	U
2-Methylphenol	95-48-7	1	10.0	20.0	ND	ug/kg	U
Hexachloroethane	67-72-1	1	10.0	20.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	15.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	15.0	20.0	ND	ug/kg	U
Nitrobenzene	98-95-3	1	10.0	20.0	ND	ug/kg	U
Isophorone	78-59-1	1	15.0	20.0	ND	ug/kg	U
2-Nitrophenol	88-75-5	1	10.0	20.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	50.0	100	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	1	10.0	20.0	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	1	50.0	100	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	10.0	20.0	ND	ug/kg	U
Naphthalene	91-20-3	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	100	200	ND	ug/kg	U
4-Chloroaniline	106-47-8	1	50.0	100	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	10.0	20.0	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	1	50.0	100	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	10.0	20.0	ND	ug/kg	U
Hexachlorocyclopentadiene	77-47-4	1	50.0	100	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	1	50.0	100	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	1	50.0	100	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	1	10.0	20.0	ND	ug/kg	U
2-Nitroaniline	88-74-4	1	50.0	100	ND	ug/kg	U
Acenaphthylene	208-96-8	1	10.0	20.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	10.0	20.0	ND	ug/kg	U



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 12:28

113733-SB2S1
24G0170-01 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/01/2024 10:00

Instrument: NT10 Analyst: RJL

Analyzed: 07/27/2024 17:53

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2,6-Dinitrotoluene	606-20-2	1	50.0	100	ND	ug/kg	U
Acenaphthene	83-32-9	1	10.0	20.0	ND	ug/kg	U
3-Nitroaniline	99-09-2	1	50.0	100	ND	ug/kg	U
2,4-Dinitrophenol	51-28-5	1	100	200	ND	ug/kg	U
Dibenzofuran	132-64-9	1	20.0	20.0	ND	ug/kg	U
4-Nitrophenol	100-02-7	1	50.0	100	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	1	50.0	100	ND	ug/kg	U
Fluorene	86-73-7	1	20.0	20.0	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	1	35.0	50.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	35.0	50.0	ND	ug/kg	U
4-Nitroaniline	100-01-6	1	50.0	100	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	1	100	200	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	10.0	20.0	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	1	20.0	20.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	20.0	20.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	50.0	100	ND	ug/kg	U
Phenanthrene	85-01-8	1	10.0	20.0	ND	ug/kg	U
Anthracene	120-12-7	1	10.0	20.0	ND	ug/kg	U
Carbazole	86-74-8	1	10.0	20.0	ND	ug/kg	U
Di-n-Butylphthalate	84-74-2	1	10.0	20.0	ND	ug/kg	U
Fluoranthene	206-44-0	1	10.0	20.0	ND	ug/kg	U
Pyrene	129-00-0	1	10.0	20.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	10.0	20.0	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	1	10.0	20.0	ND	ug/kg	U
3,3'-Dichlorobenzidine	91-94-1	1	50.0	100	ND	ug/kg	U
Chrysene	218-01-9	1	10.0	20.0	ND	ug/kg	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	40.0	50.0	ND	ug/kg	U
Di-n-Octylphthalate	117-84-0	1	10.0	20.0	ND	ug/kg	U
Benzo(a)fluoranthene, Total		1	30.0	40.0	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	10.0	20.0	ND	ug/kg	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	20.0	20.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	20.0	20.0	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	20.0	20.0	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	10.0	20.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	92.4	%	
Surrogate: Phenol-d5				29-120 %	86.9	%	
Surrogate: 2-Chlorophenol-d4				31-120 %	99.9	%	



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Project: PAMP Sediments

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Project Manager: Dan McMahon

Reported:

13-Sep-2024 12:28

113733-SB2S1

24G0170-01 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/01/2024 10:00

Instrument: NT10 Analyst: RJL

Analyzed: 07/27/2024 17:53

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: 1,2-Dichlorobenzene-d4		32-120 %	89.0	%	
Surrogate: Nitrobenzene-d5		30-120 %	98.3	%	
Surrogate: 2-Fluorobiphenyl		35-120 %	93.9	%	
Surrogate: 2,4,6-Tribromophenol		24-134 %	111	%	
Surrogate: p-Terphenyl-d14		37-120 %	105	%	



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Project Manager: Dan McMahon

Reported:
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113733-SB2S1
24G0170-01 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM

Sampled: 07/01/2024 10:00

Instrument: NT10 Analyst: RJL

Analyzed: 07/27/2024 17:53

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0170-01 B 04

Preparation Batch: BMG0256

Sample Size: 12.37 g (wet)

Dry Weight: 10.00 g

Prepared: 07/12/2024

Final Volume: 1 mL

% Solids: 80.87

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	2.5	5.0	3.9	ug/kg	J
1,3-Dichlorobenzene	541-73-1	1	2.5	5.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	2.5	5.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	2.5	5.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	200	200	ND	ug/kg	U
2-Methylphenol	95-48-7	1	2.5	5.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	10.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	2.5	5.0	4.1	ug/kg	J
2,4-Dimethylphenol	105-67-9	1	10.0	20.0	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	5.0	5.0	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	2.5	5.0	ND	ug/kg	U
N-Nitrosodimethylamine	62-75-9	1	12.5	25.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	2.5	5.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	10.0	20.0	30.9	ug/kg	
N-Nitrosodiphenylamine	86-30-6	1	2.5	5.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	2.5	5.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	100	100	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	2.5	5.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	2.5	5.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	88.2	%	
Surrogate: p-Terphenyl-d14				37-120 %	105	%	



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Reported:
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113733-SB2S1
24G0170-01 (Solid)

Butyl Tins

Method: EPA 8270E-SIM			Sampled: 07/01/2024 10:00
Instrument: NT17 Analyst: JZ			Analyzed: 07/23/2024 14:25
Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 24G0170-01 B 03
	Preparation Batch: BMG0255	Sample Size: 6.2 g (wet)	Dry Weight: 5.01 g
	Prepared: 07/12/2024	Final Volume: 0.5 mL	% Solids: 80.87
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 24G0170-01 B 03
	Cleanup Batch: CMG0156	Initial Volume: 0.5 uL	
	Cleaned: 22-Jul-2024	Final Volume: 0.5 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Tributyltin Ion	36643-28-4	1	1.92	3.85	ND	ug/kg	U
Surrogate: Triphenyltin				30-160 %	88.5	%	
Surrogate: Tripropyltin				30-160 %	77.5	%	



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Project Manager: Dan McMahon

Reported:

13-Sep-2024 12:28

113733-SB2S1
24G0170-01 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/01/2024 10:00

Instrument: ECD6 Analyst: RT

Analyzed: 07/31/2024 15:51

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 15.5 g (wet)	Extract ID: 24G0170-01 B 02
	Preparation Batch: BMG0254	Final Volume: 2.5 mL	Dry Weight: 12.53 g
	Prepared: 07/12/2024		% Solids: 80.87

Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL	Extract ID: 24G0170-01 B 02
	Cleanup Batch: CMG0208	Final Volume: 2.5 uL	
	Cleaned: 30-Jul-2024		

Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL	Extract ID: 24G0170-01 B 02
	Cleanup Batch: CMG0207	Final Volume: 2.5 uL	
	Cleaned: 30-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.25	0.50	ND	ug/kg	U
beta-BHC	319-85-7	1	0.25	0.50	ND	ug/kg	U
gamma-BHC (Lindane)	58-89-9	1	0.25	0.50	ND	ug/kg	U
delta-BHC	319-86-8	1	0.25	0.50	ND	ug/kg	U
Heptachlor	76-44-8	1	0.25	0.50	ND	ug/kg	U
Aldrin	309-00-2	1	0.50	0.50	ND	ug/kg	U
Heptachlor Epoxide	1024-57-3	1	0.25	0.50	ND	ug/kg	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.50	0.50	ND	ug/kg	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.25	0.50	ND	ug/kg	U
Endosulfan I	959-98-8	1	0.25	0.50	ND	ug/kg	U
4,4'-DDE	72-55-9	1	0.50	1.00	ND	ug/kg	U
Dieldrin	60-57-1	1	0.50	1.00	ND	ug/kg	U
Endrin	72-20-8	1	0.50	1.00	ND	ug/kg	U
Endosulfan II	33213-65-9	1	0.50	1.00	ND	ug/kg	U
4,4'-DDD	72-54-8	1	0.50	1.00	ND	ug/kg	U
Endrin Aldehyde	7421-93-4	1	0.50	1.00	ND	ug/kg	U
4,4'-DDT	50-29-3	1	0.50	1.00	0.86	ug/kg	J
Endosulfan Sulfate	1031-07-8	1	0.50	1.00	ND	ug/kg	U
Endrin Ketone	53494-70-5	1	0.50	1.00	ND	ug/kg	U
Methoxychlor	72-43-5	1	2.49	4.99	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	0.25	0.50	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	0.25	0.50	ND	ug/kg	U
2,4'-DDE	3424-82-6	1	0.50	1.00	ND	ug/kg	U
2,4'-DDD	53-19-0	1	0.50	1.00	ND	ug/kg	U
2,4'-DDT	789-02-6	1	0.50	1.00	ND	ug/kg	U
Oxychlordane	27304-13-8	1	0.50	1.00	ND	ug/kg	U
cis-Nonachlor	5103-73-1	1	0.50	1.00	ND	ug/kg	U
trans-Nonachlor	39765-80-5	1	0.50	1.00	ND	ug/kg	U
Mirex	2385-85-5	1	1.00	1.00	ND	ug/kg	U



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Project Manager: Dan McMahon

Reported:
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113733-SB2S1
24G0170-01 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/01/2024 10:00

Instrument: ECD6 Analyst: RT

Analyzed: 07/31/2024 15:51

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Decachlorobiphenyl		30-160 %	95.3	%	
Surrogate: Decachlorobiphenyl [2C]		30-160 %	80.4	%	
Surrogate: Tetrachlorometaxylene		30-160 %	64.1	%	
Surrogate: Tetrachlorometaxylene [2C]		30-160 %	61.6	%	



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Reported:
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113733-SB2S1
24G0170-01 (Solid)

Aroclor PCB

Method: EPA 8082A			Sampled: 07/01/2024 10:00	
Instrument: ECD5 Analyst: NRB			Analyzed: 07/24/2024 23:45	
Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 15.5 g (wet)	Extract ID: 24G0170-01 B 01	
	Preparation Batch: BMG0250		Dry Weight: 12.53 g	
	Prepared: 07/15/2024		% Solids: 80.87	
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL	Extract ID: 24G0170-01 B 01	
	Cleanup Batch: CMG0171			
	Cleaned: 24-Jul-2024			
Sample Cleanup:	Cleanup Method: Sulfuric Acid	Initial Volume: 2.5 uL	Extract ID: 24G0170-01 B 01	
	Cleanup Batch: CMG0169			
	Cleaned: 24-Jul-2024			
Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL	Extract ID: 24G0170-01 B 01	
	Cleanup Batch: CMG0170			
	Cleaned: 24-Jul-2024			

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	2.0	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	2.0	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	2.0	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1262	37324-23-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1268	11100-14-4	1	2.0	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				40-126 %	76.9	%	
Surrogate: Tetrachlorometaxylene				44-120 %	75.8	%	
Surrogate: Decachlorobiphenyl [2C]				40-126 %	77.2	%	
Surrogate: Tetrachlorometaxylene [2C]				44-120 %	74.6	%	



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113733-SB2S1

24G0170-01 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED

Sampled: 07/01/2024 10:00

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 14:24

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0170-01 B 05

Preparation Batch: BMG0274

Sample Size: 1.075 g (wet)

Dry Weight: 0.80 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 74.68

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.05	0.25	12.1	mg/kg	
Cadmium	7440-43-9	20	0.04	0.12	0.10	mg/kg	J
Copper	7440-50-8	20	0.22	0.62	39.8	mg/kg	
Selenium	7782-49-2	20	0.22	0.62	1.02	mg/kg	
Zinc	7440-66-6	20	3.6	7.5	82.6	mg/kg	



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113733-SB2S1
24G0170-01 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B

Sampled: 07/01/2024 10:00

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 14:24

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0170-01 B 05

Preparation Batch: BMG0274

Sample Size: 1.075 g (wet)

Dry Weight: 0.80 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 74.68

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	20	0.13	0.25	ND	mg/kg	U
Chromium	7440-47-3	20	0.30	0.62	29.3	mg/kg	
Lead	7439-92-1	20	0.06	0.12	7.52	mg/kg	
Silver	7440-22-4	20	0.03	0.25	0.15	mg/kg	J



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Reported:

13-Sep-2024 12:28

113733-SB2S1

24G0170-01 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B

Sampled: 07/01/2024 10:00

Instrument: HYDRA Analyst: ML

Analyzed: 07/15/2024 12:47

Sample Preparation:

Preparation Method: SMM EPA 7471B

Extract ID: 24G0170-01 B

Preparation Batch: BMG0339

Sample Size: 0.225 g (wet)

Dry Weight: 0.17 g

Prepared: 07/13/2024

Final Volume: 50 mL

% Solids: 74.68

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00625	0.0298	0.0764	mg/kg	



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Reported:
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113733-SB2S1
24G0170-01 (Solid)

Wet Chemistry

Method: EPA 9060A m

Sampled: 07/01/2024 10:00

Instrument: TOC Cube Analyst: ARR

Analyzed: 08/06/2024 10:22

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0170-01 C

Preparation Batch: BMG0790

Sample Size: 0.5325 g (wet)

Dry Weight: 0.40 g

Prepared: 07/31/2024

Final Volume: 0.5325 mL

% Solids: 74.68

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.50	%	F



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Reported:
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113733-SB2S1
24G0170-01 (Solid)

Wet Chemistry

Method: PSEP 1986

Sampled: 07/01/2024 10:00

Instrument: BAL2 Analyst: LERB

Analyzed: 07/10/2024 11:40

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0170-01

Preparation Batch: BMG0226

Sample Size: 5 g (wet)

Prepared: 07/10/2024

Final Volume: 5 mL

% Solids: 74.68

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Volatile Solids		1	0.01	0.01	2.18	%	



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Reported:
13-Sep-2024 12:28

113733-SB2S1
24G0170-01 (Solid)

Wet Chemistry

Method: SM 2540 G-11

Sampled: 07/01/2024 10:00

Instrument: BAL2 Analyst: LERB

Analyzed: 07/10/2024 11:40

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0170-01

Preparation Batch: BMG0226

Sample Size: 5 g (wet)

Prepared: 07/10/2024

Final Volume: 5 mL

% Solids: 74.68

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	74.68	%	



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Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 12:28

113733-SB2S2
24G0170-02 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/01/2024 10:03

Instrument: NT10 Analyst: RJL

Analyzed: 07/27/2024 18:32

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0170-02 B 04

Preparation Batch: BMG0256

Sample Size: 12.9 g (wet)

Dry Weight: 10.01 g

Prepared: 07/12/2024

Final Volume: 1 mL

% Solids: 77.62

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	10.0	20.0	ND	ug/kg	U
bis(2-chloroethyl) ether	111-44-4	1	35.0	49.9	ND	ug/kg	U
2-Chlorophenol	95-57-8	1	20.0	20.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	10.0	20.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	10.0	20.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	10.0	20.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	20.0	20.0	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	10.0	20.0	ND	ug/kg	U
2-Methylphenol	95-48-7	1	10.0	20.0	ND	ug/kg	U
Hexachloroethane	67-72-1	1	10.0	20.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	15.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	15.0	20.0	19.2	ug/kg	J
Nitrobenzene	98-95-3	1	10.0	20.0	ND	ug/kg	U
Isophorone	78-59-1	1	15.0	20.0	ND	ug/kg	U
2-Nitrophenol	88-75-5	1	10.0	20.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	49.9	99.9	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	1	10.0	20.0	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	1	49.9	99.9	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	10.0	20.0	ND	ug/kg	U
Naphthalene	91-20-3	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	99.9	200	ND	ug/kg	U
4-Chloroaniline	106-47-8	1	49.9	99.9	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	10.0	20.0	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	1	49.9	99.9	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	10.0	20.0	12.1	ug/kg	J
Hexachlorocyclopentadiene	77-47-4	1	49.9	99.9	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	1	49.9	99.9	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	1	49.9	99.9	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	1	10.0	20.0	ND	ug/kg	U
2-Nitroaniline	88-74-4	1	49.9	99.9	ND	ug/kg	U
Acenaphthylene	208-96-8	1	10.0	20.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	10.0	20.0	ND	ug/kg	U
2,6-Dinitrotoluene	606-20-2	1	49.9	99.9	ND	ug/kg	U
Acenaphthene	83-32-9	1	10.0	20.0	ND	ug/kg	U
3-Nitroaniline	99-09-2	1	49.9	99.9	ND	ug/kg	U



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 12:28

113733-SB2S2
24G0170-02 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/01/2024 10:03

Instrument: NT10 Analyst: RJL

Analyzed: 07/27/2024 18:32

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2,4-Dinitrophenol	51-28-5	1	99.9	200	ND	ug/kg	U
Dibenzofuran	132-64-9	1	20.0	20.0	ND	ug/kg	U
4-Nitrophenol	100-02-7	1	49.9	99.9	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	1	49.9	99.9	ND	ug/kg	U
Fluorene	86-73-7	1	20.0	20.0	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	1	35.0	49.9	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	35.0	49.9	ND	ug/kg	U
4-Nitroaniline	100-01-6	1	49.9	99.9	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	1	99.9	200	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	10.0	20.0	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	1	20.0	20.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	20.0	20.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	49.9	99.9	ND	ug/kg	U
Phenanthrene	85-01-8	1	10.0	20.0	ND	ug/kg	U
Anthracene	120-12-7	1	10.0	20.0	ND	ug/kg	U
Carbazole	86-74-8	1	10.0	20.0	ND	ug/kg	U
Di-n-Butylphthalate	84-74-2	1	10.0	20.0	ND	ug/kg	U
Fluoranthene	206-44-0	1	10.0	20.0	ND	ug/kg	U
Pyrene	129-00-0	1	10.0	20.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	10.0	20.0	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	1	10.0	20.0	ND	ug/kg	U
3,3'-Dichlorobenzidine	91-94-1	1	49.9	99.9	ND	ug/kg	U
Chrysene	218-01-9	1	10.0	20.0	ND	ug/kg	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	39.9	49.9	ND	ug/kg	U
Di-n-Octylphthalate	117-84-0	1	10.0	20.0	ND	ug/kg	U
Benzo(a)fluoranthene, Total		1	30.0	39.9	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	10.0	20.0	ND	ug/kg	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	20.0	20.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	20.0	20.0	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	20.0	20.0	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	10.0	20.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	82.9	%	
Surrogate: Phenol-d5				29-120 %	77.9	%	
Surrogate: 2-Chlorophenol-d4				31-120 %	82.9	%	
Surrogate: 1,2-Dichlorobenzene-d4				32-120 %	81.1	%	
Surrogate: Nitrobenzene-d5				30-120 %	89.5	%	
Surrogate: 2-Fluorobiphenyl				35-120 %	87.3	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 12:28

113733-SB2S2

24G0170-02 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/01/2024 10:03

Instrument: NT10 Analyst: RJL

Analyzed: 07/27/2024 18:32

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: 2,4,6-Tribromophenol		24-134 %	98.6	%	
Surrogate: p-Terphenyl-d14		37-120 %	99.4	%	



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Reported:
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113733-SB2S2
24G0170-02 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM

Sampled: 07/01/2024 10:03

Instrument: NT10 Analyst: RJL

Analyzed: 07/27/2024 18:32

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0170-02 B 04

Preparation Batch: BMG0256

Sample Size: 12.9 g (wet)

Dry Weight: 10.01 g

Prepared: 07/12/2024

Final Volume: 1 mL

% Solids: 77.62

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	2.5	5.0	2.6	ug/kg	J
1,3-Dichlorobenzene	541-73-1	1	2.5	5.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	2.5	5.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	2.5	5.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	200	200	ND	ug/kg	U
2-Methylphenol	95-48-7	1	2.5	5.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	10.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	2.5	5.0	20.3	ug/kg	
2,4-Dimethylphenol	105-67-9	1	10.0	20.0	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	5.0	5.0	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	2.5	5.0	ND	ug/kg	U
N-Nitrosodimethylamine	62-75-9	1	12.5	25.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	2.5	5.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	10.0	20.0	25.8	ug/kg	
N-Nitrosodiphenylamine	86-30-6	1	2.5	5.0	8.5	ug/kg	
Hexachlorobenzene	118-74-1	1	2.5	5.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	99.9	99.9	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	2.5	5.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	2.5	5.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	81.9	%	
Surrogate: p-Terphenyl-d14				37-120 %	108	%	



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Reported:
13-Sep-2024 12:28

113733-SB2S2
24G0170-02 (Solid)

Butyl Tins

Method: EPA 8270E-SIM			Sampled: 07/01/2024 10:03		
Instrument: NT17 Analyst: JZ			Analyzed: 07/23/2024 14:38		
Sample Preparation:	Preparation Method: EPA 3546 (Microwave)			Extract ID: 24G0170-02 B 03	
	Preparation Batch: BMG0255	Sample Size: 6.45 g (wet)		Dry Weight: 5.01 g	
	Prepared: 07/12/2024	Final Volume: 0.5 mL		% Solids: 77.62	
Sample Cleanup:	Cleanup Method: Silica Gel			Extract ID: 24G0170-02 B 03	
	Cleanup Batch: CMG0156	Initial Volume: 0.5 uL			
	Cleaned: 22-Jul-2024	Final Volume: 0.5 uL			

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Tributyltin Ion	36643-28-4	1	1.93	3.85	ND	ug/kg	U
Surrogate: Triphenyltin				30-160 %	77.7	%	
Surrogate: Tripropyltin				30-160 %	66.1	%	



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Reported:

13-Sep-2024 12:28

113733-SB2S2
24G0170-02 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/01/2024 10:03

Instrument: ECD6 Analyst: RT

Analyzed: 07/31/2024 16:09

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 16.15 g (wet)	Extract ID: 24G0170-02 B 02
	Preparation Batch: BMG0254	Final Volume: 2.5 mL	Dry Weight: 12.54 g
	Prepared: 07/12/2024		% Solids: 77.62

Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL	Extract ID: 24G0170-02 B 02
	Cleanup Batch: CMG0208	Final Volume: 2.5 uL	
	Cleaned: 30-Jul-2024		

Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL	Extract ID: 24G0170-02 B 02
	Cleanup Batch: CMG0207	Final Volume: 2.5 uL	
	Cleaned: 30-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.25	0.50	0.45	ug/kg	J
beta-BHC	319-85-7	1	0.25	0.50	ND	ug/kg	U
gamma-BHC (Lindane)	58-89-9	1	0.25	0.50	ND	ug/kg	U
delta-BHC	319-86-8	1	0.25	0.50	ND	ug/kg	U
Heptachlor	76-44-8	1	0.25	0.50	ND	ug/kg	U
Aldrin	309-00-2	1	0.50	0.50	ND	ug/kg	U
Heptachlor Epoxide	1024-57-3	1	0.25	0.50	ND	ug/kg	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.50	0.50	ND	ug/kg	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.25	0.50	ND	ug/kg	U
Endosulfan I	959-98-8	1	0.25	0.50	ND	ug/kg	U
4,4'-DDE	72-55-9	1	0.50	1.00	ND	ug/kg	U
Dieldrin	60-57-1	1	0.50	1.00	ND	ug/kg	U
Endrin	72-20-8	1	0.50	1.00	ND	ug/kg	U
Endosulfan II	33213-65-9	1	0.50	1.00	ND	ug/kg	U
4,4'-DDD	72-54-8	1	0.50	1.00	ND	ug/kg	U
Endrin Aldehyde	7421-93-4	1	0.50	1.00	ND	ug/kg	U
4,4'-DDT	50-29-3	1	0.50	1.00	ND	ug/kg	U
Endosulfan Sulfate	1031-07-8	1	0.50	1.00	ND	ug/kg	U
Endrin Ketone	53494-70-5	1	0.50	1.00	ND	ug/kg	U
Methoxychlor	72-43-5	1	2.49	4.99	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	0.25	0.50	0.37	ug/kg	J
Hexachlorobenzene	118-74-1	1	0.25	0.50	0.56	ug/kg	
2,4'-DDE	3424-82-6	1	0.50	1.00	ND	ug/kg	U
2,4'-DDD	53-19-0	1	0.50	1.00	ND	ug/kg	U
2,4'-DDT	789-02-6	1	0.50	1.00	ND	ug/kg	U
Oxychlordane	27304-13-8	1	0.50	1.00	ND	ug/kg	U
cis-Nonachlor	5103-73-1	1	0.50	1.00	ND	ug/kg	U
trans-Nonachlor	39765-80-5	1	0.50	1.00	ND	ug/kg	U
Mirex	2385-85-5	1	1.00	1.00	ND	ug/kg	U



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Project Manager: Dan McMahon

Reported:

13-Sep-2024 12:28

113733-SB2S2

24G0170-02 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/01/2024 10:03

Instrument: ECD6 Analyst: RT

Analyzed: 07/31/2024 16:09

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Decachlorobiphenyl		30-160 %	93.9	%	
Surrogate: Decachlorobiphenyl [2C]		30-160 %	85.7	%	
Surrogate: Tetrachlorometaxylene		30-160 %	64.1	%	
Surrogate: Tetrachlorometaxylene [2C]		30-160 %	69.3	%	



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Reported:
13-Sep-2024 12:28

113733-SB2S2
24G0170-02 (Solid)

Aroclor PCB

Method: EPA 8082A			Sampled: 07/01/2024 10:03	
Instrument: ECD5 Analyst: NRB			Analyzed: 07/25/2024 00:06	
Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 16.1 g (wet)	Extract ID: 24G0170-02 B 01	
	Preparation Batch: BMG0250		Dry Weight: 12.50 g	
	Prepared: 07/15/2024		% Solids: 77.62	
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL	Extract ID: 24G0170-02 B 01	
	Cleanup Batch: CMG0171			
	Cleaned: 24-Jul-2024			
Sample Cleanup:	Cleanup Method: Sulfuric Acid	Initial Volume: 2.5 uL	Extract ID: 24G0170-02 B 01	
	Cleanup Batch: CMG0169			
	Cleaned: 24-Jul-2024			
Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL	Extract ID: 24G0170-02 B 01	
	Cleanup Batch: CMG0170			
	Cleaned: 24-Jul-2024			

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	2.0	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	2.0	4.0	10.6	ug/kg	
Aroclor 1254	11097-69-1	1	2.0	4.0	11.2	ug/kg	
Aroclor 1260	11096-82-5	1	2.0	4.0	10.5	ug/kg	
Aroclor 1262	37324-23-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1268	11100-14-4	1	2.0	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				40-126 %	77.4	%	
Surrogate: Tetrachlorometaxylene				44-120 %	77.1	%	
Surrogate: Decachlorobiphenyl [2C]				40-126 %	77.8	%	
Surrogate: Tetrachlorometaxylene [2C]				44-120 %	77.9	%	



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113733-SB2S2

24G0170-02 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED

Sampled: 07/01/2024 10:03

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 14:29

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0170-02 B 05

Preparation Batch: BMG0274

Sample Size: 1.005 g (wet)

Dry Weight: 0.78 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 77.67

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.05	0.26	14.2	mg/kg	
Cadmium	7440-43-9	20	0.04	0.13	0.14	mg/kg	
Copper	7440-50-8	20	0.22	0.64	51.3	mg/kg	
Selenium	7782-49-2	20	0.23	0.64	1.24	mg/kg	
Zinc	7440-66-6	20	3.7	7.7	98.7	mg/kg	



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113733-SB2S2
24G0170-02 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B

Sampled: 07/01/2024 10:03

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 14:29

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0170-02 B 05

Preparation Batch: BMG0274

Sample Size: 1.005 g (wet)

Dry Weight: 0.78 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 77.67

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	20	0.13	0.26	ND	mg/kg	U
Chromium	7440-47-3	50	0.83	1.60	35.9	mg/kg	D
Lead	7439-92-1	20	0.07	0.13	9.89	mg/kg	
Silver	7440-22-4	20	0.03	0.26	0.20	mg/kg	J



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Reported:

13-Sep-2024 12:28

113733-SB2S2

24G0170-02 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B

Sampled: 07/01/2024 10:03

Instrument: HYDRA Analyst: ML

Analyzed: 07/15/2024 12:49

Sample Preparation:

Preparation Method: SMM EPA 7471B

Extract ID: 24G0170-02 B

Preparation Batch: BMG0339

Sample Size: 0.233 g (wet)

Dry Weight: 0.18 g

Prepared: 07/13/2024

Final Volume: 50 mL

% Solids: 77.67

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00580	0.0276	0.0849	mg/kg	



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Reported:

13-Sep-2024 12:28

113733-SB2S2

24G0170-02 (Solid)

Wet Chemistry

Method: EPA 9060A m

Sampled: 07/01/2024 10:03

Instrument: TOC Cube Analyst: ARR

Analyzed: 08/06/2024 10:53

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0170-02 C

Preparation Batch: BMG0790

Sample Size: 0.5132 g (wet)

Dry Weight: 0.40 g

Prepared: 07/31/2024

Final Volume: 0.5132 mL

% Solids: 77.67

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.63	%	F



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Reported:
13-Sep-2024 12:28

113733-SB2S2
24G0170-02 (Solid)

Wet Chemistry

Method: PSEP 1986

Sampled: 07/01/2024 10:03

Instrument: BAL2 Analyst: LERB

Analyzed: 07/10/2024 11:40

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0170-02

Preparation Batch: BMG0226

Sample Size: 5 g (wet)

Prepared: 07/10/2024

Final Volume: 5 mL

% Solids: 77.67

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Volatile Solids		1	0.01	0.01	2.29	%	



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Project Manager: Dan McMahon

Reported:

13-Sep-2024 12:28

113733-SB2S2

24G0170-02 (Solid)

Wet Chemistry

Method: SM 2540 G-11

Sampled: 07/01/2024 10:03

Instrument: BAL2 Analyst: LERB

Analyzed: 07/10/2024 11:40

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0170-02

Preparation Batch: BMG0226

Sample Size: 5 g (wet)

Prepared: 07/10/2024

Final Volume: 5 mL

% Solids: 77.67

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	77.67	%	



Shannon & Wilson, Inc

5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 12:28

113733-SB2S3

24G0170-03 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/01/2024 10:30

Instrument: NT10 Analyst: RJL

Analyzed: 07/27/2024 19:11

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0170-03 B 04

Preparation Batch: BMG0256

Sample Size: 12.31 g (wet)

Dry Weight: 10.00 g

Prepared: 07/12/2024

Final Volume: 1 mL

% Solids: 81.23

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	10.0	20.0	50.1	ug/kg	
bis(2-chloroethyl) ether	111-44-4	1	35.0	50.0	ND	ug/kg	U
2-Chlorophenol	95-57-8	1	20.0	20.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	10.0	20.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	10.0	20.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	10.0	20.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	20.0	20.0	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	10.0	20.0	ND	ug/kg	U
2-Methylphenol	95-48-7	1	10.0	20.0	17.0	ug/kg	J
Hexachloroethane	67-72-1	1	10.0	20.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	15.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	15.0	20.0	ND	ug/kg	U
Nitrobenzene	98-95-3	1	10.0	20.0	ND	ug/kg	U
Isophorone	78-59-1	1	15.0	20.0	ND	ug/kg	U
2-Nitrophenol	88-75-5	1	10.0	20.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	50.0	100	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	1	10.0	20.0	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	1	50.0	100	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	10.0	20.0	ND	ug/kg	U
Naphthalene	91-20-3	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	100	200	ND	ug/kg	U
4-Chloroaniline	106-47-8	1	50.0	100	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	10.0	20.0	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	1	50.0	100	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	10.0	20.0	17.3	ug/kg	J
Hexachlorocyclopentadiene	77-47-4	1	50.0	100	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	1	50.0	100	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	1	50.0	100	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	1	10.0	20.0	ND	ug/kg	U
2-Nitroaniline	88-74-4	1	50.0	100	ND	ug/kg	U
Acenaphthylene	208-96-8	1	10.0	20.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	10.0	20.0	ND	ug/kg	U
2,6-Dinitrotoluene	606-20-2	1	50.0	100	ND	ug/kg	U
Acenaphthene	83-32-9	1	10.0	20.0	11.0	ug/kg	J
3-Nitroaniline	99-09-2	1	50.0	100	ND	ug/kg	U



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 12:28

113733-SB2S3
24G0170-03 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/01/2024 10:30

Instrument: NT10 Analyst: RJL

Analyzed: 07/27/2024 19:11

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2,4-Dinitrophenol	51-28-5	1	100	200	ND	ug/kg	U
Dibenzofuran	132-64-9	1	20.0	20.0	32.4	ug/kg	
4-Nitrophenol	100-02-7	1	50.0	100	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	1	50.0	100	ND	ug/kg	U
Fluorene	86-73-7	1	20.0	20.0	69.8	ug/kg	
4-Chlorophenylphenyl ether	7005-72-3	1	35.0	50.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	35.0	50.0	ND	ug/kg	U
4-Nitroaniline	100-01-6	1	50.0	100	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	1	100	200	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	10.0	20.0	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	1	20.0	20.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	20.0	20.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	50.0	100	ND	ug/kg	U
Phenanthrene	85-01-8	1	10.0	20.0	418	ug/kg	
Anthracene	120-12-7	1	10.0	20.0	99.5	ug/kg	
Carbazole	86-74-8	1	10.0	20.0	32.1	ug/kg	
Di-n-Butylphthalate	84-74-2	1	10.0	20.0	ND	ug/kg	U
Fluoranthene	206-44-0	1	10.0	20.0	413	ug/kg	
Pyrene	129-00-0	1	10.0	20.0	300	ug/kg	
Butylbenzylphthalate	85-68-7	1	10.0	20.0	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	1	10.0	20.0	ND	ug/kg	U
3,3'-Dichlorobenzidine	91-94-1	1	50.0	100	ND	ug/kg	U
Chrysene	218-01-9	1	10.0	20.0	12.7	ug/kg	J
bis(2-Ethylhexyl)phthalate	117-81-7	1	40.0	50.0	ND	ug/kg	U
Di-n-Octylphthalate	117-84-0	1	10.0	20.0	ND	ug/kg	U
Benzo(a)fluoranthene, Total		1	30.0	40.0	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	10.0	20.0	ND	ug/kg	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	20.0	20.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	20.0	20.0	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	20.0	20.0	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	10.0	20.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	86.8	%	
Surrogate: Phenol-d5				29-120 %	82.2	%	
Surrogate: 2-Chlorophenol-d4				31-120 %	86.9	%	
Surrogate: 1,2-Dichlorobenzene-d4				32-120 %	80.8	%	
Surrogate: Nitrobenzene-d5				30-120 %	91.1	%	
Surrogate: 2-Fluorobiphenyl				35-120 %	89.0	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 12:28

113733-SB2S3

24G0170-03 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/01/2024 10:30

Instrument: NT10 Analyst: RJL

Analyzed: 07/27/2024 19:11

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: 2,4,6-Tribromophenol		24-134 %	102	%	
Surrogate: p-Terphenyl-d14		37-120 %	100	%	



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Project Manager: Dan McMahon

Reported:
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113733-SB2S3
24G0170-03 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM

Sampled: 07/01/2024 10:30

Instrument: NT10 Analyst: RJL

Analyzed: 07/27/2024 19:11

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0170-03 B 04

Preparation Batch: BMG0256

Sample Size: 12.31 g (wet)

Dry Weight: 10.00 g

Prepared: 07/12/2024

Final Volume: 1 mL

% Solids: 81.23

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	2.5	5.0	53.0	ug/kg	
1,3-Dichlorobenzene	541-73-1	1	2.5	5.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	2.5	5.0	3.4	ug/kg	J
1,2-Dichlorobenzene	95-50-1	1	2.5	5.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	200	200	ND	ug/kg	U
2-Methylphenol	95-48-7	1	2.5	5.0	17.0	ug/kg	
N-Nitroso-di-n-Propylamine	621-64-7	1	10.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	2.5	5.0	4.1	ug/kg	J
2,4-Dimethylphenol	105-67-9	1	10.0	20.0	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	5.0	5.0	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	2.5	5.0	ND	ug/kg	U
N-Nitrosodimethylamine	62-75-9	1	12.5	25.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	2.5	5.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	10.0	20.0	16.3	ug/kg	J
N-Nitrosodiphenylamine	86-30-6	1	2.5	5.0	12.4	ug/kg	
Hexachlorobenzene	118-74-1	1	2.5	5.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	100	100	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	2.5	5.0	4.2	ug/kg	J
Dibenzo(a,h)anthracene	53-70-3	1	2.5	5.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	84.8	%	
Surrogate: p-Terphenyl-d14				37-120 %	120	%	



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Reported:
13-Sep-2024 12:28

113733-SB2S3
24G0170-03 (Solid)

Butyl Tins

Method: EPA 8270E-SIM			Sampled: 07/01/2024 10:30		
Instrument: NT17 Analyst: JZ			Analyzed: 07/23/2024 14:51		
Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 24G0170-03 B 03		
	Preparation Batch: BMG0255		Dry Weight: 5.00 g		
	Prepared: 07/12/2024		% Solids: 81.23		
Sample Cleanup:	Sample Size: 6.16 g (wet)		Extract ID: 24G0170-03 B 03		
	Final Volume: 0.5 mL				
	Cleanup Method: Silica Gel				
	Cleanup Batch: CMG0156				
	Initial Volume: 0.5 uL				
	Cleaned: 22-Jul-2024				

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Tributyltin Ion	36643-28-4	1	1.93	3.86	ND	ug/kg	U
Surrogate: Triphenyltin				30-160 %	56.5	%	
Surrogate: Tripropyltin				30-160 %	58.6	%	



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Reported:

13-Sep-2024 12:28

113733-SB2S3
24G0170-03 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/01/2024 10:30

Instrument: ECD6 Analyst: RT

Analyzed: 07/31/2024 16:28

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 15.39 g (wet)	Extract ID: 24G0170-03 B 02
	Preparation Batch: BMG0254		
	Prepared: 07/12/2024		
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL	Extract ID: 24G0170-03 B 02
	Cleanup Batch: CMG0208		
	Cleaned: 30-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL	Extract ID: 24G0170-03 B 02
	Cleanup Batch: CMG0207		
	Cleaned: 30-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.25	0.50	ND	ug/kg	U
beta-BHC	319-85-7	1	0.25	0.50	ND	ug/kg	U
gamma-BHC (Lindane)	58-89-9	1	0.25	0.50	ND	ug/kg	U
delta-BHC	319-86-8	1	0.25	0.50	ND	ug/kg	U
Heptachlor	76-44-8	1	0.25	0.50	ND	ug/kg	U
Aldrin	309-00-2	1	0.50	0.50	ND	ug/kg	U
Heptachlor Epoxide	1024-57-3	1	0.25	0.50	ND	ug/kg	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.50	0.50	ND	ug/kg	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.25	0.50	ND	ug/kg	U
Endosulfan I	959-98-8	1	0.25	0.50	ND	ug/kg	U
4,4'-DDE	72-55-9	1	0.50	1.00	ND	ug/kg	U
Dieldrin	60-57-1	1	0.50	1.00	ND	ug/kg	U
Endrin	72-20-8	1	0.50	1.00	ND	ug/kg	U
Endosulfan II	33213-65-9	1	0.50	1.00	ND	ug/kg	U
4,4'-DDD	72-54-8	1	0.50	1.00	1.37	ug/kg	P1
Endrin Aldehyde	7421-93-4	1	0.50	1.00	ND	ug/kg	U
4,4'-DDT	50-29-3	1	0.50	1.00	ND	ug/kg	U
Endosulfan Sulfate	1031-07-8	1	0.50	1.00	ND	ug/kg	U
Endrin Ketone	53494-70-5	1	0.50	1.00	ND	ug/kg	U
Methoxychlor	72-43-5	1	2.50	5.00	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	0.25	0.50	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	0.25	0.50	0.35	ug/kg	J
2,4'-DDE	3424-82-6	1	0.50	1.00	ND	ug/kg	U
2,4'-DDD	53-19-0	1	0.50	1.00	ND	ug/kg	U
2,4'-DDT	789-02-6	1	0.50	1.00	ND	ug/kg	U
Oxychlordane	27304-13-8	1	0.50	1.00	ND	ug/kg	U
cis-Nonachlor	5103-73-1	1	0.50	1.00	ND	ug/kg	U
trans-Nonachlor	39765-80-5	1	0.50	1.00	ND	ug/kg	U
Mirex	2385-85-5	1	1.00	1.00	ND	ug/kg	U



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Reported:
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113733-SB2S3
24G0170-03 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/01/2024 10:30

Instrument: ECD6 Analyst: RT

Analyzed: 07/31/2024 16:28

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Decachlorobiphenyl		30-160 %	87.2	%	
Surrogate: Decachlorobiphenyl [2C]		30-160 %	81.6	%	
Surrogate: Tetrachlorometaxylene		30-160 %	60.0	%	
Surrogate: Tetrachlorometaxylene [2C]		30-160 %	59.1	%	



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Reported:

13-Sep-2024 12:28

113733-SB2S3

24G0170-03 (Solid)

Aroclor PCB

Method: EPA 8082A

Sampled: 07/01/2024 10:30

Instrument: ECD5 Analyst: NRB

Analyzed: 07/25/2024 00:27

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 15.39 g (wet) Final Volume: 2.5 mL	Extract ID: 24G0170-03 B 01 Dry Weight: 12.50 g % Solids: 81.23
	Preparation Batch: BMG0250		
	Prepared: 07/15/2024		
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0170-03 B 01
	Cleanup Batch: CMG0171		
	Cleaned: 24-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfuric Acid	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0170-03 B 01
	Cleanup Batch: CMG0169		
	Cleaned: 24-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0170-03 B 01
	Cleanup Batch: CMG0170		
	Cleaned: 24-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	2.0	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	2.0	4.0	5.6	ug/kg	
Aroclor 1254	11097-69-1	1	2.0	4.0	12.8	ug/kg	
Aroclor 1260	11096-82-5	1	2.0	4.0	8.7	ug/kg	
Aroclor 1262	37324-23-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1268	11100-14-4	1	2.0	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl					40-126 %	76.6	%
Surrogate: Tetrachlorometaxylene					44-120 %	69.1	%
Surrogate: Decachlorobiphenyl [2C]					40-126 %	76.2	%
Surrogate: Tetrachlorometaxylene [2C]					44-120 %	72.4	%



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Project: PAMP Sediments

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Reported:

13-Sep-2024 12:28

113733-SB2S3

24G0170-03 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED

Sampled: 07/01/2024 10:30

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 14:52

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0170-03 B 05

Preparation Batch: BMG0274

Sample Size: 1.068 g (wet)

Dry Weight: 0.84 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 79.09

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.04	0.24	18.1	mg/kg	
Cadmium	7440-43-9	20	0.04	0.12	0.17	mg/kg	
Copper	7440-50-8	20	0.21	0.59	51.8	mg/kg	
Selenium	7782-49-2	20	0.21	0.59	1.34	mg/kg	
Zinc	7440-66-6	20	3.5	7.1	111	mg/kg	



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Project: PAMP Sediments
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Reported:
13-Sep-2024 12:28

113733-SB2S3
24G0170-03 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B	Sampled: 07/01/2024 10:30	
Instrument: ICPMS1 Analyst: DOE	Analyzed: 07/18/2024 14:52	
Sample Preparation:	Preparation Method: SWN EPA 3050B	Extract ID: 24G0170-03 B 05
	Preparation Batch: BMG0274	Dry Weight: 0.84 g
	Prepared: 07/11/2024	% Solids: 79.09
	Sample Size: 1.068 g (wet)	
	Final Volume: 50 mL	

Analyte	CAS Number	Dilution	Detection	Reporting	Result	Units	Notes
			Limit	Limit			
Antimony	7440-36-0	20	0.12	0.24	ND	mg/kg	U
Chromium	7440-47-3	50	0.77	1.48	40.3	mg/kg	D
Lead	7439-92-1	20	0.06	0.12	11.6	mg/kg	
Silver	7440-22-4	20	0.03	0.24	0.19	mg/kg	J



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Project Manager: Dan McMahon

Reported:

13-Sep-2024 12:28

113733-SB2S3

24G0170-03 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B

Sampled: 07/01/2024 10:30

Instrument: HYDRA Analyst: ML

Analyzed: 07/15/2024 12:51

Sample Preparation:

Preparation Method: SMM EPA 7471B

Extract ID: 24G0170-03 B

Preparation Batch: BMG0339

Sample Size: 0.224 g (wet)

Dry Weight: 0.18 g

Prepared: 07/13/2024

Final Volume: 50 mL

% Solids: 79.09

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00593	0.0282	0.0857	mg/kg	



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5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 12:28

113733-SB2S3

24G0170-03 (Solid)

Wet Chemistry

Method: EPA 9060A m

Sampled: 07/01/2024 10:30

Instrument: TOC Cube Analyst: ARR

Analyzed: 08/06/2024 13:55

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0170-03 C

Preparation Batch: BMG0790

Sample Size: 0.5054 g (wet)

Dry Weight: 0.40 g

Prepared: 07/31/2024

Final Volume: 0.5054 mL

% Solids: 79.09

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.45	%	F



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 12:28

113733-SB2S3
24G0170-03 (Solid)

Wet Chemistry

Method: PSEP 1986

Sampled: 07/01/2024 10:30

Instrument: BAL2 Analyst: LERB

Analyzed: 07/10/2024 11:40

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0170-03

Preparation Batch: BMG0226

Sample Size: 5 g (wet)

Prepared: 07/10/2024

Final Volume: 5 mL

% Solids: 79.09

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Volatile Solids		1	0.01	0.01	2.50	%	



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Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 12:28

113733-SB2S3
24G0170-03 (Solid)

Wet Chemistry

Method: SM 2540 G-11

Sampled: 07/01/2024 10:30

Instrument: BAL2 Analyst: LERB

Analyzed: 07/10/2024 11:40

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0170-03

Preparation Batch: BMG0226

Sample Size: 5 g (wet)

Prepared: 07/10/2024

Final Volume: 5 mL

% Solids: 79.09

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	79.09	%	



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Project Manager: Dan McMahon

Reported:

13-Sep-2024 12:28

113733-SB2S4
24G0170-04 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/01/2024 10:35

Instrument: NT10 Analyst: RJL

Analyzed: 07/27/2024 19:50

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0170-04 B 04

Preparation Batch: BMG0256

Sample Size: 12.89 g (wet)

Dry Weight: 10.02 g

Prepared: 07/12/2024

Final Volume: 1 mL

% Solids: 77.77

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	10.0	20.0	ND	ug/kg	U
bis(2-chloroethyl) ether	111-44-4	1	34.9	49.9	ND	ug/kg	U
2-Chlorophenol	95-57-8	1	20.0	20.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	10.0	20.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	10.0	20.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	10.0	20.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	20.0	20.0	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	10.0	20.0	ND	ug/kg	U
2-Methylphenol	95-48-7	1	10.0	20.0	ND	ug/kg	U
Hexachloroethane	67-72-1	1	10.0	20.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	15.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	15.0	20.0	ND	ug/kg	U
Nitrobenzene	98-95-3	1	10.0	20.0	ND	ug/kg	U
Isophorone	78-59-1	1	15.0	20.0	ND	ug/kg	U
2-Nitrophenol	88-75-5	1	10.0	20.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	49.9	99.8	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	1	10.0	20.0	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	1	49.9	99.8	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	10.0	20.0	ND	ug/kg	U
Naphthalene	91-20-3	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	99.8	200	ND	ug/kg	U
4-Chloroaniline	106-47-8	1	49.9	99.8	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	10.0	20.0	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	1	49.9	99.8	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	10.0	20.0	ND	ug/kg	U
Hexachlorocyclopentadiene	77-47-4	1	49.9	99.8	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	1	49.9	99.8	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	1	49.9	99.8	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	1	10.0	20.0	ND	ug/kg	U
2-Nitroaniline	88-74-4	1	49.9	99.8	ND	ug/kg	U
Acenaphthylene	208-96-8	1	10.0	20.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	10.0	20.0	ND	ug/kg	U
2,6-Dinitrotoluene	606-20-2	1	49.9	99.8	ND	ug/kg	U
Acenaphthene	83-32-9	1	10.0	20.0	ND	ug/kg	U
3-Nitroaniline	99-09-2	1	49.9	99.8	ND	ug/kg	U



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 12:28

113733-SB2S4
24G0170-04 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/01/2024 10:35

Instrument: NT10 Analyst: RJL

Analyzed: 07/27/2024 19:50

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2,4-Dinitrophenol	51-28-5	1	99.8	200	ND	ug/kg	U
Dibenzofuran	132-64-9	1	20.0	20.0	ND	ug/kg	U
4-Nitrophenol	100-02-7	1	49.9	99.8	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	1	49.9	99.8	ND	ug/kg	U
Fluorene	86-73-7	1	20.0	20.0	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	1	34.9	49.9	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	34.9	49.9	ND	ug/kg	U
4-Nitroaniline	100-01-6	1	49.9	99.8	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	1	99.8	200	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	10.0	20.0	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	1	20.0	20.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	20.0	20.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	49.9	99.8	ND	ug/kg	U
Phenanthrene	85-01-8	1	10.0	20.0	ND	ug/kg	U
Anthracene	120-12-7	1	10.0	20.0	ND	ug/kg	U
Carbazole	86-74-8	1	10.0	20.0	ND	ug/kg	U
Di-n-Butylphthalate	84-74-2	1	10.0	20.0	ND	ug/kg	U
Fluoranthene	206-44-0	1	10.0	20.0	ND	ug/kg	U
Pyrene	129-00-0	1	10.0	20.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	10.0	20.0	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	1	10.0	20.0	ND	ug/kg	U
3,3'-Dichlorobenzidine	91-94-1	1	49.9	99.8	ND	ug/kg	U
Chrysene	218-01-9	1	10.0	20.0	ND	ug/kg	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	39.9	49.9	ND	ug/kg	U
Di-n-Octylphthalate	117-84-0	1	10.0	20.0	ND	ug/kg	U
Benzo(a)fluoranthene, Total		1	29.9	39.9	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	10.0	20.0	ND	ug/kg	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	20.0	20.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	20.0	20.0	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	20.0	20.0	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	10.0	20.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	89.0	%	
Surrogate: Phenol-d5				29-120 %	83.3	%	
Surrogate: 2-Chlorophenol-d4				31-120 %	97.4	%	
Surrogate: 1,2-Dichlorobenzene-d4				32-120 %	84.8	%	
Surrogate: Nitrobenzene-d5				30-120 %	88.0	%	
Surrogate: 2-Fluorobiphenyl				35-120 %	87.2	%	



Shannon & Wilson, Inc

5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 12:28

113733-SB2S4

24G0170-04 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/01/2024 10:35

Instrument: NT10 Analyst: RJL

Analyzed: 07/27/2024 19:50

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: 2,4,6-Tribromophenol		24-134 %	91.6	%	
Surrogate: p-Terphenyl-d14		37-120 %	101	%	



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Project Manager: Dan McMahon

Reported:
13-Sep-2024 12:28

113733-SB2S4
24G0170-04 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM

Sampled: 07/01/2024 10:35

Instrument: NT10 Analyst: RJL

Analyzed: 07/27/2024 19:50

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0170-04 B 04

Preparation Batch: BMG0256

Sample Size: 12.89 g (wet)

Dry Weight: 10.02 g

Prepared: 07/12/2024

Final Volume: 1 mL

% Solids: 77.77

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	2.5	5.0	2.7	ug/kg	J
1,3-Dichlorobenzene	541-73-1	1	2.5	5.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	2.5	5.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	2.5	5.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	200	200	ND	ug/kg	U
2-Methylphenol	95-48-7	1	2.5	5.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	10.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	2.5	5.0	2.7	ug/kg	J
2,4-Dimethylphenol	105-67-9	1	10.0	20.0	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	5.0	5.0	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	2.5	5.0	ND	ug/kg	U
N-Nitrosodimethylamine	62-75-9	1	12.5	24.9	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	2.5	5.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	10.0	20.0	20.0	ug/kg	
N-Nitrosodiphenylamine	86-30-6	1	2.5	5.0	3.7	ug/kg	J
Hexachlorobenzene	118-74-1	1	2.5	5.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	99.8	99.8	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	2.5	5.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	2.5	5.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	84.4	%	
Surrogate: p-Terphenyl-d14				37-120 %	109	%	



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 12:28

113733-SB2S4
24G0170-04 (Solid)

Butyl Tins

Method: EPA 8270E-SIM
Instrument: NT17 Analyst: JZ

Sampled: 07/01/2024 10:35

Analyzed: 07/23/2024 15:05

Sample Preparation: Preparation Method: EPA 3546 (Microwave)
Preparation Batch: BMG0255 Sample Size: 6.43 g (wet)
Prepared: 07/12/2024 Final Volume: 0.5 mL

Extract ID: 24G0170-04 B 03

Dry Weight: 5.00 g

% Solids: 77.77

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CMG0156 Initial Volume: 0.5 uL
Cleaned: 22-Jul-2024 Final Volume: 0.5 uL

Extract ID: 24G0170-04 B 03

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Tributyltin Ion	36643-28-4	1	1.93	3.86	ND	ug/kg	U
Surrogate: Triphenyltin				30-160 %	62.2	%	
Surrogate: Tripropyltin				30-160 %	54.6	%	



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Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 12:28

113733-SB2S4
24G0170-04 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/01/2024 10:35

Instrument: ECD6 Analyst: RT

Analyzed: 07/31/2024 16:46

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 16.12 g (wet)	Extract ID: 24G0170-04 B 02
	Preparation Batch: BMG0254	Final Volume: 2.5 mL	Dry Weight: 12.54 g
	Prepared: 07/12/2024		% Solids: 77.77

Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL	Extract ID: 24G0170-04 B 02
	Cleanup Batch: CMG0208	Final Volume: 2.5 uL	
	Cleaned: 30-Jul-2024		

Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL	Extract ID: 24G0170-04 B 02
	Cleanup Batch: CMG0207	Final Volume: 2.5 uL	
	Cleaned: 30-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.25	0.50	ND	ug/kg	U
beta-BHC	319-85-7	1	0.25	0.50	ND	ug/kg	U
gamma-BHC (Lindane)	58-89-9	1	0.25	0.50	ND	ug/kg	U
delta-BHC	319-86-8	1	0.25	0.50	ND	ug/kg	U
Heptachlor	76-44-8	1	0.25	0.50	ND	ug/kg	U
Aldrin	309-00-2	1	0.50	0.50	ND	ug/kg	U
Heptachlor Epoxide	1024-57-3	1	0.25	0.50	ND	ug/kg	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.50	0.50	ND	ug/kg	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.25	0.50	ND	ug/kg	U
Endosulfan I	959-98-8	1	0.25	0.50	ND	ug/kg	U
4,4'-DDE	72-55-9	1	0.50	1.00	ND	ug/kg	U
Dieldrin	60-57-1	1	0.50	1.00	ND	ug/kg	U
Endrin	72-20-8	1	0.50	1.00	ND	ug/kg	U
Endosulfan II	33213-65-9	1	0.50	1.00	ND	ug/kg	U
4,4'-DDD	72-54-8	1	0.50	1.00	ND	ug/kg	U
Endrin Aldehyde	7421-93-4	1	0.50	1.00	ND	ug/kg	U
4,4'-DDT	50-29-3	1	0.50	1.00	ND	ug/kg	U
Endosulfan Sulfate	1031-07-8	1	0.50	1.00	ND	ug/kg	U
Endrin Ketone	53494-70-5	1	0.50	1.00	ND	ug/kg	U
Methoxychlor	72-43-5	1	2.49	4.99	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	0.25	0.50	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	0.25	0.50	ND	ug/kg	U
2,4'-DDE	3424-82-6	1	0.50	1.00	ND	ug/kg	U
2,4'-DDD	53-19-0	1	0.50	1.00	ND	ug/kg	U
2,4'-DDT	789-02-6	1	0.50	1.00	ND	ug/kg	U
Oxychlordane	27304-13-8	1	0.50	1.00	ND	ug/kg	U
cis-Nonachlor	5103-73-1	1	0.50	1.00	ND	ug/kg	U
trans-Nonachlor	39765-80-5	1	0.50	1.00	ND	ug/kg	U
Mirex	2385-85-5	1	1.00	1.00	ND	ug/kg	U



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 12:28

113733-SB2S4
24G0170-04 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/01/2024 10:35

Instrument: ECD6 Analyst: RT

Analyzed: 07/31/2024 16:46

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Decachlorobiphenyl		30-160 %	96.0	%	
Surrogate: Decachlorobiphenyl [2C]		30-160 %	94.6	%	
Surrogate: Tetrachlorometaxylene		30-160 %	62.9	%	
Surrogate: Tetrachlorometaxylene [2C]		30-160 %	66.4	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 12:28

113733-SB2S4
24G0170-04 (Solid)

Aroclor PCB

Method: EPA 8082A

Sampled: 07/01/2024 10:35

Instrument: ECD5 Analyst: NRB

Analyzed: 07/25/2024 00:48

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 16.09 g (wet) Final Volume: 2.5 mL	Extract ID: 24G0170-04 B 01 Dry Weight: 12.51 g % Solids: 77.77
	Preparation Batch: BMG0250		
	Prepared: 07/15/2024		
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0170-04 B 01
	Cleanup Batch: CMG0171		
	Cleaned: 24-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfuric Acid	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0170-04 B 01
	Cleanup Batch: CMG0169		
	Cleaned: 24-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0170-04 B 01
	Cleanup Batch: CMG0170		
	Cleaned: 24-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	2.0	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	2.0	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	2.0	4.0	10.9	ug/kg	
Aroclor 1260	11096-82-5	1	2.0	4.0	9.2	ug/kg	
Aroclor 1262	37324-23-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1268	11100-14-4	1	2.0	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl					40-126 %	83.6	%
Surrogate: Tetrachlorometaxylene					44-120 %	80.8	%
Surrogate: Decachlorobiphenyl [2C]					40-126 %	85.0	%
Surrogate: Tetrachlorometaxylene [2C]					44-120 %	80.7	%



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 12:28

113733-SB2S4

24G0170-04 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED

Sampled: 07/01/2024 10:35

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 14:56

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0170-04 B 05

Preparation Batch: BMG0274

Sample Size: 1.019 g (wet)

Dry Weight: 0.81 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 79.36

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.05	0.25	12.8	mg/kg	
Cadmium	7440-43-9	20	0.04	0.12	0.12	mg/kg	
Copper	7440-50-8	20	0.22	0.62	37.3	mg/kg	
Selenium	7782-49-2	20	0.22	0.62	1.13	mg/kg	
Zinc	7440-66-6	20	3.6	7.4	78.1	mg/kg	



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 12:28

113733-SB2S4
24G0170-04 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B

Sampled: 07/01/2024 10:35

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 14:56

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0170-04 B 05

Preparation Batch: BMG0274

Sample Size: 1.019 g (wet)

Dry Weight: 0.81 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 79.36

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	20	0.13	0.25	ND	mg/kg	U
Chromium	7440-47-3	20	0.30	0.62	29.4	mg/kg	
Lead	7439-92-1	20	0.06	0.12	7.30	mg/kg	
Silver	7440-22-4	20	0.03	0.25	0.15	mg/kg	J



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Reported:

13-Sep-2024 12:28

113733-SB2S4

24G0170-04 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B

Sampled: 07/01/2024 10:35

Instrument: HYDRA Analyst: ML

Analyzed: 07/15/2024 12:54

Sample Preparation:

Preparation Method: SMM EPA 7471B

Extract ID: 24G0170-04 B

Preparation Batch: BMG0339

Sample Size: 0.221 g (wet)

Dry Weight: 0.18 g

Prepared: 07/13/2024

Final Volume: 50 mL

% Solids: 79.36

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00599	0.0285	0.0758	mg/kg	



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Reported:

13-Sep-2024 12:28

113733-SB2S4

24G0170-04 (Solid)

Wet Chemistry

Method: EPA 9060A m

Sampled: 07/01/2024 10:35

Instrument: TOC Cube Analyst: ARR

Analyzed: 08/06/2024 14:26

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0170-04 C

Preparation Batch: BMG0790

Sample Size: 0.5216 g (wet)

Dry Weight: 0.41 g

Prepared: 07/31/2024

Final Volume: 0.5216 mL

% Solids: 79.36

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.47	%	F



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Reported:
13-Sep-2024 12:28

113733-SB2S4
24G0170-04 (Solid)

Wet Chemistry

Method: PSEP 1986

Sampled: 07/01/2024 10:35

Instrument: BAL2 Analyst: LERB

Analyzed: 07/10/2024 11:40

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0170-04

Preparation Batch: BMG0226

Sample Size: 5 g (wet)

Prepared: 07/10/2024

Final Volume: 5 mL

% Solids: 79.36

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Volatile Solids		1	0.01	0.01	1.86	%	



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Reported:

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113733-SB2S4

24G0170-04 (Solid)

Wet Chemistry

Method: SM 2540 G-11

Sampled: 07/01/2024 10:35

Instrument: BAL2 Analyst: LERB

Analyzed: 07/10/2024 11:40

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0170-04

Preparation Batch: BMG0226

Sample Size: 5 g (wet)

Prepared: 07/10/2024

Final Volume: 5 mL

% Solids: 79.36

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	79.36	%	



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Reported:
13-Sep-2024 12:28

113733-SB2S5
24G0170-05 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E
Instrument: NT10 Analyst: RJL
Sample Preparation: Preparation Method: EPA 3546 (Microwave)
Preparation Batch: BMG0256
Prepared: 07/12/2024
Sample Size: 14.39 g (wet)
Final Volume: 1 mL
Extract ID: 24G0170-05 B 04
Dry Weight: 10.03 g
% Solids: 69.68
Sampled: 07/01/2024 10:55
Analyzed: 07/27/2024 21:47

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	10.0	19.9	ND	ug/kg	U
bis(2-chloroethyl) ether	111-44-4	1	34.9	49.9	ND	ug/kg	U
2-Chlorophenol	95-57-8	1	19.9	19.9	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	10.0	19.9	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	10.0	19.9	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	10.0	19.9	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	19.9	19.9	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	10.0	19.9	ND	ug/kg	U
2-Methylphenol	95-48-7	1	10.0	19.9	ND	ug/kg	U
Hexachloroethane	67-72-1	1	10.0	19.9	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	15.0	19.9	ND	ug/kg	U
4-Methylphenol	106-44-5	1	15.0	19.9	ND	ug/kg	U
Nitrobenzene	98-95-3	1	10.0	19.9	ND	ug/kg	U
Isophorone	78-59-1	1	15.0	19.9	ND	ug/kg	U
2-Nitrophenol	88-75-5	1	10.0	19.9	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	49.9	99.7	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	1	10.0	19.9	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	1	49.9	99.7	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	10.0	19.9	ND	ug/kg	U
Naphthalene	91-20-3	1	10.0	19.9	ND	ug/kg	U
Benzoic acid	65-85-0	1	99.7	199	ND	ug/kg	U
4-Chloroaniline	106-47-8	1	49.9	99.7	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	10.0	19.9	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	1	49.9	99.7	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	10.0	19.9	ND	ug/kg	U
Hexachlorocyclopentadiene	77-47-4	1	49.9	99.7	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	1	49.9	99.7	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	1	49.9	99.7	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	1	10.0	19.9	ND	ug/kg	U
2-Nitroaniline	88-74-4	1	49.9	99.7	ND	ug/kg	U
Acenaphthylene	208-96-8	1	10.0	19.9	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	10.0	19.9	ND	ug/kg	U
2,6-Dinitrotoluene	606-20-2	1	49.9	99.7	ND	ug/kg	U
Acenaphthene	83-32-9	1	10.0	19.9	ND	ug/kg	U
3-Nitroaniline	99-09-2	1	49.9	99.7	ND	ug/kg	U



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Reported:
13-Sep-2024 12:28

113733-SB2S5
24G0170-05 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/01/2024 10:55

Instrument: NT10 Analyst: RJL

Analyzed: 07/27/2024 21:47

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2,4-Dinitrophenol	51-28-5	1	99.7	199	ND	ug/kg	U
Dibenzofuran	132-64-9	1	19.9	19.9	ND	ug/kg	U
4-Nitrophenol	100-02-7	1	49.9	99.7	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	1	49.9	99.7	ND	ug/kg	U
Fluorene	86-73-7	1	19.9	19.9	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	1	34.9	49.9	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	34.9	49.9	ND	ug/kg	U
4-Nitroaniline	100-01-6	1	49.9	99.7	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	1	99.7	199	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	10.0	19.9	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	1	19.9	19.9	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	19.9	19.9	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	49.9	99.7	ND	ug/kg	U
Phenanthrene	85-01-8	1	10.0	19.9	ND	ug/kg	U
Anthracene	120-12-7	1	10.0	19.9	ND	ug/kg	U
Carbazole	86-74-8	1	10.0	19.9	ND	ug/kg	U
Di-n-Butylphthalate	84-74-2	1	10.0	19.9	ND	ug/kg	U
Fluoranthene	206-44-0	1	10.0	19.9	ND	ug/kg	U
Pyrene	129-00-0	1	10.0	19.9	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	10.0	19.9	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	1	10.0	19.9	ND	ug/kg	U
3,3'-Dichlorobenzidine	91-94-1	1	49.9	99.7	ND	ug/kg	U
Chrysene	218-01-9	1	10.0	19.9	ND	ug/kg	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	39.9	49.9	ND	ug/kg	U
Di-n-Octylphthalate	117-84-0	1	10.0	19.9	ND	ug/kg	U
Benzo(a)fluoranthene, Total		1	29.9	39.9	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	10.0	19.9	ND	ug/kg	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	19.9	19.9	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	19.9	19.9	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	19.9	19.9	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	10.0	19.9	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	89.2	%	
Surrogate: Phenol-d5				29-120 %	81.0	%	
Surrogate: 2-Chlorophenol-d4				31-120 %	90.3	%	
Surrogate: 1,2-Dichlorobenzene-d4				32-120 %	84.1	%	
Surrogate: Nitrobenzene-d5				30-120 %	92.2	%	
Surrogate: 2-Fluorobiphenyl				35-120 %	88.5	%	



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Project Manager: Dan McMahon

Reported:

13-Sep-2024 12:28

113733-SB2S5

24G0170-05 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/01/2024 10:55

Instrument: NT10 Analyst: RJL

Analyzed: 07/27/2024 21:47

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: 2,4,6-Tribromophenol		24-134 %	101	%	
Surrogate: p-Terphenyl-d14		37-120 %	105	%	



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Reported:
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113733-SB2S5
24G0170-05 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM

Sampled: 07/01/2024 10:55

Instrument: NT10 Analyst: RJL

Analyzed: 07/27/2024 21:47

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0170-05 B 04

Preparation Batch: BMG0256

Sample Size: 14.39 g (wet)

Dry Weight: 10.03 g

Prepared: 07/12/2024

Final Volume: 1 mL

% Solids: 69.68

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	2.5	5.0	5.1	ug/kg	
1,3-Dichlorobenzene	541-73-1	1	2.5	5.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	2.5	5.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	2.5	5.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	10.0	19.9	ND	ug/kg	U
Benzoic acid	65-85-0	1	199	199	ND	ug/kg	U
2-Methylphenol	95-48-7	1	2.5	5.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	10.0	19.9	ND	ug/kg	U
4-Methylphenol	106-44-5	1	2.5	5.0	4.3	ug/kg	J
2,4-Dimethylphenol	105-67-9	1	10.0	19.9	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	5.0	5.0	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	2.5	5.0	ND	ug/kg	U
N-Nitrosodimethylamine	62-75-9	1	12.5	24.9	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	2.5	5.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	10.0	19.9	15.3	ug/kg	J
N-Nitrosodiphenylamine	86-30-6	1	2.5	5.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	2.5	5.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	99.7	99.7	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	2.5	5.0	3.3	ug/kg	J
Dibenzo(a,h)anthracene	53-70-3	1	2.5	5.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	85.3	%	
Surrogate: p-Terphenyl-d14				37-120 %	110	%	



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Reported:
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113733-SB2S5
24G0170-05 (Solid)

Butyl Tins

Method: EPA 8270E-SIM			Sampled: 07/01/2024 10:55	
Instrument: NT17 Analyst: JZ			Analyzed: 07/23/2024 15:18	
Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 7.21 g (wet)	Extract ID: 24G0170-05 B 03	
	Preparation Batch: BMG0255		Dry Weight: 5.02 g	
	Prepared: 07/12/2024		% Solids: 69.68	
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 0.5 uL	Extract ID: 24G0170-05 B 03	
	Cleanup Batch: CMG0156			
	Cleaned: 22-Jul-2024			

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Tributyltin Ion	36643-28-4	1	1.92	3.84	ND	ug/kg	U
Surrogate: Triphenyltin				30-160 %	75.6	%	
Surrogate: Tripropyltin				30-160 %	65.2	%	



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Reported:
13-Sep-2024 12:28

113733-SB2S5
24G0170-05 (Solid)

Chlorinated Pesticides

Method: EPA 8081B			Sampled: 07/01/2024 10:55	
Instrument: ECD6 Analyst: RT			Analyzed: 07/31/2024 17:04	
Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 17.95 g (wet) Final Volume: 2.5 mL	Extract ID: 24G0170-05 B 02	
	Preparation Batch: BMG0254		Dry Weight: 12.51 g	
	Prepared: 07/12/2024		% Solids: 69.68	
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0170-05 B 02	
	Cleanup Batch: CMG0208			
	Cleaned: 30-Jul-2024			
Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0170-05 B 02	
	Cleanup Batch: CMG0207			
	Cleaned: 30-Jul-2024			

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.25	0.50	0.31	ug/kg	J
beta-BHC	319-85-7	1	0.25	0.50	ND	ug/kg	U
gamma-BHC (Lindane)	58-89-9	1	0.25	0.50	ND	ug/kg	U
delta-BHC	319-86-8	1	0.25	0.50	ND	ug/kg	U
Heptachlor	76-44-8	1	0.25	0.50	ND	ug/kg	U
Aldrin	309-00-2	1	0.50	0.50	ND	ug/kg	U
Heptachlor Epoxide	1024-57-3	1	0.25	0.50	ND	ug/kg	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.50	0.50	ND	ug/kg	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.25	0.50	ND	ug/kg	U
Endosulfan I	959-98-8	1	0.25	0.50	ND	ug/kg	U
4,4'-DDE	72-55-9	1	0.50	1.00	0.72	ug/kg	J
Dieldrin	60-57-1	1	0.50	1.00	ND	ug/kg	U
Endrin	72-20-8	1	0.50	1.00	ND	ug/kg	U
Endosulfan II	33213-65-9	1	0.50	1.00	ND	ug/kg	U
4,4'-DDD	72-54-8	1	0.50	1.00	4.74	ug/kg	P1
Endrin Aldehyde	7421-93-4	1	0.50	1.00	ND	ug/kg	U
4,4'-DDT	50-29-3	1	0.50	1.00	ND	ug/kg	U
Endosulfan Sulfate	1031-07-8	1	0.50	1.00	ND	ug/kg	U
Endrin Ketone	53494-70-5	1	0.50	1.00	ND	ug/kg	U
Methoxychlor	72-43-5	1	2.50	5.00	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	0.25	0.50	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	0.25	0.50	ND	ug/kg	U
2,4'-DDE	3424-82-6	1	0.50	1.00	ND	ug/kg	U
2,4'-DDD	53-19-0	1	0.50	1.00	1.37	ug/kg	P1
2,4'-DDT	789-02-6	1	0.50	1.00	ND	ug/kg	U
Oxychlordane	27304-13-8	1	0.50	1.00	ND	ug/kg	U
cis-Nonachlor	5103-73-1	1	0.50	1.00	ND	ug/kg	U
trans-Nonachlor	39765-80-5	1	0.50	1.00	ND	ug/kg	U
Mirex	2385-85-5	1	1.00	1.00	ND	ug/kg	U



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Reported:
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113733-SB2S5
24G0170-05 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/01/2024 10:55

Instrument: ECD6 Analyst: RT

Analyzed: 07/31/2024 17:04

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Decachlorobiphenyl		30-160 %	98.5	%	
Surrogate: Decachlorobiphenyl [2C]		30-160 %	95.6	%	
Surrogate: Tetrachlorometaxylene		30-160 %	67.8	%	
Surrogate: Tetrachlorometaxylene [2C]		30-160 %	66.6	%	



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Project Manager: Dan McMahon

Reported:

13-Sep-2024 12:28

113733-SB2S5
24G0170-05 (Solid)

Aroclor PCB

Method: EPA 8082A

Sampled: 07/01/2024 10:55

Instrument: ECD5 Analyst: NRB

Analyzed: 07/25/2024 01:09

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 17.98 g (wet) Final Volume: 2.5 mL	Extract ID: 24G0170-05 B 01 Dry Weight: 12.53 g % Solids: 69.68
	Preparation Batch: BMG0250		
	Prepared: 07/15/2024		
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0170-05 B 01
	Cleanup Batch: CMG0171		
	Cleaned: 24-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfuric Acid	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0170-05 B 01
	Cleanup Batch: CMG0169		
	Cleaned: 24-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0170-05 B 01
	Cleanup Batch: CMG0170		
	Cleaned: 24-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	2.0	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	2.0	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	2.0	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1262	37324-23-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1268	11100-14-4	1	2.0	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl					40-126 %	77.6	%
Surrogate: Tetrachlorometaxylene					44-120 %	77.7	%
Surrogate: Decachlorobiphenyl [2C]					40-126 %	80.7	%
Surrogate: Tetrachlorometaxylene [2C]					44-120 %	76.3	%



Shannon & Wilson, Inc

5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 12:28

113733-SB2S5

24G0170-05 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED

Sampled: 07/01/2024 10:55

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 15:01

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0170-05 B 05

Preparation Batch: BMG0274

Sample Size: 1.028 g (wet)

Dry Weight: 0.73 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 70.88

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.05	0.27	12.6	mg/kg	
Cadmium	7440-43-9	20	0.04	0.14	0.13	mg/kg	J
Copper	7440-50-8	20	0.24	0.69	37.5	mg/kg	
Selenium	7782-49-2	20	0.25	0.69	0.90	mg/kg	
Zinc	7440-66-6	20	4.0	8.2	86.7	mg/kg	



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 12:28

113733-SB2S5
24G0170-05 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B

Sampled: 07/01/2024 10:55

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 15:01

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0170-05 B 05

Preparation Batch: BMG0274

Sample Size: 1.028 g (wet)

Dry Weight: 0.73 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 70.88

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	20	0.14	0.27	ND	mg/kg	U
Chromium	7440-47-3	20	0.33	0.69	31.0	mg/kg	
Lead	7439-92-1	20	0.07	0.14	8.56	mg/kg	
Silver	7440-22-4	20	0.03	0.27	0.14	mg/kg	J



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 12:28

113733-SB2S5

24G0170-05 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B

Sampled: 07/01/2024 10:55

Instrument: HYDRA Analyst: ML

Analyzed: 07/15/2024 12:56

Sample Preparation:

Preparation Method: SMM EPA 7471B

Extract ID: 24G0170-05 B

Preparation Batch: BMG0339

Sample Size: 0.208 g (wet)

Dry Weight: 0.15 g

Prepared: 07/13/2024

Final Volume: 50 mL

% Solids: 70.88

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00712	0.0339	0.0600	mg/kg	



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Project Manager: Dan McMahon

Reported:

13-Sep-2024 12:28

113733-SB2S5

24G0170-05 (Solid)

Wet Chemistry

Method: EPA 9060A m

Sampled: 07/01/2024 10:55

Instrument: TOC Cube Analyst: ARR

Analyzed: 08/06/2024 14:56

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0170-05 C

Preparation Batch: BMG0790

Sample Size: 0.534 g (wet)

Dry Weight: 0.38 g

Prepared: 07/31/2024

Final Volume: 0.534 mL

% Solids: 70.88

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.46	%	F



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Reported:
13-Sep-2024 12:28

113733-SB2S5
24G0170-05 (Solid)

Wet Chemistry

Method: PSEP 1986

Sampled: 07/01/2024 10:55

Instrument: BAL2 Analyst: LERB

Analyzed: 07/10/2024 11:40

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0170-05

Preparation Batch: BMG0226

Sample Size: 5 g (wet)

Prepared: 07/10/2024

Final Volume: 5 mL

% Solids: 70.88

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Volatile Solids		1	0.01	0.01	1.93	%	



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Reported:

13-Sep-2024 12:28

113733-SB2S5

24G0170-05 (Solid)

Wet Chemistry

Method: SM 2540 G-11

Sampled: 07/01/2024 10:55

Instrument: BAL2 Analyst: LERB

Analyzed: 07/10/2024 11:40

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0170-05

Preparation Batch: BMG0226

Sample Size: 5 g (wet)

Prepared: 07/10/2024

Final Volume: 5 mL

% Solids: 70.88

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	70.88	%	



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Project: PAMP Sediments

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Project Manager: Dan McMahon

Reported:

13-Sep-2024 12:28

113733-SB2S6
24G0170-06 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/01/2024 11:30

Instrument: NT10 Analyst: RJL

Analyzed: 07/27/2024 22:26

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0170-06 B 04

Preparation Batch: BMG0256

Sample Size: 12.87 g (wet)

Dry Weight: 10.01 g

Prepared: 07/12/2024

Final Volume: 1 mL

% Solids: 77.78

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	10.0	20.0	ND	ug/kg	U
bis(2-chloroethyl) ether	111-44-4	1	35.0	49.9	ND	ug/kg	U
2-Chlorophenol	95-57-8	1	20.0	20.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	10.0	20.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	10.0	20.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	10.0	20.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	20.0	20.0	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	10.0	20.0	ND	ug/kg	U
2-Methylphenol	95-48-7	1	10.0	20.0	ND	ug/kg	U
Hexachloroethane	67-72-1	1	10.0	20.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	15.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	15.0	20.0	ND	ug/kg	U
Nitrobenzene	98-95-3	1	10.0	20.0	ND	ug/kg	U
Isophorone	78-59-1	1	15.0	20.0	ND	ug/kg	U
2-Nitrophenol	88-75-5	1	10.0	20.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	49.9	99.9	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	1	10.0	20.0	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	1	49.9	99.9	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	10.0	20.0	ND	ug/kg	U
Naphthalene	91-20-3	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	99.9	200	ND	ug/kg	U
4-Chloroaniline	106-47-8	1	49.9	99.9	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	10.0	20.0	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	1	49.9	99.9	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	10.0	20.0	ND	ug/kg	U
Hexachlorocyclopentadiene	77-47-4	1	49.9	99.9	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	1	49.9	99.9	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	1	49.9	99.9	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	1	10.0	20.0	ND	ug/kg	U
2-Nitroaniline	88-74-4	1	49.9	99.9	ND	ug/kg	U
Acenaphthylene	208-96-8	1	10.0	20.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	10.0	20.0	ND	ug/kg	U
2,6-Dinitrotoluene	606-20-2	1	49.9	99.9	ND	ug/kg	U
Acenaphthene	83-32-9	1	10.0	20.0	ND	ug/kg	U
3-Nitroaniline	99-09-2	1	49.9	99.9	ND	ug/kg	U



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 12:28

113733-SB2S6
24G0170-06 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/01/2024 11:30

Instrument: NT10 Analyst: RJL

Analyzed: 07/27/2024 22:26

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2,4-Dinitrophenol	51-28-5	1	99.9	200	ND	ug/kg	U
Dibenzofuran	132-64-9	1	20.0	20.0	ND	ug/kg	U
4-Nitrophenol	100-02-7	1	49.9	99.9	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	1	49.9	99.9	ND	ug/kg	U
Fluorene	86-73-7	1	20.0	20.0	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	1	35.0	49.9	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	35.0	49.9	ND	ug/kg	U
4-Nitroaniline	100-01-6	1	49.9	99.9	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	1	99.9	200	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	10.0	20.0	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	1	20.0	20.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	20.0	20.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	49.9	99.9	ND	ug/kg	U
Phenanthrene	85-01-8	1	10.0	20.0	ND	ug/kg	U
Anthracene	120-12-7	1	10.0	20.0	ND	ug/kg	U
Carbazole	86-74-8	1	10.0	20.0	ND	ug/kg	U
Di-n-Butylphthalate	84-74-2	1	10.0	20.0	ND	ug/kg	U
Fluoranthene	206-44-0	1	10.0	20.0	ND	ug/kg	U
Pyrene	129-00-0	1	10.0	20.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	10.0	20.0	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	1	10.0	20.0	ND	ug/kg	U
3,3'-Dichlorobenzidine	91-94-1	1	49.9	99.9	ND	ug/kg	U
Chrysene	218-01-9	1	10.0	20.0	ND	ug/kg	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	40.0	49.9	ND	ug/kg	U
Di-n-Octylphthalate	117-84-0	1	10.0	20.0	ND	ug/kg	U
Benzo(a)fluoranthene, Total		1	30.0	40.0	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	10.0	20.0	ND	ug/kg	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	20.0	20.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	20.0	20.0	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	20.0	20.0	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	10.0	20.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	95.1	%	
Surrogate: Phenol-d5				29-120 %	87.7	%	
Surrogate: 2-Chlorophenol-d4				31-120 %	96.4	%	
Surrogate: 1,2-Dichlorobenzene-d4				32-120 %	90.1	%	
Surrogate: Nitrobenzene-d5				30-120 %	96.8	%	
Surrogate: 2-Fluorobiphenyl				35-120 %	93.5	%	



Shannon & Wilson, Inc

5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 12:28

113733-SB2S6

24G0170-06 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/01/2024 11:30

Instrument: NT10 Analyst: RJL

Analyzed: 07/27/2024 22:26

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: 2,4,6-Tribromophenol		24-134 %	104	%	
Surrogate: p-Terphenyl-d14		37-120 %	108	%	



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Project Manager: Dan McMahon

Reported:
13-Sep-2024 12:28

113733-SB2S6
24G0170-06 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM

Sampled: 07/01/2024 11:30

Instrument: NT10 Analyst: RJL

Analyzed: 07/27/2024 22:26

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0170-06 B 04

Preparation Batch: BMG0256

Sample Size: 12.87 g (wet)

Dry Weight: 10.01 g

Prepared: 07/12/2024

Final Volume: 1 mL

% Solids: 77.78

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	2.5	5.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	2.5	5.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	2.5	5.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	2.5	5.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	200	200	ND	ug/kg	U
2-Methylphenol	95-48-7	1	2.5	5.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	10.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	2.5	5.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	10.0	20.0	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	5.0	5.0	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	2.5	5.0	ND	ug/kg	U
N-Nitrosodimethylamine	62-75-9	1	12.5	25.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	2.5	5.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	10.0	20.0	12.5	ug/kg	J
N-Nitrosodiphenylamine	86-30-6	1	2.5	5.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	2.5	5.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	99.9	99.9	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	2.5	5.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	2.5	5.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	89.2	%	
Surrogate: p-Terphenyl-d14				37-120 %	108	%	



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 12:28

113733-SB2S6
24G0170-06 (Solid)

Butyl Tins

Method: EPA 8270E-SIM
Instrument: NT17 Analyst: JZ

Sampled: 07/01/2024 11:30

Analyzed: 07/23/2024 15:32

Sample Preparation: Preparation Method: EPA 3546 (Microwave)
Preparation Batch: BMG0255
Prepared: 07/12/2024

Sample Size: 6.46 g (wet)

Final Volume: 0.5 mL

Extract ID: 24G0170-06 B 03

Dry Weight: 5.02 g

% Solids: 77.78

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CMG0156
Cleaned: 22-Jul-2024

Initial Volume: 0.5 uL

Final Volume: 0.5 uL

Extract ID: 24G0170-06 B 03

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Tributyltin Ion	36643-28-4	1	1.92	3.84	ND	ug/kg	U
Surrogate: Triphenyltin				30-160 %	78.8	%	
Surrogate: Tripropyltin				30-160 %	68.1	%	



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 12:28

113733-SB2S6
24G0170-06 (Solid)

Chlorinated Pesticides

Method: EPA 8081B			Sampled: 07/01/2024 11:30	
Instrument: ECD6 Analyst: RT			Analyzed: 07/31/2024 18:18	
Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 16.08 g (wet)	Extract ID: 24G0170-06 B 02	
	Preparation Batch: BMG0254		Dry Weight: 12.51 g	
	Prepared: 07/12/2024		% Solids: 77.78	
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL	Extract ID: 24G0170-06 B 02	
	Cleanup Batch: CMG0208			
	Cleaned: 30-Jul-2024			
Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL	Extract ID: 24G0170-06 B 02	
	Cleanup Batch: CMG0207			
	Cleaned: 30-Jul-2024			

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.25	0.50	0.60	ug/kg	
beta-BHC	319-85-7	1	0.25	0.50	ND	ug/kg	U
gamma-BHC (Lindane)	58-89-9	1	0.25	0.50	ND	ug/kg	U
delta-BHC	319-86-8	1	0.25	0.50	ND	ug/kg	U
Heptachlor	76-44-8	1	0.25	0.50	ND	ug/kg	U
Aldrin	309-00-2	1	0.50	0.50	ND	ug/kg	U
Heptachlor Epoxide	1024-57-3	1	0.25	0.50	ND	ug/kg	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.50	0.50	ND	ug/kg	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.25	0.50	ND	ug/kg	U
Endosulfan I	959-98-8	1	0.25	0.50	ND	ug/kg	U
4,4'-DDE	72-55-9	1	0.50	1.00	ND	ug/kg	U
Dieldrin	60-57-1	1	0.50	1.00	ND	ug/kg	U
Endrin	72-20-8	1	0.50	1.00	ND	ug/kg	U
Endosulfan II	33213-65-9	1	0.50	1.00	ND	ug/kg	U
4,4'-DDD	72-54-8	1	0.50	1.00	ND	ug/kg	U
Endrin Aldehyde	7421-93-4	1	0.50	1.00	ND	ug/kg	U
4,4'-DDT	50-29-3	1	0.50	1.00	ND	ug/kg	U
Endosulfan Sulfate	1031-07-8	1	0.50	1.00	ND	ug/kg	U
Endrin Ketone	53494-70-5	1	0.50	1.00	ND	ug/kg	U
Methoxychlor	72-43-5	1	2.50	5.00	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	0.25	0.50	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	0.25	0.50	ND	ug/kg	U
2,4'-DDE	3424-82-6	1	0.50	1.00	ND	ug/kg	U
2,4'-DDD	53-19-0	1	0.50	1.00	ND	ug/kg	U
2,4'-DDT	789-02-6	1	0.50	1.00	ND	ug/kg	U
Oxychlordane	27304-13-8	1	0.50	1.00	ND	ug/kg	U
cis-Nonachlor	5103-73-1	1	0.50	1.00	ND	ug/kg	U
trans-Nonachlor	39765-80-5	1	0.50	1.00	ND	ug/kg	U
Mirex	2385-85-5	1	1.00	1.00	ND	ug/kg	U



Shannon & Wilson, Inc

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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 12:28

113733-SB2S6

24G0170-06 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/01/2024 11:30

Instrument: ECD6 Analyst: RT

Analyzed: 07/31/2024 18:18

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Decachlorobiphenyl		30-160 %	104	%	
Surrogate: Decachlorobiphenyl [2C]		30-160 %	85.2	%	
Surrogate: Tetrachlorometaxylene		30-160 %	71.4	%	
Surrogate: Tetrachlorometaxylene [2C]		30-160 %	70.8	%	



Shannon & Wilson, Inc
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Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 12:28

113733-SB2S6
24G0170-06 (Solid)

Aroclor PCB

Method: EPA 8082A

Sampled: 07/01/2024 11:30

Instrument: ECD5 Analyst: NRB

Analyzed: 07/25/2024 01:30

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 16.09 g (wet) Final Volume: 2.5 mL	Extract ID: 24G0170-06 B 01 Dry Weight: 12.51 g % Solids: 77.78
	Preparation Batch: BMG0250		
	Prepared: 07/15/2024		
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0170-06 B 01
	Cleanup Batch: CMG0171		
	Cleaned: 24-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfuric Acid	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0170-06 B 01
	Cleanup Batch: CMG0169		
	Cleaned: 24-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0170-06 B 01
	Cleanup Batch: CMG0170		
	Cleaned: 24-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	2.0	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	2.0	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	2.0	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1262	37324-23-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1268	11100-14-4	1	2.0	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				40-126 %	82.6	%	
Surrogate: Tetrachlorometaxylene				44-120 %	81.8	%	
Surrogate: Decachlorobiphenyl [2C]				40-126 %	85.4	%	
Surrogate: Tetrachlorometaxylene [2C]				44-120 %	79.5	%	



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Project Manager: Dan McMahon

Reported:

13-Sep-2024 12:28

113733-SB2S6

24G0170-06 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED

Sampled: 07/01/2024 11:30

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 15:06

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0170-06 B 05

Preparation Batch: BMG0274

Sample Size: 1.03 g (wet)

Dry Weight: 0.79 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 76.67

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.05	0.25	12.9	mg/kg	
Cadmium	7440-43-9	20	0.04	0.13	0.13	mg/kg	
Copper	7440-50-8	20	0.22	0.63	33.6	mg/kg	
Selenium	7782-49-2	20	0.23	0.63	1.15	mg/kg	
Zinc	7440-66-6	20	3.7	7.6	74.5	mg/kg	



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 12:28

113733-SB2S6
24G0170-06 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B

Sampled: 07/01/2024 11:30

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 15:06

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0170-06 B 05

Preparation Batch: BMG0274

Sample Size: 1.03 g (wet)

Dry Weight: 0.79 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 76.67

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	20	0.13	0.25	ND	mg/kg	U
Chromium	7440-47-3	20	0.30	0.63	27.8	mg/kg	
Lead	7439-92-1	20	0.07	0.13	6.74	mg/kg	
Silver	7440-22-4	20	0.03	0.25	0.15	mg/kg	J



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 12:28

113733-SB2S6

24G0170-06 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B

Sampled: 07/01/2024 11:30

Instrument: HYDRA Analyst: ML

Analyzed: 07/15/2024 13:03

Sample Preparation:

Preparation Method: SMM EPA 7471B

Extract ID: 24G0170-06 B

Preparation Batch: BMG0339

Sample Size: 0.211 g (wet)

Dry Weight: 0.16 g

Prepared: 07/13/2024

Final Volume: 50 mL

% Solids: 76.67

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00649	0.0309	0.0698	mg/kg	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

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113733-SB2S6

24G0170-06 (Solid)

Wet Chemistry

Method: EPA 9060A m

Sampled: 07/01/2024 11:30

Instrument: TOC Cube Analyst: ARR

Analyzed: 08/06/2024 15:26

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0170-06 C

Preparation Batch: BMG0790

Sample Size: 0.5246 g (wet)

Dry Weight: 0.40 g

Prepared: 07/31/2024

Final Volume: 0.5246 mL

% Solids: 76.67

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.43	%	F



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Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 12:28

113733-SB2S6
24G0170-06 (Solid)

Wet Chemistry

Method: PSEP 1986

Sampled: 07/01/2024 11:30

Instrument: BAL2 Analyst: LERB

Analyzed: 07/10/2024 11:40

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0170-06

Preparation Batch: BMG0226

Sample Size: 5 g (wet)

Prepared: 07/10/2024

Final Volume: 5 mL

% Solids: 76.67

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Volatile Solids		1	0.01	0.01	1.96	%	



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Project Manager: Dan McMahon

Reported:

13-Sep-2024 12:28

113733-SB2S6

24G0170-06 (Solid)

Wet Chemistry

Method: SM 2540 G-11

Sampled: 07/01/2024 11:30

Instrument: BAL2 Analyst: LERB

Analyzed: 07/10/2024 11:40

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0170-06

Preparation Batch: BMG0226

Sample Size: 5 g (wet)

Prepared: 07/10/2024

Final Volume: 5 mL

% Solids: 76.67

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	76.67	%	



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Project: PAMP Sediments
Project Number: 113733
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Reported:
13-Sep-2024 12:28

113733-SB2S1
24G0170-01 (Solid)

Geotechnical Methods

Method: PSEP-PS

Sampled: 07/01/2024 10:00

Analysis by: AmTest Laboratories

Instrument: ALAB Analyst:

Analyzed: 08/26/2024 00:00

Sample Preparation: Preparation Method: No Prep Geo
Preparation Batch: B260824
Prepared: 08/26/2024

Extract ID: 24G0170-01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phi Size < -2.25	GS_MFG	1	0.1	0.4	%	
Phi Size -2.25 to -2	GS_FG	1	0.1	0.3	%	
Phi Size -2 to -1	GS_VFG	1	0.1	0.8	%	
Phi Size -1 to 0	GS_VCS	1	0.1	0.4	%	
Phi Size 0 to 1	GS_CS	1	0.1	0.4	%	
Phi Size 1 to 2	GS_MS	1	0.1	0.4	%	
Phi Size 2 to 3	GS_FS	1	0.1	0.4	%	
Phi Size 3 to 4	GS_VFS	1	0.1	6.4	%	
Phi Size 4 to 5	GS_CSILT	1	0.1	52.2	%	
Phi Size 5 to 6	GS_MSILT	1	0.1	17.2	%	
Phi Size 6 to 7	GS_FSILT	1	0.1	6.7	%	
Phi Size 7 to 8	GS_VFSILT	1	0.1	4.5	%	
Phi Size 8 to 9	GS_CCLAY	1	0.1	1.7	%	
Phi Size 9 to 10	GS_MCLAY	1	0.1	0.7	%	
Phi Size >10	GS_FCLAY	1	0.1	7.5	%	



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 12:28

113733-SB2S2
24G0170-02 (Solid)

Geotechnical Methods

Method: PSEP-PS

Sampled: 07/01/2024 10:03

Analysis by: AmTest Laboratories

Instrument: ALAB Analyst:

Analyzed: 09/10/2024 00:00

Sample Preparation: Preparation Method: No Prep Geo
Preparation Batch: B100924
Prepared: 09/10/2024

Extract ID: 24G0170-02

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phi Size < -2.25	GS_MFG	1	0.1	0.4	%	
Phi Size -2.25 to -2	GS_FG	1	0.1	0.3	%	
Phi Size -2 to -1	GS_VFG	1	0.1	0.1	%	
Phi Size -1 to 0	GS_VCS	1	0.1	0.2	%	
Phi Size 0 to 1	GS_CS	1	0.1	0.4	%	
Phi Size 1 to 2	GS_MS	1	0.1	0.5	%	
Phi Size 2 to 3	GS_FS	1	0.1	0.2	%	
Phi Size 3 to 4	GS_VFS	1	0.1	2.2	%	
Phi Size 4 to 5	GS_CSILT	1	0.1	48.7	%	
Phi Size 5 to 6	GS_MSILT	1	0.1	12.0	%	
Phi Size 6 to 7	GS_FSILT	1	0.1	9	%	
Phi Size 7 to 8	GS_VFSILT	1	0.1	6.3	%	
Phi Size 8 to 9	GS_CCLAY	1	0.1	4.7	%	
Phi Size 9 to 10	GS_MCLAY	1	0.1	2.9	%	
Phi Size >10	GS_FCLAY	1	0.1	12.0	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 12:28

113733-SB2S3

24G0170-03 (Solid)

Geotechnical Methods

Method: PSEP-PS

Sampled: 07/01/2024 10:30

Analysis by: AmTest Laboratories

Instrument: ALAB Analyst:

Analyzed: 09/10/2024 00:00

Sample Preparation:

Preparation Method: No Prep Geo

Preparation Batch: B100924

Prepared: 09/10/2024

Extract ID: 24G0170-03

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phi Size < -2.25	GS_MFG	1	0.1	0.1	%	
Phi Size -2.25 to -2	GS_FG	1	0.1	0.1	%	
Phi Size -2 to -1	GS_VFG	1	0.1	ND	%	U
Phi Size -1 to 0	GS_VCS	1	0.1	ND	%	U
Phi Size 0 to 1	GS_CS	1	0.1	ND	%	U
Phi Size 1 to 2	GS_MS	1	0.1	0.1	%	
Phi Size 2 to 3	GS_FS	1	0.1	0.2	%	
Phi Size 3 to 4	GS_VFS	1	0.1	3	%	
Phi Size 4 to 5	GS_CSILT	1	0.1	44.0	%	
Phi Size 5 to 6	GS_MSILT	1	0.1	18.5	%	
Phi Size 6 to 7	GS_FSILT	1	0.1	11.6	%	
Phi Size 7 to 8	GS_VFSILT	1	0.1	5.6	%	
Phi Size 8 to 9	GS_CCLAY	1	0.1	3.9	%	
Phi Size 9 to 10	GS_MCLAY	1	0.1	2.1	%	
Phi Size >10	GS_FCLAY	1	0.1	10.8	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 12:28

113733-SB2S4

24G0170-04 (Solid)

Geotechnical Methods

Method: PSEP-PS

Sampled: 07/01/2024 10:35

Analysis by: AmTest Laboratories

Instrument: ALAB Analyst:

Analyzed: 09/10/2024 00:00

Sample Preparation:

Preparation Method: No Prep Geo

Preparation Batch: B100924

Prepared: 09/10/2024

Extract ID: 24G0170-04

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phi Size < -2.25	GS_MFG	1	0.1	ND	%	U
Phi Size -2.25 to -2	GS_FG	1	0.1	ND	%	U
Phi Size -2 to -1	GS_VFG	1	0.1	ND	%	U
Phi Size -1 to 0	GS_VCS	1	0.1	0.1	%	
Phi Size 0 to 1	GS_CS	1	0.1	0.1	%	
Phi Size 1 to 2	GS_MS	1	0.1	0.1	%	
Phi Size 2 to 3	GS_FS	1	0.1	0.1	%	
Phi Size 3 to 4	GS_VFS	1	0.1	2.9	%	
Phi Size 4 to 5	GS_CSILT	1	0.1	53.6	%	
Phi Size 5 to 6	GS_MSILT	1	0.1	13.3	%	
Phi Size 6 to 7	GS_FSILT	1	0.1	7.5	%	
Phi Size 7 to 8	GS_VFSILT	1	0.1	6.9	%	
Phi Size 8 to 9	GS_CCLAY	1	0.1	3.7	%	
Phi Size 9 to 10	GS_MCLAY	1	0.1	2.1	%	
Phi Size >10	GS_FCLAY	1	0.1	9.6	%	



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 12:28

113733-SB2S5
24G0170-05 (Solid)

Geotechnical Methods

Method: PSEP-PS

Sampled: 07/01/2024 10:55

Analysis by: AmTest Laboratories

Instrument: ALAB Analyst:

Analyzed: 09/10/2024 00:00

Sample Preparation: Preparation Method: No Prep Geo
Preparation Batch: B100924
Prepared: 09/10/2024

Extract ID: 24G0170-05

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phi Size < -2.25	GS_MFG	1	0.1	1.7	%	
Phi Size -2.25 to -2	GS_FG	1	0.1	0.7	%	
Phi Size -2 to -1	GS_VFG	1	0.1	2.4	%	
Phi Size -1 to 0	GS_VCS	1	0.1	0.9	%	
Phi Size 0 to 1	GS_CS	1	0.1	0.5	%	
Phi Size 1 to 2	GS_MS	1	0.1	0.4	%	
Phi Size 2 to 3	GS_FS	1	0.1	0.3	%	
Phi Size 3 to 4	GS_VFS	1	0.1	4.5	%	
Phi Size 4 to 5	GS_CSILT	1	0.1	38.4	%	
Phi Size 5 to 6	GS_MSILT	1	0.1	20.6	%	
Phi Size 6 to 7	GS_FSILT	1	0.1	8.9	%	
Phi Size 7 to 8	GS_VFSILT	1	0.1	5.4	%	
Phi Size 8 to 9	GS_CCLAY	1	0.1	3.4	%	
Phi Size 9 to 10	GS_MCLAY	1	0.1	1.8	%	
Phi Size >10	GS_FCLAY	1	0.1	10.1	%	



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Reported:
13-Sep-2024 12:28

113733-SB2S6
24G0170-06 (Solid)

Geotechnical Methods

Method: PSEP-PS

Sampled: 07/01/2024 11:30

Analysis by: AmTest Laboratories

Instrument: ALAB Analyst:

Analyzed: 09/10/2024 00:00

Sample Preparation: Preparation Method: No Prep Geo
Preparation Batch: B100924
Prepared: 09/10/2024

Extract ID: 24G0170-06

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phi Size < -2.25	GS_MFG	1	0.1	ND	%	U
Phi Size -2.25 to -2	GS_FG	1	0.1	0.1	%	
Phi Size -2 to -1	GS_VFG	1	0.1	ND	%	U
Phi Size -1 to 0	GS_VCS	1	0.1	ND	%	U
Phi Size 0 to 1	GS_CS	1	0.1	ND	%	U
Phi Size 1 to 2	GS_MS	1	0.1	0.1	%	
Phi Size 2 to 3	GS_FS	1	0.1	0.3	%	
Phi Size 3 to 4	GS_VFS	1	0.1	3.2	%	
Phi Size 4 to 5	GS_CSILT	1	0.1	39.3	%	
Phi Size 5 to 6	GS_MSILT	1	0.1	19.5	%	
Phi Size 6 to 7	GS_FSILT	1	0.1	11.1	%	
Phi Size 7 to 8	GS_VFSILT	1	0.1	6.8	%	
Phi Size 8 to 9	GS_CCLAY	1	0.1	4.7	%	
Phi Size 9 to 10	GS_MCLAY	1	0.1	2.9	%	
Phi Size >10	GS_FCLAY	1	0.1	11.9	%	



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 12:28

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0256 - EPA 8270E

Instrument: NT10 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0256-BLK1)						Prepared: 12-Jul-2024 Analyzed: 27-Jul-2024 15:56					
Phenol	ND	10.0	20.0	ug/kg							U
bis(2-chloroethyl) ether	ND	35.0	50.0	ug/kg							U
2-Chlorophenol	ND	20.0	20.0	ug/kg							U
1,3-Dichlorobenzene	ND	10.0	20.0	ug/kg							U
1,4-Dichlorobenzene	ND	10.0	20.0	ug/kg							U
1,2-Dichlorobenzene	ND	10.0	20.0	ug/kg							U
Benzyl Alcohol	ND	20.0	20.0	ug/kg							U
2,2'-Oxybis(1-chloropropane)	ND	10.0	20.0	ug/kg							U
2-Methylphenol	ND	10.0	20.0	ug/kg							U
Hexachloroethane	ND	10.0	20.0	ug/kg							U
N-Nitroso-di-n-Propylamine	ND	15.0	20.0	ug/kg							U
4-Methylphenol	ND	15.0	20.0	ug/kg							U
Nitrobenzene	ND	10.0	20.0	ug/kg							U
Isophorone	ND	15.0	20.0	ug/kg							U
2-Nitrophenol	ND	10.0	20.0	ug/kg							U
2,4-Dimethylphenol	ND	50.0	100	ug/kg							U
Bis(2-Chloroethoxy)methane	ND	10.0	20.0	ug/kg							U
2,4-Dichlorophenol	ND	50.0	100	ug/kg							U
1,2,4-Trichlorobenzene	ND	10.0	20.0	ug/kg							U
Naphthalene	ND	10.0	20.0	ug/kg							U
Benzoic acid	ND	100	200	ug/kg							U
4-Chloroaniline	ND	50.0	100	ug/kg							U
Hexachlorobutadiene	ND	10.0	20.0	ug/kg							U
4-Chloro-3-Methylphenol	ND	50.0	100	ug/kg							U
2-Methylnaphthalene	ND	10.0	20.0	ug/kg							U
Hexachlorocyclopentadiene	ND	50.0	100	ug/kg							U
2,4,6-Trichlorophenol	ND	50.0	100	ug/kg							U
2,4,5-Trichlorophenol	ND	50.0	100	ug/kg							U
2-Chloronaphthalene	ND	10.0	20.0	ug/kg							U
2-Nitroaniline	ND	50.0	100	ug/kg							U
Acenaphthylene	ND	10.0	20.0	ug/kg							U
Dimethylphthalate	ND	10.0	20.0	ug/kg							U
2,6-Dinitrotoluene	ND	50.0	100	ug/kg							U
Acenaphthene	ND	10.0	20.0	ug/kg							U
3-Nitroaniline	ND	50.0	100	ug/kg							U



Shannon & Wilson, Inc
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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 12:28

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0256 - EPA 8270E

Instrument: NT10 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0256-BLK1)						Prepared: 12-Jul-2024 Analyzed: 27-Jul-2024 15:56					
2,4-Dinitrophenol	ND	100	200	ug/kg							U
Dibenzofuran	ND	20.0	20.0	ug/kg							U
4-Nitrophenol	ND	50.0	100	ug/kg							U
2,4-Dinitrotoluene	ND	50.0	100	ug/kg							U
Fluorene	ND	20.0	20.0	ug/kg							U
4-Chlorophenylphenyl ether	ND	35.0	50.0	ug/kg							U
Diethyl phthalate	ND	35.0	50.0	ug/kg							U
4-Nitroaniline	ND	50.0	100	ug/kg							U
4,6-Dinitro-2-methylphenol	ND	100	200	ug/kg							U
N-Nitrosodiphenylamine	ND	10.0	20.0	ug/kg							U
4-Bromophenyl phenyl ether	ND	20.0	20.0	ug/kg							U
Hexachlorobenzene	ND	20.0	20.0	ug/kg							U
Pentachlorophenol	ND	50.0	100	ug/kg							U
Phenanthrene	ND	10.0	20.0	ug/kg							U
Anthracene	ND	10.0	20.0	ug/kg							U
Carbazole	ND	10.0	20.0	ug/kg							U
Di-n-Butylphthalate	ND	10.0	20.0	ug/kg							U
Fluoranthene	ND	10.0	20.0	ug/kg							U
Pyrene	ND	10.0	20.0	ug/kg							U
Butylbenzylphthalate	ND	10.0	20.0	ug/kg							U
Benzo(a)anthracene	ND	10.0	20.0	ug/kg							U
3,3'-Dichlorobenzidine	ND	50.0	100	ug/kg							U
Chrysene	ND	10.0	20.0	ug/kg							U
bis(2-Ethylhexyl)phthalate	ND	40.0	50.0	ug/kg							U
Di-n-Octylphthalate	ND	10.0	20.0	ug/kg							U
Benzo(a)fluoranthene, Total	ND	30.0	40.0	ug/kg							U
Benzo(a)pyrene	ND	10.0	20.0	ug/kg							U
Indeno(1,2,3-cd)pyrene	ND	20.0	20.0	ug/kg							U
Dibenzo(a,h)anthracene	ND	20.0	20.0	ug/kg							U
Benzo(g,h,i)perylene	ND	20.0	20.0	ug/kg							U
1-Methylnaphthalene	ND	10.0	20.0	ug/kg							U
Surrogate: 2-Fluorophenol	631			ug/kg	750		84.1	27-120			
Surrogate: Phenol-d5	628			ug/kg	750		83.7	29-120			
Surrogate: 2-Chlorophenol-d4	636			ug/kg	750		84.8	31-120			
Surrogate: 1,2-Dichlorobenzene-d4	445			ug/kg	500		88.9	32-120			



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 12:28

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0256 - EPA 8270E

Instrument: NT10 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0256-BLK1)						Prepared: 12-Jul-2024 Analyzed: 27-Jul-2024 15:56					
Surrogate: Nitrobenzene-d5	450			ug/kg	500		90.1	30-120			
Surrogate: 2-Fluorobiphenyl	454			ug/kg	500		90.9	35-120			
Surrogate: 2,4,6-Tribromophenol	472			ug/kg	750		63.0	24-134			
Surrogate: p-Terphenyl-d14	538			ug/kg	500		108	37-120			



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 12:28

Analysis by: Analytical Resources, LLC

Semivolatle Organic Compounds - Quality Control

Batch BMG0256 - EPA 8270E

Instrument: NT10 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0256-BS1)						Prepared: 12-Jul-2024 Analyzed: 27-Jul-2024 16:35					
Phenol	395	10.0	20.0	ug/kg	500		79.1	31-120			
bis(2-chloroethyl) ether	475	35.0	50.0	ug/kg	500		95.1	36-120			
2-Chlorophenol	376	20.0	20.0	ug/kg	500		75.3	39-120			
1,3-Dichlorobenzene	408	10.0	20.0	ug/kg	500		81.6	40-120			
1,4-Dichlorobenzene	437	10.0	20.0	ug/kg	500		87.3	39-120			
1,2-Dichlorobenzene	419	10.0	20.0	ug/kg	500		83.8	40-120			
Benzyl Alcohol	368	20.0	20.0	ug/kg	500		73.5	19-120			
2,2'-Oxybis(1-chloropropane)	503	10.0	20.0	ug/kg	500		101	32-120			
2-Methylphenol	445	10.0	20.0	ug/kg	500		88.9	11-120			
Hexachloroethane	491	10.0	20.0	ug/kg	500		98.1	38-120			
N-Nitroso-di-n-Propylamine	484	15.0	20.0	ug/kg	500		96.8	24-120			
4-Methylphenol	442	15.0	20.0	ug/kg	500		88.4	29-120			
Nitrobenzene	456	10.0	20.0	ug/kg	500		91.2	36-120			
Isophorone	695	15.0	20.0	ug/kg	500		139	37-126			*
2-Nitrophenol	364	10.0	20.0	ug/kg	500		72.8	30-120			
2,4-Dimethylphenol	900	50.0	100	ug/kg	1500		60.0	10-120			
Bis(2-Chloroethoxy)methane	499	10.0	20.0	ug/kg	500		99.9	39-126			
2,4-Dichlorophenol	1290	50.0	100	ug/kg	1500		85.7	28-120			
1,2,4-Trichlorobenzene	405	10.0	20.0	ug/kg	500		81.1	35-120			
Naphthalene	423	10.0	20.0	ug/kg	500		84.7	41-120			
Benzoic acid	1100	100	200	ug/kg	2250		48.9	10-120			
4-Chloroaniline	802	50.0	100	ug/kg	1500		53.5	10-120			
Hexachlorobutadiene	416	10.0	20.0	ug/kg	500		83.1	37-120			Q
4-Chloro-3-Methylphenol	1290	50.0	100	ug/kg	1500		85.8	32-120			
2-Methylnaphthalene	405	10.0	20.0	ug/kg	500		81.1	43-120			
Hexachlorocyclopentadiene	1600	50.0	100	ug/kg	1500		107	10-120			Q
2,4,6-Trichlorophenol	1340	50.0	100	ug/kg	1500		89.2	40-120			
2,4,5-Trichlorophenol	1490	50.0	100	ug/kg	1500		99.5	51.5-129			
2-Chloronaphthalene	444	10.0	20.0	ug/kg	500		88.8	40-120			
2-Nitroaniline	1350	50.0	100	ug/kg	1500		90.2	40-152			
Acenaphthylene	402	10.0	20.0	ug/kg	500		80.4	42-120			
Dimethylphthalate	500	10.0	20.0	ug/kg	500		100	43-120			
2,6-Dinitrotoluene	1600	50.0	100	ug/kg	1500		107	31-156			
Acenaphthene	449	10.0	20.0	ug/kg	500		89.8	45-120			
3-Nitroaniline	1050	50.0	100	ug/kg	1500		69.9	22-120			



Shannon & Wilson, Inc
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Project: PAMP Sediments
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Project Manager: Dan McMahon

Reported:
13-Sep-2024 12:28

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0256 - EPA 8270E

Instrument: NT10 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0256-BS1)						Prepared: 12-Jul-2024 Analyzed: 27-Jul-2024 16:35					
2,4-Dinitrophenol	1620	100	200	ug/kg	2750		58.8	13-160			Q
Dibenzofuran	419	20.0	20.0	ug/kg	500		83.7	43-120			
4-Nitrophenol	1250	50.0	100	ug/kg	1500		83.2	18-154			
2,4-Dinitrotoluene	1420	50.0	100	ug/kg	1500		94.5	44-150			
Fluorene	434	20.0	20.0	ug/kg	500		86.8	40-120			
4-Chlorophenylphenyl ether	462	35.0	50.0	ug/kg	500		92.4	36-141			
Diethyl phthalate	540	35.0	50.0	ug/kg	500		108	43-140			
4-Nitroaniline	1190	50.0	100	ug/kg	1500		79.1	15-120			
4,6-Dinitro-2-methylphenol	2370	100	200	ug/kg	2750		86.1	33-144			
N-Nitrosodiphenylamine	457	10.0	20.0	ug/kg	500		91.4	17-120			
4-Bromophenyl phenyl ether	493	20.0	20.0	ug/kg	500		98.7	39-120			
Hexachlorobenzene	474	20.0	20.0	ug/kg	500		94.7	33-120			
Pentachlorophenol	1290	50.0	100	ug/kg	1500		85.9	33-133			
Phenanthrene	444	10.0	20.0	ug/kg	500		88.8	49-120			
Anthracene	454	10.0	20.0	ug/kg	500		90.8	37-120			
Carbazole	498	10.0	20.0	ug/kg	500		99.5	30-135			
Di-n-Butylphthalate	493	10.0	20.0	ug/kg	500		98.6	48-126			
Fluoranthene	486	10.0	20.0	ug/kg	500		97.1	38-127			
Pyrene	480	10.0	20.0	ug/kg	500		96.1	39-122			
Butylbenzylphthalate	507	10.0	20.0	ug/kg	500		101	45-132			
Benzo(a)anthracene	479	10.0	20.0	ug/kg	500		95.8	44-120			
3,3'-Dichlorobenzidine	477	50.0	100	ug/kg	1000		47.7	10-120			Q
Chrysene	466	10.0	20.0	ug/kg	500		93.2	47-120			
bis(2-Ethylhexyl)phthalate	563	40.0	50.0	ug/kg	500		113	10-130			Q
Di-n-Octylphthalate	471	10.0	20.0	ug/kg	500		94.2	10-124			
Benzo(a)fluoranthene, Total	999	30.0	40.0	ug/kg	1000		99.9	30-160			
Benzo(a)pyrene	495	10.0	20.0	ug/kg	500		99.1	37-120			
Indeno(1,2,3-cd)pyrene	466	20.0	20.0	ug/kg	500		93.1	30-160			
Dibenzo(a,h)anthracene	457	20.0	20.0	ug/kg	500		91.4	30-160			
Benzo(g,h,i)perylene	523	20.0	20.0	ug/kg	500		105	10-150			
1-Methylnaphthalene	423	10.0	20.0	ug/kg	500		84.5	42-120			
Surrogate: 2-Fluorophenol	678			ug/kg	750		90.4	27-120			
Surrogate: Phenol-d5	679			ug/kg	750		90.5	29-120			
Surrogate: 2-Chlorophenol-d4	665			ug/kg	750		88.7	31-120			
Surrogate: 1,2-Dichlorobenzene-d4	446			ug/kg	500		89.2	32-120			



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 12:28

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0256 - EPA 8270E

Instrument: NT10 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0256-BS1)											
Prepared: 12-Jul-2024 Analyzed: 27-Jul-2024 16:35											
Surrogate: Nitrobenzene-d5	482			ug/kg	500		96.4	30-120			
Surrogate: 2-Fluorobiphenyl	466			ug/kg	500		93.1	35-120			
Surrogate: 2,4,6-Tribromophenol	796			ug/kg	750		106	24-134			
Surrogate: p-Terphenyl-d14	535			ug/kg	500		107	37-120			



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Semivolatile Organic Compounds - Quality Control

Batch BMG0256 - EPA 8270E

Instrument: NT10 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMG0256-BSD1)						Prepared: 12-Jul-2024 Analyzed: 27-Jul-2024 17:14					
Phenol	407	10.0	20.0	ug/kg	500		81.5	31-120	3.02	30	
bis(2-chloroethyl) ether	478	35.0	50.0	ug/kg	500		95.6	36-120	0.56	30	
2-Chlorophenol	388	20.0	20.0	ug/kg	500		77.6	39-120	3.07	30	
1,3-Dichlorobenzene	412	10.0	20.0	ug/kg	500		82.4	40-120	1.03	30	
1,4-Dichlorobenzene	435	10.0	20.0	ug/kg	500		86.9	39-120	0.50	30	
1,2-Dichlorobenzene	425	10.0	20.0	ug/kg	500		84.9	40-120	1.38	30	
Benzyl Alcohol	390	20.0	20.0	ug/kg	500		78.0	19-120	5.94	30	
2,2'-Oxybis(1-chloropropane)	517	10.0	20.0	ug/kg	500		103	32-120	2.64	30	
2-Methylphenol	436	10.0	20.0	ug/kg	500		87.1	11-120	2.03	30	
Hexachloroethane	501	10.0	20.0	ug/kg	500		100	38-120	2.12	30	
N-Nitroso-di-n-Propylamine	506	15.0	20.0	ug/kg	500		101	24-120	4.57	30	
4-Methylphenol	447	15.0	20.0	ug/kg	500		89.4	29-120	1.17	30	
Nitrobenzene	465	10.0	20.0	ug/kg	500		93.1	36-120	2.01	30	
Isophorone	714	15.0	20.0	ug/kg	500		143	37-126	2.68	30	*
2-Nitrophenol	384	10.0	20.0	ug/kg	500		76.9	30-120	5.41	30	
2,4-Dimethylphenol	783	50.0	100	ug/kg	1500		52.2	10-120	13.90	30	
Bis(2-Chloroethoxy)methane	506	10.0	20.0	ug/kg	500		101	39-126	1.28	30	
2,4-Dichlorophenol	1290	50.0	100	ug/kg	1500		86.0	28-120	0.40	30	
1,2,4-Trichlorobenzene	410	10.0	20.0	ug/kg	500		82.0	35-120	1.13	30	
Naphthalene	424	10.0	20.0	ug/kg	500		84.9	41-120	0.24	30	
Benzoic acid	1110	100	200	ug/kg	2250		49.1	10-120	0.58	30	
4-Chloroaniline	795	50.0	100	ug/kg	1500		53.0	10-120	0.95	30	
Hexachlorobutadiene	417	10.0	20.0	ug/kg	500		83.5	37-120	0.40	30	Q
4-Chloro-3-Methylphenol	1340	50.0	100	ug/kg	1500		89.3	32-120	3.92	30	
2-Methylnaphthalene	420	10.0	20.0	ug/kg	500		84.0	43-120	3.57	30	
Hexachlorocyclopentadiene	1640	50.0	100	ug/kg	1500		110	10-120	2.78	30	Q
2,4,6-Trichlorophenol	1350	50.0	100	ug/kg	1500		89.9	40-120	0.77	30	
2,4,5-Trichlorophenol	1510	50.0	100	ug/kg	1500		101	51.5-129	1.40	30	
2-Chloronaphthalene	452	10.0	20.0	ug/kg	500		90.5	40-120	1.90	30	
2-Nitroaniline	1410	50.0	100	ug/kg	1500		93.9	40-152	4.04	30	
Acenaphthylene	442	10.0	20.0	ug/kg	500		88.4	42-120	9.43	30	
Dimethylphthalate	504	10.0	20.0	ug/kg	500		101	43-120	0.75	30	
2,6-Dinitrotoluene	1660	50.0	100	ug/kg	1500		110	31-156	3.28	30	
Acenaphthene	449	10.0	20.0	ug/kg	500		89.8	45-120	0.06	30	
3-Nitroaniline	1050	50.0	100	ug/kg	1500		70.2	22-120	0.34	30	



Shannon & Wilson, Inc
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Project Manager: Dan McMahon

Reported:
13-Sep-2024 12:28

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0256 - EPA 8270E

Instrument: NT10 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMG0256-BSD1)						Prepared: 12-Jul-2024 Analyzed: 27-Jul-2024 17:14					
2,4-Dinitrophenol	1770	100	200	ug/kg	2750		64.3	13-160	8.95	30	Q
Dibenzofuran	423	20.0	20.0	ug/kg	500		84.5	43-120	0.95	30	
4-Nitrophenol	1250	50.0	100	ug/kg	1500		83.4	18-154	0.28	30	
2,4-Dinitrotoluene	1420	50.0	100	ug/kg	1500		94.4	44-150	0.09	30	
Fluorene	440	20.0	20.0	ug/kg	500		88.0	40-120	1.40	30	
4-Chlorophenylphenyl ether	466	35.0	50.0	ug/kg	500		93.3	36-141	0.94	30	
Diethyl phthalate	541	35.0	50.0	ug/kg	500		108	43-140	0.16	30	
4-Nitroaniline	1230	50.0	100	ug/kg	1500		82.0	15-120	3.70	30	
4,6-Dinitro-2-methylphenol	2430	100	200	ug/kg	2750		88.4	33-144	2.64	30	
N-Nitrosodiphenylamine	456	10.0	20.0	ug/kg	500		91.2	17-120	0.28	30	
4-Bromophenyl phenyl ether	500	20.0	20.0	ug/kg	500		100	39-120	1.37	30	
Hexachlorobenzene	483	20.0	20.0	ug/kg	500		96.6	33-120	1.95	30	
Pentachlorophenol	1320	50.0	100	ug/kg	1500		88.2	33-133	2.54	30	
Phenanthrene	444	10.0	20.0	ug/kg	500		88.9	49-120	0.03	30	
Anthracene	458	10.0	20.0	ug/kg	500		91.7	37-120	0.98	30	
Carbazole	512	10.0	20.0	ug/kg	500		102	30-135	2.90	30	
Di-n-Butylphthalate	495	10.0	20.0	ug/kg	500		99.1	48-126	0.45	30	
Fluoranthene	492	10.0	20.0	ug/kg	500		98.3	38-127	1.22	30	
Pyrene	484	10.0	20.0	ug/kg	500		96.7	39-122	0.67	30	
Butylbenzylphthalate	510	10.0	20.0	ug/kg	500		102	45-132	0.58	30	
Benzo(a)anthracene	470	10.0	20.0	ug/kg	500		93.9	44-120	1.97	30	
3,3'-Dichlorobenzidine	443	50.0	100	ug/kg	1000		44.3	10-120	7.49	30	Q
Chrysene	458	10.0	20.0	ug/kg	500		91.6	47-120	1.71	30	
bis(2-Ethylhexyl)phthalate	546	40.0	50.0	ug/kg	500		109	10-130	3.18	30	Q
Di-n-Octylphthalate	464	10.0	20.0	ug/kg	500		92.9	10-124	1.40	30	
Benzo(a)fluoranthene, Total	995	30.0	40.0	ug/kg	1000		99.5	30-160	0.47	30	
Benzo(a)pyrene	482	10.0	20.0	ug/kg	500		96.4	37-120	2.68	30	
Indeno(1,2,3-cd)pyrene	471	20.0	20.0	ug/kg	500		94.1	30-160	1.10	30	
Dibenzo(a,h)anthracene	463	20.0	20.0	ug/kg	500		92.7	30-160	1.43	30	
Benzo(g,h,i)perylene	540	20.0	20.0	ug/kg	500		108	10-150	3.24	30	
1-Methylnaphthalene	435	10.0	20.0	ug/kg	500		86.9	42-120	2.79	30	
Surrogate: 2-Fluorophenol	680			ug/kg	750		90.7	27-120			
Surrogate: Phenol-d5	685			ug/kg	750		91.3	29-120			
Surrogate: 2-Chlorophenol-d4	661			ug/kg	750		88.2	31-120			
Surrogate: 1,2-Dichlorobenzene-d4	430			ug/kg	500		86.0	32-120			



Shannon & Wilson, Inc

5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

13-Sep-2024 12:28

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0256 - EPA 8270E

Instrument: NT10 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMG0256-bsd1)											
Prepared: 12-Jul-2024 Analyzed: 27-Jul-2024 17:14											
Surrogate: Nitrobenzene-d5	482			ug/kg	500		96.5	30-120			
Surrogate: 2-Fluorobiphenyl	448			ug/kg	500		89.6	35-120			
Surrogate: 2,4,6-Tribromophenol	777			ug/kg	750		104	24-134			
Surrogate: p-Terphenyl-d14	526			ug/kg	500		105	37-120			



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Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0256 - EPA 8270E

Instrument: NT10 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BMG0256-MS1)		Source: 24G0170-04		Prepared: 12-Jul-2024 Analyzed: 27-Jul-2024 20:29							
Phenol	438	10.0	20.0	ug/kg	500	ND	87.6	31-120			
bis(2-chloroethyl) ether	523	35.0	50.0	ug/kg	500	ND	105	36-120			
2-Chlorophenol	422	20.0	20.0	ug/kg	500	ND	84.3	39-120			
1,3-Dichlorobenzene	444	10.0	20.0	ug/kg	500	ND	88.8	40-120			
1,4-Dichlorobenzene	479	10.0	20.0	ug/kg	500	ND	95.9	39-120			
1,2-Dichlorobenzene	457	10.0	20.0	ug/kg	500	ND	91.5	40-120			
Benzyl Alcohol	416	20.0	20.0	ug/kg	500	ND	83.2	19-120			
2,2'-Oxybis(1-chloropropane)	561	10.0	20.0	ug/kg	500	ND	112	32-120			
2-Methylphenol	499	10.0	20.0	ug/kg	500	ND	99.7	11-120			
Hexachloroethane	498	10.0	20.0	ug/kg	500	ND	99.6	38-120			
N-Nitroso-di-n-Propylamine	561	15.0	20.0	ug/kg	500	ND	112	24-120			
4-Methylphenol	507	15.0	20.0	ug/kg	500	ND	101	29-120			
Nitrobenzene	492	10.0	20.0	ug/kg	500	ND	98.4	36-120			
Isophorone	703	15.0	20.0	ug/kg	500	ND	141	37-126			*
2-Nitrophenol	437	10.0	20.0	ug/kg	500	ND	87.4	30-120			
2,4-Dimethylphenol	1210	50.0	100	ug/kg	1500	ND	81.0	10-120			
Bis(2-Chloroethoxy)methane	539	10.0	20.0	ug/kg	500	ND	108	39-126			
2,4-Dichlorophenol	1390	50.0	100	ug/kg	1500	ND	92.4	28-120			
1,2,4-Trichlorobenzene	440	10.0	20.0	ug/kg	500	ND	87.9	35-120			
Naphthalene	469	10.0	20.0	ug/kg	500	ND	93.9	41-120			
Benzoic acid	557	100	200	ug/kg	2250	ND	24.8	10-120			
4-Chloroaniline	569	50.0	100	ug/kg	1500	ND	37.9	10-120			
Hexachlorobutadiene	442	10.0	20.0	ug/kg	500	ND	88.5	37-120			Q
4-Chloro-3-Methylphenol	1440	50.0	100	ug/kg	1500	ND	95.8	32-120			
2-Methylnaphthalene	468	10.0	20.0	ug/kg	500	ND	93.6	43-120			
Hexachlorocyclopentadiene	531	50.0	100	ug/kg	1500	ND	35.4	10-120			Q
2,4,6-Trichlorophenol	1450	50.0	100	ug/kg	1500	ND	96.7	40-120			
2,4,5-Trichlorophenol	1570	50.0	100	ug/kg	1500	ND	105	51.5-129			
2-Chloronaphthalene	484	10.0	20.0	ug/kg	500	ND	96.8	40-120			
2-Nitroaniline	1450	50.0	100	ug/kg	1500	ND	96.9	40-152			
Acenaphthylene	486	10.0	20.0	ug/kg	500	ND	97.1	42-120			
Dimethylphthalate	529	10.0	20.0	ug/kg	500	ND	106	43-120			
2,6-Dinitrotoluene	1760	50.0	100	ug/kg	1500	ND	117	31-156			
Acenaphthene	490	10.0	20.0	ug/kg	500	ND	98.1	45-120			
3-Nitroaniline	924	50.0	100	ug/kg	1500	ND	61.6	22-120			



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 12:28

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0256 - EPA 8270E

Instrument: NT10 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BMG0256-MS1)		Source: 24G0170-04		Prepared: 12-Jul-2024 Analyzed: 27-Jul-2024 20:29							
2,4-Dinitrophenol	980	100	200	ug/kg	2750	ND	35.7	13-160			Q
Dibenzofuran	442	20.0	20.0	ug/kg	500	ND	88.5	43-120			
4-Nitrophenol	1300	50.0	100	ug/kg	1500	ND	86.7	18-154			
2,4-Dinitrotoluene	1480	50.0	100	ug/kg	1500	ND	98.4	44-150			
Fluorene	465	20.0	20.0	ug/kg	500	ND	93.0	40-120			
4-Chlorophenylphenyl ether	486	35.0	50.0	ug/kg	500	ND	97.1	36-141			
Diethyl phthalate	575	35.0	50.0	ug/kg	500	ND	115	43-140			
4-Nitroaniline	1200	50.0	100	ug/kg	1500	ND	80.1	15-120			
4,6-Dinitro-2-methylphenol	2120	100	200	ug/kg	2750	ND	77.1	33-144			
N-Nitrosodiphenylamine	497	10.0	20.0	ug/kg	500	ND	99.5	17-120			
4-Bromophenyl phenyl ether	535	20.0	20.0	ug/kg	500	ND	107	39-120			
Hexachlorobenzene	512	20.0	20.0	ug/kg	500	ND	102	33-120			
Pentachlorophenol	1280	50.0	100	ug/kg	1500	ND	85.1	33-133			
Phenanthrene	487	10.0	20.0	ug/kg	500	ND	97.3	49-120			
Anthracene	516	10.0	20.0	ug/kg	500	ND	103	37-120			
Carbazole	604	10.0	20.0	ug/kg	500	ND	121	30-135			
Di-n-Butylphthalate	565	10.0	20.0	ug/kg	500	ND	113	48-126			
Fluoranthene	502	10.0	20.0	ug/kg	500	ND	100	38-127			
Pyrene	498	10.0	20.0	ug/kg	500	ND	99.6	39-122			
Butylbenzylphthalate	600	10.0	20.0	ug/kg	500	ND	120	45-132			
Benzo(a)anthracene	492	10.0	20.0	ug/kg	500	ND	98.5	44-120			
3,3'-Dichlorobenzidine	98.5	50.0	100	ug/kg	1000	ND	9.9	10-120			*, Q, J
Chrysene	485	10.0	20.0	ug/kg	500	ND	96.9	47-120			
bis(2-Ethylhexyl)phthalate	549	40.0	50.0	ug/kg	500	ND	110	10-130			Q
Di-n-Octylphthalate	459	10.0	20.0	ug/kg	500	ND	91.8	10-124			
Benzo(a)fluoranthene, Total	916	30.0	40.0	ug/kg	1000	ND	91.6	30-160			
Benzo(a)pyrene	498	10.0	20.0	ug/kg	500	ND	99.5	37-120			
Indeno(1,2,3-cd)pyrene	542	20.0	20.0	ug/kg	500	ND	108	30-160			
Dibenzo(a,h)anthracene	548	20.0	20.0	ug/kg	500	ND	110	30-160			
Benzo(g,h,i)perylene	600	20.0	20.0	ug/kg	500	ND	120	10-150			
1-Methylnaphthalene	474	10.0	20.0	ug/kg	500	ND	94.8	42-120			
Surrogate: 2-Fluorophenol	719			ug/kg	750	666	95.9	27-120			
Surrogate: Phenol-d5	701			ug/kg	750	623	93.5	29-120			
Surrogate: 2-Chlorophenol-d4	723			ug/kg	750	729	96.3	31-120			
Surrogate: 1,2-Dichlorobenzene-d4	454			ug/kg	500	423	90.8	32-120			



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Project: PAMP Sediments
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Reported:
13-Sep-2024 12:28

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0256 - EPA 8270E

Instrument: NT10 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BMG0256-MS1)		Source: 24G0170-04		Prepared: 12-Jul-2024 Analyzed: 27-Jul-2024 20:29							
Surrogate: Nitrobenzene-d5	502			ug/kg	500	439	100	30-120			
Surrogate: 2-Fluorobiphenyl	466			ug/kg	500	435	93.2	35-120			
Surrogate: 2,4,6-Tribromophenol	772			ug/kg	750	685	103	24-134			
Surrogate: p-Terphenyl-d14	498			ug/kg	500	505	99.6	37-120			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.



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Semivolatile Organic Compounds - Quality Control

Batch BMG0256 - EPA 8270E

Instrument: NT10 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BMG0256-MSD1)		Source: 24G0170-04		Prepared: 12-Jul-2024 Analyzed: 27-Jul-2024 21:08							
Phenol	429	10.0	20.0	ug/kg	500	ND	85.9	31-120	1.97	30	
bis(2-chloroethyl) ether	503	35.0	50.0	ug/kg	500	ND	101	36-120	3.88	30	
2-Chlorophenol	448	20.0	20.0	ug/kg	500	ND	89.7	39-120	6.15	30	
1,3-Dichlorobenzene	431	10.0	20.0	ug/kg	500	ND	86.1	40-120	3.01	30	
1,4-Dichlorobenzene	462	10.0	20.0	ug/kg	500	ND	92.4	39-120	3.77	30	
1,2-Dichlorobenzene	436	10.0	20.0	ug/kg	500	ND	87.3	40-120	4.70	30	
Benzyl Alcohol	405	20.0	20.0	ug/kg	500	ND	80.9	19-120	2.76	30	
2,2'-Oxybis(1-chloropropane)	541	10.0	20.0	ug/kg	500	ND	108	32-120	3.48	30	
2-Methylphenol	495	10.0	20.0	ug/kg	500	ND	99.1	11-120	0.67	30	
Hexachloroethane	481	10.0	20.0	ug/kg	500	ND	96.3	38-120	3.43	30	
N-Nitroso-di-n-Propylamine	546	15.0	20.0	ug/kg	500	ND	109	24-120	2.73	30	
4-Methylphenol	496	15.0	20.0	ug/kg	500	ND	99.2	29-120	2.32	30	
Nitrobenzene	473	10.0	20.0	ug/kg	500	ND	94.7	36-120	3.84	30	
Isophorone	738	15.0	20.0	ug/kg	500	ND	148	37-126	4.91	30	*
2-Nitrophenol	424	10.0	20.0	ug/kg	500	ND	84.9	30-120	2.86	30	
2,4-Dimethylphenol	1170	50.0	100	ug/kg	1500	ND	78.2	10-120	3.54	30	
Bis(2-Chloroethoxy)methane	519	10.0	20.0	ug/kg	500	ND	104	39-126	3.73	30	
2,4-Dichlorophenol	1240	50.0	100	ug/kg	1500	ND	82.5	28-120	11.30	30	
1,2,4-Trichlorobenzene	415	10.0	20.0	ug/kg	500	ND	82.9	35-120	5.82	30	
Naphthalene	445	10.0	20.0	ug/kg	500	ND	89.0	41-120	5.39	30	
Benzoic acid	645	100	200	ug/kg	2250	ND	28.7	10-120	14.70	30	
4-Chloroaniline	596	50.0	100	ug/kg	1500	ND	39.7	10-120	4.62	30	
Hexachlorobutadiene	424	10.0	20.0	ug/kg	500	ND	84.8	37-120	4.23	30	Q
4-Chloro-3-Methylphenol	1380	50.0	100	ug/kg	1500	ND	92.3	32-120	3.72	30	
2-Methylnaphthalene	445	10.0	20.0	ug/kg	500	ND	89.0	43-120	4.97	30	
Hexachlorocyclopentadiene	608	50.0	100	ug/kg	1500	ND	40.5	10-120	13.40	30	Q
2,4,6-Trichlorophenol	1430	50.0	100	ug/kg	1500	ND	95.4	40-120	1.39	30	
2,4,5-Trichlorophenol	1570	50.0	100	ug/kg	1500	ND	105	51.5-129	0.10	30	
2-Chloronaphthalene	470	10.0	20.0	ug/kg	500	ND	93.9	40-120	3.04	30	
2-Nitroaniline	1450	50.0	100	ug/kg	1500	ND	96.6	40-152	0.27	30	
Acenaphthylene	463	10.0	20.0	ug/kg	500	ND	92.7	42-120	4.67	30	
Dimethylphthalate	521	10.0	20.0	ug/kg	500	ND	104	43-120	1.59	30	
2,6-Dinitrotoluene	1700	50.0	100	ug/kg	1500	ND	114	31-156	3.25	30	
Acenaphthene	481	10.0	20.0	ug/kg	500	ND	96.2	45-120	1.94	30	
3-Nitroaniline	949	50.0	100	ug/kg	1500	ND	63.3	22-120	2.70	30	



Shannon & Wilson, Inc
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Project: PAMP Sediments
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Project Manager: Dan McMahon

Reported:
13-Sep-2024 12:28

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0256 - EPA 8270E

Instrument: NT10 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BMG0256-MSD1)		Source: 24G0170-04		Prepared: 12-Jul-2024 Analyzed: 27-Jul-2024 21:08							
2,4-Dinitrophenol	956	100	200	ug/kg	2750	ND	34.8	13-160	2.50	30	Q
Dibenzofuran	430	20.0	20.0	ug/kg	500	ND	86.0	43-120	2.78	30	
4-Nitrophenol	1300	50.0	100	ug/kg	1500	ND	86.5	18-154	0.28	30	
2,4-Dinitrotoluene	1450	50.0	100	ug/kg	1500	ND	96.6	44-150	1.86	30	
Fluorene	449	20.0	20.0	ug/kg	500	ND	89.8	40-120	3.48	30	
4-Chlorophenylphenyl ether	470	35.0	50.0	ug/kg	500	ND	94.0	36-141	3.26	30	
Diethyl phthalate	550	35.0	50.0	ug/kg	500	ND	110	43-140	4.55	30	
4-Nitroaniline	1130	50.0	100	ug/kg	1500	ND	75.4	15-120	6.07	30	
4,6-Dinitro-2-methylphenol	2070	100	200	ug/kg	2750	ND	75.4	33-144	2.24	30	
N-Nitrosodiphenylamine	492	10.0	20.0	ug/kg	500	ND	98.3	17-120	1.20	30	
4-Bromophenyl phenyl ether	515	20.0	20.0	ug/kg	500	ND	103	39-120	3.90	30	
Hexachlorobenzene	490	20.0	20.0	ug/kg	500	ND	97.9	33-120	4.44	30	
Pentachlorophenol	1210	50.0	100	ug/kg	1500	ND	80.5	33-133	5.50	30	
Phenanthrene	473	10.0	20.0	ug/kg	500	ND	94.6	49-120	2.89	30	
Anthracene	491	10.0	20.0	ug/kg	500	ND	98.2	37-120	5.01	30	
Carbazole	580	10.0	20.0	ug/kg	500	ND	116	30-135	4.13	30	
Di-n-Butylphthalate	549	10.0	20.0	ug/kg	500	ND	110	48-126	2.81	30	
Fluoranthene	510	10.0	20.0	ug/kg	500	ND	102	38-127	1.51	30	
Pyrene	500	10.0	20.0	ug/kg	500	ND	100	39-122	0.42	30	
Butylbenzylphthalate	591	10.0	20.0	ug/kg	500	ND	118	45-132	1.53	30	
Benzo(a)anthracene	485	10.0	20.0	ug/kg	500	ND	97.0	44-120	1.57	30	
3,3'-Dichlorobenzidine	143	50.0	100	ug/kg	1000	ND	14.3	10-120	37.10	30	*, Q
Chrysene	482	10.0	20.0	ug/kg	500	ND	96.4	47-120	0.57	30	
bis(2-Ethylhexyl)phthalate	538	40.0	50.0	ug/kg	500	ND	108	10-130	2.19	30	Q
Di-n-Octylphthalate	451	10.0	20.0	ug/kg	500	ND	90.2	10-124	1.73	30	
Benzo(a)fluoranthene, Total	889	30.0	40.0	ug/kg	1000	ND	88.9	30-160	2.93	30	
Benzo(a)pyrene	485	10.0	20.0	ug/kg	500	ND	97.0	37-120	2.58	30	
Indeno(1,2,3-cd)pyrene	522	20.0	20.0	ug/kg	500	ND	104	30-160	3.79	30	
Dibenzo(a,h)anthracene	519	20.0	20.0	ug/kg	500	ND	104	30-160	5.50	30	
Benzo(g,h,i)perylene	573	20.0	20.0	ug/kg	500	ND	115	10-150	4.51	30	
1-Methylnaphthalene	458	10.0	20.0	ug/kg	500	ND	91.6	42-120	3.44	30	
Surrogate: 2-Fluorophenol	707			ug/kg	750	666	94.2	27-120			
Surrogate: Phenol-d5	694			ug/kg	750	623	92.5	29-120			
Surrogate: 2-Chlorophenol-d4	697			ug/kg	750	729	93.0	31-120			
Surrogate: 1,2-Dichlorobenzene-d4	424			ug/kg	500	423	84.8	32-120			



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Project Manager: Dan McMahon

Reported:
13-Sep-2024 12:28

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0256 - EPA 8270E

Instrument: NT10 Analyst: RJL

QC Sample/Analyte	Detection Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BMG0256-MSD1)		Source: 24G0170-04		Prepared: 12-Jul-2024 Analyzed: 27-Jul-2024 21:08						
Surrogate: Nitrobenzene-d5	479		ug/kg	500	439	95.8	30-120			
Surrogate: 2-Fluorobiphenyl	452		ug/kg	500	435	90.4	35-120			
Surrogate: 2,4,6-Tribromophenol	757		ug/kg	750	685	101	24-134			
Surrogate: p-Terphenyl-d14	499		ug/kg	500	505	99.7	37-120			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.



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Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0256 - EPA 8270E

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - SIM - Quality Control

Batch BMG0256 - EPA 8270E-SIM

Instrument: NT10 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0256-BLK2)						Prepared: 12-Jul-2024 Analyzed: 27-Jul-2024 15:56					
Phenol	ND	2.5	5.0	ug/kg							U
1,3-Dichlorobenzene	ND	2.5	5.0	ug/kg							U
1,4-Dichlorobenzene	ND	2.5	5.0	ug/kg							U
1,2-Dichlorobenzene	ND	2.5	5.0	ug/kg							U
Benzyl Alcohol	11.0	10.0	20.0	ug/kg							J
Benzoic acid	ND	200	200	ug/kg							U
2-Methylphenol	ND	2.5	5.0	ug/kg							U
N-Nitroso-di-n-Propylamine	ND	10.0	20.0	ug/kg							U
4-Methylphenol	ND	2.5	5.0	ug/kg							U
2,4-Dimethylphenol	ND	10.0	20.0	ug/kg							U
1,2,4-Trichlorobenzene	ND	5.0	5.0	ug/kg							U
Hexachlorobutadiene	ND	2.5	5.0	ug/kg							U
N-Nitrosodimethylamine	ND	12.5	25.0	ug/kg							U
Dimethylphthalate	ND	2.5	5.0	ug/kg							U
Diethyl phthalate	ND	10.0	20.0	ug/kg							U
N-Nitrosodiphenylamine	ND	2.5	5.0	ug/kg							U
Hexachlorobenzene	ND	2.5	5.0	ug/kg							U
Pentachlorophenol	ND	100	100	ug/kg							U
Butylbenzylphthalate	ND	2.5	5.0	ug/kg							U
Dibenzo(a,h)anthracene	ND	2.5	5.0	ug/kg							U
Surrogate: 2-Fluorophenol	626			ug/kg	750		83.4	27-120			
Surrogate: p-Terphenyl-d14	486			ug/kg	500		97.1	37-120			



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Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - SIM - Quality Control

Batch BMG0256 - EPA 8270E-SIM

Instrument: NT10 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0256-BS2)						Prepared: 12-Jul-2024 Analyzed: 27-Jul-2024 16:35					
Phenol	400	2.5	5.0	ug/kg	500		79.9	30-160			
1,3-Dichlorobenzene	381	2.5	5.0	ug/kg	500		76.1	30-120			
1,4-Dichlorobenzene	430	2.5	5.0	ug/kg	500		86.1	36-120			
1,2-Dichlorobenzene	420	2.5	5.0	ug/kg	500		84.0	36-120			
Benzyl Alcohol	364	10.0	20.0	ug/kg	500		72.7	25-123			
Benzoic acid	1380	200	200	ug/kg	2250		61.4	10-160			Q
2-Methylphenol	431	2.5	5.0	ug/kg	500		86.2	26-120			
N-Nitroso-di-n-Propylamine	504	10.0	20.0	ug/kg	500		101	30-160			
4-Methylphenol	452	2.5	5.0	ug/kg	500		90.4	30-160			
2,4-Dimethylphenol	894	10.0	20.0	ug/kg	1500		59.6	10-120			
1,2,4-Trichlorobenzene	369	5.0	5.0	ug/kg	500		73.8	35-120			
Hexachlorobutadiene	391	2.5	5.0	ug/kg	500		78.3	34-120			
N-Nitrosodimethylamine	1040	12.5	25.0	ug/kg	1500		69.3	30-160			E
Dimethylphthalate	497	2.5	5.0	ug/kg	500		99.3	38-120			
Diethyl phthalate	549	10.0	20.0	ug/kg	500		110	55-120			
N-Nitrosodiphenylamine	461	2.5	5.0	ug/kg	500		92.2	27-120			
Hexachlorobenzene	446	2.5	5.0	ug/kg	500		89.2	32-120			
Pentachlorophenol	1130	100	100	ug/kg	1500		75.6	26-120			Q, E
Butylbenzylphthalate	506	2.5	5.0	ug/kg	500		101	32-142			
Dibenzo(a,h)anthracene	459	2.5	5.0	ug/kg	500		91.8	28-125			Q
Surrogate: 2-Fluorophenol	664			ug/kg	750		88.5	27-120			
Surrogate: p-Terphenyl-d14	521			ug/kg	500		104	37-120			



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 12:28

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - SIM - Quality Control

Batch BMG0256 - EPA 8270E-SIM

Instrument: NT10 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMG0256-BSD2)						Prepared: 12-Jul-2024 Analyzed: 27-Jul-2024 17:14					
Phenol	407	2.5	5.0	ug/kg	500		81.5	30-160	1.92	30	
1,3-Dichlorobenzene	379	2.5	5.0	ug/kg	500		75.8	30-120	0.40	30	
1,4-Dichlorobenzene	430	2.5	5.0	ug/kg	500		86.0	36-120	0.10	30	
1,2-Dichlorobenzene	418	2.5	5.0	ug/kg	500		83.6	36-120	0.44	30	
Benzyl Alcohol	382	10.0	20.0	ug/kg	500		76.3	25-123	4.87	30	
Benzoic acid	1390	200	200	ug/kg	2250		61.9	10-160	0.72	30	Q
2-Methylphenol	441	2.5	5.0	ug/kg	500		88.2	26-120	2.34	30	
N-Nitroso-di-n-Propylamine	526	10.0	20.0	ug/kg	500		105	30-160	4.45	30	
4-Methylphenol	469	2.5	5.0	ug/kg	500		93.7	30-160	3.57	30	
2,4-Dimethylphenol	766	10.0	20.0	ug/kg	1500		51.0	10-120	15.50	30	
1,2,4-Trichlorobenzene	368	5.0	5.0	ug/kg	500		73.6	35-120	0.32	30	
Hexachlorobutadiene	391	2.5	5.0	ug/kg	500		78.3	34-120	0.00		
N-Nitrosodimethylamine	1090	12.5	25.0	ug/kg	1500		72.6	30-160	4.55	30	E
Dimethylphthalate	495	2.5	5.0	ug/kg	500		99.0	38-120	0.37	30	
Diethyl phthalate	552	10.0	20.0	ug/kg	500		110	55-120	0.46	30	
N-Nitrosodiphenylamine	462	2.5	5.0	ug/kg	500		92.4	27-120	0.25	30	
Hexachlorobenzene	443	2.5	5.0	ug/kg	500		88.5	32-120	0.76	30	
Pentachlorophenol	1130	100	100	ug/kg	1500		75.6	26-120	0.05	30	Q, E
Butylbenzylphthalate	507	2.5	5.0	ug/kg	500		101	32-142	0.20	30	
Dibenzo(a,h)anthracene	463	2.5	5.0	ug/kg	500		92.5	28-125	0.76	30	Q
Surrogate: 2-Fluorophenol	658			ug/kg	750		87.7	27-120			
Surrogate: p-Terphenyl-d14	510			ug/kg	500		102	37-120			



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Project: PAMP Sediments
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Project Manager: Dan McMahon

Reported:
13-Sep-2024 12:28

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - SIM - Quality Control

Batch BMG0256 - EPA 8270E-SIM

Instrument: NT10 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BMG0256-MS2)		Source: 24G0170-04		Prepared: 12-Jul-2024 Analyzed: 27-Jul-2024 20:29							
Phenol	439	2.5	5.0	ug/kg	500	2.7	87.4	30-160			
1,3-Dichlorobenzene	418	2.5	5.0	ug/kg	500	ND	83.6	30-120			
1,4-Dichlorobenzene	470	2.5	5.0	ug/kg	500	ND	94.0	36-120			
1,2-Dichlorobenzene	459	2.5	5.0	ug/kg	500	ND	91.8	36-120			
Benzyl Alcohol	414	10.0	20.0	ug/kg	500	ND	82.9	25-123			
Benzoic acid	747	200	200	ug/kg	2250	ND	33.2	10-160			Q
2-Methylphenol	507	2.5	5.0	ug/kg	500	ND	101	26-120			
N-Nitroso-di-n-Propylamine	591	10.0	20.0	ug/kg	500	ND	118	30-160			
4-Methylphenol	533	2.5	5.0	ug/kg	500	2.7	106	30-160			
2,4-Dimethylphenol	1190	10.0	20.0	ug/kg	1500	ND	79.4	10-120			E
1,2,4-Trichlorobenzene	393	5.0	5.0	ug/kg	500	ND	78.6	35-120			
Hexachlorobutadiene	409	2.5	5.0	ug/kg	500	ND	81.9	34-120			
N-Nitrosodimethylamine	1160	12.5	25.0	ug/kg	1500	ND	77.2	30-160			E
Dimethylphthalate	533	2.5	5.0	ug/kg	500	ND	107	38-120			
Diethyl phthalate	608	10.0	20.0	ug/kg	500	20.0	118	55-120			
N-Nitrosodiphenylamine	488	2.5	5.0	ug/kg	500	3.7	96.8	27-120			
Hexachlorobenzene	468	2.5	5.0	ug/kg	500	ND	93.6	32-120			
Pentachlorophenol	1130	100	100	ug/kg	1500	ND	75.4	26-120			Q, E
Butylbenzylphthalate	592	2.5	5.0	ug/kg	500	ND	118	32-142			
Dibenzo(a,h)anthracene	550	2.5	5.0	ug/kg	500	ND	110	28-125			Q
Surrogate: 2-Fluorophenol	722			ug/kg	750	632	96.3	27-120			
Surrogate: p-Terphenyl-d14	595			ug/kg	500	546	119	37-120			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.



Shannon & Wilson, Inc
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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 12:28

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - SIM - Quality Control

Batch BMG0256 - EPA 8270E-SIM

Instrument: NT10 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BMG0256-MSD2)		Source: 24G0170-04		Prepared: 12-Jul-2024 Analyzed: 27-Jul-2024 21:08							
Phenol	425	2.5	5.0	ug/kg	500	2.7	84.4	30-160	3.44	30	
1,3-Dichlorobenzene	397	2.5	5.0	ug/kg	500	ND	79.4	30-120	5.11	30	
1,4-Dichlorobenzene	449	2.5	5.0	ug/kg	500	ND	89.8	36-120	4.57	30	
1,2-Dichlorobenzene	438	2.5	5.0	ug/kg	500	ND	87.6	36-120	4.70	30	
Benzyl Alcohol	405	10.0	20.0	ug/kg	500	ND	81.1	25-123	2.14	30	
Benzoic acid	926	200	200	ug/kg	2250	ND	41.2	10-160	21.40	30	Q
2-Methylphenol	493	2.5	5.0	ug/kg	500	ND	98.6	26-120	2.85	30	
N-Nitroso-di-n-Propylamine	574	10.0	20.0	ug/kg	500	ND	115	30-160	3.07	30	
4-Methylphenol	518	2.5	5.0	ug/kg	500	2.7	103	30-160	2.91	30	
2,4-Dimethylphenol	1160	10.0	20.0	ug/kg	1500	ND	77.2	10-120	2.83	30	E
1,2,4-Trichlorobenzene	377	5.0	5.0	ug/kg	500	ND	75.4	35-120	4.24	30	
Hexachlorobutadiene	385	2.5	5.0	ug/kg	500	ND	77.0	34-120	6.10	30	
N-Nitrosodimethylamine	1130	12.5	25.0	ug/kg	1500	ND	75.6	30-160	2.11	30	E
Dimethylphthalate	520	2.5	5.0	ug/kg	500	ND	104	38-120	2.54	30	
Diethyl phthalate	587	10.0	20.0	ug/kg	500	20.0	113	55-120	3.49	30	
N-Nitrosodiphenylamine	485	2.5	5.0	ug/kg	500	3.7	96.3	27-120	0.54	30	
Hexachlorobenzene	459	2.5	5.0	ug/kg	500	ND	91.8	32-120	2.00	30	
Pentachlorophenol	1110	100	100	ug/kg	1500	ND	74.3	26-120	1.41	30	Q, E
Butylbenzylphthalate	580	2.5	5.0	ug/kg	500	ND	116	32-142	1.92	30	
Dibenzo(a,h)anthracene	531	2.5	5.0	ug/kg	500	ND	106	28-125	3.51	30	Q
Surrogate: 2-Fluorophenol	694			ug/kg	750	632	92.5	27-120			
Surrogate: p-Terphenyl-d14	586			ug/kg	500	546	117	37-120			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 12:28

Analysis by: Analytical Resources, LLC

Butyl Tins - Quality Control

Batch BMG0255 - EPA 8270E-SIM

Instrument: NT17 Analyst: JZ

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0255-BLK1)						Prepared: 12-Jul-2024 Analyzed: 23-Jul-2024 13:44					
Tributyltin Ion	ND	1.93	3.86	ug/kg							U
Surrogate: Triphenyltin	31.3			ug/kg	45.2		69.4	30-160			
Surrogate: Tripropyltin	29.0			ug/kg	43.7		66.4	30-160			



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Reported:
13-Sep-2024 12:28

Analysis by: Analytical Resources, LLC

Butyl Tins - Quality Control

Batch BMG0255 - EPA 8270E-SIM

Instrument: NT17 Analyst: JZ

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0255-BS1)					Prepared: 12-Jul-2024 Analyzed: 23-Jul-2024 13:58					
Tributyltin Ion	34.7	1.93	3.86	ug/kg	44.6		77.9	30-160		
Surrogate: Triphenyltin	36.2			ug/kg	45.2		80.2	30-160		
Surrogate: Tripropyltin	31.3			ug/kg	43.7		71.6	30-160		



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Analysis by: Analytical Resources, LLC

Butyl Tins - Quality Control

Batch BMG0255 - EPA 8270E-SIM

Instrument: NT17 Analyst: JZ

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMG0255-BSD1)						Prepared: 12-Jul-2024 Analyzed: 23-Jul-2024 14:11					
Tributyltin Ion	31.8	1.93	3.86	ug/kg	44.6		71.5	30-160	8.62	30	
Surrogate: Triphenyltin	32.0			ug/kg	45.2		70.8	30-160			
Surrogate: Tripropyltin	29.2			ug/kg	43.7		66.7	30-160			



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Project Manager: Dan McMahon

Reported:
13-Sep-2024 12:28

Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BMG0254 - EPA 8081B

Instrument: ECD6 Analyst: RT/JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0254-BLK1) Prepared: 12-Jul-2024 Analyzed: 18-Aug-2024 14:55											
alpha-BHC	ND	0.25	0.50	ug/kg							U
beta-BHC	ND	0.25	0.50	ug/kg							U
gamma-BHC (Lindane)	ND	0.25	0.50	ug/kg							U
delta-BHC	ND	0.25	0.50	ug/kg							U
Heptachlor	ND	0.25	0.50	ug/kg							U
Aldrin	ND	0.50	0.50	ug/kg							U
Heptachlor Epoxide	ND	0.25	0.50	ug/kg							U
trans-Chlordane (beta-Chlordane)	ND	0.50	0.50	ug/kg							U
cis-Chlordane (alpha-chlordane)	ND	0.25	0.50	ug/kg							U
Endosulfan I	ND	0.25	0.50	ug/kg							U
4,4'-DDE	ND	0.50	1.00	ug/kg							U
Dieldrin	ND	0.50	1.00	ug/kg							U
Endrin	ND	0.50	1.00	ug/kg							U
Endosulfan II	ND	0.50	1.00	ug/kg							U
4,4'-DDD	ND	0.50	1.00	ug/kg							U
Endrin Aldehyde	ND	0.50	1.00	ug/kg							U
4,4'-DDT	ND	0.50	1.00	ug/kg							U
Endosulfan Sulfate	ND	0.50	1.00	ug/kg							U
Endrin Ketone	ND	0.50	1.00	ug/kg							U
Methoxychlor	ND	2.50	5.00	ug/kg							U
Hexachlorobutadiene	ND	0.25	0.50	ug/kg							U
Hexachlorobenzene	ND	0.25	0.50	ug/kg							U
2,4'-DDE	ND	0.50	1.00	ug/kg							U
2,4'-DDD	ND	0.50	1.00	ug/kg							U
2,4'-DDT	ND	0.50	1.00	ug/kg							U
Oxychlordane	ND	0.50	1.00	ug/kg							U
cis-Nonachlor	ND	0.50	1.00	ug/kg							U
trans-Nonachlor	ND	0.50	1.00	ug/kg							U
Mirex	ND	1.00	1.00	ug/kg							U
Surrogate: Decachlorobiphenyl	9.44			ug/kg	8.00		118	30-160			
Surrogate: Decachlorobiphenyl [2C]	9.11			ug/kg	8.00		114	30-160			
Surrogate: Tetrachlorometaxylene	7.64			ug/kg	8.00		95.5	30-160			
Surrogate: Tetrachlorometaxylene [2C]	6.73			ug/kg	8.00		84.1	30-160			



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13-Sep-2024 12:28

Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BMG0254 - EPA 8081B

Instrument: ECD6 Analyst: RT/JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0254-BS1)						Prepared: 12-Jul-2024 Analyzed: 18-Aug-2024 15:15					
alpha-BHC [2C]	3.77	0.25	0.50	ug/kg	4.00		94.4	28-120			
beta-BHC [2C]	3.85	0.25	0.50	ug/kg	4.00		96.3	33-120			
gamma-BHC (Lindane) [2C]	3.83	0.25	0.50	ug/kg	4.00		95.7	30-124			
delta-BHC [2C]	3.79	0.25	0.50	ug/kg	4.00		94.8	30-120			
Heptachlor	4.12	0.25	0.50	ug/kg	4.00		103	26-120			
Aldrin	3.38	0.50	0.50	ug/kg	4.00		84.6	26-120			
Heptachlor Epoxide	3.60	0.25	0.50	ug/kg	4.00		90.1	26-120			
trans-Chlordane (beta-Chlordane) [2C]	3.72	0.50	0.50	ug/kg	4.00		93.0	21-120			
cis-Chlordane (alpha-chlordane) [2C]	3.59	0.25	0.50	ug/kg	4.00		89.9	39-120			
Endosulfan I [2C]	3.55	0.25	0.50	ug/kg	4.00		88.9	17-143			
4,4'-DDE [2C]	7.56	0.50	1.00	ug/kg	8.00		94.4	35-120			
Dieldrin [2C]	7.53	0.50	1.00	ug/kg	8.00		94.1	10-140			
Endrin [2C]	10.9	0.50	1.00	ug/kg	8.00		136	45-120			
Endosulfan II [2C]	9.99	0.50	1.00	ug/kg	8.00		125	10-139			
4,4'-DDD [2C]	10.2	0.50	1.00	ug/kg	8.00		127	50-120			
Endrin Aldehyde [2C]	9.34	0.50	1.00	ug/kg	8.00		117	10-120			P1
4,4'-DDT [2C]	9.84	0.50	1.00	ug/kg	8.00		123	39-120			
Endosulfan Sulfate [2C]	10.4	0.50	1.00	ug/kg	8.00		130	38-120			
Endrin Ketone [2C]	9.72	0.50	1.00	ug/kg	8.00		121	17-120			
Methoxychlor [2C]	51.0	2.50	5.00	ug/kg	40.0		128	10-140			
Hexachlorobutadiene [2C]	3.22	0.25	0.50	ug/kg	4.00		80.5	15-120			
Hexachlorobenzene [2C]	3.25	0.25	0.50	ug/kg	4.00		81.2	26-128			
Surrogate: Decachlorobiphenyl	9.42			ug/kg	8.00		118	30-160			
Surrogate: Decachlorobiphenyl [2C]	10.1			ug/kg	8.00		127	30-160			
Surrogate: Tetrachlorometaxylene	6.91			ug/kg	8.00		86.4	30-160			
Surrogate: Tetrachlorometaxylene [2C]	7.47			ug/kg	8.00		93.4	30-160			



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Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BMG0254 - EPA 8081B

Instrument: ECD6 Analyst: RT

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0254-BS2) Prepared: 12-Jul-2024 Analyzed: 31-Jul-2024 15:14										
2,4'-DDE	7.40	0.50	1.00	ug/kg	8.00		92.4	30-160		
2,4'-DDD	7.65	0.50	1.00	ug/kg	8.00		95.6	30-160		
2,4'-DDT	8.89	0.50	1.00	ug/kg	8.00		111	30-160		
Oxychlordane	6.96	0.50	1.00	ug/kg	8.00		87.0	30-160		P1
cis-Nonachlor	7.14	0.50	1.00	ug/kg	8.00		89.3	30-160		
trans-Nonachlor	6.79	0.50	1.00	ug/kg	8.00		84.8	30-160		
Mirex	6.81	1.00	1.00	ug/kg	8.00		85.1	30-160		P1
Surrogate: Decachlorobiphenyl	7.25			ug/kg	8.00		90.6	30-160		
Surrogate: Decachlorobiphenyl [2C]	6.97			ug/kg	8.00		87.2	30-160		
Surrogate: Tetrachlorometaxylene	5.06			ug/kg	8.00		63.2	30-160		
Surrogate: Tetrachlorometaxylene [2C]	5.35			ug/kg	8.00		66.9	30-160		



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Chlorinated Pesticides - Quality Control

Batch BMG0254 - EPA 8081B

Instrument: ECD6 Analyst: RT/JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0254-BS3)										
Prepared: 12-Jul-2024 Analyzed: 18-Aug-2024 15:36										
2,4'-DDE	5.96	0.50	1.00	ug/kg	8.00		74.5 30-160			
2,4'-DDD [2C]	6.46	0.50	1.00	ug/kg	8.00		80.7 30-160			
2,4'-DDT	6.45	0.50	1.00	ug/kg	8.00		80.6 30-160			
Oxychlorane	5.39	0.50	1.00	ug/kg	8.00		67.4 30-160			
cis-Nonachlor [2C]	6.47	0.50	1.00	ug/kg	8.00		80.9 30-160			
trans-Nonachlor [2C]	6.46	0.50	1.00	ug/kg	8.00		80.8 30-160			
Mirex [2C]	5.77	1.00	1.00	ug/kg	8.00		72.2 30-160			
Surrogate: Decachlorobiphenyl	9.16			ug/kg	8.00		114 30-160			
Surrogate: Decachlorobiphenyl [2C]	8.78			ug/kg	8.00		110 30-160			
Surrogate: Tetrachlorometaxylene	6.15			ug/kg	8.00		76.9 30-160			
Surrogate: Tetrachlorometaxylene [2C]	6.25			ug/kg	8.00		78.1 30-160			



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Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BMG0254 - EPA 8081B

Instrument: ECD6 Analyst: RT/JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMG0254-BSD1)						Prepared: 12-Jul-2024 Analyzed: 18-Aug-2024 15:56					
alpha-BHC [2C]	3.57	0.25	0.50	ug/kg	4.00		89.4	28-120	5.44	30	
beta-BHC [2C]	3.69	0.25	0.50	ug/kg	4.00		92.3	33-120	4.25	30	
gamma-BHC (Lindane) [2C]	3.79	0.25	0.50	ug/kg	4.00		94.7	30-124	1.08	30	
delta-BHC	3.75	0.25	0.50	ug/kg	4.00		93.7	30-120	0.13	30	
Heptachlor	4.01	0.25	0.50	ug/kg	4.00		100	26-120	2.86	30	
Aldrin	3.31	0.50	0.50	ug/kg	4.00		82.7	26-120	2.24	30	
Heptachlor Epoxide	3.71	0.25	0.50	ug/kg	4.00		92.8	26-120	2.94	30	
trans-Chlordane (beta-Chlordane) [2C]	3.60	0.50	0.50	ug/kg	4.00		89.9	21-120	3.33	30	
cis-Chlordane (alpha-chlordane) [2C]	3.52	0.25	0.50	ug/kg	4.00		88.1	39-120	2.00	30	
Endosulfan I	3.54	0.25	0.50	ug/kg	4.00		88.5	17-143	1.63	30	
4,4'-DDE [2C]	7.39	0.50	1.00	ug/kg	8.00		92.4	35-120	2.15	30	
Dieldrin [2C]	7.45	0.50	1.00	ug/kg	8.00		93.1	10-140	1.01	30	
Endrin [2C]	10.5	0.50	1.00	ug/kg	8.00		132	45-120	2.87	30	*
Endosulfan II [2C]	9.88	0.50	1.00	ug/kg	8.00		123	10-139	1.15	30	
4,4'-DDD [2C]	10.1	0.50	1.00	ug/kg	8.00		126	50-120	0.81	30	*
Endrin Aldehyde [2C]	9.12	0.50	1.00	ug/kg	8.00		114	10-120	2.39	30	P1
4,4'-DDT [2C]	9.74	0.50	1.00	ug/kg	8.00		122	39-120	0.96	30	*
Endosulfan Sulfate [2C]	10.3	0.50	1.00	ug/kg	8.00		129	38-120	0.63	30	*
Endrin Ketone [2C]	9.80	0.50	1.00	ug/kg	8.00		123	17-120	0.88	30	*
Methoxychlor [2C]	50.5	2.50	5.00	ug/kg	40.0		126	10-140	1.13	30	
Hexachlorobutadiene [2C]	3.09	0.25	0.50	ug/kg	4.00		77.2	15-120	4.15	30	
Hexachlorobenzene [2C]	3.02	0.25	0.50	ug/kg	4.00		75.4	26-128	7.44	30	
Surrogate: Decachlorobiphenyl	9.47			ug/kg	8.00		118	30-160			
Surrogate: Decachlorobiphenyl [2C]	10.1			ug/kg	8.00		126	30-160			
Surrogate: Tetrachlorometaxylene	6.72			ug/kg	8.00		84.0	30-160			
Surrogate: Tetrachlorometaxylene [2C]	7.01			ug/kg	8.00		87.6	30-160			



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
13-Sep-2024 12:28

Analysis by: Analytical Resources, LLC

Aroclor PCB - Quality Control

Batch BMG0250 - EPA 8082A

Instrument: ECD5 Analyst: NRB

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0250-BLK1) Prepared: 15-Jul-2024 Analyzed: 24-Jul-2024 22:01										
Aroclor 1016	ND	2.0	4.0	ug/kg						U
Aroclor 1221	ND	2.0	4.0	ug/kg						U
Aroclor 1232	ND	2.0	4.0	ug/kg						U
Aroclor 1242	ND	2.0	4.0	ug/kg						U
Aroclor 1248	ND	2.0	4.0	ug/kg						U
Aroclor 1254	ND	2.0	4.0	ug/kg						U
Aroclor 1260	ND	2.0	4.0	ug/kg						U
Aroclor 1262	ND	2.0	4.0	ug/kg						U
Aroclor 1268	ND	2.0	4.0	ug/kg						U
Surrogate: Decachlorobiphenyl	7.40			ug/kg	8.00		92.5	40-126		
Surrogate: Tetrachlorometaxylene	6.38			ug/kg	8.00		79.7	44-120		
Surrogate: Decachlorobiphenyl [2C]	7.40			ug/kg	8.00		92.5	40-126		
Surrogate: Tetrachlorometaxylene [2C]	6.35			ug/kg	8.00		79.3	44-120		



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Aroclor PCB - Quality Control

Batch BMG0250 - EPA 8082A

Instrument: ECD5 Analyst: NRB

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0250-BS1)											
						Prepared: 15-Jul-2024 Analyzed: 24-Jul-2024 22:22					
Aroclor 1016	92.6	2.0	4.0	ug/kg	101		91.8	56-120			
Aroclor 1260	89.2	2.0	4.0	ug/kg	101		88.5	58-120			
Surrogate: Decachlorobiphenyl	7.24			ug/kg	8.00		90.4	40-126			
Surrogate: Tetrachlorometaxylene	7.23			ug/kg	8.00		90.3	44-120			
Surrogate: Decachlorobiphenyl [2C]	7.24			ug/kg	8.00		90.5	40-126			
Surrogate: Tetrachlorometaxylene [2C]	6.90			ug/kg	8.00		86.2	44-120			



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Aroclor PCB - Quality Control

Batch BMG0250 - EPA 8082A

Instrument: ECD5 Analyst: NRB

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMG0250-BSD1)						Prepared: 15-Jul-2024 Analyzed: 24-Jul-2024 22:43					
Aroclor 1016	96.9	2.0	4.0	ug/kg	101		96.1	56-120	4.56	30	
Aroclor 1260	95.3	2.0	4.0	ug/kg	101		94.5	58-120	6.63	30	
Surrogate: Decachlorobiphenyl	6.73			ug/kg	8.00		84.1	40-126			
Surrogate: Tetrachlorometaxylene	6.61			ug/kg	8.00		82.6	44-120			
Surrogate: Decachlorobiphenyl [2C]	6.84			ug/kg	8.00		85.6	40-126			
Surrogate: Tetrachlorometaxylene [2C]	6.33			ug/kg	8.00		79.1	44-120			



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Analysis by: Analytical Resources, LLC

Aroclor PCB - Quality Control

Batch BMG0250 - EPA 8082A

Instrument: ECD5 Analyst: NRB

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BMG0250-MS1)		Source: 24G0170-01		Prepared: 15-Jul-2024 Analyzed: 24-Jul-2024 23:04							
Aroclor 1016	98.9	2.1	4.3	ug/kg	108	ND	91.6	56-120			
Aroclor 1260	95.1	2.1	4.3	ug/kg	108	ND	88.1	58-120			
Surrogate: Decachlorobiphenyl	6.83			ug/kg	8.55		79.9	40-126			
Surrogate: Tetrachlorometaxylene	6.93			ug/kg	8.55		81.0	44-120			
Surrogate: Decachlorobiphenyl [2C]	7.03			ug/kg	8.55		82.2	40-126			
Surrogate: Tetrachlorometaxylene [2C]	6.75			ug/kg	8.55		78.9	44-120			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.



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Analysis by: Analytical Resources, LLC

Aroclor PCB - Quality Control

Batch BMG0250 - EPA 8082A

Instrument: ECD5 Analyst: NRB

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BMG0250-MSD1)		Source: 24G0170-01		Prepared: 15-Jul-2024 Analyzed: 24-Jul-2024 23:24							
Aroclor 1016	92.2	2.0	4.0	ug/kg	101	ND	91.3	56-120	7.06	30	
Aroclor 1260	91.4	2.0	4.0	ug/kg	101	ND	90.5	58-120	3.94	30	
Surrogate: Decachlorobiphenyl	6.38			ug/kg	8.00		79.8	40-126			
Surrogate: Tetrachlorometaxylene	6.34			ug/kg	8.00		79.2	44-120			
Surrogate: Decachlorobiphenyl [2C]	6.49			ug/kg	8.00		81.1	40-126			
Surrogate: Tetrachlorometaxylene [2C]	6.22			ug/kg	8.00		77.7	44-120			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.



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Reported:
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Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BMG0274 - EPA 6020B

Instrument: ICPMS1 Analyst: DOE

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0274-BLK1)			Prepared: 11-Jul-2024 Analyzed: 18-Jul-2024 11:37									
Antimony	121	ND	0.10	0.20	mg/kg							U
Chromium	52	ND	0.26	0.50	mg/kg							U
Chromium	53	ND	0.24	0.50	mg/kg							U
Lead	208	ND	0.05	0.10	mg/kg							U
Silver	107	ND	0.02	0.20	mg/kg							U
Arsenic	75a	ND	0.04	0.20	mg/kg							U
Cadmium	111	ND	0.03	0.10	mg/kg							U
Copper	63	ND	0.17	0.50	mg/kg							U
Selenium	78	ND	0.18	0.50	mg/kg							U
Zinc	66	ND	2.9	6.0	mg/kg							U
LCS (BMG0274-BS1)			Prepared: 11-Jul-2024 Analyzed: 18-Jul-2024 11:42									
Antimony	121	23.7	0.10	0.20	mg/kg	25.0		94.8	80-120			
Chromium	52	26.1	0.26	0.50	mg/kg	25.0		104	80-120			
Chromium	53	24.6	0.24	0.50	mg/kg	25.0		98.3	80-120			
Lead	208	27.2	0.05	0.10	mg/kg	25.0		109	80-120			
Silver	107	25.5	0.02	0.20	mg/kg	25.0		102	80-120			
Arsenic	75a	24.3	0.04	0.20	mg/kg	25.0		97.2	80-120			
Cadmium	111	24.6	0.03	0.10	mg/kg	25.0		98.4	80-120			
Copper	63	26.2	0.17	0.50	mg/kg	25.0		105	80-120			
Selenium	78	76.8	0.18	0.50	mg/kg	80.0		96.1	80-120			
Zinc	66	79.7	2.9	6.0	mg/kg	80.0		99.6	80-120			



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Project: PAMP Sediments
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Reported:
13-Sep-2024 12:28

Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BMG0339 - EPA 7471B

Instrument: HYDRA Analyst: ML

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0339-BLK1)					Prepared: 13-Jul-2024 Analyzed: 15-Jul-2024 11:39					
Mercury	ND	0.00525	0.0250	mg/kg						U
LCS (BMG0339-BS1)					Prepared: 13-Jul-2024 Analyzed: 15-Jul-2024 11:41					
Mercury	0.523	0.00525	0.0250	mg/kg	0.500		105	80-120		



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Reported:
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Analysis by: Analytical Resources, LLC

Wet Chemistry - Quality Control

Batch BMG0226 - PSEP 1986

Instrument: BAL2 Analyst: LERB

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0226-BLK1)						Prepared: 10-Jul-2024 Analyzed: 10-Jul-2024 11:40					
Volatile Solids	ND	0.01	0.01	%							U
Total Solids	ND	0.04	0.04	%							U
Duplicate (BMG0226-DUP1)						Source: 24G0170-01 Prepared: 10-Jul-2024 Analyzed: 10-Jul-2024 11:40					
Volatile Solids	2.25	0.01	0.01	%		2.18			3.21	20	
Total Solids	75.06	0.04	0.04	%		74.68			0.51	20	
Duplicate (BMG0226-DUP2)						Source: 24G0170-01 Prepared: 10-Jul-2024 Analyzed: 10-Jul-2024 11:40					
Volatile Solids	2.13	0.01	0.01	%		2.18			2.26	20	
Total Solids	76.38	0.04	0.04	%		74.68			2.25	20	



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Reported:
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Analysis by: Analytical Resources, LLC

Wet Chemistry - Quality Control

Batch BMG0790 - EPA 9060A m

Instrument: TOC Cube Analyst: ARR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0790-BLK1)					Prepared: 31-Jul-2024 Analyzed: 06-Aug-2024 15:57					
Total Organic Carbon	ND	0.02	0.02	%						U
LCS (BMG0790-BS1)					Prepared: 31-Jul-2024 Analyzed: 05-Aug-2024 15:09					
Total Organic Carbon	44.4	0.02	0.02	%	44.4		99.9 80-120			
Reference (BMG0790-SRM1)					Prepared: 31-Jul-2024 Analyzed: 05-Aug-2024 16:09					
Total Organic Carbon	4.61	0.02	0.02	%	4.46		103 50-150			



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Certified Analyses included in this Report

Analyte	Certifications
EPA 6020B in Solid	
Silver-107	NELAP,DoD-ELAP,WADOE
Chromium-52	NELAP,DoD-ELAP,WADOE,ADEC
Chromium-53	NELAP,DoD-ELAP,WADOE,ADEC
Lead-208	NELAP,DoD-ELAP,WADOE,ADEC
Antimony-121	NELAP,DoD-ELAP,WADOE
EPA 6020B UCT-KED in Solid	
Arsenic-75a	NELAP,DoD-ELAP,WADOE,ADEC
Cadmium-111	NELAP,DoD-ELAP,WADOE,ADEC
Copper-63	NELAP,DoD-ELAP,WADOE
Selenium-78	NELAP,DoD-ELAP,WADOE
Zinc-66	NELAP,DoD-ELAP,WADOE
EPA 7471B in Solid	
Mercury	WADOE,NELAP,DoD-ELAP
EPA 8081B in Solid	
alpha-BHC	DoD-ELAP,NELAP,WADOE
alpha-BHC [2C]	DoD-ELAP,NELAP,WADOE
beta-BHC	DoD-ELAP,NELAP,WADOE
beta-BHC [2C]	DoD-ELAP,NELAP,WADOE
gamma-BHC (Lindane)	DoD-ELAP,NELAP,WADOE
gamma-BHC (Lindane) [2C]	DoD-ELAP,NELAP,WADOE
delta-BHC	DoD-ELAP,NELAP,WADOE
delta-BHC [2C]	DoD-ELAP,NELAP,WADOE
Heptachlor	DoD-ELAP,NELAP,WADOE
Heptachlor [2C]	DoD-ELAP,NELAP,WADOE
Aldrin	DoD-ELAP,NELAP,WADOE
Aldrin [2C]	DoD-ELAP,NELAP,WADOE
Heptachlor Epoxide	DoD-ELAP,NELAP,WADOE
Heptachlor Epoxide [2C]	DoD-ELAP,NELAP,WADOE
trans-Chlordane (beta-Chlordane)	DoD-ELAP,NELAP



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trans-Chlordane (beta-Chlordane)	DoD-ELAP,NELAP
cis-Chlordane (alpha-chlordane)	DoD-ELAP,NELAP,WADOE
cis-Chlordane (alpha-chlordane)	DoD-ELAP,NELAP,WADOE
Endosulfan I	DoD-ELAP,NELAP,WADOE
Endosulfan I [2C]	DoD-ELAP,NELAP,WADOE
4,4'-DDE	DoD-ELAP,NELAP,WADOE
4,4'-DDE [2C]	DoD-ELAP,NELAP,WADOE
Dieldrin	DoD-ELAP,NELAP,WADOE
Dieldrin [2C]	DoD-ELAP,NELAP,WADOE
Endrin	DoD-ELAP,NELAP,WADOE
Endrin [2C]	DoD-ELAP,NELAP,WADOE
Endosulfan II	DoD-ELAP,NELAP,WADOE
Endosulfan II [2C]	DoD-ELAP,NELAP,WADOE
4,4'-DDD	DoD-ELAP,NELAP,WADOE
4,4'-DDD [2C]	DoD-ELAP,NELAP,WADOE
Endrin Aldehyde	DoD-ELAP,NELAP,WADOE
Endrin Aldehyde [2C]	DoD-ELAP,NELAP,WADOE
4,4'-DDT	DoD-ELAP,NELAP,WADOE
4,4'-DDT [2C]	DoD-ELAP,NELAP,WADOE
Endosulfan Sulfate	DoD-ELAP,NELAP,WADOE
Endosulfan Sulfate [2C]	DoD-ELAP,NELAP,WADOE
Endrin Ketone	DoD-ELAP,NELAP,WADOE
Endrin Ketone [2C]	DoD-ELAP,NELAP,WADOE
Methoxychlor	DoD-ELAP,NELAP,WADOE
Methoxychlor [2C]	DoD-ELAP,NELAP,WADOE
Hexachlorobutadiene	DoD-ELAP,NELAP,WADOE
Hexachlorobutadiene [2C]	DoD-ELAP,NELAP,WADOE
Hexachlorobenzene	DoD-ELAP,NELAP,WADOE
Hexachlorobenzene [2C]	DoD-ELAP,NELAP,WADOE
2,4'-DDE	DoD-ELAP,NELAP,WADOE
2,4'-DDE [2C]	DoD-ELAP,NELAP,WADOE
2,4'-DDD	DoD-ELAP,NELAP,WADOE
2,4'-DDD [2C]	DoD-ELAP,NELAP,WADOE



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2,4'-DDT	DoD-ELAP,NELAP,WADOE
2,4'-DDT [2C]	DoD-ELAP,NELAP,WADOE
Oxychlordan	DoD-ELAP,NELAP,WADOE
Oxychlordan [2C]	DoD-ELAP,NELAP,WADOE
cis-Nonachlor	DoD-ELAP,NELAP,WADOE
cis-Nonachlor [2C]	DoD-ELAP,NELAP,WADOE
trans-Nonachlor	DoD-ELAP,NELAP,WADOE
trans-Nonachlor [2C]	DoD-ELAP,NELAP,WADOE
Mirex	DoD-ELAP,NELAP,WADOE
Mirex [2C]	DoD-ELAP,NELAP,WADOE

EPA 8082A in Solid

Aroclor 1016	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1016 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1242	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1242 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1248	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1248 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1260	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1260 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1262	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1262 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1268	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1268 [2C]	WADOE,DoD-ELAP,NELAP,ADEC

EPA 8270E in Solid

Phenol	DoD-ELAP,NELAP,WADOE
bis(2-chloroethyl) ether	DoD-ELAP,NELAP,WADOE
2-Chlorophenol	DoD-ELAP,NELAP,WADOE



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1,3-Dichlorobenzene	DoD-ELAP,NELAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,NELAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,NELAP,WADOE
Benzyl Alcohol	DoD-ELAP,NELAP,WADOE
2,2'-Oxybis(1-chloropropane)	DoD-ELAP,NELAP
2-Methylphenol	DoD-ELAP,NELAP,WADOE
Hexachloroethane	DoD-ELAP,NELAP,WADOE
N-Nitroso-di-n-Propylamine	DoD-ELAP,NELAP,WADOE
4-Methylphenol	DoD-ELAP,NELAP,WADOE
Nitrobenzene	DoD-ELAP,NELAP,WADOE
Isophorone	DoD-ELAP,NELAP,WADOE
2-Nitrophenol	DoD-ELAP,NELAP,WADOE
2,4-Dimethylphenol	DoD-ELAP,NELAP,WADOE
Bis(2-Chloroethoxy)methane	DoD-ELAP,NELAP,WADOE
2,4-Dichlorophenol	DoD-ELAP,NELAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,NELAP,WADOE
Naphthalene	DoD-ELAP,NELAP,WADOE,ADEC
Benzoic acid	DoD-ELAP,NELAP,WADOE
4-Chloroaniline	DoD-ELAP,NELAP,WADOE
Hexachlorobutadiene	DoD-ELAP,NELAP,WADOE
4-Chloro-3-Methylphenol	DoD-ELAP,NELAP,WADOE
2-Methylnaphthalene	DoD-ELAP,NELAP,WADOE,ADEC
Hexachlorocyclopentadiene	DoD-ELAP,NELAP,WADOE
2,4,6-Trichlorophenol	DoD-ELAP,NELAP,WADOE
2,4,5-Trichlorophenol	DoD-ELAP,NELAP,WADOE
2-Chloronaphthalene	DoD-ELAP,NELAP,WADOE
2-Nitroaniline	DoD-ELAP,NELAP,WADOE
Acenaphthylene	DoD-ELAP,NELAP,WADOE,ADEC
Dimethylphthalate	DoD-ELAP,NELAP,WADOE
2,6-Dinitrotoluene	DoD-ELAP,NELAP,WADOE
Acenaphthene	DoD-ELAP,NELAP,WADOE,ADEC
3-Nitroaniline	DoD-ELAP,NELAP,WADOE
2,4-Dinitrophenol	DoD-ELAP,NELAP,WADOE



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Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

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Dibenzofuran	DoD-ELAP,NELAP,WADOE,ADEC
4-Nitrophenol	DoD-ELAP,NELAP,WADOE
2,4-Dinitrotoluene	DoD-ELAP,NELAP,WADOE
Fluorene	DoD-ELAP,NELAP,WADOE,ADEC
4-Chlorophenylphenyl ether	DoD-ELAP,NELAP
Diethyl phthalate	DoD-ELAP,NELAP,WADOE
4-Nitroaniline	DoD-ELAP,NELAP,WADOE
4,6-Dinitro-2-methylphenol	DoD-ELAP,NELAP,WADOE
N-Nitrosodiphenylamine	DoD-ELAP,NELAP,WADOE
4-Bromophenyl phenyl ether	DoD-ELAP,NELAP,WADOE
Hexachlorobenzene	DoD-ELAP,NELAP,WADOE
Pentachlorophenol	DoD-ELAP,NELAP,WADOE
Phenanthrene	DoD-ELAP,NELAP,WADOE,ADEC
Anthracene	DoD-ELAP,NELAP,WADOE,ADEC
Carbazole	DoD-ELAP,NELAP,WADOE,ADEC
Di-n-Butylphthalate	DoD-ELAP,NELAP,WADOE
Fluoranthene	DoD-ELAP,NELAP,WADOE,ADEC
Pyrene	DoD-ELAP,NELAP,WADOE,ADEC
Butylbenzylphthalate	DoD-ELAP,NELAP,WADOE
Benzo(a)anthracene	DoD-ELAP,NELAP,WADOE,ADEC
3,3'-Dichlorobenzidine	DoD-ELAP,NELAP,WADOE
Chrysene	DoD-ELAP,NELAP,WADOE,ADEC
bis(2-Ethylhexyl)phthalate	DoD-ELAP,NELAP,WADOE
Di-n-Octylphthalate	DoD-ELAP,NELAP,WADOE
Benzofluoranthenes, Total	WADOE,ADEC
Benzo(a)pyrene	DoD-ELAP,NELAP,WADOE,ADEC
Indeno(1,2,3-cd)pyrene	DoD-ELAP,NELAP,WADOE,ADEC
Dibenzo(a,h)anthracene	DoD-ELAP,NELAP,WADOE,ADEC
Benzo(g,h,i)perylene	DoD-ELAP,NELAP,WADOE,ADEC
1-Methylnaphthalene	DoD-ELAP,NELAP,WADOE,ADEC

EPA 8270E-SIM in Solid

Tributyltin Ion	NELAP,WADOE,DoD-ELAP
Phenol	NELAP,WADOE



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1,3-Dichlorobenzene	NELAP,WADOE
1,4-Dichlorobenzene	NELAP,WADOE
1,2-Dichlorobenzene	NELAP,WADOE
Benzyl Alcohol	NELAP,WADOE
2-Methylphenol	NELAP,WADOE
N-Nitroso-di-n-Propylamine	NELAP,WADOE
4-Methylphenol	NELAP,WADOE
2,4-Dimethylphenol	NELAP,WADOE
1,2,4-Trichlorobenzene	NELAP,WADOE
Hexachlorobutadiene	NELAP,WADOE
N-Nitrosodimethylamine	NELAP,WADOE
Dimethylphthalate	NELAP,WADOE
Diethyl phthalate	NELAP,WADOE
N-Nitrosodiphenylamine	NELAP,WADOE
Hexachlorobenzene	NELAP,WADOE
Pentachlorophenol	NELAP,WADOE
Butylbenzylphthalate	NELAP,WADOE
Dibenzo(a,h)anthracene	NELAP,WADOE

EPA 9060A m in Solid

Total Organic Carbon	NELAP,WADOE

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2025
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program, PJLA Testing	66169	02/28/2025
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2025
WADOE	WA Dept of Ecology	C558	06/30/2025
WA-DW	Ecology - Drinking Water	C558	06/30/2025



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Notes and Definitions

*	Flagged value is not within established control limits.
D	The reported value is from a dilution
D1	Surrogate was not detected due to sample extract dilution
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
F	Samples were frozen prior to analysis to extend hold time.
J	Estimated concentration value detected below the reporting limit.
L	Analyte concentration is ≤ 5 times the reporting limit and the replicate control limit defaults to $\pm$ RL instead of 20% RPD
P1	The reported value is greater than 40% difference between the concentrations determined on two GC columns where applicable.
Q	Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria ($< 20\%$ RSD, $< 20\%$ drift or minimum RRF)
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.

ADEC Contaminated Sites Program Laboratory Data Review Checklist

Completed By:	Ashley Jaramillo	CS Site Name:	NA	Lab Name:	Analytical Resources, LLC.
Title:	Senior Chemist	ADEC File No.:	NA	Lab Report No.:	24G0170
Consulting Firm:	Shannon & Wilson, Inc.	Hazard ID No.:	NA	Lab Report Date:	9/13/24

Note: Any N/A or No box checked must have an explanation in the comments box.

1. Laboratory

- a. Did an ADEC Contaminated Sites Laboratory Approval Program (CS-LAP) approved laboratory receive and perform all of the submitted sample analyses?

Yes ☐ No ☒ N/A ☐

Comments: Project samples were sent to Analytical Resources, LLC (ARI) Tukwila, Washington for the analysis of Grain Size by PSEP-PS, total solids by SM 2540, total volatile solids by PSEP 1986, SVOCs by 8270E, SVOC-SIM by 8270E-SIM, tributyltin (TBT) by 8270E-SIM, pesticide by 8081B, PCBs by 8082A, TOC by 9060A, metals by 6020B, and mercury by 7471. ARI is certified under DEC approval 17-015 dated 4/13/2023, expiring 3/28/2025. Grain Size by PSEP-PS was subcontracted to AMTEST Laboratories (AMTEST) in Tukwila, Washinton. The DEC CS project does not certify for this analysis.

- b. If the samples were transferred to another “network” laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses CS-LAP approved?

Yes ☐ No ☒ N/A ☐

Comments: Grain Size by PSEP-PS was subcontracted to AMTEST in Tukwila, Washinton. The DEC CS project does not certify for this analysis.

2. Chain of Custody (CoC)

- a. Is the CoC information completed, signed, and dated (including released/received by)?

Yes ☒ No ☐ N/A ☐

Comments:

CS Site Name: NA

Lab Report No.: 24G0170

b. Were the correct analyses requested?

Yes ☒ No ☐ N/A ☐

Analyses requested: No methods were listed on the CoC for Grain size, total solids, total volatile solids, SVOCs, SVOC-SIM, TBT, pesticides, PDBs, TOC, metals, and mercury. The laboratories analyzed Grain Size by PSEP-PS, total solids by SM 2540, total volatile solids by PSEP 1986, SVOCs by 8270E, SVOC-SIM by 8270E-SIM, TBT by 8270E-SIM, pesticide by 8081B, PCBs by 8082A, TOC by 9060A, metals by 6020B, and mercury by 7471.

Comments: These are the correct methods for this project. Data quality and/or usability not affected.

3. Laboratory Sample Receipt Documentation

a. Is the sample/cooler temperature documented and within range at receipt (0° to 6° C)?

Yes ☒ No ☐ N/A ☐

Cooler temperature(s): Cooler temperatures were not reported, rather a temperature blank was included with the samples in the cooler and is used to access temperature preservation. The temperature blank was 1.2°C at sample login at ARI. The temperature blank was 1.2°C at sample login at AMTEST.

Sample temperature(s): Sample temperatures were not reported.

Comments: The temperature blank was within the acceptable temperature range.

b. Is the sample preservation acceptable – acidified waters, methanol preserved soil (GRO, BTEX, VOCs, etc.)?

Yes ☐ No ☐ N/A ☒

Comments: Sample preservation not required.

c. Is the sample condition documented – broken, leaking, zero headspace (VOA vials); canister vacuum/pressure checked and no open valves, etc.?

Yes ☒ No ☐ N/A ☐

Comments: Samples were noted to be in good condition.

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, canister not holding a vacuum, etc.?

Yes ☐ No ☐ N/A ☒

Comments: No discrepancies were noted by the laboratory at sample login.

e. Is the data quality or usability affected?

Yes ☐ No ☒ N/A ☐

Comments: No laboratory sample receipt documentation discrepancies were noted at sample login.

4. Case Narrative

- a. Is the case narrative present and understandable?

Yes ☒ No ☐ N/A ☐

Comments: Click or tap here to enter text.

- b. Are there discrepancies, errors, or QC failures identified by the lab?

Yes ☒ No ☐ N/A ☐

Comments:

The samples were submitted to AMTEST Laboratories for grainsize analysis. The AMTEST report is included with the ARI laboratory report in its entirety. Data quality and/or usability not affected.

Initial and continuing SVOC calibrations were within method requirements, with accepted excursions outside the 20% window. Associated positive results have been "Q"-flagged. Response for all flagged compounds were high of control limits in the ICV. Evaluation of ICV or CCV is outside of the scope of a stage 2a data review and the laboratory didn't indicate an effect on project data due to the discrepancy, therefore sample results are not considered affected.

The SVOC blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries outside of control limits are flagged on the summary sheet. See Section 6.b. for details regarding impacts to data quality and/or usability, as applicable.

The SVOC matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent differences (RPD) outside advisory control limits are flagged on the summary sheet. See Section 6.b. for details regarding impacts to data quality and/or usability, as applicable.

Initial and continuing SVOC-SIM calibrations were within method requirements, with accepted excursions outside the 20% window. Associated positive results have been "Q"-flagged. Response for all flagged compounds were low of control limits in the ICV. Evaluation of ICV or CCV is outside of the scope of a stage 2a data review and the laboratory didn't indicate an effect on project data due to the discrepancy, therefore sample results are not considered affected.

TBT batch BMG0255 matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD) were within advisory control limits, reported under work order 24G0181. As this data is reported in another work order, we do not discuss this case narrative entry further.

Initial and continuing pesticide calibrations were within method requirements with excursions. Several standards had response outside limits high on the STX-CLP column for 2,4'-DDD, 2,4.-DDE, 2,4.-DDT, 4,4'-DDD, 4,4.-DDT, cis-Nonachlor, Endosulfan II, Endosulfan Sulfate, Endrin, Endrin Aldehyde, Endrin Ketone,

CS Site Name: NA

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Heptachlor, Methoxychlor, Mirex, Oxychlorane, and trans-Nonachlor. Response was noted low for hexachlorobutadiene in SMG0367-ICV1. Several standards had response high of limits on the CLP2 column for 2,4'-DDD, 2,4'-DDT and endrin ketone. Several standards had response low of limits on the CLP2 column for decachlorobiphenyl (DCBP) and dieldrin. Evaluation of ICV or CCV is outside of the scope of a stage 2a data review and the laboratory didn't indicate an effect on project data due to the discrepancy, therefore sample results are not considered affected.

The pesticide internal standard areas for hexabromobiphenyl (HBB) were low of limits on the STX-CLP column in 113733-SB2S2, 113733-SB2S3, 113733-SB2S5, SMG0367-CCV4, SMG0367-CCV6, and SMG0367-PEM3. Evaluation of the internal standard is outside the scope of a stage 2a data review and the laboratory didn't indicate an effect on project data due to this discrepancy, therefore samples results are not considered affected.

The pesticide blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent differences (RPD) outside of control limits are flagged on the summary sheet. See section 6.b for details regarding impacts to data quality and/or usability as applicable.

Pesticide batch BMG0254 matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD) were within advisory control limits, reported under work order 24G0171. As this data is reported in another work order, we do not discuss this case narrative entry further.

Pesticide results that have been "P1"-flagged indicate a greater than 40% difference between the results on the two analytical columns. P1 flags in quality control samples do not affect project data. The P1 flag was applied to 2,4'-DDD in sample 113733-SB2S5. Consequently, the result of this analyte in the noted sample is considered an estimate, no direction of bias, and is flagged 'J*' in the analytical table. Data quality is considered affected as noted, however data is considered usable with applied flags. Additionally, The P1 flag was applied to 4,4'-DDD in samples 113733-SB2S3 and 113733-SB2S5. Consequently, the result of these analyte in the noted samples are considered estimates, however, these results have been flagged due to a LCS/LCSD R% failure, see Section 6.b.iii. No further flags were added.

Metals batch BMG0274 duplicate (DUP) relative percent differences (RPD) were within advisory control limits, reported under work order 24G0168. As this data is reported in another work order, we do not discuss this case narrative entry further.

Metals batch BMG0274 matrix spike (MS) percent recoveries outside of advisory control limits are flagged on the summary sheet, reported under work order

CS Site Name: NA

Lab Report No.: 24G0170

24G0168. The post spike had an acceptable recovery. As this data is reported in another work order, we do not discuss this case narrative entry further.

Mercury batch BMG0449 matrix spike (MS) percent recoveries and the duplicate (DUP) relative percent difference (RPD) were within advisory control limits, reported under work order 24G0168. As this data is reported in another work order, we do not discuss this case narrative entry further.

AMTEST

No CoC was included with the AMTEST lab report. No data quality control discrepancies were noted in the laboratory report, data quality and/or usability not affected.

- c. Were all the corrective actions documented?

Yes ☐ No ☐ N/A ☒

Comments: Corrective actions not required.

- d. What is the effect on data quality/usability according to the case narrative?

Comments: Effect on data quality and/or usability due to discrepancies, errors, or QC failures identified by the lab in the case narrative are either discussed above in Section 4.b. or elsewhere in this checklist.

5. Sample Results

- a. Are the correct analyses performed/reported as requested on CoC?

Yes ☒ No ☐ N/A ☐

Comments: No methods were listed on the CoC for Grain size, total solids, total volatile solids, SVOCs, SVOC-SIM, TBT, pesticides, PDBs, TOC, metals, and mercury. The laboratories analyzed Grain Size by PSEP-PS, total solids by SM 2540, total volatile solids by PSEP 1986, SVOCs by 8270E, SVOC-SIM by 8270E-SIM, TBT by 8270E-SIM, pesticide by 8081B, PCBs by 8082A, TOC by 9060A, metals by 6020B, and mercury by 7471. These are the correct methods for this project. Data quality and/or usability not affected.

- b. Are all applicable holding times met?

Yes ☒ No ☐ N/A ☐

Comments: Click or tap here to enter text.

- c. Are all soils reported on a dry weight basis?

Yes ☒ No ☐ N/A ☐

Comments: Click or tap here to enter text.

CS Site Name: NA

Lab Report No.: 24G0170

- d. Are the reported limits of quantitation (LoQ) or limits of detections (LOD), or reporting limits (RL) less than the Cleanup Level or the action level for the project?

Yes ☐ No ☒ N/A ☐

Comments: Analytical sensitivity was evaluated to verify that LODs met applicable DEC migration to groundwater cleanup levels for non-detect results, as appropriate. Analytes with LODs that do not meet applicable cleanup levels are bolded in the analytical results table. Data quality and/or usability may be affected as these analytes cannot be detected, if present, at their respective cleanup level.

- e. Is the data quality or usability affected?

Yes ☒ No ☐ N/A ☐

Comments: See 5.d. above.

6. QC Samples

- a. Method Blank

- i. Was one method blank reported per matrix, analysis, and 20 samples?

Yes ☒ No ☐ N/A ☐

Comments: Click or tap here to enter text.

- ii. Are all method blank results less than LOQ (or RL)?

Yes ☒ No ☐

Comments: However, SVOC-SIM analytes benzyl alcohol was detected in the method blank sample for batch BMG0256 at concentrations below the LOQ. Benzyl alcohol was not detected in associated project samples. Data quality and/or usability not affected.

- iii. If above LoQ or RL, what samples are affected?

Comments: Not applicable, see 6.a.ii, above.

- iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes ☐ No ☒ N/A ☐

Comments: See 6.a.ii, above.

- v. Data quality or usability affected?

Yes ☐ No ☒ N/A ☐

Comments: See 6.a.ii, above.

CS Site Name: NA

Lab Report No.: 24G0170

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

- i. Organics – Are one LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

Yes ☐ No ☒ N/A ☐

Comments: LCS/LCSDs were reported for SVOC, SVOC-SIM, and PCB analyses.

- ii. Metals/Inorganics – Are one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes ☐ No ☐ N/A ☐

Comments:

A LCS was reported for metals, mercury, and TOC analyses.

A laboratory duplicate sample was reported for volatile solids and total solids.

- iii. Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes ☐ No ☒ N/A ☐

Comments: The LCS/LCSD %R for SVOC analyte isophorone was above laboratory limits in batch BMF0256. This analyte was not detected in associated project samples. Data quality and/or usability not affected.

The LCS %Rs for pesticide analytes endrin, 4,4'-DDD, 4,4'-DDT, endosulfan sulfate, and endrin ketone were above laboratory limits in batch BMG0254. 4,4'-DDD was detected in associated project samples 113733-SB2S3, 113733-SB2S5 and 4,4'-DDT was detected in associated project samples 113733-SB2S1, consequently, the 4,4'-DDD and 4,4'-DDT results in the noted samples are considered an estimate, biased high, and is flagged 'JH*' in the analytical table. Data quality is considered affected; however, data is considered usable with applied flags. Endrin, endosulfan sulfate, and endrin ketone were not detected in associated project samples. Data quality and/or usability not affected.

- iv. Precision – Are all relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? Was the RPD reported from LCS/LCSD, and or sample/sample duplicate? (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes ☒ No ☐ N/A ☐

Comments:

CS Site Name: NA

Lab Report No.: 24G0170

- v. If %R or RPD is outside of acceptable limits, what samples are affected?
Comments: See 6.b.iii, above.

- vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes ☒ No ☐ N/A ☐

Comments: See 6.b.iii, above.

- vii. Is the data quality or usability affected?

Yes ☒ No ☐ N/A ☐

Comments: See 6.b.iii, above.

c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

- i. Organics – Are one MS/MSD reported per matrix, analysis and 20 samples?

Yes ☐ No ☒ N/A ☐

Comments: MS/MSD samples were reported for SVOC, SVOC-SIM and PCB analyses.

- ii. Metals/Inorganics – Are one MS/MSD reported per matrix, analysis and 20 samples?

Yes ☐ No ☒ N/A ☐

Comments: Click or tap here to enter text.

- iii. Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable?

Yes ☐ No ☒ N/A ☐

Comments: The MS/MSD %Rs for SVOC analyte isophrone were above laboratory limits for parent sample 113733-SB2S4. Isophrone was not detected in the parent sample, therefore data quality and/or usability is not affected.

The MS %R for SVOC analyte 3,3'-Dichlorobenzidine was below laboratory limits for parent sample 113733-SB2S4. This analyte was not detected in the parent sample. Consequently, the result of this analyte in the noted parent sample is considered an estimate, no direction of bias, and is flagged 'J*' in the analytical table. Data quality is affected as noted, however, data is considered usable with applied flags.

- iv. Precision – Are all relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from MS/MSD, and or sample/sample duplicate.

Yes ☐ No ☒ N/A ☐

CS Site Name: NA

Lab Report No.: 24G0170

Comments: The MS/MSD RPD for SVOC analyte 3,3'-Dichlorobenzidine was outside the laboratory limits for parent sample 113733-SB2S4. This analyte was not detected in the parent sample. Consequently, the result of this analyte in the noted parent sample is considered an estimate, however, this analyte has previously been flagged due to a MS %R failure, see 6.c.iii. No additional flags added due to the RPD failure.

- v. If %R or RPD is outside of acceptable limits, what samples are affected?
Comments: See 6.c.iii and 6.c.iv above.

- vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes ☒ No ☐ N/A ☐

Comments: See 6.c.iii and 6.c.iv above.

- vii. Is the data quality or usability affected?

Yes ☒ No ☐ N/A ☐

Comments: See 6.c.iii and 6.c.iv above.

- d. Surrogates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only

- i. Are surrogate/IDA recoveries reported for organic analyses – field, QC, and laboratory samples?

Yes ☒ No ☐ N/A ☐

Comments: Click or tap here to enter text.

- ii. Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods 50-150 %R for field samples and 60-120 %R for QC samples; all other analyses see the laboratory report pages)

Yes ☒ No ☐ N/A ☐

Comments: Click or tap here to enter text.

- iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined?

Yes ☐ No ☐ N/A ☒

Comments: No sample results had failed surrogate recoveries.

- iv. Is the data quality or usability affected?

Yes ☐ No ☒ N/A ☐

Comments: No sample results had failed surrogate recoveries.

CS Site Name: NA

Lab Report No.: 24G0170

e. Trip Blanks

- i. Is one trip blank reported per matrix, analysis, and for each cooler containing volatile samples? Yes ☐ No ☐ N/A ☒

Comments: Volatile analyses were not included with this work order. No trip blank required.

- ii. Are all results less than LoQ or RL?

Yes ☐ No ☐ N/A ☒

Comments: Volatile analyses were not included with this work order. No trip blank required.

- iii. If above LoQ or RL, what samples are affected?

Comments: Not applicable. Volatile analyses were not included with this work order. No trip blank required.

- iv. Is the data quality or usability affected?

Yes ☐ No ☒ N/A ☐

Comments: Volatile analyses were not included with this work order. No trip blank required.

f. Field Duplicate

- i. Are one field duplicate submitted per matrix, analysis, and 10 project samples?

Yes ☒ No ☐ N/A ☐

Comments: 113733-SB2S13 is the field duplicate of 113733-SB2S3. 113733-SB2S13 was reported under work order 24G0181.

- ii. Was the duplicate submitted blind to lab?

Yes ☒ No ☐ N/A ☐

Comments: Click or tap here to enter text.

- iii. Precision – All relative percent differences (RPD) less than specified project objectives? (Recommended: 30% water or air, 50% soil)

$$RPD (\%) = \left| \frac{R_1 - R_2}{\left(\frac{R_1 + R_2}{2}\right)} \right| \times 100$$

Where R_1 = Sample Concentration

R_2 = Field Duplicate Concentration

Is the data quality or usability affected? (Explain)

Yes ☐ No ☐ N/A ☒

CS Site Name: NA

Lab Report No.: 24G0170

Comments: Where calculable, analytical results met the comparison criterion ($\leq 50\%$ for water) for the field duplicate pair 113733-SB2S13/113733-SB2S3 with the following exception: SVOC analyte 2-methylnaphthalene, aroclor-1260, cadmium, copper and lead. Consequently, the results of this analyte in the aforementioned field duplicate pair are considered estimated, with no direction of bias, and have been flagged 'J*' in the analytical table. Data is considered affected; however, data is considered usable with applied flags. In addition, SVOC-SIM analytes, 2-methylphenol, N-nitrosodiphenylamine and phenol, SVOC analytes anthracene, carbazole, dibenzofuran, fluoranthene, fluorene, phenanthrene, and phenol, and aroclor 1248, and aroclor 1254 were detected in the field duplicate and/or project sample above the LOQ but not detected in the field duplicate and/or project sample above the detection limit. While an RPD cannot be calculated for these analytes, these results are considered a precision failure. Consequently, the results of the noted analytes in the field duplicate pair are considered estimates, no direction of bias, and are flagged 'J*' in the analytical table. Data is considered affected; however, data is considered usable with applied flags.

iv. Is the data quality or usability affected? (Explain)

Yes ☐ No ☒ N/A ☐

Comments: Field duplicate samples not collected with this work order.

g. Decontamination or Equipment Blanks

i. Were decontamination or equipment blanks collected?

Yes ☐ No ☐ N/A ☒

Comments: Samples were not collected with reusable equipment; equipment blank not required.

ii. Are all results less than LoQ or RL?

Yes ☐ No ☐ N/A ☒

Comments: Samples were not collected with reusable equipment; equipment blank not required.

iii. If above LoQ or RL, specify what samples are affected.

Comments: Not applicable. Samples were not collected with reusable equipment; equipment blank not required.

iv. Are data quality or usability affected?

Yes ☐ No ☒ N/A ☐

Comments: Samples were not collected with reusable equipment; equipment blank not required.

CS Site Name: NA

Lab Report No.: 24G0170

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Are they defined and appropriate?

Yes ☒ No ☐ N/A ☐

Comments: Some analytes were run at a dilution. These analytes are flagged with a 'D' in the analytical report; however, these flags do not appear in the analytical table.

Samples for the analysis of TOC were frozen prior to analysis to extend holding time are flagged 'F' by the lab. These flags appear in the laboratory report, but do not appear in the analytical table. The results are not affected.

See 4.b. above for other flags.



Analytical Resources, LLC
Analytical Chemists and Consultants
Tukwila, WA

16 September 2024

Dan McMahon
Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage, AK 99518

RE: PAMP Sediments (113733)

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)
24G0171

Associated SDG ID(s)
N/A

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, LLC

Susan Dunnihoo, Director, Client Services

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Chain of Custody Record & Laboratory Analysis Request

AR Assigned Number: 24G0171		Turn-around Requested: standard			Date:								
AR Client Company: Shannon & Wilson, Inc.		Phone: 907-433-3223			Page: of								
Client Contact: Dan McMahon					No. of Coolers: Cooler Temps:								
Client Project Name: PAMP Sediment					Analysis Requested							Notes/Comments	
Client Project #: 113733		Samplers: AJR			SVOC/TBT/ Pest/PCB	TS/TVS/TOC	Metals	Grainsize					
Sample ID	Date	Time	Matrix	No. Containers									
113733-SB4S1	07/02/24	09:55	Sed	3	✓	✓	✓	✓					
113733-SB4S2	07/02/24	10:00	Sed	3	✓	✓	✓	✓					
113733-SB4S3	07/02/24	10:15	Sed	3	✓	✓	✓	✓					
113733-SB4S4	07/02/24	10:20	Sed	3	✓	✓	✓	✓					
113733-SB4S5	07/02/24	10:45	Sed	3	✓	✓	✓	✓					
113733-SB4S6	07/02/24	10:50	Sed	3	✓	✓	✓	✓					
113733-SB4S7	07/02/24	11:30	Sed	3	✓	✓	✓	✓					
Comments/Special Instructions					Relinquished by: (Signature) <i>[Signature]</i>		Received by: (Signature) <i>[Signature]</i>		Relinquished by: (Signature)		Received by: (Signature)		
					Printed Name: Alc Rizzo		Printed Name: Emma Stewart		Printed Name:		Printed Name:		
					Company: SM		Company: ARI		Company:		Company:		
					Date & Time: 7/8/24 800		Date & Time: 7/9/24 1137		Date & Time:		Date & Time:		



Analytical Resources, LLC
 Analytical Chemists and Consultants
 4611 South 134th Place, Suite 100
 Tukwila, WA 98168
 206-695-6200 206-695-6202 (fax)

Limits of Liability: Analytical Resources, LLC (AR) will perform all requested services in accordance with appropriate methodology following AR Standard Operating Procedures and the AR Quality Assurance Program. This program meets standards for the industry. The total liability of AR, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by AR release AR from any liability in excess thereof, notwithstanding any provision to the contrary in any contract, purchase order or co-signed agreement between AR and the Client.

Sample Retention Policy: Unless specified by work order or contract, all water/soil samples submitted to AR will be discarded or returned, no sooner than 90 days after receipt or 60 days after submission of hard copy data, whichever is longer. Sediment samples submitted under PSDDA/PSEP/SMS protocol will be stored frozen for up to one year and then discarded.



Analytical Resources, LLC
Analytical Chemists and Consultants

SUBCONTRACT ORDER
To: AmTest Laboratories
ARI Work Order:24G0171

SENDING LABORATORY:

Analytical Resources, LLC
4611 S. 134th Place, Suite 100
Tukwila, WA 98168
Phone: (206) 695-6200
Fax: (206) 695-6202
Project Manager: Susan Dunnihoo
E-Mail: sue.dunnihoo@arilabs.com

RECEIVING LABORATORY:

AmTest Laboratories
13600 NE 126th Pl Suite C
Kirkland, WA 98034
Phone :425-885-1664
Fax: -

PLEASE SEND DATA AND INVOICE TO subdata@arilabs.com

Analysis	Due	Expires	Sub Laboratory ID	Comments

Sample ID: 24G0171-01

Sampled: 07/02/24 09:55 Matrix: Solid

Grainsize PSEP (Subc) 07/23/24 01/01/25 02:43

Containers Supplied:

24G0171-01 A
Ziploc Bag, Gallon

Sample ID: 24G0171-02

Sampled: 07/02/24 10:00 Matrix: Solid

Grainsize PSEP (Subc) 07/23/24 01/01/25 02:48

Containers Supplied:

24G0171-02 A
Ziploc Bag, Gallon

Sample ID: 24G0171-03

Sampled: 07/02/24 10:15 Matrix: Solid

Grainsize PSEP (Subc) 07/23/24 01/01/25 03:03

Containers Supplied:

24G0171-03 A
Ziploc Bag, Gallon

Sample ID: 24G0171-04

Sampled: 07/02/24 10:20 Matrix: Solid

Grainsize PSEP (Subc) 07/23/24 01/01/25 03:08

Containers Supplied:

24G0171-04 A
Ziploc Bag, Gallon

Released By

Date

Received By

Date

Released By

Date

Received By

Date

Printed: 7/9/2024 1:24:45PM



SUBCONTRACT ORDER
To: AmTest Laboratories
ARI Work Order:24G0171

Analysis	Due	Expires	Sub Laboratory ID	Comments
Sample ID: 24G0171-05				
Sampled: 07/02/24 10:45 Matrix: Solid				
Grainsize PSEP (Subc)	07/23/24	01/01/25 03:33		
<i>Containers Supplied:</i>				
24G0171-05 A Ziploc Bag, Gallon				
Sample ID: 24G0171-06				
Sampled: 07/02/24 10:50 Matrix: Solid				
Grainsize PSEP (Subc)	07/23/24	01/01/25 03:38		
<i>Containers Supplied:</i>				
24G0171-06 A Ziploc Bag, Gallon				
Sample ID: 24G0171-07				
Sampled: 07/02/24 11:30 Matrix: Solid				
Grainsize PSEP (Subc)	07/23/24	01/01/25 04:18		
<i>Containers Supplied:</i>				
24G0171-07 A Ziploc Bag, Gallon				

1.2°C

Mattie Deo 07/11/25 1245 SF 7/11/24 1245
Released By Date Received By Date

Released By Date Received By Date



Shannon & Wilson, Inc

5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:41

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
11373-SB4S1	24G0171-01	Solid	02-Jul-2024 09:55	09-Jul-2024 11:37
11373-SB4S2	24G0171-02	Solid	02-Jul-2024 10:00	09-Jul-2024 11:37
11373-SB4S3	24G0171-03	Solid	02-Jul-2024 10:15	09-Jul-2024 11:37
11373-SB4S4	24G0171-04	Solid	02-Jul-2024 10:20	09-Jul-2024 11:37
11373-SB4S5	24G0171-05	Solid	02-Jul-2024 10:45	09-Jul-2024 11:37
11373-SB4S6	24G0171-06	Solid	02-Jul-2024 10:50	09-Jul-2024 11:37
11373-SB4S7	24G0171-07	Solid	02-Jul-2024 11:30	09-Jul-2024 11:37



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:41

Work Order Case Narrative

Client: Shannon & Wilson, Inc
Project: PAMP Sediments
Work Order: 24G0171

Sample receipt

Samples as listed on the preceding page were received 09-Jul-2024 11:37 under ARI work order 24G0171. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Grainsize

The samples were submitted to AmTest Laboratories for grainsize analysis. The AmTest report is included here in its entirety.

Semivolatiles - EPA Method SW8270E

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements, with accepted excursions outside the 20% window. Associated positive results have been "Q"-flagged. Response for 3,3'-dichlorobenzidine was low of limits. All other "Q"-flagged compounds showed response high of control limits.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) outside of control limits are flagged on the summary sheet.

The batch BMG0256 matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD) were within advisory control limits, reported under work order 24G0170.

Semivolatiles - EPA Method SW8270E-SIM

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements, with accepted excursions outside the 20% window. Associated positive results have been "Q"-flagged. Response was high of limits for benzoic acid and pentachlorophenol in SMG0337-ICV1 and high of limits for dibenzo(a,h)anthracene in SMG0337-ICV2.

Internal standard areas were within limits.



Shannon & Wilson, Inc

5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:41

The surrogate recoveries outside of control limits are flagged on the summary sheets.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

The batch BMG0256 matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD) were within advisory control limits, reported under work order 24G0170.

Butyl Tin(s)- EPA Method SW8270E-SIM

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent differences (RPD) were within control limits.

The batch BMG0255 matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD) were within advisory control limits, reported under work order 24G0181.

Chlorinated Pesticides - EPA Method SW8081B

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements with excursions. Several standards had response outside limits high on the STX-CLP column for 2,4'-DDD, 2,4'-DDE, 2,4'-DDT, 4,4'-DDD, 4,4'-DDT, cis-Nonachlor, Endosulfan II, Endosulfan Sulfate, Endrin, Endrin Aldehyde, Endrin Ketone, Heptachlor, Methoxychlor, Mirex, Oxychlorane, and trans-Nonachlor. Response was noted low for hexachlorobutadiene in SMG0367-ICV1. Several standards had response high of limits on the CLP2 column for 2,4'-DDD, 2,4'-DDT and endrin ketone, and low of limits for decachlorobiphenyl (DCBP) and dieldrin.

The internal standard areas for hexabromobiphenyl (HBB) were low of limits on the STX-CLP column in 11373-SB4S2, 11373-SB4S3, 11373-SB4S4, 11373-SB4S5, 11373-SB4S6, SMG0367-CCV4, SMG0367-CCV6, and SMG0367-PEM3.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.



Shannon & Wilson, Inc

5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:41

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent differences (RPD) outside of control limits are flagged on the summary sheet.

The matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD) were within advisory control limits.

Results that have been "P1"-flagged indicate a greater than 40% difference between the results on the two analytical columns.

PCB Aroclors - EPA Method SW8082A

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent differences (RPD) were within control limits.

The batch BMG0250 matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD) were within advisory control limits, reported under work order 24G0170.

Total Metals - EPA Method 6020B

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations including interference checks were within method requirements for reported elements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

The duplicate (DUP) relative percent differences (RPD) were within advisory control limits.

The matrix spike (MS) percent recoveries outside advisory control limits are flagged on the summary sheet. A post spike had an acceptable recovery.

Total Mercury - EPA Method 7471B



Shannon & Wilson, Inc

5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:41

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

The matrix spike (MS) percent recoveries and the duplicate (DUP) relative percent difference (RPD) were within advisory control limits.

Wet Chemistry

The sample(s) were prepared and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The TOC blank spike (BS/LCS) percent recoveries were within control limits.

The solids batch BMG0226 replicates (DUP1, DUP2) relative percent differences (RPD) were within advisory control limits, reported under work order 24G0170.

The batch BMG0720 TOC matrix spike (MS) percent recoveries were within control limits. The DUP1 relative percent difference (RPD) for TOC was high of advisory control limits, reported under work order 24G0167.



WORK ORDER

24G0171

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Shannon & Wilson, Inc

Project Manager: Susan Dunnihoo

Project: PAMP Sediments

Project Number: 113733

Report To:

Shannon & Wilson, Inc
Dan McMahon
5430 Fairbanks Street, Suite 3
Anchorage, AK 99518
Phone: (907) 433-3223
Fax: -

Invoice To:

Shannon & Wilson, Inc
Dan McMahon
5430 Fairbanks Street, Suite 3
Anchorage, AK 99518
Phone: (907) 433-3223
Fax: -

Date Due: 23-Jul-2024 18:00 (10 day TAT)

Received By: Emma Stewart

Date Received: 09-Jul-2024 11:37

Logged In By: Robert Leesemann

Date Logged In: 09-Jul-2024 13:00

Samples Received at: 3.4°C

Intact, properly signed and dated custody seals attached to outside of cooler(s).....No
Custody papers properly filled out (in, signed, analyses requested, etc).....Yes
Was sufficient ice used (if appropriate).....Yes
All bottles arrived in good condition (unbroken).....Yes
Number of containers listed on COC match number received.....Yes
Correct bottles used for the requested analyses.....Yes
Analyses/bottles require preservation (attach preservation sheet excluding VOC).....No
Sample split at ARI.....No

Custody papers included with the cooler..... Yes
Was a temperature blank included in the cooler..... No
All bottles sealed in individual plastic bags..... No
All bottle labels complete and legible..... Yes
Bottle labels and tags agree with COC..... Yes
All VOC vials free of air bubbles..... No
Sufficient amount of sample sent in each bottle..... Yes

Analysis	Due	TAT	Expires	Comments



WORK ORDER

24G0171

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Shannon & Wilson, Inc

Project Manager: Susan Dunnihoo

Project: PAMP Sediments

Project Number: 113733

Analysis	Due	TAT	Expires	Comments

24G0171-01 11373-SB4S1 [Solid] Sampled 02-Jul-2024 09:55 (GMT-08:00)

Pacific Time (US & Canada)

A = Ziploc Bag, Gallon

B = Glass WM, Clear, 16 oz

C = Glass WM, Clear, 8 oz

8081B Pest (PSDDA)	23-Jul-2024 15:00	10	16-Jul-2024 23:59	Use Version
8082A PCB Solid 4	23-Jul-2024 15:00	10	16-Jul-2024 23:59	
8270E SVOA and SIM SVOA dual scan	23-Jul-2024 15:00	10	16-Jul-2024 09:55	
8270E-SIM Butyl Tins	23-Jul-2024 15:00	10	16-Jul-2024 23:59	
Carbon, 9060A m Solid	23-Jul-2024 15:00	10	30-Jul-2024 23:59	
Freeze and Hold Org - Met- Conv - Shar	23-Jul-2024 15:00	10	02-Jul-2025 09:55	
Metals, DMMP 2021 (Solid)	23-Jul-2024 15:00	10	29-Dec-2024 09:55	
Solids, Total Volatile (TVS) PSEP	23-Jul-2024 15:00	10	06-Aug-2024 23:59	
Solids, Total, Dried at 103 -105 °C, Soli	23-Jul-2024 15:00	10	30-Jul-2024 23:59	

24G0171-02 11373-SB4S2 [Solid] Sampled 02-Jul-2024 10:00 (GMT-08:00)

Pacific Time (US & Canada)

A = Ziploc Bag, Gallon

B = Glass WM, Clear, 16 oz

C = Glass WM, Clear, 8 oz

8081B Pest (PSDDA)	23-Jul-2024 15:00	10	16-Jul-2024 23:59	Use Version
8082A PCB Solid 4	23-Jul-2024 15:00	10	16-Jul-2024 23:59	
8270E SVOA and SIM SVOA dual scan	23-Jul-2024 15:00	10	16-Jul-2024 10:00	
8270E-SIM Butyl Tins	23-Jul-2024 15:00	10	16-Jul-2024 23:59	
Carbon, 9060A m Solid	23-Jul-2024 15:00	10	30-Jul-2024 23:59	
Freeze and Hold Org - Met- Conv - Shar	23-Jul-2024 15:00	10	02-Jul-2025 10:00	
Metals, DMMP 2021 (Solid)	23-Jul-2024 15:00	10	29-Dec-2024 10:00	
Solids, Total Volatile (TVS) PSEP	23-Jul-2024 15:00	10	06-Aug-2024 23:59	
Solids, Total, Dried at 103 -105 °C, Soli	23-Jul-2024 15:00	10	30-Jul-2024 23:59	

24G0171-03 11373-SB4S3 [Solid] Sampled 02-Jul-2024 10:15 (GMT-08:00)

Pacific Time (US & Canada)

A = Ziploc Bag, Gallon

B = Glass WM, Clear, 16 oz

C = Glass WM, Clear, 8 oz

8081B Pest (PSDDA)	23-Jul-2024 15:00	10	16-Jul-2024 23:59	Use Version
8082A PCB Solid 4	23-Jul-2024 15:00	10	16-Jul-2024 23:59	
8270E SVOA and SIM SVOA dual scan	23-Jul-2024 15:00	10	16-Jul-2024 10:15	
8270E-SIM Butyl Tins	23-Jul-2024 15:00	10	16-Jul-2024 23:59	
Carbon, 9060A m Solid	23-Jul-2024 15:00	10	30-Jul-2024 23:59	
Freeze and Hold Org - Met- Conv - Shar	23-Jul-2024 15:00	10	02-Jul-2025 10:15	
Metals, DMMP 2021 (Solid)	23-Jul-2024 15:00	10	29-Dec-2024 10:15	
Solids, Total Volatile (TVS) PSEP	23-Jul-2024 15:00	10	06-Aug-2024 23:59	
Solids, Total, Dried at 103 -105 °C, Soli	23-Jul-2024 15:00	10	30-Jul-2024 23:59	



WORK ORDER

24G0171

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Shannon & Wilson, Inc

Project Manager: Susan Dunnihoo

Project: PAMP Sediments

Project Number: 113733

Analysis	Due	TAT	Expires	Comments

24G0171-04 11373-SB4S4 [Solid] Sampled 02-Jul-2024 10:20 (GMT-08:00)
Pacific Time (US & Canada)

A = Ziploc Bag, Gallon

B = Glass WM, Clear, 16 oz

C = Glass WM, Clear, 8 oz

8081B Pest (PSDDA)	23-Jul-2024 15:00	10	16-Jul-2024 23:59	Use Version
8082A PCB Solid 4	23-Jul-2024 15:00	10	16-Jul-2024 23:59	
8270E SVOA and SIM SVOA dual scan	23-Jul-2024 15:00	10	16-Jul-2024 10:20	
8270E-SIM Butyl Tins	23-Jul-2024 15:00	10	16-Jul-2024 23:59	
Carbon, 9060A m Solid	23-Jul-2024 15:00	10	30-Jul-2024 23:59	
Freeze and Hold Org - Met- Conv - Shar	23-Jul-2024 15:00	10	02-Jul-2025 10:20	
Metals, DMMP 2021 (Solid)	23-Jul-2024 15:00	10	29-Dec-2024 10:20	
Solids, Total Volatile (TVS) PSEP	23-Jul-2024 15:00	10	06-Aug-2024 23:59	
Solids, Total, Dried at 103 -105 °C, Soli	23-Jul-2024 15:00	10	30-Jul-2024 23:59	

24G0171-05 11373-SB4S5 [Solid] Sampled 02-Jul-2024 10:45 (GMT-08:00)
Pacific Time (US & Canada)

A = Ziploc Bag, Gallon

B = Glass WM, Clear, 16 oz

C = Glass WM, Clear, 8 oz

8081B Pest (PSDDA)	23-Jul-2024 15:00	10	16-Jul-2024 23:59	Use Version
8082A PCB Solid 4	23-Jul-2024 15:00	10	16-Jul-2024 23:59	
8270E SVOA and SIM SVOA dual scan	23-Jul-2024 15:00	10	16-Jul-2024 10:45	
8270E-SIM Butyl Tins	23-Jul-2024 15:00	10	16-Jul-2024 23:59	
Carbon, 9060A m Solid	23-Jul-2024 15:00	10	30-Jul-2024 23:59	
Freeze and Hold Org - Met- Conv - Shar	23-Jul-2024 15:00	10	02-Jul-2025 10:45	
Metals, DMMP 2021 (Solid)	23-Jul-2024 15:00	10	29-Dec-2024 10:45	
Solids, Total Volatile (TVS) PSEP	23-Jul-2024 15:00	10	06-Aug-2024 23:59	
Solids, Total, Dried at 103 -105 °C, Soli	23-Jul-2024 15:00	10	30-Jul-2024 23:59	

24G0171-06 11373-SB4S6 [Solid] Sampled 02-Jul-2024 10:50 (GMT-08:00)
Pacific Time (US & Canada)

A = Ziploc Bag, Gallon

B = Glass WM, Clear, 16 oz

C = Glass WM, Clear, 8 oz

8081B Pest (PSDDA)	23-Jul-2024 15:00	10	16-Jul-2024 23:59	Use Version
8082A PCB Solid 4	23-Jul-2024 15:00	10	16-Jul-2024 23:59	
8270E SVOA and SIM SVOA dual scan	23-Jul-2024 15:00	10	16-Jul-2024 10:50	
8270E-SIM Butyl Tins	23-Jul-2024 15:00	10	16-Jul-2024 23:59	
Carbon, 9060A m Solid	23-Jul-2024 15:00	10	30-Jul-2024 23:59	
Freeze and Hold Org - Met- Conv - Shar	23-Jul-2024 15:00	10	02-Jul-2025 10:50	
Metals, DMMP 2021 (Solid)	23-Jul-2024 15:00	10	29-Dec-2024 10:50	
Solids, Total Volatile (TVS) PSEP	23-Jul-2024 15:00	10	06-Aug-2024 23:59	
Solids, Total, Dried at 103 -105 °C, Soli	23-Jul-2024 15:00	10	30-Jul-2024 23:59	



WORK ORDER

24G0171

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Shannon & Wilson, Inc

Project Manager: Susan Dunnihoo

Project: PAMP Sediments

Project Number: 113733

Analysis	Due	TAT	Expires	Comments

24G0171-07 11373-SB4S7 [Solid] Sampled 02-Jul-2024 11:30 (GMT-08:00)
Pacific Time (US & Canada)

A = Ziploc Bag, Gallon

B = Glass WM, Clear, 16 oz

C = Glass WM, Clear, 8 oz

8081B Pest (PSDDA)	23-Jul-2024 15:00	10	16-Jul-2024 23:59	Use Version
8082A PCB Solid 4	23-Jul-2024 15:00	10	16-Jul-2024 23:59	
8270E SVOA and SIM SVOA dual scan	23-Jul-2024 15:00	10	16-Jul-2024 11:30	
8270E-SIM Butyl Tins	23-Jul-2024 15:00	10	16-Jul-2024 23:59	
Carbon, 9060A m Solid	23-Jul-2024 15:00	10	30-Jul-2024 23:59	
Freeze and Hold Org - Met- Conv - Shar	23-Jul-2024 15:00	10	02-Jul-2025 11:30	
Metals, DMMP 2021 (Solid)	23-Jul-2024 15:00	10	29-Dec-2024 11:30	
Solids, Total Volatile (TVS) PSEP	23-Jul-2024 15:00	10	06-Aug-2024 23:59	
Solids, Total, Dried at 103 -105 °C, Soli	23-Jul-2024 15:00	10	30-Jul-2024 23:59	



WORK ORDER

24G0171

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Shannon & Wilson, Inc

Project Manager: Susan Dunnihoo

Project: PAMP Sediments

Project Number: 113733

Analysis	Due	TAT	Expires	Comments

AmTest Laboratories

24G0171-01 11373-SB4S1 [Solid] Sampled 02-Jul-2024 09:55 (GMT-08:00)
Pacific Time (US & Canada)

A = Ziploc Bag, Gallon

Grainsize PSEP (Subc)	23-Jul-2024 15:00	10	01-Jan-2025 16:47

24G0171-02 11373-SB4S2 [Solid] Sampled 02-Jul-2024 10:00 (GMT-08:00)
Pacific Time (US & Canada)

A = Ziploc Bag, Gallon

Grainsize PSEP (Subc)	23-Jul-2024 15:00	10	01-Jan-2025 16:47

24G0171-03 11373-SB4S3 [Solid] Sampled 02-Jul-2024 10:15 (GMT-08:00)
Pacific Time (US & Canada)

A = Ziploc Bag, Gallon

Grainsize PSEP (Subc)	23-Jul-2024 15:00	10	01-Jan-2025 16:47

24G0171-04 11373-SB4S4 [Solid] Sampled 02-Jul-2024 10:20 (GMT-08:00)
Pacific Time (US & Canada)

A = Ziploc Bag, Gallon

Grainsize PSEP (Subc)	23-Jul-2024 15:00	10	01-Jan-2025 16:47

24G0171-05 11373-SB4S5 [Solid] Sampled 02-Jul-2024 10:45 (GMT-08:00)
Pacific Time (US & Canada)

A = Ziploc Bag, Gallon

Grainsize PSEP (Subc)	23-Jul-2024 15:00	10	01-Jan-2025 16:47

24G0171-06 11373-SB4S6 [Solid] Sampled 02-Jul-2024 10:50 (GMT-08:00)
Pacific Time (US & Canada)

A = Ziploc Bag, Gallon

Grainsize PSEP (Subc)	23-Jul-2024 15:00	10	01-Jan-2025 16:47

24G0171-07 11373-SB4S7 [Solid] Sampled 02-Jul-2024 11:30 (GMT-08:00)
Pacific Time (US & Canada)

A = Ziploc Bag, Gallon

Grainsize PSEP (Subc)	23-Jul-2024 15:00	10	01-Jan-2025 16:47

Reviewed By

Date

Page 5 of 6



WORK ORDER

24G0171

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Shannon & Wilson, Inc

Project Manager: Susan Dunnihoo

Project: PAMP Sediments

Project Number: 113733

Analysis groups included in this work order

8270E SVOA and SIM SVOA dual scan (solid)

8270E-SIM Dual Scan SV(Solids, Total, PSEP (Extrac 8270E SVOC (20ug/kg sol

Metals, DMMP 2021 (Solid)

Met 6020B - Pb	Met 6020B - Ag	Met 6020B - As UCT	Met 6020B - Cd UCT
Met 6020B - Cu UCT	Solids, Total, Metals Corre	Met 6020B - Sb	Met 6020B - Se UCT
Met 6020B - Zn UCT	Met 7471B Hg	Metals Prep Hg	Metals Prep ICPMS
Met 6020B - Cr			

Reviewed By

Date

Page 6 of 6



Cooler Receipt Form

ARI Client: Shannon + Wilson

Project Name: PAMP SEDIMENT

COC No(s): NA

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: 2460171

Tracking No: NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler? YES NO

Were custody papers included with the cooler? YES NO

Were custody papers properly filled out (ink, signed, etc.) YES NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 11:37

3.4

If cooler temperature is out of compliance-fill out form 00070F

Temp Gun ID#: 8117

Cooler Accepted by: [Signature] Date: 7/9/24 Time: 11:37

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES NO

What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____

Was sufficient ice used (if appropriate)? NA YES NO

How were bottles sealed in plastic bags? Individually Grouped Not

Did all bottles arrive in good condition (unbroken)? YES NO

Were all bottle labels complete and legible? YES NO

Did the number of containers listed on COC match with the number of containers received? YES NO

Did all bottle labels and tags agree with custody papers? YES NO

Were all bottles used correct for the requested analyses? YES NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs) ... NA YES NO

Were all VOC vials free of air bubbles? NA YES NO

Was sufficient amount of sample sent in each bottle? YES NO

Date VOC Trip Blank was made at ARI: NA

Were the sample(s) split by ARI? NA YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: RL Date: 7-9-24 Time: 13:08 Labels checked by: _____

**** Notify Project Manager of discrepancies or concerns ****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: _____

Date: _____

Am Test Inc.
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***Professional
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September 13, 2024

Susan Dunnihoo
4611 S 134th Pl Suite 100
Tukwila, WA 98168

Project: ARI GRAIN SIZES
Project Number: 24G0171
Project Manager: Susan Dunnihoo
RE: ARI GRAIN SIZES

Enclosed are the results of analyses for samples received by our laboratory on 7/11/2024.
Please feel free to contact me with any questions or considerations regarding this report.

Sincerely,

A handwritten signature in black ink that reads "Aaron Young". The signature is fluid and cursive, with the first name "Aaron" and the last name "Young" clearly distinguishable.

Aaron Young
President

Am Test Inc.
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**Professional
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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 09/13/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0171

Reported Samples

Lab ID	Sample	Matrix	Qualifiers	Date Sampled	Date Received
A24G0246-01	24G0171-01	Solid		07/02/2024	07/11/2024
A24G0246-02	24G0171-02	Solid		07/02/2024	07/11/2024
A24G0246-03	24G0171-03	Solid		07/02/2024	07/11/2024
A24G0246-04	24G0171-04	Solid		07/02/2024	07/11/2024
A24G0246-05	24G0171-05	Solid		07/02/2024	07/11/2024
A24G0246-06	24G0171-06	Solid		07/02/2024	07/11/2024
A24G0246-07	24G0171-07	Solid		07/02/2024	07/11/2024

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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 09/13/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0171

AMTEST Identification Number: A24G0246-01
Client Identification: 24G0171-01
Sampling Date: 07/02/24 09:55

Conventional Chemistry Parameters by APHA/EPA Methods

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
% Solids	75.6	%			SM 2540G_2011	HV	09/10/2024

Full Grain Size (Hydrometer/Sieve)

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
PHI -2.25 (4.75 mm) Gravel	3.60	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI -2.00 (4.00 mm)	ND	%	U	0.100	PSEP 1986 P.9	HV	09/10/2024
PHI -1.00 (2.00 mm)	0.900	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI 0.00 (1.00 mm) Sand	1.20	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +1.00 (0.50 mm)	1.20	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +2.00 (0.25 mm)	1.50	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +3.00 (0.125 mm)	0.200	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +4.00 (0.063 mm)	2.50	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +5.00 (0.032 mm) Silt	40.9	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +6.00 (0.016 mm)	17.4	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +7.00 (0.008 mm)	8.80	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +8.00 (0.004 mm)	5.80	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +9.00 (0.002 mm) Clay	4.00	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +10.0 (0.001 mm)	2.20	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI >10.0 (< 0.001 mm)	9.90	%		0.100	PSEP 1986 P.9	HV	09/10/2024

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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 09/13/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0171

AMTEST Identification Number: A24G0246-02
Client Identification: 24G0171-02
Sampling Date: 07/02/24 10:00

Conventional Chemistry Parameters by APHA/EPA Methods

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
% Solids	79.6	%			SM 2540G_2011	HV	09/10/2024

Full Grain Size (Hydrometer/Sieve)

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
PHI -2.25 (4.75 mm) Gravel	9.30	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI -2.00 (4.00 mm)	0.200	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI -1.00 (2.00 mm)	0.900	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI 0.00 (1.00 mm) Sand	0.600	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +1.00 (0.50 mm)	0.600	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +2.00 (0.25 mm)	0.800	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +3.00 (0.125 mm)	0.700	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +4.00 (0.063 mm)	4.70	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +5.00 (0.032 mm) Silt	36.9	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +6.00 (0.016 mm)	13.6	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +7.00 (0.008 mm)	7.80	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +8.00 (0.004 mm)	5.40	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +9.00 (0.002 mm) Clay	4.00	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +10.0 (0.001 mm)	2.80	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI >10.0 (< 0.001 mm)	11.8	%		0.100	PSEP 1986 P.9	HV	09/10/2024

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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 09/13/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0171

AMTEST Identification Number: A24G0246-03
Client Identification: 24G0171-03
Sampling Date: 07/02/24 10:15

Conventional Chemistry Parameters by APHA/EPA Methods

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
% Solids	78.6	%			SM 2540G_2011	HV	09/10/2024

Full Grain Size (Hydrometer/Sieve)

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
PHI -2.25 (4.75 mm) Gravel	ND	%	U	0.100	PSEP 1986 P.9	HV	09/10/2024
PHI -2.00 (4.00 mm)	ND	%	U	0.100	PSEP 1986 P.9	HV	09/10/2024
PHI -1.00 (2.00 mm)	0.600	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI 0.00 (1.00 mm) Sand	0.400	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +1.00 (0.50 mm)	0.500	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +2.00 (0.25 mm)	0.900	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +3.00 (0.125 mm)	0.400	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +4.00 (0.063 mm)	2.70	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +5.00 (0.032 mm) Silt	48.2	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +6.00 (0.016 mm)	16.7	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +7.00 (0.008 mm)	7.90	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +8.00 (0.004 mm)	5.20	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +9.00 (0.002 mm) Clay	3.50	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +10.0 (0.001 mm)	2.10	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI >10.0 (< 0.001 mm)	10.8	%		0.100	PSEP 1986 P.9	HV	09/10/2024

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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 09/13/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0171

AMTEST Identification Number: A24G0246-04
Client Identification: 24G0171-04
Sampling Date: 07/02/24 10:20

Conventional Chemistry Parameters by APHA/EPA Methods

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
% Solids	75.4	%			SM 2540G_2011	HV	09/10/2024

Full Grain Size (Hydrometer/Sieve)

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
PHI -2.25 (4.75 mm) Gravel	ND	%	U	0.100	PSEP 1986 P.9	HV	09/10/2024
PHI -2.00 (4.00 mm)	ND	%	U	0.100	PSEP 1986 P.9	HV	09/10/2024
PHI -1.00 (2.00 mm)	ND	%	U	0.100	PSEP 1986 P.9	HV	09/10/2024
PHI 0.00 (1.00 mm) Sand	ND	%	U	0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +1.00 (0.50 mm)	0.200	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +2.00 (0.25 mm)	0.100	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +3.00 (0.125 mm)	0.100	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +4.00 (0.063 mm)	1.90	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +5.00 (0.032 mm) Silt	50.4	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +6.00 (0.016 mm)	5.70	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +7.00 (0.008 mm)	8.40	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +8.00 (0.004 mm)	10.1	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +9.00 (0.002 mm) Clay	5.70	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +10.0 (0.001 mm)	3.80	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI >10.0 (< 0.001 mm)	13.6	%		0.100	PSEP 1986 P.9	HV	09/10/2024

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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 09/13/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0171

AMTEST Identification Number: A24G0246-05
Client Identification: 24G0171-05
Sampling Date: 07/02/24 10:45

Conventional Chemistry Parameters by APHA/EPA Methods

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
% Solids	79.4	%			SM 2540G_2011	HV	09/10/2024

Full Grain Size (Hydrometer/Sieve)

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
PHI -2.25 (4.75 mm) Gravel	0.100	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI -2.00 (4.00 mm)	ND	%	U	0.100	PSEP 1986 P.9	HV	09/10/2024
PHI -1.00 (2.00 mm)	ND	%	U	0.100	PSEP 1986 P.9	HV	09/10/2024
PHI 0.00 (1.00 mm) Sand	ND	%	U	0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +1.00 (0.50 mm)	0.100	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +2.00 (0.25 mm)	0.100	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +3.00 (0.125 mm)	0.400	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +4.00 (0.063 mm)	5.00	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +5.00 (0.032 mm) Silt	55.1	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +6.00 (0.016 mm)	14.1	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +7.00 (0.008 mm)	6.80	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +8.00 (0.004 mm)	3.70	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +9.00 (0.002 mm) Clay	3.00	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +10.0 (0.001 mm)	2.10	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI >10.0 (< 0.001 mm)	9.40	%		0.100	PSEP 1986 P.9	HV	09/10/2024

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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 09/13/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0171

AMTEST Identification Number: A24G0246-06
Client Identification: 24G0171-06
Sampling Date: 07/02/24 10:50

Conventional Chemistry Parameters by APHA/EPA Methods

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
% Solids	82.3	%			SM 2540G_2011	HV	09/10/2024

Full Grain Size (Hydrometer/Sieve)

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
PHI -2.25 (4.75 mm) Gravel	2.70	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI -2.00 (4.00 mm)	0.100	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI -1.00 (2.00 mm)	0.700	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI 0.00 (1.00 mm) Sand	0.500	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +1.00 (0.50 mm)	0.400	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +2.00 (0.25 mm)	0.400	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +3.00 (0.125 mm)	0.600	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +4.00 (0.063 mm)	6.40	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +5.00 (0.032 mm) Silt	46.3	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +6.00 (0.016 mm)	12.4	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +7.00 (0.008 mm)	8.20	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +8.00 (0.004 mm)	5.40	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +9.00 (0.002 mm) Clay	3.50	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +10.0 (0.001 mm)	2.00	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI >10.0 (< 0.001 mm)	10.4	%		0.100	PSEP 1986 P.9	HV	09/10/2024

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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 09/13/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0171

AMTEST Identification Number: A24G0246-07
Client Identification: 24G0171-07
Sampling Date: 07/02/24 11:30

Conventional Chemistry Parameters by APHA/EPA Methods

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
% Solids	81.7	%			SM 2540G_2011	HV	09/10/2024

Full Grain Size (Hydrometer/Sieve)

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
PHI -2.25 (4.75 mm) Gravel	0.100	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI -2.00 (4.00 mm)	0.100	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI -1.00 (2.00 mm)	0.100	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI 0.00 (1.00 mm) Sand	ND	%	U	0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +1.00 (0.50 mm)	0.200	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +2.00 (0.25 mm)	0.100	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +3.00 (0.125 mm)	0.300	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +4.00 (0.063 mm)	10.7	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +5.00 (0.032 mm) Silt	37.8	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +6.00 (0.016 mm)	19.6	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +7.00 (0.008 mm)	10.9	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +8.00 (0.004 mm)	4.50	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +9.00 (0.002 mm) Clay	3.30	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +10.0 (0.001 mm)	2.00	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI >10.0 (< 0.001 mm)	10.4	%		0.100	PSEP 1986 P.9	HV	09/10/2024

ANALYSIS REPORT

Date Received: 07/11/24

Date Reported: 09/13/24

Analytical Resources LLC

4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0171

Quality Control

Conventional Chemistry Parameters by APHA/EPA Methods

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

Batch: BBI0132 - No Prep - WC Soil

Duplicate (BBI0132-DUP1)

Source: A24G0246-04

Prepared & Analyzed: 09/10/24

% Solids	75.4			%		75.4			0.07	20

Duplicate (BBI0132-DUP2)

Source: A24G0246-04

Prepared & Analyzed: 09/10/24

% Solids	75.2			%		75.4			0.3	20

Duplicate (BBI0132-DUP3)

Source: A24G0248-02

Prepared & Analyzed: 09/10/24

% Solids	73.4			%		73.6			0.3	20

Duplicate (BBI0132-DUP4)

Source: A24G0248-02

Prepared & Analyzed: 09/10/24

% Solids	72.9			%		73.6			1	20

Quality Control

Full Grain Size (Hydrometer/Sieve)

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

Batch: BBI0164 - Hydrometer/Sieve

Duplicate (BBI0164-DUP1)

Source: A24G0246-04

Prepared & Analyzed: 09/10/24

PHI +1.00 (0.50 mm)	ND	U	0.100	%		0.200			200	200
PHI +10.0 (0.001 mm)	3.40		0.100	%		3.80			11	200
PHI +2.00 (0.25 mm)	ND	U	0.100	%		0.100			200	200
PHI +3.00 (0.125 mm)	ND	U	0.100	%		0.100			200	200
PHI +4.00 (0.063 mm)	1.20		0.100	%		1.90			45	200
PHI +5.00 (0.032 mm) Silt	50.9		0.100	%		50.4			1	200
PHI +6.00 (0.016 mm)	8.60		0.100	%		5.70			41	200
PHI +7.00 (0.008 mm)	10.3		0.100	%		8.40			20	200
PHI +8.00 (0.004 mm)	8.00		0.100	%		10.1			23	200
PHI +9.00 (0.002 mm) Clay	5.00		0.100	%		5.70			13	200
PHI >10.0 (< 0.001 mm)	12.3		0.100	%		13.6			10	200
PHI 0.00 (1.00 mm) Sand	0.200		0.100	%		ND			200	200
PHI -1.00 (2.00 mm)	ND	U	0.100	%		ND				200
PHI -2.00 (4.00 mm)	ND	U	0.100	%		ND				200
PHI -2.25 (4.75 mm) Gravel	0.100		0.100	%		ND			200	200

ANALYSIS REPORT

Date Received: 07/11/24

Date Reported: 09/13/24

Analytical Resources LLC

4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0171

Quality Control
(Continued)

Full Grain Size (Hydrometer/Sieve) (Continued)

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

Batch: BBI0164 - Hydrometer/Sieve (Continued)

Duplicate (BBI0164-DUP2)

Source: A24G0246-04

Prepared & Analyzed: 09/10/24

PHI +1.00 (0.50 mm)	ND	U	0.100	%		0.200			200	200
PHI +10.0 (0.001 mm)	3.40		0.100	%		3.80			11	200
PHI +2.00 (0.25 mm)	ND	U	0.100	%		0.100			200	200
PHI +3.00 (0.125 mm)	0.100		0.100	%		0.100			0	200
PHI +4.00 (0.063 mm)	1.80		0.100	%		1.90			5	200
PHI +5.00 (0.032 mm) Silt	49.3		0.100	%		50.4			2	200
PHI +6.00 (0.016 mm)	10.2		0.100	%		5.70			57	200
PHI +7.00 (0.008 mm)	10.4		0.100	%		8.40			21	200
PHI +8.00 (0.004 mm)	7.10		0.100	%		10.1			35	200
PHI +9.00 (0.002 mm) Clay	5.30		0.100	%		5.70			7	200
PHI >10.0 (< 0.001 mm)	11.7		0.100	%		13.6			15	200
PHI 0.00 (1.00 mm) Sand	ND	U	0.100	%		ND				200
PHI -1.00 (2.00 mm)	ND	U	0.100	%		ND				200
PHI -2.00 (4.00 mm)	ND	U	0.100	%		ND				200
PHI -2.25 (4.75 mm) Gravel	0.700		0.100	%		ND			200	200

Batch: BBI0168 - Hydrometer/Sieve

Duplicate (BBI0168-DUP1)

Source: A24G0248-02

Prepared & Analyzed: 09/10/24

PHI +1.00 (0.50 mm)	0.100		0.100	%		ND			200	200
PHI +10.0 (0.001 mm)	1.80		0.100	%		1.80			0	200
PHI +2.00 (0.25 mm)	0.100		0.100	%		ND			200	200
PHI +3.00 (0.125 mm)	0.300		0.100	%		0.200			40	200
PHI +4.00 (0.063 mm)	4.40		0.100	%		3.90			12	200
PHI +5.00 (0.032 mm) Silt	50.0		0.100	%		54.9			9	200
PHI +6.00 (0.016 mm)	18.8		0.100	%		15.3			21	200
PHI +7.00 (0.008 mm)	7.60		0.100	%		7.40			3	200
PHI +8.00 (0.004 mm)	2.90		0.100	%		3.90			29	200
PHI +9.00 (0.002 mm) Clay	2.80		0.100	%		2.90			4	200
PHI >10.0 (< 0.001 mm)	9.60		0.100	%		9.60			0	200
PHI 0.00 (1.00 mm) Sand	0.100		0.100	%		0.100			0	200
PHI -1.00 (2.00 mm)	0.300		0.100	%		ND			200	200
PHI -2.00 (4.00 mm)	ND	U	0.100	%		ND				200
PHI -2.25 (4.75 mm) Gravel	1.10		0.100	%		ND			200	200

Duplicate (BBI0168-DUP2)

Source: A24G0248-02

Prepared & Analyzed: 09/10/24

PHI +1.00 (0.50 mm)	ND	U	0.100	%		ND				200

Am Test Inc.
13600 NE 126th Place Suite C
Kirkland, WA
(425) 885-1664
www.amtestlab.com



**Professional
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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 09/13/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0171

Quality Control
(Continued)

Full Grain Size (Hydrometer/Sieve) (Continued)

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

Batch: BBI0168 - Hydrometer/Sieve (Continued)

Duplicate (BBI0168-DUP2)		Source: A24G0248-02			Prepared & Analyzed: 09/10/24					
PHI +10.0 (0.001 mm)	0.700		0.100	%		1.80			88	200
PHI +2.00 (0.25 mm)	0.100		0.100	%		ND			200	200
PHI +3.00 (0.125 mm)	0.400		0.100	%		0.200			67	200
PHI +4.00 (0.063 mm)	5.30		0.100	%		3.90			30	200
PHI +5.00 (0.032 mm) Silt	54.8		0.100	%		54.9			0.2	200
PHI +6.00 (0.016 mm)	15.8		0.100	%		15.3			3	200
PHI +7.00 (0.008 mm)	8.00		0.100	%		7.40			8	200
PHI +8.00 (0.004 mm)	3.80		0.100	%		3.90			3	200
PHI +9.00 (0.002 mm) Clay	1.60		0.100	%		2.90			58	200
PHI >10.0 (< 0.001 mm)	9.20		0.100	%		9.60			4	200
PHI 0.00 (1.00 mm) Sand	ND	U	0.100	%		0.100			200	200
PHI -1.00 (2.00 mm)	0.100		0.100	%		ND			200	200
PHI -2.00 (4.00 mm)	ND	U	0.100	%		ND				200
PHI -2.25 (4.75 mm) Gravel	0.100		0.100	%		ND			200	200

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**Professional
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Services**

ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 09/13/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0171

Notes and Definitions

Item	Definition
U	The compound was analyzed for but was not detected (Non-detect) at or above the MRL/MDL.
Dry	Sample results reported on a dry weight basis.
ND	Analyte NOT DETECTED at or above the reporting limit.
RPD	Relative Percent Difference
%REC	Percent Recovery
Source	Sample that was matrix spiked or duplicated.



A24G0171

SUBCONTRACT ORDER
To: AmTest Laboratories
ARI Work Order:24G0171

SENDING LABORATORY:

Analytical Resources, LLC
4611 S. 134th Place, Suite 100
Tukwila, WA 98168
Phone: (206) 695-6200
Fax: (206) 695-6202
Project Manager: Susan Dunnihoo
E-Mail: sue.dunnihoo@arilabs.com

RECEIVING LABORATORY:

AmTest Laboratories
13600 NE 126th Pl Suite C
Kirkland, WA 98034
Phone :425-885-1664
Fax: -

PLEASE SEND DATA AND INVOICE TO subdata@arilabs.com

Analysis	Due	Expires	Sub Laboratory ID	Comments
Sample ID: 24G0171-01				
Sampled: 07/02/24 09:55			01	
Matrix: Solid				
Grainsize PSEP (Subc)	07/23/24	01/01/25 02:43		
<i>Containers Supplied:</i>				
24G0171-01 A				
Ziploc Bag, Gallon				
Sample ID: 24G0171-02				
Sampled: 07/02/24 10:00			02	
Matrix: Solid				
Grainsize PSEP (Subc)	07/23/24	01/01/25 02:48		
<i>Containers Supplied:</i>				
24G0171-02 A				
Ziploc Bag, Gallon				
Sample ID: 24G0171-03				
Sampled: 07/02/24 10:15			03	
Matrix: Solid				
Grainsize PSEP (Subc)	07/23/24	01/01/25 03:03		
<i>Containers Supplied:</i>				
24G0171-03 A				
Ziploc Bag, Gallon				
Sample ID: 24G0171-04				
Sampled: 07/02/24 10:20			04	
Matrix: Solid				
Grainsize PSEP (Subc)	07/23/24	01/01/25 03:08		
<i>Containers Supplied:</i>				
24G0171-04 A				
Ziploc Bag, Gallon				

Released By *Mattie Deo* 07/11/24 1245 Date Received By *SF* 7/11/24 1245 Date

Released By Date Received By Date



SUBCONTRACT ORDER
To: AmTest Laboratories
ARI Work Order:24G0171

Analysis	Due	Expires	Sub Laboratory ID	Comments
Sample ID: 24G0171-05 Sampled: 07/02/24 10:45 Matrix: Solid			05	
Grainsize PSEP (Subc)	07/23/24	01/01/25 03:33		
Containers Supplied:				
24G0171-05 A Ziploc Bag, Gallon				
Sample ID: 24G0171-06 Sampled: 07/02/24 10:50 Matrix: Solid			06	
Grainsize PSEP (Subc)	07/23/24	01/01/25 03:38		
Containers Supplied:				
24G0171-06 A Ziploc Bag, Gallon				
Sample ID: 24G0171-07 Sampled: 07/02/24 11:30 Matrix: Solid			07	
Grainsize PSEP (Subc)	07/23/24	01/01/25 04:18		
Containers Supplied:				
24G0171-07 A Ziploc Bag, Gallon				

Released By

Date

Received By

Date

Released By

Date

Received By

Date



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:41

11373-SB4S1
24G0171-01 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 09:55

Instrument: NT10 Analyst: RJL

Analyzed: 07/31/2024 13:17

Sample Preparation: Preparation Method: EPA 3546 (Microwave)
Preparation Batch: BMG0256
Prepared: 07/12/2024

Sample Size: 13.16 g (wet)
Final Volume: 1 mL

Extract ID: 24G0171-01 B 04
Dry Weight: 10.03 g
% Solids: 76.22

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	10.0	19.9	ND	ug/kg	U
bis(2-chloroethyl) ether	111-44-4	1	34.9	49.8	ND	ug/kg	U
2-Chlorophenol	95-57-8	1	19.9	19.9	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	10.0	19.9	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	10.0	19.9	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	10.0	19.9	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	19.9	19.9	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	10.0	19.9	ND	ug/kg	U
2-Methylphenol	95-48-7	1	10.0	19.9	ND	ug/kg	U
Hexachloroethane	67-72-1	1	10.0	19.9	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	15.0	19.9	ND	ug/kg	U
4-Methylphenol	106-44-5	1	15.0	19.9	ND	ug/kg	U
Nitrobenzene	98-95-3	1	10.0	19.9	ND	ug/kg	U
Isophorone	78-59-1	1	15.0	19.9	ND	ug/kg	U
2-Nitrophenol	88-75-5	1	10.0	19.9	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	49.8	99.7	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	1	10.0	19.9	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	1	49.8	99.7	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	10.0	19.9	ND	ug/kg	U
Naphthalene	91-20-3	1	10.0	19.9	ND	ug/kg	U
Benzoic acid	65-85-0	1	99.7	199	ND	ug/kg	U
4-Chloroaniline	106-47-8	1	49.8	99.7	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	10.0	19.9	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	1	49.8	99.7	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	10.0	19.9	ND	ug/kg	U
Hexachlorocyclopentadiene	77-47-4	1	49.8	99.7	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	1	49.8	99.7	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	1	49.8	99.7	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	1	10.0	19.9	ND	ug/kg	U
2-Nitroaniline	88-74-4	1	49.8	99.7	ND	ug/kg	U
Acenaphthylene	208-96-8	1	10.0	19.9	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	10.0	19.9	ND	ug/kg	U



Shannon & Wilson, Inc

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Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:41

11373-SB4S1
24G0171-01 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 09:55

Instrument: NT10 Analyst: RJL

Analyzed: 07/31/2024 13:17

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2,6-Dinitrotoluene	606-20-2	1	49.8	99.7	ND	ug/kg	U
Acenaphthene	83-32-9	1	10.0	19.9	ND	ug/kg	U
3-Nitroaniline	99-09-2	1	49.8	99.7	ND	ug/kg	U
2,4-Dinitrophenol	51-28-5	1	99.7	199	ND	ug/kg	U
Dibenzofuran	132-64-9	1	19.9	19.9	ND	ug/kg	U
4-Nitrophenol	100-02-7	1	49.8	99.7	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	1	49.8	99.7	ND	ug/kg	U
Fluorene	86-73-7	1	19.9	19.9	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	1	34.9	49.8	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	34.9	49.8	ND	ug/kg	U
4-Nitroaniline	100-01-6	1	49.8	99.7	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	1	99.7	199	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	10.0	19.9	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	1	19.9	19.9	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	19.9	19.9	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	49.8	99.7	ND	ug/kg	U
Phenanthrene	85-01-8	1	10.0	19.9	ND	ug/kg	U
Anthracene	120-12-7	1	10.0	19.9	ND	ug/kg	U
Carbazole	86-74-8	1	10.0	19.9	ND	ug/kg	U
Di-n-Butylphthalate	84-74-2	1	10.0	19.9	ND	ug/kg	U
Fluoranthene	206-44-0	1	10.0	19.9	ND	ug/kg	U
Pyrene	129-00-0	1	10.0	19.9	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	10.0	19.9	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	1	10.0	19.9	ND	ug/kg	U
3,3'-Dichlorobenzidine	91-94-1	1	49.8	99.7	ND	ug/kg	U
Chrysene	218-01-9	1	10.0	19.9	ND	ug/kg	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	39.9	49.8	ND	ug/kg	U
Di-n-Octylphthalate	117-84-0	1	10.0	19.9	ND	ug/kg	U
Benzo(a)fluoranthene, Total		1	29.9	39.9	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	10.0	19.9	ND	ug/kg	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	19.9	19.9	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	19.9	19.9	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	19.9	19.9	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	10.0	19.9	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	93.0	%	
Surrogate: Phenol-d5				29-120 %	89.9	%	
Surrogate: 2-Chlorophenol-d4				31-120 %	94.2	%	



Shannon & Wilson, Inc

5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:41

11373-SB4S1
24G0171-01 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 09:55

Instrument: NT10 Analyst: RJL

Analyzed: 07/31/2024 13:17

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: 1,2-Dichlorobenzene-d4		32-120 %	92.4	%	
Surrogate: Nitrobenzene-d5		30-120 %	93.6	%	
Surrogate: 2-Fluorobiphenyl		35-120 %	93.2	%	
Surrogate: 2,4,6-Tribromophenol		24-134 %	99.1	%	
Surrogate: p-Terphenyl-d14		37-120 %	115	%	



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Project: PAMP Sediments
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Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:41

11373-SB4S1
24G0171-01 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM
Instrument: NT10 Analyst: RJL

Sampled: 07/02/2024 09:55

Analyzed: 07/31/2024 13:17

Sample Preparation: Preparation Method: EPA 3546 (Microwave)
Preparation Batch: BMG0256 Sample Size: 13.16 g (wet)
Prepared: 07/12/2024 Final Volume: 1 mL

Extract ID: 24G0171-01 B 04

Dry Weight: 10.03 g

% Solids: 76.22

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	2.5	5.0	3.5	ug/kg	J
1,3-Dichlorobenzene	541-73-1	1	2.5	5.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	2.5	5.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	2.5	5.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	10.0	19.9	ND	ug/kg	U
Benzoic acid	65-85-0	1	49.8	99.7	53.7	ug/kg	Q, J
2-Methylphenol	95-48-7	1	2.5	5.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	10.0	19.9	ND	ug/kg	U
4-Methylphenol	106-44-5	1	2.5	5.0	2.9	ug/kg	J
2,4-Dimethylphenol	105-67-9	1	10.0	19.9	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	5.0	5.0	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	2.5	5.0	ND	ug/kg	U
N-Nitrosodimethylamine	62-75-9	1	12.5	24.9	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	2.5	5.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	10.0	19.9	11.8	ug/kg	J
N-Nitrosodiphenylamine	86-30-6	1	2.5	5.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	2.5	5.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	10.0	19.9	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	2.5	5.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	2.5	5.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	89.9	%	
Surrogate: p-Terphenyl-d14				37-120 %	123	%	*, Q



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Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:41

11373-SB4S1
24G0171-01 (Solid)

Butyl Tins

Method: EPA 8270E-SIM
Instrument: NT17 Analyst: JZ

Sampled: 07/02/2024 09:55

Analyzed: 07/23/2024 15:45

Sample Preparation: Preparation Method: EPA 3546 (Microwave)
Preparation Batch: BMG0255 Sample Size: 6.56 g (wet)
Prepared: 07/12/2024 Final Volume: 0.5 mL

Extract ID: 24G0171-01 B 03

Dry Weight: 5.00 g

% Solids: 76.22

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CMG0156 Initial Volume: 0.5 uL
Cleaned: 22-Jul-2024 Final Volume: 0.5 uL

Extract ID: 24G0171-01 B 03

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Tributyltin Ion	36643-28-4	1	1.93	3.86	ND	ug/kg	U
Surrogate: Triphenyltin				30-160 %	77.9	%	
Surrogate: Tripropyltin				30-160 %	68.1	%	



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Reported:
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11373-SB4S1
24G0171-01 (Solid)

Chlorinated Pesticides

Method: EPA 8081B			Sampled: 07/02/2024 09:55
Instrument: ECD6 Analyst: RT			Analyzed: 07/31/2024 18:37
Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 24G0171-01 B 02
	Preparation Batch: BMG0254	Sample Size: 16.45 g (wet)	
	Prepared: 07/12/2024	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 24G0171-01 B 02
	Cleanup Batch: CMG0208	Initial Volume: 2.5 uL	
	Cleaned: 30-Jul-2024	Final Volume: 2.5 uL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:24G0171-01 B 02
	Cleanup Batch: CMG0207	Initial Volume: 2.5 uL	
	Cleaned: 30-Jul-2024	Final Volume: 2.5 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.25	0.50	ND	ug/kg	U
beta-BHC	319-85-7	1	0.25	0.50	ND	ug/kg	U
gamma-BHC (Lindane)	58-89-9	1	0.25	0.50	ND	ug/kg	U
delta-BHC	319-86-8	1	0.25	0.50	ND	ug/kg	U
Heptachlor	76-44-8	1	0.25	0.50	ND	ug/kg	U
Aldrin	309-00-2	1	0.50	0.50	ND	ug/kg	U
Heptachlor Epoxide	1024-57-3	1	0.25	0.50	ND	ug/kg	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.50	0.50	ND	ug/kg	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.25	0.50	ND	ug/kg	U
Endosulfan I	959-98-8	1	0.25	0.50	ND	ug/kg	U
4,4'-DDE	72-55-9	1	0.50	1.00	ND	ug/kg	U
Dieldrin	60-57-1	1	0.50	1.00	ND	ug/kg	U
Endrin	72-20-8	1	0.50	1.00	ND	ug/kg	U
Endosulfan II	33213-65-9	1	0.50	1.00	ND	ug/kg	U
4,4'-DDD	72-54-8	1	0.50	1.00	ND	ug/kg	U
Endrin Aldehyde	7421-93-4	1	0.50	1.00	ND	ug/kg	U
4,4'-DDT	50-29-3	1	0.50	1.00	ND	ug/kg	U
Endosulfan Sulfate	1031-07-8	1	0.50	1.00	ND	ug/kg	U
Endrin Ketone	53494-70-5	1	0.50	1.00	ND	ug/kg	U
Methoxychlor	72-43-5	1	2.49	4.98	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	0.25	0.50	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	0.25	0.50	ND	ug/kg	U
2,4'-DDE	3424-82-6	1	0.50	1.00	ND	ug/kg	U
2,4'-DDD	53-19-0	1	0.50	1.00	ND	ug/kg	U
2,4'-DDT	789-02-6	1	0.50	1.00	ND	ug/kg	U
Oxychlordane	27304-13-8	1	0.50	1.00	ND	ug/kg	U
cis-Nonachlor	5103-73-1	1	0.50	1.00	ND	ug/kg	U
trans-Nonachlor	39765-80-5	1	0.50	1.00	ND	ug/kg	U
Mirex	2385-85-5	1	1.00	1.00	ND	ug/kg	U



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Reported:
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11373-SB4S1
24G0171-01 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/02/2024 09:55

Instrument: ECD6 Analyst: RT

Analyzed: 07/31/2024 18:37

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Decachlorobiphenyl		30-160 %	92.1	%	
Surrogate: Decachlorobiphenyl [2C]		30-160 %	82.5	%	
Surrogate: Tetrachlorometaxylene		30-160 %	65.0	%	
Surrogate: Tetrachlorometaxylene [2C]		30-160 %	67.0	%	



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Reported:

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11373-SB4S1
24G0171-01 (Solid)

Aroclor PCB

Method: EPA 8082A

Sampled: 07/02/2024 09:55

Instrument: ECD5 Analyst: NRB

Analyzed: 07/25/2024 01:51

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 16.44 g (wet) Final Volume: 2.5 mL	Extract ID: 24G0171-01 B 01 Dry Weight: 12.53 g % Solids: 76.22
	Preparation Batch: BMG0250		
	Prepared: 07/15/2024		
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0171-01 B 01
	Cleanup Batch: CMG0171		
	Cleaned: 24-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfuric Acid	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0171-01 B 01
	Cleanup Batch: CMG0169		
	Cleaned: 24-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0171-01 B 01
	Cleanup Batch: CMG0170		
	Cleaned: 24-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	2.0	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	2.0	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	2.0	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1262	37324-23-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1268	11100-14-4	1	2.0	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				40-126 %	79.1	%	
Surrogate: Tetrachlorometaxylene				44-120 %	84.3	%	
Surrogate: Decachlorobiphenyl [2C]				40-126 %	82.9	%	
Surrogate: Tetrachlorometaxylene [2C]				44-120 %	85.6	%	



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Reported:

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11373-SB4S1
24G0171-01 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED

Sampled: 07/02/2024 09:55

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 12:59

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0171-01 B 05

Preparation Batch: BMG0273

Sample Size: 1.033 g (wet)

Dry Weight: 0.78 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 75.16

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.05	0.26	12.1	mg/kg	
Cadmium	7440-43-9	20	0.04	0.13	0.14	mg/kg	
Copper	7440-50-8	20	0.22	0.64	45.6	mg/kg	
Selenium	7782-49-2	20	0.23	0.64	1.41	mg/kg	
Zinc	7440-66-6	20	3.8	7.7	98.2	mg/kg	



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Reported:
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11373-SB4S1
24G0171-01 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B

Sampled: 07/02/2024 09:55

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 12:59

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0171-01 B 05

Preparation Batch: BMG0273

Sample Size: 1.033 g (wet)

Dry Weight: 0.78 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 75.16

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	20	0.13	0.26	ND	mg/kg	U
Chromium	7440-47-3	50	0.84	1.61	35.6	mg/kg	D
Lead	7439-92-1	20	0.07	0.13	9.14	mg/kg	
Silver	7440-22-4	20	0.03	0.26	0.16	mg/kg	J



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Project Number: 113733

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Reported:

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11373-SB4S1

24G0171-01 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B

Sampled: 07/02/2024 09:55

Instrument: HYDRA Analyst: ML

Analyzed: 07/22/2024 11:54

Sample Preparation:

Preparation Method: SMM EPA 7471B

Extract ID: 24G0171-01 C

Preparation Batch: BMG0336

Sample Size: 0.286 g (wet)

Dry Weight: 0.21 g

Prepared: 07/18/2024

Final Volume: 50 mL

% Solids: 75.16

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00488	0.0233	0.0731	mg/kg	



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Project Manager: Dan McMahon

Reported:

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11373-SB4S1

24G0171-01 (Solid)

Wet Chemistry

Method: EPA 9060A m

Sampled: 07/02/2024 09:55

Instrument: TOC Cube Analyst: ARR

Analyzed: 08/01/2024 13:38

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0171-01 C

Preparation Batch: BMG0720

Sample Size: 0.2448 g (wet)

Dry Weight: 0.18 g

Prepared: 07/29/2024

Final Volume: 0.2448 mL

% Solids: 75.16

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.40	%	



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Reported:
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11373-SB4S1
24G0171-01 (Solid)

Wet Chemistry

Method: PSEP 1986

Sampled: 07/02/2024 09:55

Instrument: BAL2 Analyst: LERB

Analyzed: 07/10/2024 11:40

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0171-01

Preparation Batch: BMG0226

Sample Size: 5 g (wet)

Prepared: 07/10/2024

Final Volume: 5 mL

% Solids: 75.16

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Volatile Solids		1	0.01	0.01	1.93	%	



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Reported:

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11373-SB4S1

24G0171-01 (Solid)

Wet Chemistry

Method: SM 2540 G-11

Sampled: 07/02/2024 09:55

Instrument: BAL2 Analyst: LERB

Analyzed: 07/10/2024 11:40

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0171-01

Preparation Batch: BMG0226

Sample Size: 5 g (wet)

Prepared: 07/10/2024

Final Volume: 5 mL

% Solids: 75.16

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	75.16	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

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11373-SB4S2
24G0171-02 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 10:00

Instrument: NT10 Analyst: RJL

Analyzed: 07/31/2024 13:58

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0171-02 B 04

Preparation Batch: BMG0256

Sample Size: 12.98 g (wet)

Dry Weight: 10.02 g

Prepared: 07/12/2024

Final Volume: 1 mL

% Solids: 77.20

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	10.0	20.0	ND	ug/kg	U
bis(2-chloroethyl) ether	111-44-4	1	34.9	49.9	ND	ug/kg	U
2-Chlorophenol	95-57-8	1	20.0	20.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	10.0	20.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	10.0	20.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	10.0	20.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	20.0	20.0	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	10.0	20.0	ND	ug/kg	U
2-Methylphenol	95-48-7	1	10.0	20.0	ND	ug/kg	U
Hexachloroethane	67-72-1	1	10.0	20.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	15.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	15.0	20.0	ND	ug/kg	U
Nitrobenzene	98-95-3	1	10.0	20.0	ND	ug/kg	U
Isophorone	78-59-1	1	15.0	20.0	ND	ug/kg	U
2-Nitrophenol	88-75-5	1	10.0	20.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	49.9	99.8	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	1	10.0	20.0	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	1	49.9	99.8	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	10.0	20.0	ND	ug/kg	U
Naphthalene	91-20-3	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	99.8	200	ND	ug/kg	U
4-Chloroaniline	106-47-8	1	49.9	99.8	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	10.0	20.0	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	1	49.9	99.8	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	10.0	20.0	ND	ug/kg	U
Hexachlorocyclopentadiene	77-47-4	1	49.9	99.8	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	1	49.9	99.8	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	1	49.9	99.8	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	1	10.0	20.0	ND	ug/kg	U
2-Nitroaniline	88-74-4	1	49.9	99.8	ND	ug/kg	U
Acenaphthylene	208-96-8	1	10.0	20.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	10.0	20.0	ND	ug/kg	U
2,6-Dinitrotoluene	606-20-2	1	49.9	99.8	ND	ug/kg	U
Acenaphthene	83-32-9	1	10.0	20.0	ND	ug/kg	U
3-Nitroaniline	99-09-2	1	49.9	99.8	ND	ug/kg	U



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:41

11373-SB4S2
24G0171-02 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 10:00

Instrument: NT10 Analyst: RJL

Analyzed: 07/31/2024 13:58

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2,4-Dinitrophenol	51-28-5	1	99.8	200	ND	ug/kg	U
Dibenzofuran	132-64-9	1	20.0	20.0	ND	ug/kg	U
4-Nitrophenol	100-02-7	1	49.9	99.8	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	1	49.9	99.8	ND	ug/kg	U
Fluorene	86-73-7	1	20.0	20.0	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	1	34.9	49.9	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	34.9	49.9	ND	ug/kg	U
4-Nitroaniline	100-01-6	1	49.9	99.8	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	1	99.8	200	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	10.0	20.0	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	1	20.0	20.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	20.0	20.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	49.9	99.8	ND	ug/kg	U
Phenanthrene	85-01-8	1	10.0	20.0	20.6	ug/kg	
Anthracene	120-12-7	1	10.0	20.0	ND	ug/kg	U
Carbazole	86-74-8	1	10.0	20.0	ND	ug/kg	U
Di-n-Butylphthalate	84-74-2	1	10.0	20.0	ND	ug/kg	U
Fluoranthene	206-44-0	1	10.0	20.0	26.3	ug/kg	
Pyrene	129-00-0	1	10.0	20.0	20.2	ug/kg	
Butylbenzylphthalate	85-68-7	1	10.0	20.0	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	1	10.0	20.0	ND	ug/kg	U
3,3'-Dichlorobenzidine	91-94-1	1	49.9	99.8	ND	ug/kg	U
Chrysene	218-01-9	1	10.0	20.0	ND	ug/kg	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	39.9	49.9	ND	ug/kg	U
Di-n-Octylphthalate	117-84-0	1	10.0	20.0	ND	ug/kg	U
Benzo(a)fluoranthene, Total		1	29.9	39.9	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	10.0	20.0	ND	ug/kg	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	20.0	20.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	20.0	20.0	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	20.0	20.0	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	10.0	20.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	87.1	%	
Surrogate: Phenol-d5				29-120 %	84.6	%	
Surrogate: 2-Chlorophenol-d4				31-120 %	88.0	%	
Surrogate: 1,2-Dichlorobenzene-d4				32-120 %	84.6	%	
Surrogate: Nitrobenzene-d5				30-120 %	91.0	%	
Surrogate: 2-Fluorobiphenyl				35-120 %	88.0	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:41

11373-SB4S2

24G0171-02 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 10:00

Instrument: NT10 Analyst: RJL

Analyzed: 07/31/2024 13:58

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: 2,4,6-Tribromophenol		24-134 %	94.9	%	
Surrogate: p-Terphenyl-d14		37-120 %	107	%	



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Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:41

11373-SB4S2

24G0171-02 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM

Sampled: 07/02/2024 10:00

Instrument: NT10 Analyst: RJL

Analyzed: 07/31/2024 13:58

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0171-02 B 04

Preparation Batch: BMG0256

Sample Size: 12.98 g (wet)

Dry Weight: 10.02 g

Prepared: 07/12/2024

Final Volume: 1 mL

% Solids: 77.20

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	2.5	5.0	2.6	ug/kg	J
1,3-Dichlorobenzene	541-73-1	1	2.5	5.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	2.5	5.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	2.5	5.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	49.9	99.8	ND	ug/kg	U
2-Methylphenol	95-48-7	1	2.5	5.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	10.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	2.5	5.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	10.0	20.0	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	5.0	5.0	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	2.5	5.0	ND	ug/kg	U
N-Nitrosodimethylamine	62-75-9	1	12.5	24.9	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	2.5	5.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	10.0	20.0	14.3	ug/kg	J
N-Nitrosodiphenylamine	86-30-6	1	2.5	5.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	2.5	5.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	10.0	20.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	2.5	5.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	2.5	5.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	84.5	%	
Surrogate: p-Terphenyl-d14				37-120 %	109	%	Q



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:41

11373-SB4S2
24G0171-02 (Solid)

Butyl Tins

Method: EPA 8270E-SIM			Sampled: 07/02/2024 10:00		
Instrument: NT17 Analyst: JZ			Analyzed: 07/23/2024 15:58		
Sample Preparation:	Preparation Method: EPA 3546 (Microwave)			Extract ID: 24G0171-02 B 03	
	Preparation Batch: BMG0255	Sample Size: 6.49 g (wet)		Dry Weight: 5.01 g	
	Prepared: 07/12/2024	Final Volume: 0.5 mL		% Solids: 77.20	
Sample Cleanup:	Cleanup Method: Silica Gel			Extract ID: 24G0171-02 B 03	
	Cleanup Batch: CMG0156	Initial Volume: 0.5 uL			
	Cleaned: 22-Jul-2024	Final Volume: 0.5 uL			

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Tributyltin Ion	36643-28-4	1	1.93	3.85	ND	ug/kg	U
Surrogate: Triphenyltin				30-160 %	72.4	%	
Surrogate: Tripropyltin				30-160 %	65.4	%	



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Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:41

11373-SB4S2
24G0171-02 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/02/2024 10:00

Instrument: ECD6 Analyst: RT

Analyzed: 07/31/2024 18:55

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 16.22 g (wet)	Extract ID: 24G0171-02 B 02
	Preparation Batch: BMG0254	Final Volume: 2.5 mL	Dry Weight: 12.52 g
	Prepared: 07/12/2024		% Solids: 77.20

Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL	Extract ID: 24G0171-02 B 02
	Cleanup Batch: CMG0208	Final Volume: 2.5 uL	
	Cleaned: 30-Jul-2024		

Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL	Extract ID: 24G0171-02 B 02
	Cleanup Batch: CMG0207	Final Volume: 2.5 uL	
	Cleaned: 30-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.25	0.50	0.80	ug/kg	
beta-BHC	319-85-7	1	0.25	0.50	ND	ug/kg	U
gamma-BHC (Lindane)	58-89-9	1	0.25	0.50	ND	ug/kg	U
delta-BHC	319-86-8	1	0.25	0.50	ND	ug/kg	U
Heptachlor	76-44-8	1	0.25	0.50	ND	ug/kg	U
Aldrin	309-00-2	1	0.50	0.50	ND	ug/kg	U
Heptachlor Epoxide	1024-57-3	1	0.25	0.50	ND	ug/kg	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.50	0.50	ND	ug/kg	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.25	0.50	ND	ug/kg	U
Endosulfan I	959-98-8	1	0.25	0.50	ND	ug/kg	U
4,4'-DDE	72-55-9	1	0.50	1.00	ND	ug/kg	U
Dieldrin	60-57-1	1	0.50	1.00	ND	ug/kg	U
Endrin	72-20-8	1	0.50	1.00	ND	ug/kg	U
Endosulfan II	33213-65-9	1	0.50	1.00	ND	ug/kg	U
4,4'-DDD	72-54-8	1	0.50	1.00	ND	ug/kg	U
Endrin Aldehyde	7421-93-4	1	0.50	1.00	ND	ug/kg	U
4,4'-DDT	50-29-3	1	0.50	1.00	ND	ug/kg	U
Endosulfan Sulfate	1031-07-8	1	0.50	1.00	ND	ug/kg	U
Endrin Ketone	53494-70-5	1	0.50	1.00	ND	ug/kg	U
Methoxychlor	72-43-5	1	2.50	4.99	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	0.25	0.50	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	0.25	0.50	ND	ug/kg	U
2,4'-DDE	3424-82-6	1	0.50	1.00	ND	ug/kg	U
2,4'-DDD	53-19-0	1	0.50	1.00	ND	ug/kg	U
2,4'-DDT	789-02-6	1	0.50	1.00	ND	ug/kg	U
Oxychlordane	27304-13-8	1	0.50	1.00	ND	ug/kg	U
cis-Nonachlor	5103-73-1	1	0.50	1.00	ND	ug/kg	U
trans-Nonachlor	39765-80-5	1	0.50	1.00	ND	ug/kg	U
Mirex	2385-85-5	1	1.00	1.00	ND	ug/kg	U



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Project: PAMP Sediments

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Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:41

11373-SB4S2

24G0171-02 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/02/2024 10:00

Instrument: ECD6 Analyst: RT

Analyzed: 07/31/2024 18:55

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Decachlorobiphenyl		30-160 %	94.1	%	
Surrogate: Decachlorobiphenyl [2C]		30-160 %	87.3	%	
Surrogate: Tetrachlorometaxylene		30-160 %	71.3	%	
Surrogate: Tetrachlorometaxylene [2C]		30-160 %	67.6	%	



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Reported:
16-Sep-2024 10:41

11373-SB4S2
24G0171-02 (Solid)

Aroclor PCB

Method: EPA 8082A			Sampled: 07/02/2024 10:00	
Instrument: ECD5 Analyst: NRB			Analyzed: 07/25/2024 02:12	
Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 16.2 g (wet)	Extract ID: 24G0171-02 B 01	
	Preparation Batch: BMG0250		Dry Weight: 12.51 g	
	Prepared: 07/15/2024		% Solids: 77.20	
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL	Extract ID: 24G0171-02 B 01	
	Cleanup Batch: CMG0171			
	Cleaned: 24-Jul-2024			
Sample Cleanup:	Cleanup Method: Sulfuric Acid	Initial Volume: 2.5 uL	Extract ID: 24G0171-02 B 01	
	Cleanup Batch: CMG0169			
	Cleaned: 24-Jul-2024			
Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL	Extract ID: 24G0171-02 B 01	
	Cleanup Batch: CMG0170			
	Cleaned: 24-Jul-2024			

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	2.0	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	2.0	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	2.0	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1262	37324-23-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1268	11100-14-4	1	2.0	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				40-126 %	77.1	%	
Surrogate: Tetrachlorometaxylene				44-120 %	79.5	%	
Surrogate: Decachlorobiphenyl [2C]				40-126 %	81.0	%	
Surrogate: Tetrachlorometaxylene [2C]				44-120 %	76.5	%	



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Reported:

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11373-SB4S2

24G0171-02 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED

Sampled: 07/02/2024 10:00

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 12:55

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0171-02 B 05

Preparation Batch: BMG0273

Sample Size: 1 g (wet)

Dry Weight: 0.76 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 75.68

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.05	0.26	14.4	mg/kg	
Cadmium	7440-43-9	20	0.04	0.13	0.12	mg/kg	J
Copper	7440-50-8	20	0.23	0.66	47.8	mg/kg	
Selenium	7782-49-2	20	0.24	0.66	1.39	mg/kg	
Zinc	7440-66-6	20	3.9	7.9	100	mg/kg	



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Reported:

16-Sep-2024 10:41

11373-SB4S2

24G0171-02 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B

Sampled: 07/02/2024 10:00

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 12:55

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0171-02 B 05

Preparation Batch: BMG0273

Sample Size: 1 g (wet)

Dry Weight: 0.76 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 75.68

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	20	0.13	0.26	ND	mg/kg	U
Chromium	7440-47-3	50	0.86	1.65	36.8	mg/kg	D
Lead	7439-92-1	20	0.07	0.13	9.89	mg/kg	
Silver	7440-22-4	20	0.03	0.26	0.18	mg/kg	J



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Reported:

16-Sep-2024 10:41

11373-SB4S2

24G0171-02 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B

Sampled: 07/02/2024 10:00

Instrument: HYDRA Analyst: ML

Analyzed: 07/22/2024 12:01

Sample Preparation:

Preparation Method: SMM EPA 7471B

Extract ID: 24G0171-02 C

Preparation Batch: BMG0336

Sample Size: 0.212 g (wet)

Dry Weight: 0.16 g

Prepared: 07/18/2024

Final Volume: 50 mL

% Solids: 75.68

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00654	0.0312	0.0868	mg/kg	



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Reported:

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11373-SB4S2

24G0171-02 (Solid)

Wet Chemistry

Method: EPA 9060A m

Sampled: 07/02/2024 10:00

Instrument: TOC Cube Analyst: ARR

Analyzed: 08/01/2024 14:09

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0171-02 C

Preparation Batch: BMG0720

Sample Size: 0.551 g (wet)

Dry Weight: 0.42 g

Prepared: 07/29/2024

Final Volume: 0.551 mL

% Solids: 75.68

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.56	%	



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Reported:
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11373-SB4S2
24G0171-02 (Solid)

Wet Chemistry

Method: PSEP 1986

Sampled: 07/02/2024 10:00

Instrument: BAL2 Analyst: LERB

Analyzed: 07/10/2024 11:40

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0171-02

Preparation Batch: BMG0226

Sample Size: 5 g (wet)

Prepared: 07/10/2024

Final Volume: 5 mL

% Solids: 75.68

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Volatile Solids		1	0.01	0.01	2.57	%	



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Reported:

16-Sep-2024 10:41

11373-SB4S2

24G0171-02 (Solid)

Wet Chemistry

Method: SM 2540 G-11

Sampled: 07/02/2024 10:00

Instrument: BAL2 Analyst: LERB

Analyzed: 07/10/2024 11:40

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0171-02

Preparation Batch: BMG0226

Sample Size: 5 g (wet)

Prepared: 07/10/2024

Final Volume: 5 mL

% Solids: 75.68

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	75.68	%	



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Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:41

11373-SB4S3
24G0171-03 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 10:15

Instrument: NT10 Analyst: RJL

Analyzed: 07/31/2024 16:59

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0171-03 B 04

Preparation Batch: BMG0256

Sample Size: 12.76 g (wet)

Dry Weight: 10.02 g

Prepared: 07/12/2024

Final Volume: 1 mL

% Solids: 78.53

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	10.0	20.0	ND	ug/kg	U
bis(2-chloroethyl) ether	111-44-4	1	34.9	49.9	ND	ug/kg	U
2-Chlorophenol	95-57-8	1	20.0	20.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	10.0	20.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	10.0	20.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	10.0	20.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	20.0	20.0	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	10.0	20.0	ND	ug/kg	U
2-Methylphenol	95-48-7	1	10.0	20.0	ND	ug/kg	U
Hexachloroethane	67-72-1	1	10.0	20.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	15.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	15.0	20.0	ND	ug/kg	U
Nitrobenzene	98-95-3	1	10.0	20.0	ND	ug/kg	U
Isophorone	78-59-1	1	15.0	20.0	ND	ug/kg	U
2-Nitrophenol	88-75-5	1	10.0	20.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	49.9	99.8	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	1	10.0	20.0	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	1	49.9	99.8	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	10.0	20.0	ND	ug/kg	U
Naphthalene	91-20-3	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	99.8	200	ND	ug/kg	U
4-Chloroaniline	106-47-8	1	49.9	99.8	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	10.0	20.0	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	1	49.9	99.8	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	10.0	20.0	ND	ug/kg	U
Hexachlorocyclopentadiene	77-47-4	1	49.9	99.8	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	1	49.9	99.8	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	1	49.9	99.8	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	1	10.0	20.0	ND	ug/kg	U
2-Nitroaniline	88-74-4	1	49.9	99.8	ND	ug/kg	U
Acenaphthylene	208-96-8	1	10.0	20.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	10.0	20.0	ND	ug/kg	U
2,6-Dinitrotoluene	606-20-2	1	49.9	99.8	ND	ug/kg	U
Acenaphthene	83-32-9	1	10.0	20.0	ND	ug/kg	U
3-Nitroaniline	99-09-2	1	49.9	99.8	ND	ug/kg	U



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:41

11373-SB4S3
24G0171-03 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 10:15

Instrument: NT10 Analyst: RJL

Analyzed: 07/31/2024 16:59

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2,4-Dinitrophenol	51-28-5	1	99.8	200	ND	ug/kg	U
Dibenzofuran	132-64-9	1	20.0	20.0	ND	ug/kg	U
4-Nitrophenol	100-02-7	1	49.9	99.8	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	1	49.9	99.8	ND	ug/kg	U
Fluorene	86-73-7	1	20.0	20.0	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	1	34.9	49.9	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	34.9	49.9	ND	ug/kg	U
4-Nitroaniline	100-01-6	1	49.9	99.8	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	1	99.8	200	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	10.0	20.0	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	1	20.0	20.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	20.0	20.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	49.9	99.8	ND	ug/kg	U
Phenanthrene	85-01-8	1	10.0	20.0	ND	ug/kg	U
Anthracene	120-12-7	1	10.0	20.0	ND	ug/kg	U
Carbazole	86-74-8	1	10.0	20.0	ND	ug/kg	U
Di-n-Butylphthalate	84-74-2	1	10.0	20.0	ND	ug/kg	U
Fluoranthene	206-44-0	1	10.0	20.0	ND	ug/kg	U
Pyrene	129-00-0	1	10.0	20.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	10.0	20.0	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	1	10.0	20.0	ND	ug/kg	U
3,3'-Dichlorobenzidine	91-94-1	1	49.9	99.8	ND	ug/kg	U
Chrysene	218-01-9	1	10.0	20.0	ND	ug/kg	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	39.9	49.9	ND	ug/kg	U
Di-n-Octylphthalate	117-84-0	1	10.0	20.0	ND	ug/kg	U
Benzo(a)fluoranthene, Total		1	29.9	39.9	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	10.0	20.0	ND	ug/kg	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	20.0	20.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	20.0	20.0	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	20.0	20.0	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	10.0	20.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	90.0	%	
Surrogate: Phenol-d5				29-120 %	87.2	%	
Surrogate: 2-Chlorophenol-d4				31-120 %	92.0	%	
Surrogate: 1,2-Dichlorobenzene-d4				32-120 %	89.6	%	
Surrogate: Nitrobenzene-d5				30-120 %	92.9	%	
Surrogate: 2-Fluorobiphenyl				35-120 %	89.4	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:41

11373-SB4S3

24G0171-03 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 10:15

Instrument: NT10 Analyst: RJL

Analyzed: 07/31/2024 16:59

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: 2,4,6-Tribromophenol		24-134 %	92.5	%	
Surrogate: p-Terphenyl-d14		37-120 %	109	%	



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Reported:
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11373-SB4S3
24G0171-03 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM

Sampled: 07/02/2024 10:15

Instrument: NT10 Analyst: RJL

Analyzed: 07/31/2024 16:59

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0171-03 B 04

Preparation Batch: BMG0256

Sample Size: 12.76 g (wet)

Dry Weight: 10.02 g

Prepared: 07/12/2024

Final Volume: 1 mL

% Solids: 78.53

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	2.5	5.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	2.5	5.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	2.5	5.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	2.5	5.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	49.9	99.8	ND	ug/kg	U
2-Methylphenol	95-48-7	1	2.5	5.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	10.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	2.5	5.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	10.0	20.0	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	5.0	5.0	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	2.5	5.0	ND	ug/kg	U
N-Nitrosodimethylamine	62-75-9	1	12.5	24.9	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	2.5	5.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	10.0	20.0	15.7	ug/kg	J
N-Nitrosodiphenylamine	86-30-6	1	2.5	5.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	2.5	5.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	10.0	20.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	2.5	5.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	2.5	5.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	84.8	%	
Surrogate: p-Terphenyl-d14				37-120 %	117	%	Q



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Reported:
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11373-SB4S3
24G0171-03 (Solid)

Butyl Tins

Method: EPA 8270E-SIM
Instrument: NT17 Analyst: JZ

Sampled: 07/02/2024 10:15

Analyzed: 07/23/2024 16:12

Sample Preparation: Preparation Method: EPA 3546 (Microwave)
Preparation Batch: BMG0255
Prepared: 07/12/2024

Sample Size: 6.37 g (wet)

Final Volume: 0.5 mL

Extract ID: 24G0171-03 B 03

Dry Weight: 5.00 g

% Solids: 78.53

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CMG0156
Cleaned: 22-Jul-2024

Initial Volume: 0.5 uL

Final Volume: 0.5 uL

Extract ID: 24G0171-03 B 03

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Tributyltin Ion	36643-28-4	1	1.93	3.86	ND	ug/kg	U
Surrogate: Triphenyltin				30-160 %	67.5	%	
Surrogate: Tripropyltin				30-160 %	60.4	%	



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Reported:
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11373-SB4S3
24G0171-03 (Solid)

Chlorinated Pesticides

Method: EPA 8081B			Sampled: 07/02/2024 10:15	
Instrument: ECD6 Analyst: RT			Analyzed: 07/31/2024 19:13	
Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 15.96 g (wet) Final Volume: 2.5 mL	Extract ID: 24G0171-03 B 02	
	Preparation Batch: BMG0254		Dry Weight: 12.53 g	
	Prepared: 07/12/2024		% Solids: 78.53	
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0171-03 B 02	
	Cleanup Batch: CMG0208			
	Cleaned: 30-Jul-2024			
Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0171-03 B 02	
	Cleanup Batch: CMG0207			
	Cleaned: 30-Jul-2024			

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.25	0.50	0.32	ug/kg	J
beta-BHC	319-85-7	1	0.25	0.50	ND	ug/kg	U
gamma-BHC (Lindane)	58-89-9	1	0.25	0.50	ND	ug/kg	U
delta-BHC	319-86-8	1	0.25	0.50	ND	ug/kg	U
Heptachlor	76-44-8	1	0.25	0.50	ND	ug/kg	U
Aldrin	309-00-2	1	0.50	0.50	ND	ug/kg	U
Heptachlor Epoxide	1024-57-3	1	0.25	0.50	ND	ug/kg	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.50	0.50	ND	ug/kg	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.25	0.50	ND	ug/kg	U
Endosulfan I	959-98-8	1	0.25	0.50	ND	ug/kg	U
4,4'-DDE	72-55-9	1	0.50	1.00	ND	ug/kg	U
Dieldrin	60-57-1	1	0.50	1.00	ND	ug/kg	U
Endrin	72-20-8	1	0.50	1.00	ND	ug/kg	U
Endosulfan II	33213-65-9	1	0.50	1.00	ND	ug/kg	U
4,4'-DDD	72-54-8	1	0.50	1.00	0.55	ug/kg	J
Endrin Aldehyde	7421-93-4	1	0.50	1.00	ND	ug/kg	U
4,4'-DDT	50-29-3	1	0.50	1.00	ND	ug/kg	U
Endosulfan Sulfate	1031-07-8	1	0.50	1.00	ND	ug/kg	U
Endrin Ketone	53494-70-5	1	0.50	1.00	ND	ug/kg	U
Methoxychlor	72-43-5	1	2.49	4.99	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	0.25	0.50	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	0.25	0.50	ND	ug/kg	U
2,4'-DDE	3424-82-6	1	0.50	1.00	ND	ug/kg	U
2,4'-DDD	53-19-0	1	0.50	1.00	ND	ug/kg	U
2,4'-DDT	789-02-6	1	0.50	1.00	ND	ug/kg	U
Oxychlordane	27304-13-8	1	0.50	1.00	ND	ug/kg	U
cis-Nonachlor	5103-73-1	1	0.50	1.00	ND	ug/kg	U
trans-Nonachlor	39765-80-5	1	0.50	1.00	ND	ug/kg	U
Mirex	2385-85-5	1	1.00	1.00	ND	ug/kg	U



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Reported:
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11373-SB4S3
24G0171-03 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/02/2024 10:15

Instrument: ECD6 Analyst: RT

Analyzed: 07/31/2024 19:13

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Decachlorobiphenyl		30-160 %	85.7	%	
Surrogate: Decachlorobiphenyl [2C]		30-160 %	76.1	%	
Surrogate: Tetrachlorometaxylene		30-160 %	62.9	%	
Surrogate: Tetrachlorometaxylene [2C]		30-160 %	57.1	%	



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Reported:
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11373-SB4S3
24G0171-03 (Solid)

Aroclor PCB

Method: EPA 8082A			Sampled: 07/02/2024 10:15	
Instrument: ECD5 Analyst: NRB			Analyzed: 07/25/2024 02:33	
Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 15.94 g (wet)	Extract ID: 24G0171-03 B 01	
	Preparation Batch: BMG0250		Dry Weight: 12.52 g	
	Prepared: 07/15/2024		% Solids: 78.53	
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL	Extract ID: 24G0171-03 B 01	
	Cleanup Batch: CMG0171			
	Cleaned: 24-Jul-2024		Final Volume: 2.5 uL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid	Initial Volume: 2.5 uL	Extract ID: 24G0171-03 B 01	
	Cleanup Batch: CMG0169			
	Cleaned: 24-Jul-2024		Final Volume: 2.5 uL	
Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL	Extract ID: 24G0171-03 B 01	
	Cleanup Batch: CMG0170			
	Cleaned: 24-Jul-2024		Final Volume: 2.5 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	2.0	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	2.0	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	2.0	4.0	3.5	ug/kg	J
Aroclor 1260	11096-82-5	1	2.0	4.0	3.1	ug/kg	J
Aroclor 1262	37324-23-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1268	11100-14-4	1	2.0	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				40-126 %	80.2	%	
Surrogate: Tetrachlorometaxylene				44-120 %	81.6	%	
Surrogate: Decachlorobiphenyl [2C]				40-126 %	82.2	%	
Surrogate: Tetrachlorometaxylene [2C]				44-120 %	79.6	%	



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11373-SB4S3

24G0171-03 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED

Sampled: 07/02/2024 10:15

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 12:50

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0171-03 B 05

Preparation Batch: BMG0273

Sample Size: 1.02 g (wet)

Dry Weight: 0.78 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 76.90

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.05	0.25	7.95	mg/kg	
Cadmium	7440-43-9	20	0.04	0.13	0.05	mg/kg	J
Copper	7440-50-8	20	0.22	0.64	17.5	mg/kg	
Selenium	7782-49-2	20	0.23	0.64	0.73	mg/kg	
Zinc	7440-66-6	20	3.7	7.6	45.5	mg/kg	



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Reported:
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11373-SB4S3
24G0171-03 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B

Sampled: 07/02/2024 10:15

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 12:50

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0171-03 B 05

Preparation Batch: BMG0273

Sample Size: 1.02 g (wet)

Dry Weight: 0.78 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 76.90

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	20	0.13	0.25	ND	mg/kg	U
Chromium	7440-47-3	20	0.31	0.64	17.8	mg/kg	
Lead	7439-92-1	20	0.07	0.13	3.82	mg/kg	
Silver	7440-22-4	20	0.03	0.25	0.06	mg/kg	J



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Reported:

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11373-SB4S3

24G0171-03 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B

Sampled: 07/02/2024 10:15

Instrument: HYDRA Analyst: ML

Analyzed: 07/22/2024 12:03

Sample Preparation:

Preparation Method: SMM EPA 7471B

Extract ID: 24G0171-03 C

Preparation Batch: BMG0336

Sample Size: 0.289 g (wet)

Dry Weight: 0.22 g

Prepared: 07/18/2024

Final Volume: 50 mL

% Solids: 76.90

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00472	0.0225	0.0654	mg/kg	



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Reported:

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11373-SB4S3

24G0171-03 (Solid)

Wet Chemistry

Method: EPA 9060A m

Sampled: 07/02/2024 10:15

Instrument: TOC Cube Analyst: ARR

Analyzed: 08/01/2024 14:39

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0171-03 C

Preparation Batch: BMG0720

Sample Size: 0.5453 g (wet)

Dry Weight: 0.42 g

Prepared: 07/29/2024

Final Volume: 0.5453 mL

% Solids: 76.90

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.30	%	



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Reported:
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11373-SB4S3
24G0171-03 (Solid)

Wet Chemistry

Method: PSEP 1986

Sampled: 07/02/2024 10:15

Instrument: BAL2 Analyst: LERB

Analyzed: 07/10/2024 11:40

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0171-03

Preparation Batch: BMG0226

Sample Size: 5 g (wet)

Prepared: 07/10/2024

Final Volume: 5 mL

% Solids: 76.90

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Volatile Solids		1	0.01	0.01	1.62	%	



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Reported:

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11373-SB4S3

24G0171-03 (Solid)

Wet Chemistry

Method: SM 2540 G-11

Sampled: 07/02/2024 10:15

Instrument: BAL2 Analyst: LERB

Analyzed: 07/10/2024 11:40

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0171-03

Preparation Batch: BMG0226

Sample Size: 5 g (wet)

Prepared: 07/10/2024

Final Volume: 5 mL

% Solids: 76.90

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	76.90	%	



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Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:41

11373-SB4S4
24G0171-04 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 10:20

Instrument: NT10 Analyst: RJL

Analyzed: 07/31/2024 17:39

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0171-04 B 04

Preparation Batch: BMG0256

Sample Size: 13.22 g (wet)

Dry Weight: 10.03 g

Prepared: 07/12/2024

Final Volume: 1 mL

% Solids: 75.90

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	10.0	19.9	ND	ug/kg	U
bis(2-chloroethyl) ether	111-44-4	1	34.9	49.8	ND	ug/kg	U
2-Chlorophenol	95-57-8	1	19.9	19.9	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	10.0	19.9	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	10.0	19.9	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	10.0	19.9	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	19.9	19.9	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	10.0	19.9	ND	ug/kg	U
2-Methylphenol	95-48-7	1	10.0	19.9	ND	ug/kg	U
Hexachloroethane	67-72-1	1	10.0	19.9	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	14.9	19.9	ND	ug/kg	U
4-Methylphenol	106-44-5	1	14.9	19.9	ND	ug/kg	U
Nitrobenzene	98-95-3	1	10.0	19.9	ND	ug/kg	U
Isophorone	78-59-1	1	14.9	19.9	ND	ug/kg	U
2-Nitrophenol	88-75-5	1	10.0	19.9	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	49.8	99.7	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	1	10.0	19.9	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	1	49.8	99.7	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	10.0	19.9	ND	ug/kg	U
Naphthalene	91-20-3	1	10.0	19.9	ND	ug/kg	U
Benzoic acid	65-85-0	1	99.7	199	ND	ug/kg	U
4-Chloroaniline	106-47-8	1	49.8	99.7	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	10.0	19.9	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	1	49.8	99.7	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	10.0	19.9	ND	ug/kg	U
Hexachlorocyclopentadiene	77-47-4	1	49.8	99.7	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	1	49.8	99.7	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	1	49.8	99.7	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	1	10.0	19.9	ND	ug/kg	U
2-Nitroaniline	88-74-4	1	49.8	99.7	ND	ug/kg	U
Acenaphthylene	208-96-8	1	10.0	19.9	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	10.0	19.9	ND	ug/kg	U
2,6-Dinitrotoluene	606-20-2	1	49.8	99.7	ND	ug/kg	U
Acenaphthene	83-32-9	1	10.0	19.9	ND	ug/kg	U
3-Nitroaniline	99-09-2	1	49.8	99.7	ND	ug/kg	U



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:41

11373-SB4S4
24G0171-04 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 10:20

Instrument: NT10 Analyst: RJL

Analyzed: 07/31/2024 17:39

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2,4-Dinitrophenol	51-28-5	1	99.7	199	ND	ug/kg	U
Dibenzofuran	132-64-9	1	19.9	19.9	ND	ug/kg	U
4-Nitrophenol	100-02-7	1	49.8	99.7	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	1	49.8	99.7	ND	ug/kg	U
Fluorene	86-73-7	1	19.9	19.9	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	1	34.9	49.8	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	34.9	49.8	ND	ug/kg	U
4-Nitroaniline	100-01-6	1	49.8	99.7	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	1	99.7	199	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	10.0	19.9	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	1	19.9	19.9	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	19.9	19.9	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	49.8	99.7	ND	ug/kg	U
Phenanthrene	85-01-8	1	10.0	19.9	ND	ug/kg	U
Anthracene	120-12-7	1	10.0	19.9	ND	ug/kg	U
Carbazole	86-74-8	1	10.0	19.9	ND	ug/kg	U
Di-n-Butylphthalate	84-74-2	1	10.0	19.9	ND	ug/kg	U
Fluoranthene	206-44-0	1	10.0	19.9	ND	ug/kg	U
Pyrene	129-00-0	1	10.0	19.9	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	10.0	19.9	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	1	10.0	19.9	ND	ug/kg	U
3,3'-Dichlorobenzidine	91-94-1	1	49.8	99.7	ND	ug/kg	U
Chrysene	218-01-9	1	10.0	19.9	ND	ug/kg	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	39.9	49.8	ND	ug/kg	U
Di-n-Octylphthalate	117-84-0	1	10.0	19.9	ND	ug/kg	U
Benzo(a)fluoranthene, Total		1	29.9	39.9	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	10.0	19.9	ND	ug/kg	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	19.9	19.9	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	19.9	19.9	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	19.9	19.9	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	10.0	19.9	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	85.6	%	
Surrogate: Phenol-d5				29-120 %	79.6	%	
Surrogate: 2-Chlorophenol-d4				31-120 %	85.4	%	
Surrogate: 1,2-Dichlorobenzene-d4				32-120 %	82.6	%	
Surrogate: Nitrobenzene-d5				30-120 %	97.9	%	
Surrogate: 2-Fluorobiphenyl				35-120 %	93.2	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:41

11373-SB4S4

24G0171-04 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 10:20

Instrument: NT10 Analyst: RJL

Analyzed: 07/31/2024 17:39

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: 2,4,6-Tribromophenol		24-134 %	98.8	%	
Surrogate: p-Terphenyl-d14		37-120 %	115	%	



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Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:41

11373-SB4S4
24G0171-04 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM

Sampled: 07/02/2024 10:20

Instrument: NT10 Analyst: RJL

Analyzed: 07/31/2024 17:39

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0171-04 B 04

Preparation Batch: BMG0256

Sample Size: 13.22 g (wet)

Dry Weight: 10.03 g

Prepared: 07/12/2024

Final Volume: 1 mL

% Solids: 75.90

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	2.5	5.0	2.8	ug/kg	J
1,3-Dichlorobenzene	541-73-1	1	2.5	5.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	2.5	5.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	2.5	5.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	10.0	19.9	ND	ug/kg	U
Benzoic acid	65-85-0	1	49.8	99.7	ND	ug/kg	U
2-Methylphenol	95-48-7	1	2.5	5.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	10.0	19.9	ND	ug/kg	U
4-Methylphenol	106-44-5	1	2.5	5.0	3.1	ug/kg	J
2,4-Dimethylphenol	105-67-9	1	10.0	19.9	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	5.0	5.0	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	2.5	5.0	ND	ug/kg	U
N-Nitrosodimethylamine	62-75-9	1	12.5	24.9	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	2.5	5.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	10.0	19.9	17.2	ug/kg	J
N-Nitrosodiphenylamine	86-30-6	1	2.5	5.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	2.5	5.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	10.0	19.9	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	2.5	5.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	2.5	5.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	89.4	%	
Surrogate: p-Terphenyl-d14				37-120 %	122	%	*, Q



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Reported:
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11373-SB4S4
24G0171-04 (Solid)

Butyl Tins

Method: EPA 8270E-SIM			Sampled: 07/02/2024 10:20		
Instrument: NT17 Analyst: JZ			Analyzed: 07/23/2024 16:25		
Sample Preparation:	Preparation Method: EPA 3546 (Microwave)			Extract ID: 24G0171-04 B 03	
	Preparation Batch: BMG0255	Sample Size: 6.61 g (wet)		Dry Weight: 5.02 g	
	Prepared: 07/12/2024	Final Volume: 0.5 mL		% Solids: 75.90	
Sample Cleanup:	Cleanup Method: Silica Gel			Extract ID: 24G0171-04 B 03	
	Cleanup Batch: CMG0156	Initial Volume: 0.5 uL			
	Cleaned: 22-Jul-2024	Final Volume: 0.5 uL			

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Tributyltin Ion	36643-28-4	1	1.92	3.85	ND	ug/kg	U
Surrogate: Triphenyltin				30-160 %	69.7	%	
Surrogate: Tripropyltin				30-160 %	57.7	%	



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Project Manager: Dan McMahon

Reported:

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11373-SB4S4
24G0171-04 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/02/2024 10:20

Instrument: ECD6 Analyst: RT

Analyzed: 07/31/2024 19:32

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 16.48 g (wet)	Extract ID: 24G0171-04 B 02
	Preparation Batch: BMG0254	Final Volume: 2.5 mL	Dry Weight: 12.51 g
	Prepared: 07/12/2024		% Solids: 75.90

Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL	Extract ID: 24G0171-04 B 02
	Cleanup Batch: CMG0208	Final Volume: 2.5 uL	
	Cleaned: 30-Jul-2024		

Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL	Extract ID: 24G0171-04 B 02
	Cleanup Batch: CMG0207	Final Volume: 2.5 uL	
	Cleaned: 30-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.25	0.50	0.45	ug/kg	J
beta-BHC	319-85-7	1	0.25	0.50	ND	ug/kg	U
gamma-BHC (Lindane)	58-89-9	1	0.25	0.50	ND	ug/kg	U
delta-BHC	319-86-8	1	0.25	0.50	ND	ug/kg	U
Heptachlor	76-44-8	1	0.25	0.50	ND	ug/kg	U
Aldrin	309-00-2	1	0.50	0.50	ND	ug/kg	U
Heptachlor Epoxide	1024-57-3	1	0.25	0.50	ND	ug/kg	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.50	0.50	ND	ug/kg	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.25	0.50	ND	ug/kg	U
Endosulfan I	959-98-8	1	0.25	0.50	ND	ug/kg	U
4,4'-DDE	72-55-9	1	0.50	1.00	ND	ug/kg	U
Dieldrin	60-57-1	1	0.50	1.00	ND	ug/kg	U
Endrin	72-20-8	1	0.50	1.00	ND	ug/kg	U
Endosulfan II	33213-65-9	1	0.50	1.00	ND	ug/kg	U
4,4'-DDD	72-54-8	1	0.50	1.00	0.87	ug/kg	J
Endrin Aldehyde	7421-93-4	1	0.50	1.00	ND	ug/kg	U
4,4'-DDT	50-29-3	1	0.50	1.00	ND	ug/kg	U
Endosulfan Sulfate	1031-07-8	1	0.50	1.00	ND	ug/kg	U
Endrin Ketone	53494-70-5	1	0.50	1.00	ND	ug/kg	U
Methoxychlor	72-43-5	1	2.50	5.00	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	0.25	0.50	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	0.25	0.50	ND	ug/kg	U
2,4'-DDE	3424-82-6	1	0.50	1.00	ND	ug/kg	U
2,4'-DDD	53-19-0	1	0.50	1.00	ND	ug/kg	U
2,4'-DDT	789-02-6	1	0.50	1.00	ND	ug/kg	U
Oxychlordane	27304-13-8	1	0.50	1.00	ND	ug/kg	U
cis-Nonachlor	5103-73-1	1	0.50	1.00	ND	ug/kg	U
trans-Nonachlor	39765-80-5	1	0.50	1.00	ND	ug/kg	U
Mirex	2385-85-5	1	1.00	1.00	ND	ug/kg	U



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

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11373-SB4S4

24G0171-04 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/02/2024 10:20

Instrument: ECD6 Analyst: RT

Analyzed: 07/31/2024 19:32

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Decachlorobiphenyl		30-160 %	93.8	%	
Surrogate: Decachlorobiphenyl [2C]		30-160 %	87.8	%	
Surrogate: Tetrachlorometaxylene		30-160 %	75.7	%	
Surrogate: Tetrachlorometaxylene [2C]		30-160 %	63.6	%	



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Reported:
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11373-SB4S4
24G0171-04 (Solid)

Aroclor PCB

Method: EPA 8082A

Sampled: 07/02/2024 10:20

Instrument: ECD5 Analyst: NRB

Analyzed: 07/25/2024 02:54

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 16.5 g (wet) Final Volume: 2.5 mL	Extract ID: 24G0171-04 B 01
	Preparation Batch: BMG0250		Dry Weight: 12.52 g
	Prepared: 07/15/2024		% Solids: 75.90
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0171-04 B 01
	Cleanup Batch: CMG0171		
	Cleaned: 24-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfuric Acid	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0171-04 B 01
	Cleanup Batch: CMG0169		
	Cleaned: 24-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0171-04 B 01
	Cleanup Batch: CMG0170		
	Cleaned: 24-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	2.0	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	2.0	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	2.0	4.0	4.2	ug/kg	
Aroclor 1260	11096-82-5	1	2.0	4.0	3.6	ug/kg	J
Aroclor 1262	37324-23-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1268	11100-14-4	1	2.0	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl					40-126 %	84.1	%
Surrogate: Tetrachlorometaxylene					44-120 %	84.0	%
Surrogate: Decachlorobiphenyl [2C]					40-126 %	84.0	%
Surrogate: Tetrachlorometaxylene [2C]					44-120 %	82.7	%



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Reported:

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11373-SB4S4

24G0171-04 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED

Sampled: 07/02/2024 10:20

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 12:45

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0171-04 B 05

Preparation Batch: BMG0273

Sample Size: 1.048 g (wet)

Dry Weight: 0.79 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 75.41

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.05	0.25	12.7	mg/kg	
Cadmium	7440-43-9	20	0.04	0.13	0.11	mg/kg	J
Copper	7440-50-8	20	0.22	0.63	35.8	mg/kg	
Selenium	7782-49-2	20	0.23	0.63	1.21	mg/kg	
Zinc	7440-66-6	20	3.7	7.6	77.6	mg/kg	



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11373-SB4S4
24G0171-04 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B

Sampled: 07/02/2024 10:20

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 12:45

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0171-04 B 05

Preparation Batch: BMG0273

Sample Size: 1.048 g (wet)

Dry Weight: 0.79 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 75.41

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	20	0.13	0.25	ND	mg/kg	U
Chromium	7440-47-3	50	0.82	1.58	29.7	mg/kg	D
Lead	7439-92-1	20	0.07	0.13	7.04	mg/kg	
Silver	7440-22-4	20	0.03	0.25	0.14	mg/kg	J



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Reported:
16-Sep-2024 10:41

11373-SB4S4
24G0171-04 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B

Sampled: 07/02/2024 10:20

Instrument: HYDRA Analyst: ML

Analyzed: 07/22/2024 12:05

Sample Preparation:

Preparation Method: SMM EPA 7471B

Extract ID: 24G0171-04 C

Preparation Batch: BMG0336

Sample Size: 0.209 g (wet)

Dry Weight: 0.16 g

Prepared: 07/18/2024

Final Volume: 50 mL

% Solids: 75.41

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00666	0.0317	0.0810	mg/kg	



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Project Number: 113733

Project Manager: Dan McMahon

Reported:

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11373-SB4S4

24G0171-04 (Solid)

Wet Chemistry

Method: EPA 9060A m

Sampled: 07/02/2024 10:20

Instrument: TOC Cube Analyst: ARR

Analyzed: 08/01/2024 15:09

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0171-04 C

Preparation Batch: BMG0720

Sample Size: 0.5662 g (wet)

Dry Weight: 0.43 g

Prepared: 07/29/2024

Final Volume: 0.5662 mL

% Solids: 75.41

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.53	%	



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Reported:
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11373-SB4S4
24G0171-04 (Solid)

Wet Chemistry

Method: PSEP 1986

Sampled: 07/02/2024 10:20

Instrument: BAL2 Analyst: LERB

Analyzed: 07/10/2024 11:40

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0171-04

Preparation Batch: BMG0226

Sample Size: 5 g (wet)

Prepared: 07/10/2024

Final Volume: 5 mL

% Solids: 75.41

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Volatile Solids		1	0.01	0.01	2.25	%	



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Reported:
16-Sep-2024 10:41

11373-SB4S4
24G0171-04 (Solid)

Wet Chemistry

Method: SM 2540 G-11

Sampled: 07/02/2024 10:20

Instrument: BAL2 Analyst: LERB

Analyzed: 07/10/2024 11:40

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0171-04

Preparation Batch: BMG0226

Sample Size: 5 g (wet)

Prepared: 07/10/2024

Final Volume: 5 mL

% Solids: 75.41

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	75.41	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:41

11373-SB4S5
24G0171-05 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 10:45

Instrument: NT10 Analyst: RJL

Analyzed: 07/31/2024 18:19

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0171-05 B 04

Preparation Batch: BMG0256

Sample Size: 13.09 g (wet)

Dry Weight: 10.01 g

Prepared: 07/12/2024

Final Volume: 1 mL

% Solids: 76.46

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	10.0	20.0	ND	ug/kg	U
bis(2-chloroethyl) ether	111-44-4	1	35.0	50.0	ND	ug/kg	U
2-Chlorophenol	95-57-8	1	20.0	20.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	10.0	20.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	10.0	20.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	10.0	20.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	20.0	20.0	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	10.0	20.0	ND	ug/kg	U
2-Methylphenol	95-48-7	1	10.0	20.0	ND	ug/kg	U
Hexachloroethane	67-72-1	1	10.0	20.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	15.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	15.0	20.0	ND	ug/kg	U
Nitrobenzene	98-95-3	1	10.0	20.0	ND	ug/kg	U
Isophorone	78-59-1	1	15.0	20.0	ND	ug/kg	U
2-Nitrophenol	88-75-5	1	10.0	20.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	50.0	99.9	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	1	10.0	20.0	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	1	50.0	99.9	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	10.0	20.0	ND	ug/kg	U
Naphthalene	91-20-3	1	10.0	20.0	19.8	ug/kg	J
Benzoic acid	65-85-0	1	99.9	200	ND	ug/kg	U
4-Chloroaniline	106-47-8	1	50.0	99.9	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	10.0	20.0	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	1	50.0	99.9	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	10.0	20.0	49.7	ug/kg	
Hexachlorocyclopentadiene	77-47-4	1	50.0	99.9	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	1	50.0	99.9	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	1	50.0	99.9	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	1	10.0	20.0	ND	ug/kg	U
2-Nitroaniline	88-74-4	1	50.0	99.9	ND	ug/kg	U
Acenaphthylene	208-96-8	1	10.0	20.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	10.0	20.0	ND	ug/kg	U
2,6-Dinitrotoluene	606-20-2	1	50.0	99.9	ND	ug/kg	U
Acenaphthene	83-32-9	1	10.0	20.0	ND	ug/kg	U
3-Nitroaniline	99-09-2	1	50.0	99.9	ND	ug/kg	U



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:41

11373-SB4S5
24G0171-05 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 10:45

Instrument: NT10 Analyst: RJL

Analyzed: 07/31/2024 18:19

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2,4-Dinitrophenol	51-28-5	1	99.9	200	ND	ug/kg	U
Dibenzofuran	132-64-9	1	20.0	20.0	ND	ug/kg	U
4-Nitrophenol	100-02-7	1	50.0	99.9	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	1	50.0	99.9	ND	ug/kg	U
Fluorene	86-73-7	1	20.0	20.0	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	1	35.0	50.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	35.0	50.0	ND	ug/kg	U
4-Nitroaniline	100-01-6	1	50.0	99.9	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	1	99.9	200	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	10.0	20.0	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	1	20.0	20.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	20.0	20.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	50.0	99.9	ND	ug/kg	U
Phenanthrene	85-01-8	1	10.0	20.0	ND	ug/kg	U
Anthracene	120-12-7	1	10.0	20.0	ND	ug/kg	U
Carbazole	86-74-8	1	10.0	20.0	ND	ug/kg	U
Di-n-Butylphthalate	84-74-2	1	10.0	20.0	ND	ug/kg	U
Fluoranthene	206-44-0	1	10.0	20.0	ND	ug/kg	U
Pyrene	129-00-0	1	10.0	20.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	10.0	20.0	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	1	10.0	20.0	ND	ug/kg	U
3,3'-Dichlorobenzidine	91-94-1	1	50.0	99.9	ND	ug/kg	U
Chrysene	218-01-9	1	10.0	20.0	ND	ug/kg	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	40.0	50.0	ND	ug/kg	U
Di-n-Octylphthalate	117-84-0	1	10.0	20.0	ND	ug/kg	U
Benzo(a)fluoranthene, Total		1	30.0	40.0	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	10.0	20.0	ND	ug/kg	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	20.0	20.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	20.0	20.0	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	20.0	20.0	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	10.0	20.0	23.6	ug/kg	
Surrogate: 2-Fluorophenol				27-120 %	90.2	%	
Surrogate: Phenol-d5				29-120 %	82.9	%	
Surrogate: 2-Chlorophenol-d4				31-120 %	92.2	%	
Surrogate: 1,2-Dichlorobenzene-d4				32-120 %	86.1	%	
Surrogate: Nitrobenzene-d5				30-120 %	92.9	%	
Surrogate: 2-Fluorobiphenyl				35-120 %	91.6	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:41

11373-SB4S5

24G0171-05 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 10:45

Instrument: NT10 Analyst: RJL

Analyzed: 07/31/2024 18:19

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: 2,4,6-Tribromophenol		24-134 %	93.6	%	
Surrogate: p-Terphenyl-d14		37-120 %	108	%	



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Reported:
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11373-SB4S5
24G0171-05 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM

Sampled: 07/02/2024 10:45

Instrument: NT10 Analyst: RJL

Analyzed: 07/31/2024 18:19

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0171-05 B 04

Preparation Batch: BMG0256

Sample Size: 13.09 g (wet)

Dry Weight: 10.01 g

Prepared: 07/12/2024

Final Volume: 1 mL

% Solids: 76.46

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	2.5	5.0	3.6	ug/kg	J
1,3-Dichlorobenzene	541-73-1	1	2.5	5.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	2.5	5.0	5.7	ug/kg	
1,2-Dichlorobenzene	95-50-1	1	2.5	5.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	50.0	99.9	ND	ug/kg	U
2-Methylphenol	95-48-7	1	2.5	5.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	10.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	2.5	5.0	3.9	ug/kg	J
2,4-Dimethylphenol	105-67-9	1	10.0	20.0	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	5.0	5.0	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	2.5	5.0	ND	ug/kg	U
N-Nitrosodimethylamine	62-75-9	1	12.5	25.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	2.5	5.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	10.0	20.0	29.3	ug/kg	
N-Nitrosodiphenylamine	86-30-6	1	2.5	5.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	2.5	5.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	10.0	20.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	2.5	5.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	2.5	5.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	87.1	%	
Surrogate: p-Terphenyl-d14				37-120 %	120	%	Q



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Reported:
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11373-SB4S5
24G0171-05 (Solid)

Butyl Tins

Method: EPA 8270E-SIM			Sampled: 07/02/2024 10:45		
Instrument: NT17 Analyst: JZ			Analyzed: 07/23/2024 16:39		
Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 24G0171-05 B 03		
	Preparation Batch: BMG0255		Dry Weight: 5.01 g		
	Prepared: 07/12/2024		% Solids: 76.46		
Sample Cleanup:	Sample Size: 6.55 g (wet)		Extract ID: 24G0171-05 B 03		
	Final Volume: 0.5 mL				
	Cleanup Method: Silica Gel				
	Cleanup Batch: CMG0156				
	Initial Volume: 0.5 uL				
	Cleaned: 22-Jul-2024				

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Tributyltin Ion	36643-28-4	1	1.93	3.85	ND	ug/kg	U
Surrogate: Triphenyltin				30-160 %	67.0	%	
Surrogate: Tripropyltin				30-160 %	61.1	%	



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Reported:

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11373-SB4S5
24G0171-05 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/02/2024 10:45

Instrument: ECD6 Analyst: RT

Analyzed: 07/31/2024 19:50

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 16.38 g (wet)	Extract ID: 24G0171-05 B 02
	Preparation Batch: BMG0254	Final Volume: 2.5 mL	Dry Weight: 12.52 g
	Prepared: 07/12/2024		% Solids: 76.46

Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL	Extract ID: 24G0171-05 B 02
	Cleanup Batch: CMG0208	Final Volume: 2.5 uL	
	Cleaned: 30-Jul-2024		

Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL	Extract ID: 24G0171-05 B 02
	Cleanup Batch: CMG0207	Final Volume: 2.5 uL	
	Cleaned: 30-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.25	0.50	ND	ug/kg	U
beta-BHC	319-85-7	1	0.25	0.50	ND	ug/kg	U
gamma-BHC (Lindane)	58-89-9	1	0.25	0.50	ND	ug/kg	U
delta-BHC	319-86-8	1	0.25	0.50	ND	ug/kg	U
Heptachlor	76-44-8	1	0.25	0.50	ND	ug/kg	U
Aldrin	309-00-2	1	0.50	0.50	ND	ug/kg	U
Heptachlor Epoxide	1024-57-3	1	0.25	0.50	ND	ug/kg	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.50	0.50	ND	ug/kg	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.25	0.50	ND	ug/kg	U
Endosulfan I	959-98-8	1	0.25	0.50	ND	ug/kg	U
4,4'-DDE	72-55-9	1	0.50	1.00	0.61	ug/kg	J
Dieldrin	60-57-1	1	0.50	1.00	ND	ug/kg	U
Endrin	72-20-8	1	0.50	1.00	ND	ug/kg	U
Endosulfan II	33213-65-9	1	0.50	1.00	ND	ug/kg	U
4,4'-DDD	72-54-8	1	0.50	1.00	4.35	ug/kg	P1
Endrin Aldehyde	7421-93-4	1	0.50	1.00	ND	ug/kg	U
4,4'-DDT	50-29-3	1	0.50	1.00	ND	ug/kg	U
Endosulfan Sulfate	1031-07-8	1	0.50	1.00	ND	ug/kg	U
Endrin Ketone	53494-70-5	1	0.50	1.00	ND	ug/kg	U
Methoxychlor	72-43-5	1	2.50	4.99	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	0.25	0.50	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	0.25	0.50	ND	ug/kg	U
2,4'-DDE	3424-82-6	1	0.50	1.00	ND	ug/kg	U
2,4'-DDD	53-19-0	1	0.50	1.00	ND	ug/kg	U
2,4'-DDT	789-02-6	1	0.50	1.00	ND	ug/kg	U
Oxychlordane	27304-13-8	1	0.50	1.00	ND	ug/kg	U
cis-Nonachlor	5103-73-1	1	0.50	1.00	ND	ug/kg	U
trans-Nonachlor	39765-80-5	1	0.50	1.00	ND	ug/kg	U
Mirex	2385-85-5	1	1.00	1.00	ND	ug/kg	U



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Reported:
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11373-SB4S5
24G0171-05 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/02/2024 10:45

Instrument: ECD6 Analyst: RT

Analyzed: 07/31/2024 19:50

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Decachlorobiphenyl		30-160 %	92.9	%	
Surrogate: Decachlorobiphenyl [2C]		30-160 %	80.9	%	
Surrogate: Tetrachlorometaxylene		30-160 %	68.5	%	
Surrogate: Tetrachlorometaxylene [2C]		30-160 %	60.3	%	



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Reported:
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11373-SB4S5
24G0171-05 (Solid)

Aroclor PCB

Method: EPA 8082A

Sampled: 07/02/2024 10:45

Instrument: ECD5 Analyst: NRB

Analyzed: 07/25/2024 03:56

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 16.37 g (wet) Final Volume: 2.5 mL	Extract ID: 24G0171-05 B 01 Dry Weight: 12.52 g % Solids: 76.46
	Preparation Batch: BMG0250		
	Prepared: 07/15/2024		
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0171-05 B 01
	Cleanup Batch: CMG0171		
	Cleaned: 24-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfuric Acid	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0171-05 B 01
	Cleanup Batch: CMG0169		
	Cleaned: 24-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0171-05 B 01
	Cleanup Batch: CMG0170		
	Cleaned: 24-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	2.0	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	2.0	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	2.0	4.0	6.7	ug/kg	
Aroclor 1260	11096-82-5	1	2.0	4.0	4.3	ug/kg	
Aroclor 1262	37324-23-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1268	11100-14-4	1	2.0	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				40-126 %	79.6	%	
Surrogate: Tetrachlorometaxylene				44-120 %	81.6	%	
Surrogate: Decachlorobiphenyl [2C]				40-126 %	83.0	%	
Surrogate: Tetrachlorometaxylene [2C]				44-120 %	81.3	%	



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11373-SB4S5

24G0171-05 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED

Sampled: 07/02/2024 10:45

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 15:10

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0171-05 B 05

Preparation Batch: BMG0273

Sample Size: 1.054 g (wet)

Dry Weight: 0.84 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 79.83

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.05	0.24	12.1	mg/kg	
Cadmium	7440-43-9	20	0.04	0.12	0.11	mg/kg	J
Copper	7440-50-8	20	0.21	0.59	37.8	mg/kg	
Selenium	7782-49-2	20	0.21	0.59	1.06	mg/kg	
Zinc	7440-66-6	20	3.5	7.1	79.4	mg/kg	



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11373-SB4S5
24G0171-05 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B

Sampled: 07/02/2024 10:45

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 15:10

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0171-05 B 05

Preparation Batch: BMG0273

Sample Size: 1.054 g (wet)

Dry Weight: 0.84 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 79.83

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	20	0.12	0.24	ND	mg/kg	U
Chromium	7440-47-3	20	0.29	0.59	28.4	mg/kg	
Lead	7439-92-1	20	0.06	0.12	7.38	mg/kg	
Silver	7440-22-4	20	0.03	0.24	0.18	mg/kg	J



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Reported:

16-Sep-2024 10:41

11373-SB4S5

24G0171-05 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B

Sampled: 07/02/2024 10:45

Instrument: HYDRA Analyst: ML

Analyzed: 07/22/2024 12:08

Sample Preparation:

Preparation Method: SMM EPA 7471B

Extract ID: 24G0171-05 C

Preparation Batch: BMG0336

Sample Size: 0.233 g (wet)

Dry Weight: 0.19 g

Prepared: 07/18/2024

Final Volume: 50 mL

% Solids: 79.83

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00564	0.0269	0.0894	mg/kg	



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Reported:

16-Sep-2024 10:41

11373-SB4S5

24G0171-05 (Solid)

Wet Chemistry

Method: EPA 9060A m

Sampled: 07/02/2024 10:45

Instrument: TOC Cube Analyst: ARR

Analyzed: 08/01/2024 15:40

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0171-05 C

Preparation Batch: BMG0720

Sample Size: 0.5109 g (wet)

Dry Weight: 0.41 g

Prepared: 07/29/2024

Final Volume: 0.5109 mL

% Solids: 79.83

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.72	%	



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Reported:
16-Sep-2024 10:41

11373-SB4S5
24G0171-05 (Solid)

Wet Chemistry

Method: PSEP 1986

Sampled: 07/02/2024 10:45

Instrument: BAL2 Analyst: LERB

Analyzed: 07/10/2024 11:40

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0171-05

Preparation Batch: BMG0226

Sample Size: 5 g (wet)

Prepared: 07/10/2024

Final Volume: 5 mL

% Solids: 79.83

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Volatile Solids		1	0.01	0.01	2.00	%	



Shannon & Wilson, Inc

5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:41

11373-SB4S5

24G0171-05 (Solid)

Wet Chemistry

Method: SM 2540 G-11

Sampled: 07/02/2024 10:45

Instrument: BAL2 Analyst: LERB

Analyzed: 07/10/2024 11:40

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0171-05

Preparation Batch: BMG0226

Sample Size: 5 g (wet)

Prepared: 07/10/2024

Final Volume: 5 mL

% Solids: 79.83

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	79.83	%	



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Project: PAMP Sediments

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Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:41

11373-SB4S6
24G0171-06 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 10:50

Instrument: NT10 Analyst: RJL

Analyzed: 07/31/2024 18:59

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0171-06 B 04

Preparation Batch: BMG0256

Sample Size: 11.35 g (wet)

Dry Weight: 10.05 g

Prepared: 07/12/2024

Final Volume: 1 mL

% Solids: 88.53

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	10.0	19.9	ND	ug/kg	U
bis(2-chloroethyl) ether	111-44-4	1	34.8	49.8	ND	ug/kg	U
2-Chlorophenol	95-57-8	1	19.9	19.9	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	10.0	19.9	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	10.0	19.9	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	10.0	19.9	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	19.9	19.9	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	10.0	19.9	ND	ug/kg	U
2-Methylphenol	95-48-7	1	10.0	19.9	ND	ug/kg	U
Hexachloroethane	67-72-1	1	10.0	19.9	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	14.9	19.9	ND	ug/kg	U
4-Methylphenol	106-44-5	1	14.9	19.9	ND	ug/kg	U
Nitrobenzene	98-95-3	1	10.0	19.9	ND	ug/kg	U
Isophorone	78-59-1	1	14.9	19.9	ND	ug/kg	U
2-Nitrophenol	88-75-5	1	10.0	19.9	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	49.8	99.5	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	1	10.0	19.9	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	1	49.8	99.5	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	10.0	19.9	ND	ug/kg	U
Naphthalene	91-20-3	1	10.0	19.9	ND	ug/kg	U
Benzoic acid	65-85-0	1	99.5	199	ND	ug/kg	U
4-Chloroaniline	106-47-8	1	49.8	99.5	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	10.0	19.9	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	1	49.8	99.5	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	10.0	19.9	ND	ug/kg	U
Hexachlorocyclopentadiene	77-47-4	1	49.8	99.5	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	1	49.8	99.5	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	1	49.8	99.5	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	1	10.0	19.9	ND	ug/kg	U
2-Nitroaniline	88-74-4	1	49.8	99.5	ND	ug/kg	U
Acenaphthylene	208-96-8	1	10.0	19.9	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	10.0	19.9	ND	ug/kg	U
2,6-Dinitrotoluene	606-20-2	1	49.8	99.5	ND	ug/kg	U
Acenaphthene	83-32-9	1	10.0	19.9	ND	ug/kg	U
3-Nitroaniline	99-09-2	1	49.8	99.5	ND	ug/kg	U



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:41

11373-SB4S6
24G0171-06 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 10:50

Instrument: NT10 Analyst: RJL

Analyzed: 07/31/2024 18:59

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2,4-Dinitrophenol	51-28-5	1	99.5	199	ND	ug/kg	U
Dibenzofuran	132-64-9	1	19.9	19.9	ND	ug/kg	U
4-Nitrophenol	100-02-7	1	49.8	99.5	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	1	49.8	99.5	ND	ug/kg	U
Fluorene	86-73-7	1	19.9	19.9	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	1	34.8	49.8	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	34.8	49.8	ND	ug/kg	U
4-Nitroaniline	100-01-6	1	49.8	99.5	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	1	99.5	199	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	10.0	19.9	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	1	19.9	19.9	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	19.9	19.9	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	49.8	99.5	ND	ug/kg	U
Phenanthrene	85-01-8	1	10.0	19.9	ND	ug/kg	U
Anthracene	120-12-7	1	10.0	19.9	ND	ug/kg	U
Carbazole	86-74-8	1	10.0	19.9	ND	ug/kg	U
Di-n-Butylphthalate	84-74-2	1	10.0	19.9	ND	ug/kg	U
Fluoranthene	206-44-0	1	10.0	19.9	ND	ug/kg	U
Pyrene	129-00-0	1	10.0	19.9	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	10.0	19.9	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	1	10.0	19.9	ND	ug/kg	U
3,3'-Dichlorobenzidine	91-94-1	1	49.8	99.5	ND	ug/kg	U
Chrysene	218-01-9	1	10.0	19.9	ND	ug/kg	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	39.8	49.8	ND	ug/kg	U
Di-n-Octylphthalate	117-84-0	1	10.0	19.9	ND	ug/kg	U
Benzo(a)fluoranthene, Total		1	29.9	39.8	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	10.0	19.9	ND	ug/kg	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	19.9	19.9	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	19.9	19.9	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	19.9	19.9	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	10.0	19.9	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	87.4	%	
Surrogate: Phenol-d5				29-120 %	82.5	%	
Surrogate: 2-Chlorophenol-d4				31-120 %	89.5	%	
Surrogate: 1,2-Dichlorobenzene-d4				32-120 %	83.9	%	
Surrogate: Nitrobenzene-d5				30-120 %	90.2	%	
Surrogate: 2-Fluorobiphenyl				35-120 %	88.7	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:41

11373-SB4S6

24G0171-06 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 10:50

Instrument: NT10 Analyst: RJL

Analyzed: 07/31/2024 18:59

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: 2,4,6-Tribromophenol		24-134 %	92.0	%	
Surrogate: p-Terphenyl-d14		37-120 %	104	%	



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Reported:
16-Sep-2024 10:41

11373-SB4S6
24G0171-06 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM
Instrument: NT10 Analyst: RJL

Sampled: 07/02/2024 10:50

Analyzed: 07/31/2024 18:59

Sample Preparation: Preparation Method: EPA 3546 (Microwave)
Preparation Batch: BMG0256
Prepared: 07/12/2024

Sample Size: 11.35 g (wet)
Final Volume: 1 mL

Extract ID: 24G0171-06 B 04
Dry Weight: 10.05 g
% Solids: 88.53

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	2.5	5.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	2.5	5.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	2.5	5.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	2.5	5.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	10.0	19.9	ND	ug/kg	U
Benzoic acid	65-85-0	1	49.8	99.5	ND	ug/kg	U
2-Methylphenol	95-48-7	1	2.5	5.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	10.0	19.9	ND	ug/kg	U
4-Methylphenol	106-44-5	1	2.5	5.0	3.4	ug/kg	J
2,4-Dimethylphenol	105-67-9	1	10.0	19.9	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	5.0	5.0	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	2.5	5.0	ND	ug/kg	U
N-Nitrosodimethylamine	62-75-9	1	12.4	24.9	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	2.5	5.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	10.0	19.9	18.7	ug/kg	J
N-Nitrosodiphenylamine	86-30-6	1	2.5	5.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	2.5	5.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	10.0	19.9	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	2.5	5.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	2.5	5.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	85.5	%	
Surrogate: p-Terphenyl-d14				37-120 %	118	%	Q



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Reported:
16-Sep-2024 10:41

11373-SB4S6
24G0171-06 (Solid)

Butyl Tins

Method: EPA 8270E-SIM
Instrument: NT17 Analyst: JZ

Sampled: 07/02/2024 10:50

Analyzed: 07/23/2024 17:22

Sample Preparation: Preparation Method: EPA 3546 (Microwave)
Preparation Batch: BMG0255
Prepared: 07/12/2024

Sample Size: 5.69 g (wet)

Final Volume: 0.5 mL

Extract ID: 24G0171-06 B 03

Dry Weight: 5.04 g

% Solids: 88.53

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CMG0156
Cleaned: 22-Jul-2024

Initial Volume: 0.5 uL

Final Volume: 0.5 uL

Extract ID: 24G0171-06 B 03

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Tributyltin Ion	36643-28-4	1	1.92	3.83	ND	ug/kg	U
Surrogate: Triphenyltin				30-160 %	74.7	%	
Surrogate: Tripropyltin				30-160 %	57.4	%	



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Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:41

11373-SB4S6
24G0171-06 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/02/2024 10:50

Instrument: ECD6 Analyst: RT

Analyzed: 07/31/2024 20:09

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 14.18 g (wet)	Extract ID: 24G0171-06 B 02
	Preparation Batch: BMG0254	Final Volume: 2.5 mL	Dry Weight: 12.55 g
	Prepared: 07/12/2024		% Solids: 88.53

Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL	Extract ID: 24G0171-06 B 02
	Cleanup Batch: CMG0208	Final Volume: 2.5 uL	
	Cleaned: 30-Jul-2024		

Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL	Extract ID: 24G0171-06 B 02
	Cleanup Batch: CMG0207	Final Volume: 2.5 uL	
	Cleaned: 30-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.25	0.50	ND	ug/kg	U
beta-BHC	319-85-7	1	0.25	0.50	ND	ug/kg	U
gamma-BHC (Lindane)	58-89-9	1	0.25	0.50	ND	ug/kg	U
delta-BHC	319-86-8	1	0.25	0.50	ND	ug/kg	U
Heptachlor	76-44-8	1	0.25	0.50	ND	ug/kg	U
Aldrin	309-00-2	1	0.50	0.50	ND	ug/kg	U
Heptachlor Epoxide	1024-57-3	1	0.25	0.50	ND	ug/kg	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.50	0.50	ND	ug/kg	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.25	0.50	ND	ug/kg	U
Endosulfan I	959-98-8	1	0.25	0.50	ND	ug/kg	U
4,4'-DDE	72-55-9	1	0.50	1.00	ND	ug/kg	U
Dieldrin	60-57-1	1	0.50	1.00	ND	ug/kg	U
Endrin	72-20-8	1	0.50	1.00	ND	ug/kg	U
Endosulfan II	33213-65-9	1	0.50	1.00	ND	ug/kg	U
4,4'-DDD	72-54-8	1	0.50	1.00	0.56	ug/kg	J
Endrin Aldehyde	7421-93-4	1	0.50	1.00	ND	ug/kg	U
4,4'-DDT	50-29-3	1	0.50	1.00	ND	ug/kg	U
Endosulfan Sulfate	1031-07-8	1	0.50	1.00	ND	ug/kg	U
Endrin Ketone	53494-70-5	1	0.50	1.00	ND	ug/kg	U
Methoxychlor	72-43-5	1	2.49	4.98	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	0.25	0.50	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	0.25	0.50	ND	ug/kg	U
2,4'-DDE	3424-82-6	1	0.50	1.00	ND	ug/kg	U
2,4'-DDD	53-19-0	1	0.50	1.00	ND	ug/kg	U
2,4'-DDT	789-02-6	1	0.50	1.00	ND	ug/kg	U
Oxychlordane	27304-13-8	1	0.50	1.00	ND	ug/kg	U
cis-Nonachlor	5103-73-1	1	0.50	1.00	ND	ug/kg	U
trans-Nonachlor	39765-80-5	1	0.50	1.00	ND	ug/kg	U
Mirex	2385-85-5	1	1.00	1.00	ND	ug/kg	U



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Project: PAMP Sediments
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Reported:
16-Sep-2024 10:41

11373-SB4S6
24G0171-06 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/02/2024 10:50

Instrument: ECD6 Analyst: RT

Analyzed: 07/31/2024 20:09

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Decachlorobiphenyl		30-160 %	96.6	%	
Surrogate: Decachlorobiphenyl [2C]		30-160 %	76.9	%	
Surrogate: Tetrachlorometaxylene		30-160 %	65.7	%	
Surrogate: Tetrachlorometaxylene [2C]		30-160 %	64.7	%	



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Reported:

16-Sep-2024 10:41

11373-SB4S6
24G0171-06 (Solid)

Aroclor PCB

Method: EPA 8082A

Sampled: 07/02/2024 10:50

Instrument: ECD5 Analyst: NRB

Analyzed: 07/25/2024 04:17

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 14.15 g (wet) Final Volume: 2.5 mL	Extract ID: 24G0171-06 B 01 Dry Weight: 12.53 g % Solids: 88.53
	Preparation Batch: BMG0250		
	Prepared: 07/15/2024		
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0171-06 B 01
	Cleanup Batch: CMG0171		
	Cleaned: 24-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfuric Acid	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0171-06 B 01
	Cleanup Batch: CMG0169		
	Cleaned: 24-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0171-06 B 01
	Cleanup Batch: CMG0170		
	Cleaned: 24-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	2.0	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	2.0	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	2.0	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1262	37324-23-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1268	11100-14-4	1	2.0	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				40-126 %	76.6	%	
Surrogate: Tetrachlorometaxylene				44-120 %	73.5	%	
Surrogate: Decachlorobiphenyl [2C]				40-126 %	77.9	%	
Surrogate: Tetrachlorometaxylene [2C]				44-120 %	73.1	%	



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Project: PAMP Sediments
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Reported:
16-Sep-2024 10:41

11373-SB4S6
24G0171-06 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED

Sampled: 07/02/2024 10:50

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 15:15

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0171-06 B 05

Preparation Batch: BMG0273

Sample Size: 1.009 g (wet)

Dry Weight: 0.77 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 76.33

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.05	0.26	11.3	mg/kg	
Cadmium	7440-43-9	20	0.04	0.13	0.11	mg/kg	J
Copper	7440-50-8	20	0.23	0.65	35.4	mg/kg	
Selenium	7782-49-2	20	0.23	0.65	1.05	mg/kg	
Zinc	7440-66-6	20	3.8	7.8	74.7	mg/kg	



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Reported:
16-Sep-2024 10:41

11373-SB4S6
24G0171-06 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B

Sampled: 07/02/2024 10:50

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 15:15

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0171-06 B 05

Preparation Batch: BMG0273

Sample Size: 1.009 g (wet)

Dry Weight: 0.77 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 76.33

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	20	0.13	0.26	ND	mg/kg	U
Chromium	7440-47-3	20	0.31	0.65	29.0	mg/kg	
Lead	7439-92-1	20	0.07	0.13	7.61	mg/kg	
Silver	7440-22-4	20	0.03	0.26	0.14	mg/kg	J



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Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:41

11373-SB4S6

24G0171-06 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B

Sampled: 07/02/2024 10:50

Instrument: HYDRA Analyst: ML

Analyzed: 07/22/2024 12:10

Sample Preparation:

Preparation Method: SMM EPA 7471B

Extract ID: 24G0171-06 C

Preparation Batch: BMG0336

Sample Size: 0.236 g (wet)

Dry Weight: 0.18 g

Prepared: 07/18/2024

Final Volume: 50 mL

% Solids: 76.33

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00583	0.0278	0.0550	mg/kg	



Shannon & Wilson, Inc

5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:41

11373-SB4S6

24G0171-06 (Solid)

Wet Chemistry

Method: EPA 9060A m

Sampled: 07/02/2024 10:50

Instrument: TOC Cube Analyst: ARR

Analyzed: 08/01/2024 16:10

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0171-06 C

Preparation Batch: BMG0720

Sample Size: 0.5612 g (wet)

Dry Weight: 0.43 g

Prepared: 07/29/2024

Final Volume: 0.5612 mL

% Solids: 76.33

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.49	%	



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Reported:
16-Sep-2024 10:41

11373-SB4S6
24G0171-06 (Solid)

Wet Chemistry

Method: PSEP 1986

Sampled: 07/02/2024 10:50

Instrument: BAL2 Analyst: LERB

Analyzed: 07/10/2024 11:40

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0171-06

Preparation Batch: BMG0226

Sample Size: 5 g (wet)

Prepared: 07/10/2024

Final Volume: 5 mL

% Solids: 76.33

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Volatile Solids		1	0.01	0.01	1.83	%	



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Reported:
16-Sep-2024 10:41

11373-SB4S6
24G0171-06 (Solid)

Wet Chemistry

Method: SM 2540 G-11

Sampled: 07/02/2024 10:50

Instrument: BAL2 Analyst: LERB

Analyzed: 07/10/2024 11:40

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0171-06

Preparation Batch: BMG0226

Sample Size: 5 g (wet)

Prepared: 07/10/2024

Final Volume: 5 mL

% Solids: 76.33

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	76.33	%	



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Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:41

11373-SB4S7
24G0171-07 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 11:30

Instrument: NT10 Analyst: RJL

Analyzed: 07/31/2024 19:39

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0171-07 B 04

Preparation Batch: BMG0256

Sample Size: 13.29 g (wet)

Dry Weight: 10.01 g

Prepared: 07/12/2024

Final Volume: 1 mL

% Solids: 75.29

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	10.0	20.0	ND	ug/kg	U
bis(2-chloroethyl) ether	111-44-4	1	35.0	50.0	ND	ug/kg	U
2-Chlorophenol	95-57-8	1	20.0	20.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	10.0	20.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	10.0	20.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	10.0	20.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	20.0	20.0	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	10.0	20.0	ND	ug/kg	U
2-Methylphenol	95-48-7	1	10.0	20.0	ND	ug/kg	U
Hexachloroethane	67-72-1	1	10.0	20.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	15.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	15.0	20.0	ND	ug/kg	U
Nitrobenzene	98-95-3	1	10.0	20.0	ND	ug/kg	U
Isophorone	78-59-1	1	15.0	20.0	ND	ug/kg	U
2-Nitrophenol	88-75-5	1	10.0	20.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	50.0	99.9	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	1	10.0	20.0	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	1	50.0	99.9	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	10.0	20.0	ND	ug/kg	U
Naphthalene	91-20-3	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	99.9	200	ND	ug/kg	U
4-Chloroaniline	106-47-8	1	50.0	99.9	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	10.0	20.0	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	1	50.0	99.9	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	10.0	20.0	ND	ug/kg	U
Hexachlorocyclopentadiene	77-47-4	1	50.0	99.9	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	1	50.0	99.9	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	1	50.0	99.9	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	1	10.0	20.0	ND	ug/kg	U
2-Nitroaniline	88-74-4	1	50.0	99.9	ND	ug/kg	U
Acenaphthylene	208-96-8	1	10.0	20.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	10.0	20.0	ND	ug/kg	U
2,6-Dinitrotoluene	606-20-2	1	50.0	99.9	ND	ug/kg	U
Acenaphthene	83-32-9	1	10.0	20.0	ND	ug/kg	U
3-Nitroaniline	99-09-2	1	50.0	99.9	ND	ug/kg	U



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:41

11373-SB4S7
24G0171-07 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 11:30

Instrument: NT10 Analyst: RJL

Analyzed: 07/31/2024 19:39

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2,4-Dinitrophenol	51-28-5	1	99.9	200	ND	ug/kg	U
Dibenzofuran	132-64-9	1	20.0	20.0	ND	ug/kg	U
4-Nitrophenol	100-02-7	1	50.0	99.9	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	1	50.0	99.9	ND	ug/kg	U
Fluorene	86-73-7	1	20.0	20.0	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	1	35.0	50.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	35.0	50.0	ND	ug/kg	U
4-Nitroaniline	100-01-6	1	50.0	99.9	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	1	99.9	200	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	10.0	20.0	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	1	20.0	20.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	20.0	20.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	50.0	99.9	ND	ug/kg	U
Phenanthrene	85-01-8	1	10.0	20.0	ND	ug/kg	U
Anthracene	120-12-7	1	10.0	20.0	ND	ug/kg	U
Carbazole	86-74-8	1	10.0	20.0	ND	ug/kg	U
Di-n-Butylphthalate	84-74-2	1	10.0	20.0	ND	ug/kg	U
Fluoranthene	206-44-0	1	10.0	20.0	ND	ug/kg	U
Pyrene	129-00-0	1	10.0	20.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	10.0	20.0	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	1	10.0	20.0	ND	ug/kg	U
3,3'-Dichlorobenzidine	91-94-1	1	50.0	99.9	ND	ug/kg	U
Chrysene	218-01-9	1	10.0	20.0	ND	ug/kg	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	40.0	50.0	ND	ug/kg	U
Di-n-Octylphthalate	117-84-0	1	10.0	20.0	ND	ug/kg	U
Benzo(a)fluoranthene, Total		1	30.0	40.0	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	10.0	20.0	ND	ug/kg	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	20.0	20.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	20.0	20.0	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	20.0	20.0	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	10.0	20.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	91.2	%	
Surrogate: Phenol-d5				29-120 %	84.0	%	
Surrogate: 2-Chlorophenol-d4				31-120 %	92.1	%	
Surrogate: 1,2-Dichlorobenzene-d4				32-120 %	89.9	%	
Surrogate: Nitrobenzene-d5				30-120 %	97.0	%	
Surrogate: 2-Fluorobiphenyl				35-120 %	92.4	%	



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5430 Fairbanks Street, Suite 3

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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:41

11373-SB4S7

24G0171-07 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/02/2024 11:30

Instrument: NT10 Analyst: RJL

Analyzed: 07/31/2024 19:39

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: 2,4,6-Tribromophenol		24-134 %	89.6	%	
Surrogate: p-Terphenyl-d14		37-120 %	110	%	



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Reported:
16-Sep-2024 10:41

11373-SB4S7
24G0171-07 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM

Sampled: 07/02/2024 11:30

Instrument: NT10 Analyst: RJL

Analyzed: 07/31/2024 19:39

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0171-07 B 04

Preparation Batch: BMG0256

Sample Size: 13.29 g (wet)

Dry Weight: 10.01 g

Prepared: 07/12/2024

Final Volume: 1 mL

% Solids: 75.29

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	2.5	5.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	2.5	5.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	2.5	5.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	2.5	5.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	50.0	99.9	ND	ug/kg	U
2-Methylphenol	95-48-7	1	2.5	5.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	10.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	2.5	5.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	10.0	20.0	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	5.0	5.0	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	2.5	5.0	ND	ug/kg	U
N-Nitrosodimethylamine	62-75-9	1	12.5	25.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	2.5	5.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	10.0	20.0	14.0	ug/kg	J
N-Nitrosodiphenylamine	86-30-6	1	2.5	5.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	2.5	5.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	10.0	20.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	2.5	5.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	2.5	5.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	87.7	%	
Surrogate: p-Terphenyl-d14				37-120 %	116	%	Q



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Reported:
16-Sep-2024 10:41

11373-SB4S7
24G0171-07 (Solid)

Butyl Tins

Method: EPA 8270E-SIM			Sampled: 07/02/2024 11:30		
Instrument: NT17 Analyst: JZ			Analyzed: 07/23/2024 17:36		
Sample Preparation:	Preparation Method: EPA 3546 (Microwave)			Extract ID: 24G0171-07 B 03	
	Preparation Batch: BMG0255	Sample Size: 6.66 g (wet)		Dry Weight: 5.01 g	
	Prepared: 07/12/2024	Final Volume: 0.5 mL		% Solids: 75.29	
Sample Cleanup:	Cleanup Method: Silica Gel			Extract ID: 24G0171-07 B 03	
	Cleanup Batch: CMG0156	Initial Volume: 0.5 uL			
	Cleaned: 22-Jul-2024	Final Volume: 0.5 uL			

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Tributyltin Ion	36643-28-4	1	1.92	3.85	ND	ug/kg	U
Surrogate: Triphenyltin				30-160 %	68.3	%	
Surrogate: Tripropyltin				30-160 %	59.2	%	



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Reported:

16-Sep-2024 10:41

11373-SB4S7

24G0171-07 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/02/2024 11:30

Instrument: ECD6 Analyst: RT

Analyzed: 07/31/2024 20:27

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 16.63 g (wet)	Extract ID: 24G0171-07 B 02
	Preparation Batch: BMG0254	Final Volume: 2.5 mL	Dry Weight: 12.52 g
	Prepared: 07/12/2024		% Solids: 75.29

Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL	Extract ID: 24G0171-07 B 02
	Cleanup Batch: CMG0208	Final Volume: 2.5 uL	
	Cleaned: 30-Jul-2024		

Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL	Extract ID: 24G0171-07 B 02
	Cleanup Batch: CMG0207	Final Volume: 2.5 uL	
	Cleaned: 30-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.25	0.50	ND	ug/kg	U
beta-BHC	319-85-7	1	0.25	0.50	ND	ug/kg	U
gamma-BHC (Lindane)	58-89-9	1	0.25	0.50	ND	ug/kg	U
delta-BHC	319-86-8	1	0.25	0.50	ND	ug/kg	U
Heptachlor	76-44-8	1	0.25	0.50	ND	ug/kg	U
Aldrin	309-00-2	1	0.50	0.50	ND	ug/kg	U
Heptachlor Epoxide	1024-57-3	1	0.25	0.50	ND	ug/kg	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.50	0.50	ND	ug/kg	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.25	0.50	ND	ug/kg	U
Endosulfan I	959-98-8	1	0.25	0.50	ND	ug/kg	U
4,4'-DDE	72-55-9	1	0.50	1.00	ND	ug/kg	U
Dieldrin	60-57-1	1	0.50	1.00	ND	ug/kg	U
Endrin	72-20-8	1	0.50	1.00	ND	ug/kg	U
Endosulfan II	33213-65-9	1	0.50	1.00	ND	ug/kg	U
4,4'-DDD	72-54-8	1	0.50	1.00	ND	ug/kg	U
Endrin Aldehyde	7421-93-4	1	0.50	1.00	ND	ug/kg	U
4,4'-DDT	50-29-3	1	0.50	1.00	ND	ug/kg	U
Endosulfan Sulfate	1031-07-8	1	0.50	1.00	ND	ug/kg	U
Endrin Ketone	53494-70-5	1	0.50	1.00	ND	ug/kg	U
Methoxychlor	72-43-5	1	2.50	4.99	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	0.25	0.50	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	0.25	0.50	ND	ug/kg	U
2,4'-DDE	3424-82-6	1	0.50	1.00	ND	ug/kg	U
2,4'-DDD	53-19-0	1	0.50	1.00	ND	ug/kg	U
2,4'-DDT	789-02-6	1	0.50	1.00	ND	ug/kg	U
Oxychlordane	27304-13-8	1	0.50	1.00	ND	ug/kg	U
cis-Nonachlor	5103-73-1	1	0.50	1.00	ND	ug/kg	U
trans-Nonachlor	39765-80-5	1	0.50	1.00	ND	ug/kg	U
Mirex	2385-85-5	1	1.00	1.00	ND	ug/kg	U



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:41

11373-SB4S7
24G0171-07 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/02/2024 11:30

Instrument: ECD6 Analyst: RT

Analyzed: 07/31/2024 20:27

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Decachlorobiphenyl		30-160 %	99.1	%	
Surrogate: Decachlorobiphenyl [2C]		30-160 %	77.5	%	
Surrogate: Tetrachlorometaxylene		30-160 %	65.1	%	
Surrogate: Tetrachlorometaxylene [2C]		30-160 %	66.4	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:41

11373-SB4S7
24G0171-07 (Solid)

Aroclor PCB

Method: EPA 8082A

Sampled: 07/02/2024 11:30

Instrument: ECD5 Analyst: NRB

Analyzed: 07/25/2024 04:38

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 16.63 g (wet) Final Volume: 2.5 mL	Extract ID: 24G0171-07 B 01 Dry Weight: 12.52 g % Solids: 75.29
	Preparation Batch: BMG0250		
	Prepared: 07/15/2024		
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0171-07 B 01
	Cleanup Batch: CMG0171		
	Cleaned: 24-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfuric Acid	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0171-07 B 01
	Cleanup Batch: CMG0169		
	Cleaned: 24-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0171-07 B 01
	Cleanup Batch: CMG0170		
	Cleaned: 24-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	2.0	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	2.0	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	2.0	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1262	37324-23-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1268	11100-14-4	1	2.0	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				40-126 %	78.2	%	
Surrogate: Tetrachlorometaxylene				44-120 %	75.0	%	
Surrogate: Decachlorobiphenyl [2C]				40-126 %	79.2	%	
Surrogate: Tetrachlorometaxylene [2C]				44-120 %	73.8	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:41

11373-SB4S7

24G0171-07 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED

Sampled: 07/02/2024 11:30

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 15:19

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0171-07 B 05

Preparation Batch: BMG0273

Sample Size: 1.047 g (wet)

Dry Weight: 0.82 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 78.68

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.05	0.24	11.5	mg/kg	
Cadmium	7440-43-9	20	0.04	0.12	0.10	mg/kg	J
Copper	7440-50-8	20	0.21	0.61	31.6	mg/kg	
Selenium	7782-49-2	20	0.22	0.61	0.96	mg/kg	
Zinc	7440-66-6	20	3.5	7.3	71.0	mg/kg	



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:41

11373-SB4S7
24G0171-07 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B

Sampled: 07/02/2024 11:30

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 15:19

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0171-07 B 05

Preparation Batch: BMG0273

Sample Size: 1.047 g (wet)

Dry Weight: 0.82 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 78.68

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	20	0.12	0.24	ND	mg/kg	U
Chromium	7440-47-3	20	0.29	0.61	27.7	mg/kg	
Lead	7439-92-1	20	0.06	0.12	6.67	mg/kg	
Silver	7440-22-4	20	0.03	0.24	0.12	mg/kg	J



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:41

11373-SB4S7

24G0171-07 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B

Sampled: 07/02/2024 11:30

Instrument: HYDRA Analyst: ML

Analyzed: 07/22/2024 12:17

Sample Preparation:

Preparation Method: SMM EPA 7471B

Extract ID: 24G0171-07 C

Preparation Batch: BMG0336

Sample Size: 0.244 g (wet)

Dry Weight: 0.19 g

Prepared: 07/18/2024

Final Volume: 50 mL

% Solids: 78.68

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00547	0.0260	0.0791	mg/kg	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:41

11373-SB4S7

24G0171-07 (Solid)

Wet Chemistry

Method: EPA 9060A m

Sampled: 07/02/2024 11:30

Instrument: TOC Cube Analyst: ARR

Analyzed: 08/01/2024 16:41

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0171-07 C

Preparation Batch: BMG0720

Sample Size: 0.5105 g (wet)

Dry Weight: 0.40 g

Prepared: 07/29/2024

Final Volume: 0.5105 mL

% Solids: 78.68

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.52	%	



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:41

11373-SB4S7
24G0171-07 (Solid)

Wet Chemistry

Method: PSEP 1986

Sampled: 07/02/2024 11:30

Instrument: BAL2 Analyst: LERB

Analyzed: 07/10/2024 11:40

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0171-07

Preparation Batch: BMG0226

Sample Size: 5 g (wet)

Prepared: 07/10/2024

Final Volume: 5 mL

% Solids: 78.68

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Volatile Solids		1	0.01	0.01	1.92	%	



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:41

11373-SB4S7
24G0171-07 (Solid)

Wet Chemistry

Method: SM 2540 G-11

Sampled: 07/02/2024 11:30

Instrument: BAL2 Analyst: LERB

Analyzed: 07/10/2024 11:40

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0171-07

Preparation Batch: BMG0226

Sample Size: 5 g (wet)

Prepared: 07/10/2024

Final Volume: 5 mL

% Solids: 78.68

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	78.68	%	



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:41

11373-SB4S1
24G0171-01 (Solid)

Geotechnical Methods

Method: PSEP-PS

Sampled: 07/02/2024 09:55

Analysis by: AmTest Laboratories

Instrument: ALAB Analyst:

Analyzed: 09/10/2024 00:00

Sample Preparation: Preparation Method: No Prep Geo
Preparation Batch: B100924
Prepared: 09/10/2024

Extract ID: 24G0171-01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phi Size < -2.25	GS_MFG	1	0.1	3.6	%	U
Phi Size -2.25 to -2	GS_FG	1	0.1	ND	%	
Phi Size -2 to -1	GS_VFG	1	0.1	0.9	%	
Phi Size -1 to 0	GS_VCS	1	0.1	1.2	%	
Phi Size 0 to 1	GS_CS	1	0.1	1.2	%	
Phi Size 1 to 2	GS_MS	1	0.1	1.5	%	
Phi Size 2 to 3	GS_FS	1	0.1	0.2	%	
Phi Size 3 to 4	GS_VFS	1	0.1	2.5	%	
Phi Size 4 to 5	GS_CSILT	1	0.1	40.9	%	
Phi Size 5 to 6	GS_MSILT	1	0.1	17.4	%	
Phi Size 6 to 7	GS_FSILT	1	0.1	8.8	%	
Phi Size 7 to 8	GS_VFSILT	1	0.1	5.8	%	
Phi Size 8 to 9	GS_CCLAY	1	0.1	4	%	
Phi Size 9 to 10	GS_MCLAY	1	0.1	2.2	%	
Phi Size >10	GS_FCLAY	1	0.1	9.9	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:41

11373-SB4S2

24G0171-02 (Solid)

Geotechnical Methods

Method: PSEP-PS

Sampled: 07/02/2024 10:00

Analysis by: AmTest Laboratories

Instrument: ALAB Analyst:

Analyzed: 09/10/2024 00:00

Sample Preparation:

Preparation Method: No Prep Geo

Preparation Batch: B100924

Prepared: 09/10/2024

Extract ID: 24G0171-02

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phi Size < -2.25	GS_MFG	1	0.1	9.3	%	
Phi Size -2.25 to -2	GS_FG	1	0.1	0.2	%	
Phi Size -2 to -1	GS_VFG	1	0.1	0.9	%	
Phi Size -1 to 0	GS_VCS	1	0.1	0.6	%	
Phi Size 0 to 1	GS_CS	1	0.1	0.6	%	
Phi Size 1 to 2	GS_MS	1	0.1	0.8	%	
Phi Size 2 to 3	GS_FS	1	0.1	0.7	%	
Phi Size 3 to 4	GS_VFS	1	0.1	4.7	%	
Phi Size 4 to 5	GS_CSILT	1	0.1	36.9	%	
Phi Size 5 to 6	GS_MSILT	1	0.1	13.6	%	
Phi Size 6 to 7	GS_FSILT	1	0.1	7.8	%	
Phi Size 7 to 8	GS_VFSILT	1	0.1	5.4	%	
Phi Size 8 to 9	GS_CCLAY	1	0.1	4	%	
Phi Size 9 to 10	GS_MCLAY	1	0.1	2.8	%	
Phi Size >10	GS_FCLAY	1	0.1	11.8	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:41

11373-SB4S3

24G0171-03 (Solid)

Geotechnical Methods

Method: PSEP-PS

Sampled: 07/02/2024 10:15

Analysis by: AmTest Laboratories

Instrument: ALAB Analyst:

Analyzed: 09/10/2024 00:00

Sample Preparation:

Preparation Method: No Prep Geo

Preparation Batch: B100924

Prepared: 09/10/2024

Extract ID: 24G0171-03

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phi Size < -2.25	GS_MFG	1	0.1	ND	%	U
Phi Size -2.25 to -2	GS_FG	1	0.1	ND	%	U
Phi Size -2 to -1	GS_VFG	1	0.1	0.6	%	
Phi Size -1 to 0	GS_VCS	1	0.1	0.4	%	
Phi Size 0 to 1	GS_CS	1	0.1	0.5	%	
Phi Size 1 to 2	GS_MS	1	0.1	0.9	%	
Phi Size 2 to 3	GS_FS	1	0.1	0.4	%	
Phi Size 3 to 4	GS_VFS	1	0.1	2.7	%	
Phi Size 4 to 5	GS_CSILT	1	0.1	48.2	%	
Phi Size 5 to 6	GS_MSILT	1	0.1	16.7	%	
Phi Size 6 to 7	GS_FSILT	1	0.1	7.9	%	
Phi Size 7 to 8	GS_VFSILT	1	0.1	5.2	%	
Phi Size 8 to 9	GS_CCLAY	1	0.1	3.5	%	
Phi Size 9 to 10	GS_MCLAY	1	0.1	2.1	%	
Phi Size >10	GS_FCLAY	1	0.1	10.8	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:41

11373-SB4S4

24G0171-04 (Solid)

Geotechnical Methods

Method: PSEP-PS

Sampled: 07/02/2024 10:20

Analysis by: AmTest Laboratories

Instrument: ALAB Analyst:

Analyzed: 09/10/2024 00:00

Sample Preparation:

Preparation Method: No Prep Geo

Preparation Batch: B100924

Prepared: 09/10/2024

Extract ID: 24G0171-04

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phi Size < -2.25	GS_MFG	1	0.1	ND	%	U
Phi Size -2.25 to -2	GS_FG	1	0.1	ND	%	U
Phi Size -2 to -1	GS_VFG	1	0.1	ND	%	U
Phi Size -1 to 0	GS_VCS	1	0.1	ND	%	U
Phi Size 0 to 1	GS_CS	1	0.1	0.2	%	
Phi Size 1 to 2	GS_MS	1	0.1	0.1	%	
Phi Size 2 to 3	GS_FS	1	0.1	0.1	%	
Phi Size 3 to 4	GS_VFS	1	0.1	1.9	%	
Phi Size 4 to 5	GS_CSILT	1	0.1	50.4	%	
Phi Size 5 to 6	GS_MSILT	1	0.1	5.7	%	
Phi Size 6 to 7	GS_FSILT	1	0.1	8.4	%	
Phi Size 7 to 8	GS_VFSILT	1	0.1	10.1	%	
Phi Size 8 to 9	GS_CCLAY	1	0.1	5.7	%	
Phi Size 9 to 10	GS_MCLAY	1	0.1	3.8	%	
Phi Size >10	GS_FCLAY	1	0.1	13.6	%	



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:41

11373-SB4S5
24G0171-05 (Solid)

Geotechnical Methods

Method: PSEP-PS

Sampled: 07/02/2024 10:45

Analysis by: AmTest Laboratories

Instrument: ALAB Analyst:

Analyzed: 09/10/2024 00:00

Sample Preparation: Preparation Method: No Prep Geo
Preparation Batch: B100924
Prepared: 09/10/2024

Extract ID: 24G0171-05

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phi Size < -2.25	GS_MFG	1	0.1	0.1	%	
Phi Size -2.25 to -2	GS_FG	1	0.1	ND	%	U
Phi Size -2 to -1	GS_VFG	1	0.1	ND	%	U
Phi Size -1 to 0	GS_VCS	1	0.1	ND	%	U
Phi Size 0 to 1	GS_CS	1	0.1	0.1	%	
Phi Size 1 to 2	GS_MS	1	0.1	0.1	%	
Phi Size 2 to 3	GS_FS	1	0.1	0.4	%	
Phi Size 3 to 4	GS_VFS	1	0.1	5	%	
Phi Size 4 to 5	GS_CSILT	1	0.1	55.1	%	
Phi Size 5 to 6	GS_MSILT	1	0.1	14.1	%	
Phi Size 6 to 7	GS_FSILT	1	0.1	6.8	%	
Phi Size 7 to 8	GS_VFSILT	1	0.1	3.7	%	
Phi Size 8 to 9	GS_CCLAY	1	0.1	3	%	
Phi Size 9 to 10	GS_MCLAY	1	0.1	2.1	%	
Phi Size >10	GS_FCLAY	1	0.1	9.4	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:41

11373-SB4S6

24G0171-06 (Solid)

Geotechnical Methods

Method: PSEP-PS

Sampled: 07/02/2024 10:50

Analysis by: AmTest Laboratories

Instrument: ALAB Analyst:

Analyzed: 09/10/2024 00:00

Sample Preparation:

Preparation Method: No Prep Geo

Preparation Batch: B100924

Prepared: 09/10/2024

Extract ID: 24G0171-06

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phi Size < -2.25	GS_MFG	1	0.1	2.7	%	
Phi Size -2.25 to -2	GS_FG	1	0.1	0.1	%	
Phi Size -2 to -1	GS_VFG	1	0.1	0.7	%	
Phi Size -1 to 0	GS_VCS	1	0.1	0.5	%	
Phi Size 0 to 1	GS_CS	1	0.1	0.4	%	
Phi Size 1 to 2	GS_MS	1	0.1	0.4	%	
Phi Size 2 to 3	GS_FS	1	0.1	0.6	%	
Phi Size 3 to 4	GS_VFS	1	0.1	6.4	%	
Phi Size 4 to 5	GS_CSILT	1	0.1	46.3	%	
Phi Size 5 to 6	GS_MSILT	1	0.1	12.4	%	
Phi Size 6 to 7	GS_FSILT	1	0.1	8.2	%	
Phi Size 7 to 8	GS_VFSILT	1	0.1	5.4	%	
Phi Size 8 to 9	GS_CCLAY	1	0.1	3.5	%	
Phi Size 9 to 10	GS_MCLAY	1	0.1	2	%	
Phi Size >10	GS_FCLAY	1	0.1	10.4	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:41

11373-SB4S7

24G0171-07 (Solid)

Geotechnical Methods

Method: PSEP-PS

Sampled: 07/02/2024 11:30

Analysis by: AmTest Laboratories

Instrument: ALAB Analyst:

Analyzed: 09/10/2024 00:00

Sample Preparation:

Preparation Method: No Prep Geo

Preparation Batch: B100924

Prepared: 09/10/2024

Extract ID: 24G0171-07

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phi Size < -2.25	GS_MFG	1	0.1	0.1	%	
Phi Size -2.25 to -2	GS_FG	1	0.1	0.1	%	
Phi Size -2 to -1	GS_VFG	1	0.1	0.1	%	
Phi Size -1 to 0	GS_VCS	1	0.1	ND	%	U
Phi Size 0 to 1	GS_CS	1	0.1	0.2	%	
Phi Size 1 to 2	GS_MS	1	0.1	0.1	%	
Phi Size 2 to 3	GS_FS	1	0.1	0.3	%	
Phi Size 3 to 4	GS_VFS	1	0.1	10.7	%	
Phi Size 4 to 5	GS_CSILT	1	0.1	37.8	%	
Phi Size 5 to 6	GS_MSILT	1	0.1	19.6	%	
Phi Size 6 to 7	GS_FSILT	1	0.1	10.9	%	
Phi Size 7 to 8	GS_VFSILT	1	0.1	4.5	%	
Phi Size 8 to 9	GS_CCLAY	1	0.1	3.3	%	
Phi Size 9 to 10	GS_MCLAY	1	0.1	2	%	
Phi Size >10	GS_FCLAY	1	0.1	10.4	%	



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:41

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0256 - EPA 8270E

Instrument: NT10 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0256-BLK1)						Prepared: 12-Jul-2024 Analyzed: 27-Jul-2024 15:56					
Phenol	ND	10.0	20.0	ug/kg							U
bis(2-chloroethyl) ether	ND	35.0	50.0	ug/kg							U
2-Chlorophenol	ND	20.0	20.0	ug/kg							U
1,3-Dichlorobenzene	ND	10.0	20.0	ug/kg							U
1,4-Dichlorobenzene	ND	10.0	20.0	ug/kg							U
1,2-Dichlorobenzene	ND	10.0	20.0	ug/kg							U
Benzyl Alcohol	ND	20.0	20.0	ug/kg							U
2,2'-Oxybis(1-chloropropane)	ND	10.0	20.0	ug/kg							U
2-Methylphenol	ND	10.0	20.0	ug/kg							U
Hexachloroethane	ND	10.0	20.0	ug/kg							U
N-Nitroso-di-n-Propylamine	ND	15.0	20.0	ug/kg							U
4-Methylphenol	ND	15.0	20.0	ug/kg							U
Nitrobenzene	ND	10.0	20.0	ug/kg							U
Isophorone	ND	15.0	20.0	ug/kg							U
2-Nitrophenol	ND	10.0	20.0	ug/kg							U
2,4-Dimethylphenol	ND	50.0	100	ug/kg							U
Bis(2-Chloroethoxy)methane	ND	10.0	20.0	ug/kg							U
2,4-Dichlorophenol	ND	50.0	100	ug/kg							U
1,2,4-Trichlorobenzene	ND	10.0	20.0	ug/kg							U
Naphthalene	ND	10.0	20.0	ug/kg							U
Benzoic acid	ND	100	200	ug/kg							U
4-Chloroaniline	ND	50.0	100	ug/kg							U
Hexachlorobutadiene	ND	10.0	20.0	ug/kg							U
4-Chloro-3-Methylphenol	ND	50.0	100	ug/kg							U
2-Methylnaphthalene	ND	10.0	20.0	ug/kg							U
Hexachlorocyclopentadiene	ND	50.0	100	ug/kg							U
2,4,6-Trichlorophenol	ND	50.0	100	ug/kg							U
2,4,5-Trichlorophenol	ND	50.0	100	ug/kg							U
2-Chloronaphthalene	ND	10.0	20.0	ug/kg							U
2-Nitroaniline	ND	50.0	100	ug/kg							U
Acenaphthylene	ND	10.0	20.0	ug/kg							U
Dimethylphthalate	ND	10.0	20.0	ug/kg							U
2,6-Dinitrotoluene	ND	50.0	100	ug/kg							U
Acenaphthene	ND	10.0	20.0	ug/kg							U
3-Nitroaniline	ND	50.0	100	ug/kg							U



Shannon & Wilson, Inc
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Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:41

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0256 - EPA 8270E

Instrument: NT10 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0256-BLK1)						Prepared: 12-Jul-2024 Analyzed: 27-Jul-2024 15:56					
2,4-Dinitrophenol	ND	100	200	ug/kg							U
Dibenzofuran	ND	20.0	20.0	ug/kg							U
4-Nitrophenol	ND	50.0	100	ug/kg							U
2,4-Dinitrotoluene	ND	50.0	100	ug/kg							U
Fluorene	ND	20.0	20.0	ug/kg							U
4-Chlorophenylphenyl ether	ND	35.0	50.0	ug/kg							U
Diethyl phthalate	ND	35.0	50.0	ug/kg							U
4-Nitroaniline	ND	50.0	100	ug/kg							U
4,6-Dinitro-2-methylphenol	ND	100	200	ug/kg							U
N-Nitrosodiphenylamine	ND	10.0	20.0	ug/kg							U
4-Bromophenyl phenyl ether	ND	20.0	20.0	ug/kg							U
Hexachlorobenzene	ND	20.0	20.0	ug/kg							U
Pentachlorophenol	ND	50.0	100	ug/kg							U
Phenanthrene	ND	10.0	20.0	ug/kg							U
Anthracene	ND	10.0	20.0	ug/kg							U
Carbazole	ND	10.0	20.0	ug/kg							U
Di-n-Butylphthalate	ND	10.0	20.0	ug/kg							U
Fluoranthene	ND	10.0	20.0	ug/kg							U
Pyrene	ND	10.0	20.0	ug/kg							U
Butylbenzylphthalate	ND	10.0	20.0	ug/kg							U
Benzo(a)anthracene	ND	10.0	20.0	ug/kg							U
3,3'-Dichlorobenzidine	ND	50.0	100	ug/kg							U
Chrysene	ND	10.0	20.0	ug/kg							U
bis(2-Ethylhexyl)phthalate	ND	40.0	50.0	ug/kg							U
Di-n-Octylphthalate	ND	10.0	20.0	ug/kg							U
Benzo(a)fluoranthene, Total	ND	30.0	40.0	ug/kg							U
Benzo(a)pyrene	ND	10.0	20.0	ug/kg							U
Indeno(1,2,3-cd)pyrene	ND	20.0	20.0	ug/kg							U
Dibenzo(a,h)anthracene	ND	20.0	20.0	ug/kg							U
Benzo(g,h,i)perylene	ND	20.0	20.0	ug/kg							U
1-Methylnaphthalene	ND	10.0	20.0	ug/kg							U
Surrogate: 2-Fluorophenol	631			ug/kg	750		84.1	27-120			
Surrogate: Phenol-d5	628			ug/kg	750		83.7	29-120			
Surrogate: 2-Chlorophenol-d4	636			ug/kg	750		84.8	31-120			
Surrogate: 1,2-Dichlorobenzene-d4	445			ug/kg	500		88.9	32-120			



Shannon & Wilson, Inc

5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:41

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0256 - EPA 8270E

Instrument: NT10 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0256-BLK1)						Prepared: 12-Jul-2024 Analyzed: 27-Jul-2024 15:56					
Surrogate: Nitrobenzene-d5	450			ug/kg	500		90.1	30-120			
Surrogate: 2-Fluorobiphenyl	454			ug/kg	500		90.9	35-120			
Surrogate: 2,4,6-Tribromophenol	472			ug/kg	750		63.0	24-134			
Surrogate: p-Terphenyl-d14	538			ug/kg	500		108	37-120			



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Batch BMG0256 - EPA 8270E

Instrument: NT10 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0256-BS1)						Prepared: 12-Jul-2024 Analyzed: 27-Jul-2024 16:35					
Phenol	395	10.0	20.0	ug/kg	500		79.1	31-120			
bis(2-chloroethyl) ether	475	35.0	50.0	ug/kg	500		95.1	36-120			
2-Chlorophenol	376	20.0	20.0	ug/kg	500		75.3	39-120			
1,3-Dichlorobenzene	408	10.0	20.0	ug/kg	500		81.6	40-120			
1,4-Dichlorobenzene	437	10.0	20.0	ug/kg	500		87.3	39-120			
1,2-Dichlorobenzene	419	10.0	20.0	ug/kg	500		83.8	40-120			
Benzyl Alcohol	368	20.0	20.0	ug/kg	500		73.5	19-120			
2,2'-Oxybis(1-chloropropane)	503	10.0	20.0	ug/kg	500		101	32-120			
2-Methylphenol	445	10.0	20.0	ug/kg	500		88.9	11-120			
Hexachloroethane	491	10.0	20.0	ug/kg	500		98.1	38-120			
N-Nitroso-di-n-Propylamine	484	15.0	20.0	ug/kg	500		96.8	24-120			
4-Methylphenol	442	15.0	20.0	ug/kg	500		88.4	29-120			
Nitrobenzene	456	10.0	20.0	ug/kg	500		91.2	36-120			
Isophorone	695	15.0	20.0	ug/kg	500		139	37-126			*
2-Nitrophenol	364	10.0	20.0	ug/kg	500		72.8	30-120			
2,4-Dimethylphenol	900	50.0	100	ug/kg	1500		60.0	10-120			
Bis(2-Chloroethoxy)methane	499	10.0	20.0	ug/kg	500		99.9	39-126			
2,4-Dichlorophenol	1290	50.0	100	ug/kg	1500		85.7	28-120			
1,2,4-Trichlorobenzene	405	10.0	20.0	ug/kg	500		81.1	35-120			
Naphthalene	423	10.0	20.0	ug/kg	500		84.7	41-120			
Benzoic acid	1100	100	200	ug/kg	2250		48.9	10-120			
4-Chloroaniline	802	50.0	100	ug/kg	1500		53.5	10-120			
Hexachlorobutadiene	416	10.0	20.0	ug/kg	500		83.1	37-120			Q
4-Chloro-3-Methylphenol	1290	50.0	100	ug/kg	1500		85.8	32-120			
2-Methylnaphthalene	405	10.0	20.0	ug/kg	500		81.1	43-120			
Hexachlorocyclopentadiene	1600	50.0	100	ug/kg	1500		107	10-120			Q
2,4,6-Trichlorophenol	1340	50.0	100	ug/kg	1500		89.2	40-120			
2,4,5-Trichlorophenol	1490	50.0	100	ug/kg	1500		99.5	51.5-129			
2-Chloronaphthalene	444	10.0	20.0	ug/kg	500		88.8	40-120			
2-Nitroaniline	1350	50.0	100	ug/kg	1500		90.2	40-152			
Acenaphthylene	402	10.0	20.0	ug/kg	500		80.4	42-120			
Dimethylphthalate	500	10.0	20.0	ug/kg	500		100	43-120			
2,6-Dinitrotoluene	1600	50.0	100	ug/kg	1500		107	31-156			
Acenaphthene	449	10.0	20.0	ug/kg	500		89.8	45-120			
3-Nitroaniline	1050	50.0	100	ug/kg	1500		69.9	22-120			



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Semivolatile Organic Compounds - Quality Control

Batch BMG0256 - EPA 8270E

Instrument: NT10 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0256-BS1)						Prepared: 12-Jul-2024 Analyzed: 27-Jul-2024 16:35					
2,4-Dinitrophenol	1620	100	200	ug/kg	2750		58.8	13-160			Q
Dibenzofuran	419	20.0	20.0	ug/kg	500		83.7	43-120			
4-Nitrophenol	1250	50.0	100	ug/kg	1500		83.2	18-154			
2,4-Dinitrotoluene	1420	50.0	100	ug/kg	1500		94.5	44-150			
Fluorene	434	20.0	20.0	ug/kg	500		86.8	40-120			
4-Chlorophenylphenyl ether	462	35.0	50.0	ug/kg	500		92.4	36-141			
Diethyl phthalate	540	35.0	50.0	ug/kg	500		108	43-140			
4-Nitroaniline	1190	50.0	100	ug/kg	1500		79.1	15-120			
4,6-Dinitro-2-methylphenol	2370	100	200	ug/kg	2750		86.1	33-144			
N-Nitrosodiphenylamine	457	10.0	20.0	ug/kg	500		91.4	17-120			
4-Bromophenyl phenyl ether	493	20.0	20.0	ug/kg	500		98.7	39-120			
Hexachlorobenzene	474	20.0	20.0	ug/kg	500		94.7	33-120			
Pentachlorophenol	1290	50.0	100	ug/kg	1500		85.9	33-133			
Phenanthrene	444	10.0	20.0	ug/kg	500		88.8	49-120			
Anthracene	454	10.0	20.0	ug/kg	500		90.8	37-120			
Carbazole	498	10.0	20.0	ug/kg	500		99.5	30-135			
Di-n-Butylphthalate	493	10.0	20.0	ug/kg	500		98.6	48-126			
Fluoranthene	486	10.0	20.0	ug/kg	500		97.1	38-127			
Pyrene	480	10.0	20.0	ug/kg	500		96.1	39-122			
Butylbenzylphthalate	507	10.0	20.0	ug/kg	500		101	45-132			
Benzo(a)anthracene	479	10.0	20.0	ug/kg	500		95.8	44-120			
3,3'-Dichlorobenzidine	477	50.0	100	ug/kg	1000		47.7	10-120			Q
Chrysene	466	10.0	20.0	ug/kg	500		93.2	47-120			
bis(2-Ethylhexyl)phthalate	563	40.0	50.0	ug/kg	500		113	10-130			Q
Di-n-Octylphthalate	471	10.0	20.0	ug/kg	500		94.2	10-124			
Benzo(a)fluoranthene, Total	999	30.0	40.0	ug/kg	1000		99.9	30-160			
Benzo(a)pyrene	495	10.0	20.0	ug/kg	500		99.1	37-120			
Indeno(1,2,3-cd)pyrene	466	20.0	20.0	ug/kg	500		93.1	30-160			
Dibenzo(a,h)anthracene	457	20.0	20.0	ug/kg	500		91.4	30-160			
Benzo(g,h,i)perylene	523	20.0	20.0	ug/kg	500		105	10-150			
1-Methylnaphthalene	423	10.0	20.0	ug/kg	500		84.5	42-120			
Surrogate: 2-Fluorophenol	678			ug/kg	750		90.4	27-120			
Surrogate: Phenol-d5	679			ug/kg	750		90.5	29-120			
Surrogate: 2-Chlorophenol-d4	665			ug/kg	750		88.7	31-120			
Surrogate: 1,2-Dichlorobenzene-d4	446			ug/kg	500		89.2	32-120			



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Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0256 - EPA 8270E

Instrument: NT10 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0256-BS1)											
Prepared: 12-Jul-2024 Analyzed: 27-Jul-2024 16:35											
Surrogate: Nitrobenzene-d5	482			ug/kg	500		96.4	30-120			
Surrogate: 2-Fluorobiphenyl	466			ug/kg	500		93.1	35-120			
Surrogate: 2,4,6-Tribromophenol	796			ug/kg	750		106	24-134			
Surrogate: p-Terphenyl-d14	535			ug/kg	500		107	37-120			



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Instrument: NT10 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMG0256-BSD1)						Prepared: 12-Jul-2024 Analyzed: 27-Jul-2024 17:14					
Phenol	407	10.0	20.0	ug/kg	500		81.5	31-120	3.02	30	
bis(2-chloroethyl) ether	478	35.0	50.0	ug/kg	500		95.6	36-120	0.56	30	
2-Chlorophenol	388	20.0	20.0	ug/kg	500		77.6	39-120	3.07	30	
1,3-Dichlorobenzene	412	10.0	20.0	ug/kg	500		82.4	40-120	1.03	30	
1,4-Dichlorobenzene	435	10.0	20.0	ug/kg	500		86.9	39-120	0.50	30	
1,2-Dichlorobenzene	425	10.0	20.0	ug/kg	500		84.9	40-120	1.38	30	
Benzyl Alcohol	390	20.0	20.0	ug/kg	500		78.0	19-120	5.94	30	
2,2'-Oxybis(1-chloropropane)	517	10.0	20.0	ug/kg	500		103	32-120	2.64	30	
2-Methylphenol	436	10.0	20.0	ug/kg	500		87.1	11-120	2.03	30	
Hexachloroethane	501	10.0	20.0	ug/kg	500		100	38-120	2.12	30	
N-Nitroso-di-n-Propylamine	506	15.0	20.0	ug/kg	500		101	24-120	4.57	30	
4-Methylphenol	447	15.0	20.0	ug/kg	500		89.4	29-120	1.17	30	
Nitrobenzene	465	10.0	20.0	ug/kg	500		93.1	36-120	2.01	30	
Isophorone	714	15.0	20.0	ug/kg	500		143	37-126	2.68	30	*
2-Nitrophenol	384	10.0	20.0	ug/kg	500		76.9	30-120	5.41	30	
2,4-Dimethylphenol	783	50.0	100	ug/kg	1500		52.2	10-120	13.90	30	
Bis(2-Chloroethoxy)methane	506	10.0	20.0	ug/kg	500		101	39-126	1.28	30	
2,4-Dichlorophenol	1290	50.0	100	ug/kg	1500		86.0	28-120	0.40	30	
1,2,4-Trichlorobenzene	410	10.0	20.0	ug/kg	500		82.0	35-120	1.13	30	
Naphthalene	424	10.0	20.0	ug/kg	500		84.9	41-120	0.24	30	
Benzoic acid	1110	100	200	ug/kg	2250		49.1	10-120	0.58	30	
4-Chloroaniline	795	50.0	100	ug/kg	1500		53.0	10-120	0.95	30	
Hexachlorobutadiene	417	10.0	20.0	ug/kg	500		83.5	37-120	0.40	30	Q
4-Chloro-3-Methylphenol	1340	50.0	100	ug/kg	1500		89.3	32-120	3.92	30	
2-Methylnaphthalene	420	10.0	20.0	ug/kg	500		84.0	43-120	3.57	30	
Hexachlorocyclopentadiene	1640	50.0	100	ug/kg	1500		110	10-120	2.78	30	Q
2,4,6-Trichlorophenol	1350	50.0	100	ug/kg	1500		89.9	40-120	0.77	30	
2,4,5-Trichlorophenol	1510	50.0	100	ug/kg	1500		101	51.5-129	1.40	30	
2-Chloronaphthalene	452	10.0	20.0	ug/kg	500		90.5	40-120	1.90	30	
2-Nitroaniline	1410	50.0	100	ug/kg	1500		93.9	40-152	4.04	30	
Acenaphthylene	442	10.0	20.0	ug/kg	500		88.4	42-120	9.43	30	
Dimethylphthalate	504	10.0	20.0	ug/kg	500		101	43-120	0.75	30	
2,6-Dinitrotoluene	1660	50.0	100	ug/kg	1500		110	31-156	3.28	30	
Acenaphthene	449	10.0	20.0	ug/kg	500		89.8	45-120	0.06	30	
3-Nitroaniline	1050	50.0	100	ug/kg	1500		70.2	22-120	0.34	30	



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Semivolatile Organic Compounds - Quality Control

Batch BMG0256 - EPA 8270E

Instrument: NT10 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMG0256-BSD1)						Prepared: 12-Jul-2024 Analyzed: 27-Jul-2024 17:14					
2,4-Dinitrophenol	1770	100	200	ug/kg	2750		64.3	13-160	8.95	30	Q
Dibenzofuran	423	20.0	20.0	ug/kg	500		84.5	43-120	0.95	30	
4-Nitrophenol	1250	50.0	100	ug/kg	1500		83.4	18-154	0.28	30	
2,4-Dinitrotoluene	1420	50.0	100	ug/kg	1500		94.4	44-150	0.09	30	
Fluorene	440	20.0	20.0	ug/kg	500		88.0	40-120	1.40	30	
4-Chlorophenylphenyl ether	466	35.0	50.0	ug/kg	500		93.3	36-141	0.94	30	
Diethyl phthalate	541	35.0	50.0	ug/kg	500		108	43-140	0.16	30	
4-Nitroaniline	1230	50.0	100	ug/kg	1500		82.0	15-120	3.70	30	
4,6-Dinitro-2-methylphenol	2430	100	200	ug/kg	2750		88.4	33-144	2.64	30	
N-Nitrosodiphenylamine	456	10.0	20.0	ug/kg	500		91.2	17-120	0.28	30	
4-Bromophenyl phenyl ether	500	20.0	20.0	ug/kg	500		100	39-120	1.37	30	
Hexachlorobenzene	483	20.0	20.0	ug/kg	500		96.6	33-120	1.95	30	
Pentachlorophenol	1320	50.0	100	ug/kg	1500		88.2	33-133	2.54	30	
Phenanthrene	444	10.0	20.0	ug/kg	500		88.9	49-120	0.03	30	
Anthracene	458	10.0	20.0	ug/kg	500		91.7	37-120	0.98	30	
Carbazole	512	10.0	20.0	ug/kg	500		102	30-135	2.90	30	
Di-n-Butylphthalate	495	10.0	20.0	ug/kg	500		99.1	48-126	0.45	30	
Fluoranthene	492	10.0	20.0	ug/kg	500		98.3	38-127	1.22	30	
Pyrene	484	10.0	20.0	ug/kg	500		96.7	39-122	0.67	30	
Butylbenzylphthalate	510	10.0	20.0	ug/kg	500		102	45-132	0.58	30	
Benzo(a)anthracene	470	10.0	20.0	ug/kg	500		93.9	44-120	1.97	30	
3,3'-Dichlorobenzidine	443	50.0	100	ug/kg	1000		44.3	10-120	7.49	30	Q
Chrysene	458	10.0	20.0	ug/kg	500		91.6	47-120	1.71	30	
bis(2-Ethylhexyl)phthalate	546	40.0	50.0	ug/kg	500		109	10-130	3.18	30	Q
Di-n-Octylphthalate	464	10.0	20.0	ug/kg	500		92.9	10-124	1.40	30	
Benzo(a)fluoranthene, Total	995	30.0	40.0	ug/kg	1000		99.5	30-160	0.47	30	
Benzo(a)pyrene	482	10.0	20.0	ug/kg	500		96.4	37-120	2.68	30	
Indeno(1,2,3-cd)pyrene	471	20.0	20.0	ug/kg	500		94.1	30-160	1.10	30	
Dibenzo(a,h)anthracene	463	20.0	20.0	ug/kg	500		92.7	30-160	1.43	30	
Benzo(g,h,i)perylene	540	20.0	20.0	ug/kg	500		108	10-150	3.24	30	
1-Methylnaphthalene	435	10.0	20.0	ug/kg	500		86.9	42-120	2.79	30	
Surrogate: 2-Fluorophenol	680			ug/kg	750		90.7	27-120			
Surrogate: Phenol-d5	685			ug/kg	750		91.3	29-120			
Surrogate: 2-Chlorophenol-d4	661			ug/kg	750		88.2	31-120			
Surrogate: 1,2-Dichlorobenzene-d4	430			ug/kg	500		86.0	32-120			



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Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0256 - EPA 8270E

Instrument: NT10 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMG0256-BSD1)											
Prepared: 12-Jul-2024 Analyzed: 27-Jul-2024 17:14											
Surrogate: Nitrobenzene-d5	482			ug/kg	500		96.5	30-120			
Surrogate: 2-Fluorobiphenyl	448			ug/kg	500		89.6	35-120			
Surrogate: 2,4,6-Tribromophenol	777			ug/kg	750		104	24-134			
Surrogate: p-Terphenyl-d14	526			ug/kg	500		105	37-120			



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Semivolatile Organic Compounds - Quality Control

Batch BMG0256 - EPA 8270E

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - SIM - Quality Control

Batch BMG0256 - EPA 8270E-SIM

Instrument: NT10 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0256-BLK2)				Prepared: 12-Jul-2024 Analyzed: 27-Jul-2024 15:56							
Phenol	ND	2.5	5.0	ug/kg							U
1,3-Dichlorobenzene	ND	2.5	5.0	ug/kg							U
1,4-Dichlorobenzene	ND	2.5	5.0	ug/kg							U
1,2-Dichlorobenzene	ND	2.5	5.0	ug/kg							U
Benzyl Alcohol	11.0	10.0	20.0	ug/kg							J
Benzoic acid	ND	200	200	ug/kg							U
2-Methylphenol	ND	2.5	5.0	ug/kg							U
N-Nitroso-di-n-Propylamine	ND	10.0	20.0	ug/kg							U
4-Methylphenol	ND	2.5	5.0	ug/kg							U
2,4-Dimethylphenol	ND	10.0	20.0	ug/kg							U
1,2,4-Trichlorobenzene	ND	5.0	5.0	ug/kg							U
Hexachlorobutadiene	ND	2.5	5.0	ug/kg							U
N-Nitrosodimethylamine	ND	12.5	25.0	ug/kg							U
Dimethylphthalate	ND	2.5	5.0	ug/kg							U
Diethyl phthalate	ND	10.0	20.0	ug/kg							U
N-Nitrosodiphenylamine	ND	2.5	5.0	ug/kg							U
Hexachlorobenzene	ND	2.5	5.0	ug/kg							U
Pentachlorophenol	ND	100	100	ug/kg							U
Butylbenzylphthalate	ND	2.5	5.0	ug/kg							U
Dibenzo(a,h)anthracene	ND	2.5	5.0	ug/kg							U
Surrogate: 2-Fluorophenol	626			ug/kg	750		83.4	27-120			
Surrogate: p-Terphenyl-d14	486			ug/kg	500		97.1	37-120			



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Semivolatile Organic Compounds - SIM - Quality Control

Batch BMG0256 - EPA 8270E-SIM

Instrument: NT10 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0256-BS2)						Prepared: 12-Jul-2024 Analyzed: 27-Jul-2024 16:35					
Phenol	400	2.5	5.0	ug/kg	500		79.9	30-160			
1,3-Dichlorobenzene	381	2.5	5.0	ug/kg	500		76.1	30-120			
1,4-Dichlorobenzene	430	2.5	5.0	ug/kg	500		86.1	36-120			
1,2-Dichlorobenzene	420	2.5	5.0	ug/kg	500		84.0	36-120			
Benzyl Alcohol	364	10.0	20.0	ug/kg	500		72.7	25-123			
Benzoic acid	1380	200	200	ug/kg	2250		61.4	10-160			Q
2-Methylphenol	431	2.5	5.0	ug/kg	500		86.2	26-120			
N-Nitroso-di-n-Propylamine	504	10.0	20.0	ug/kg	500		101	30-160			
4-Methylphenol	452	2.5	5.0	ug/kg	500		90.4	30-160			
2,4-Dimethylphenol	894	10.0	20.0	ug/kg	1500		59.6	10-120			
1,2,4-Trichlorobenzene	369	5.0	5.0	ug/kg	500		73.8	35-120			
Hexachlorobutadiene	391	2.5	5.0	ug/kg	500		78.3	34-120			
N-Nitrosodimethylamine	1040	12.5	25.0	ug/kg	1500		69.3	30-160			E
Dimethylphthalate	497	2.5	5.0	ug/kg	500		99.3	38-120			
Diethyl phthalate	549	10.0	20.0	ug/kg	500		110	55-120			
N-Nitrosodiphenylamine	461	2.5	5.0	ug/kg	500		92.2	27-120			
Hexachlorobenzene	446	2.5	5.0	ug/kg	500		89.2	32-120			
Pentachlorophenol	1130	100	100	ug/kg	1500		75.6	26-120			Q, E
Butylbenzylphthalate	506	2.5	5.0	ug/kg	500		101	32-142			
Dibenzo(a,h)anthracene	459	2.5	5.0	ug/kg	500		91.8	28-125			Q
Surrogate: 2-Fluorophenol	664			ug/kg	750		88.5	27-120			
Surrogate: p-Terphenyl-d14	521			ug/kg	500		104	37-120			



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:41

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - SIM - Quality Control

Batch BMG0256 - EPA 8270E-SIM

Instrument: NT10 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMG0256-BSD2)						Prepared: 12-Jul-2024 Analyzed: 27-Jul-2024 17:14					
Phenol	407	2.5	5.0	ug/kg	500		81.5	30-160	1.92	30	
1,3-Dichlorobenzene	379	2.5	5.0	ug/kg	500		75.8	30-120	0.40	30	
1,4-Dichlorobenzene	430	2.5	5.0	ug/kg	500		86.0	36-120	0.10	30	
1,2-Dichlorobenzene	418	2.5	5.0	ug/kg	500		83.6	36-120	0.44	30	
Benzyl Alcohol	382	10.0	20.0	ug/kg	500		76.3	25-123	4.87	30	
Benzoic acid	1390	200	200	ug/kg	2250		61.9	10-160	0.72	30	Q
2-Methylphenol	441	2.5	5.0	ug/kg	500		88.2	26-120	2.34	30	
N-Nitroso-di-n-Propylamine	526	10.0	20.0	ug/kg	500		105	30-160	4.45	30	
4-Methylphenol	469	2.5	5.0	ug/kg	500		93.7	30-160	3.57	30	
2,4-Dimethylphenol	766	10.0	20.0	ug/kg	1500		51.0	10-120	15.50	30	
1,2,4-Trichlorobenzene	368	5.0	5.0	ug/kg	500		73.6	35-120	0.32	30	
Hexachlorobutadiene	391	2.5	5.0	ug/kg	500		78.3	34-120	0.00		
N-Nitrosodimethylamine	1090	12.5	25.0	ug/kg	1500		72.6	30-160	4.55	30	E
Dimethylphthalate	495	2.5	5.0	ug/kg	500		99.0	38-120	0.37	30	
Diethyl phthalate	552	10.0	20.0	ug/kg	500		110	55-120	0.46	30	
N-Nitrosodiphenylamine	462	2.5	5.0	ug/kg	500		92.4	27-120	0.25	30	
Hexachlorobenzene	443	2.5	5.0	ug/kg	500		88.5	32-120	0.76	30	
Pentachlorophenol	1130	100	100	ug/kg	1500		75.6	26-120	0.05	30	Q, E
Butylbenzylphthalate	507	2.5	5.0	ug/kg	500		101	32-142	0.20	30	
Dibenzo(a,h)anthracene	463	2.5	5.0	ug/kg	500		92.5	28-125	0.76	30	Q
Surrogate: 2-Fluorophenol	658			ug/kg	750		87.7	27-120			
Surrogate: p-Terphenyl-d14	510			ug/kg	500		102	37-120			



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:41

Analysis by: Analytical Resources, LLC

Butyl Tins - Quality Control

Batch BMG0255 - EPA 8270E-SIM

Instrument: NT17 Analyst: JZ

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0255-BLK1)											
Prepared: 12-Jul-2024 Analyzed: 23-Jul-2024 13:44											
Tributyltin Ion	ND	1.93	3.86	ug/kg							U
Surrogate: Triphenyltin	31.3			ug/kg	45.2		69.4	30-160			
Surrogate: Tripropyltin	29.0			ug/kg	43.7		66.4	30-160			



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Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:41

Analysis by: Analytical Resources, LLC

Butyl Tins - Quality Control

Batch BMG0255 - EPA 8270E-SIM

Instrument: NT17 Analyst: JZ

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0255-BS1)					Prepared: 12-Jul-2024 Analyzed: 23-Jul-2024 13:58					
Tributyltin Ion	34.7	1.93	3.86	ug/kg	44.6		77.9	30-160		
Surrogate: Triphenyltin	36.2			ug/kg	45.2		80.2	30-160		
Surrogate: Tripropyltin	31.3			ug/kg	43.7		71.6	30-160		



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Reported:
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Analysis by: Analytical Resources, LLC

Butyl Tins - Quality Control

Batch BMG0255 - EPA 8270E-SIM

Instrument: NT17 Analyst: JZ

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMG0255-BS1)						Prepared: 12-Jul-2024 Analyzed: 23-Jul-2024 14:11					
Tributyltin Ion	31.8	1.93	3.86	ug/kg	44.6		71.5	30-160	8.62	30	
Surrogate: Triphenyltin	32.0			ug/kg	45.2		70.8	30-160			
Surrogate: Tripropyltin	29.2			ug/kg	43.7		66.7	30-160			



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
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Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BMG0254 - EPA 8081B

Instrument: ECD6 Analyst: RT/JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0254-BLK1)											
Prepared: 12-Jul-2024 Analyzed: 18-Aug-2024 14:55											
alpha-BHC	ND	0.25	0.50	ug/kg							U
beta-BHC	ND	0.25	0.50	ug/kg							U
gamma-BHC (Lindane)	ND	0.25	0.50	ug/kg							U
delta-BHC	ND	0.25	0.50	ug/kg							U
Heptachlor	ND	0.25	0.50	ug/kg							U
Aldrin	ND	0.50	0.50	ug/kg							U
Heptachlor Epoxide	ND	0.25	0.50	ug/kg							U
trans-Chlordane (beta-Chlordane)	ND	0.50	0.50	ug/kg							U
cis-Chlordane (alpha-chlordane)	ND	0.25	0.50	ug/kg							U
Endosulfan I	ND	0.25	0.50	ug/kg							U
4,4'-DDE	ND	0.50	1.00	ug/kg							U
Dieldrin	ND	0.50	1.00	ug/kg							U
Endrin	ND	0.50	1.00	ug/kg							U
Endosulfan II	ND	0.50	1.00	ug/kg							U
4,4'-DDD	ND	0.50	1.00	ug/kg							U
Endrin Aldehyde	ND	0.50	1.00	ug/kg							U
4,4'-DDT	ND	0.50	1.00	ug/kg							U
Endosulfan Sulfate	ND	0.50	1.00	ug/kg							U
Endrin Ketone	ND	0.50	1.00	ug/kg							U
Methoxychlor	ND	2.50	5.00	ug/kg							U
Hexachlorobutadiene	ND	0.25	0.50	ug/kg							U
Hexachlorobenzene	ND	0.25	0.50	ug/kg							U
2,4'-DDE	ND	0.50	1.00	ug/kg							U
2,4'-DDD	ND	0.50	1.00	ug/kg							U
2,4'-DDT	ND	0.50	1.00	ug/kg							U
Oxychlordane	ND	0.50	1.00	ug/kg							U
cis-Nonachlor	ND	0.50	1.00	ug/kg							U
trans-Nonachlor	ND	0.50	1.00	ug/kg							U
Mirex	ND	1.00	1.00	ug/kg							U
Surrogate: Decachlorobiphenyl	9.44			ug/kg	8.00		118	30-160			
Surrogate: Decachlorobiphenyl [2C]	9.11			ug/kg	8.00		114	30-160			
Surrogate: Tetrachlorometaxylene	7.64			ug/kg	8.00		95.5	30-160			
Surrogate: Tetrachlorometaxylene [2C]	6.73			ug/kg	8.00		84.1	30-160			



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:41

Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BMG0254 - EPA 8081B

Instrument: ECD6 Analyst: RT/JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0254-BS1)						Prepared: 12-Jul-2024 Analyzed: 18-Aug-2024 15:15					
alpha-BHC [2C]	3.77	0.25	0.50	ug/kg	4.00		94.4	28-120			
beta-BHC [2C]	3.85	0.25	0.50	ug/kg	4.00		96.3	33-120			
gamma-BHC (Lindane) [2C]	3.83	0.25	0.50	ug/kg	4.00		95.7	30-124			
delta-BHC [2C]	3.79	0.25	0.50	ug/kg	4.00		94.8	30-120			
Heptachlor	4.12	0.25	0.50	ug/kg	4.00		103	26-120			
Aldrin	3.38	0.50	0.50	ug/kg	4.00		84.6	26-120			
Heptachlor Epoxide	3.60	0.25	0.50	ug/kg	4.00		90.1	26-120			
trans-Chlordane (beta-Chlordane) [2C]	3.72	0.50	0.50	ug/kg	4.00		93.0	21-120			
cis-Chlordane (alpha-chlordane) [2C]	3.59	0.25	0.50	ug/kg	4.00		89.9	39-120			
Endosulfan I [2C]	3.55	0.25	0.50	ug/kg	4.00		88.9	17-143			
4,4'-DDE [2C]	7.56	0.50	1.00	ug/kg	8.00		94.4	35-120			
Dieldrin [2C]	7.53	0.50	1.00	ug/kg	8.00		94.1	10-140			
Endrin [2C]	10.9	0.50	1.00	ug/kg	8.00		136	45-120			
Endosulfan II [2C]	9.99	0.50	1.00	ug/kg	8.00		125	10-139			
4,4'-DDD [2C]	10.2	0.50	1.00	ug/kg	8.00		127	50-120			
Endrin Aldehyde [2C]	9.34	0.50	1.00	ug/kg	8.00		117	10-120			P1
4,4'-DDT [2C]	9.84	0.50	1.00	ug/kg	8.00		123	39-120			
Endosulfan Sulfate [2C]	10.4	0.50	1.00	ug/kg	8.00		130	38-120			
Endrin Ketone [2C]	9.72	0.50	1.00	ug/kg	8.00		121	17-120			
Methoxychlor [2C]	51.0	2.50	5.00	ug/kg	40.0		128	10-140			
Hexachlorobutadiene [2C]	3.22	0.25	0.50	ug/kg	4.00		80.5	15-120			
Hexachlorobenzene [2C]	3.25	0.25	0.50	ug/kg	4.00		81.2	26-128			
Surrogate: Decachlorobiphenyl	9.42			ug/kg	8.00		118	30-160			
Surrogate: Decachlorobiphenyl [2C]	10.1			ug/kg	8.00		127	30-160			
Surrogate: Tetrachlorometaxylene	6.91			ug/kg	8.00		86.4	30-160			
Surrogate: Tetrachlorometaxylene [2C]	7.47			ug/kg	8.00		93.4	30-160			



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:41

Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BMG0254 - EPA 8081B

Instrument: ECD6 Analyst: RT

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0254-BS2) Prepared: 12-Jul-2024 Analyzed: 31-Jul-2024 15:14										
2,4'-DDE	7.40	0.50	1.00	ug/kg	8.00		92.4	30-160		
2,4'-DDD	7.65	0.50	1.00	ug/kg	8.00		95.6	30-160		
2,4'-DDT	8.89	0.50	1.00	ug/kg	8.00		111	30-160		
Oxychlordane	6.96	0.50	1.00	ug/kg	8.00		87.0	30-160		P1
cis-Nonachlor	7.14	0.50	1.00	ug/kg	8.00		89.3	30-160		
trans-Nonachlor	6.79	0.50	1.00	ug/kg	8.00		84.8	30-160		
Mirex	6.81	1.00	1.00	ug/kg	8.00		85.1	30-160		P1
Surrogate: Decachlorobiphenyl	7.25			ug/kg	8.00		90.6	30-160		
Surrogate: Decachlorobiphenyl [2C]	6.97			ug/kg	8.00		87.2	30-160		
Surrogate: Tetrachlorometaxylene	5.06			ug/kg	8.00		63.2	30-160		
Surrogate: Tetrachlorometaxylene [2C]	5.35			ug/kg	8.00		66.9	30-160		



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Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BMG0254 - EPA 8081B

Instrument: ECD6 Analyst: RT/JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0254-BS3)										
Prepared: 12-Jul-2024 Analyzed: 18-Aug-2024 15:36										
2,4'-DDE	5.96	0.50	1.00	ug/kg	8.00		74.5 30-160			
2,4'-DDD [2C]	6.46	0.50	1.00	ug/kg	8.00		80.7 30-160			
2,4'-DDT	6.45	0.50	1.00	ug/kg	8.00		80.6 30-160			
Oxychlorane	5.39	0.50	1.00	ug/kg	8.00		67.4 30-160			
cis-Nonachlor [2C]	6.47	0.50	1.00	ug/kg	8.00		80.9 30-160			
trans-Nonachlor [2C]	6.46	0.50	1.00	ug/kg	8.00		80.8 30-160			
Mirex [2C]	5.77	1.00	1.00	ug/kg	8.00		72.2 30-160			
Surrogate: Decachlorobiphenyl	9.16			ug/kg	8.00		114 30-160			
Surrogate: Decachlorobiphenyl [2C]	8.78			ug/kg	8.00		110 30-160			
Surrogate: Tetrachlorometaxylene	6.15			ug/kg	8.00		76.9 30-160			
Surrogate: Tetrachlorometaxylene [2C]	6.25			ug/kg	8.00		78.1 30-160			



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Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BMG0254 - EPA 8081B

Instrument: ECD6 Analyst: RT/JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMG0254-BSD1)						Prepared: 12-Jul-2024 Analyzed: 18-Aug-2024 15:56					
alpha-BHC [2C]	3.57	0.25	0.50	ug/kg	4.00		89.4	28-120	5.44	30	
beta-BHC [2C]	3.69	0.25	0.50	ug/kg	4.00		92.3	33-120	4.25	30	
gamma-BHC (Lindane) [2C]	3.79	0.25	0.50	ug/kg	4.00		94.7	30-124	1.08	30	
delta-BHC	3.75	0.25	0.50	ug/kg	4.00		93.7	30-120	0.13	30	
Heptachlor	4.01	0.25	0.50	ug/kg	4.00		100	26-120	2.86	30	
Aldrin	3.31	0.50	0.50	ug/kg	4.00		82.7	26-120	2.24	30	
Heptachlor Epoxide	3.71	0.25	0.50	ug/kg	4.00		92.8	26-120	2.94	30	
trans-Chlordane (beta-Chlordane) [2C]	3.60	0.50	0.50	ug/kg	4.00		89.9	21-120	3.33	30	
cis-Chlordane (alpha-chlordane) [2C]	3.52	0.25	0.50	ug/kg	4.00		88.1	39-120	2.00	30	
Endosulfan I	3.54	0.25	0.50	ug/kg	4.00		88.5	17-143	1.63	30	
4,4'-DDE [2C]	7.39	0.50	1.00	ug/kg	8.00		92.4	35-120	2.15	30	
Dieldrin [2C]	7.45	0.50	1.00	ug/kg	8.00		93.1	10-140	1.01	30	
Endrin [2C]	10.5	0.50	1.00	ug/kg	8.00		132	45-120	2.87	30	*
Endosulfan II [2C]	9.88	0.50	1.00	ug/kg	8.00		123	10-139	1.15	30	
4,4'-DDD [2C]	10.1	0.50	1.00	ug/kg	8.00		126	50-120	0.81	30	*
Endrin Aldehyde [2C]	9.12	0.50	1.00	ug/kg	8.00		114	10-120	2.39	30	P1
4,4'-DDT [2C]	9.74	0.50	1.00	ug/kg	8.00		122	39-120	0.96	30	*
Endosulfan Sulfate [2C]	10.3	0.50	1.00	ug/kg	8.00		129	38-120	0.63	30	*
Endrin Ketone [2C]	9.80	0.50	1.00	ug/kg	8.00		123	17-120	0.88	30	*
Methoxychlor [2C]	50.5	2.50	5.00	ug/kg	40.0		126	10-140	1.13	30	
Hexachlorobutadiene [2C]	3.09	0.25	0.50	ug/kg	4.00		77.2	15-120	4.15	30	
Hexachlorobenzene [2C]	3.02	0.25	0.50	ug/kg	4.00		75.4	26-128	7.44	30	
Surrogate: Decachlorobiphenyl	9.47			ug/kg	8.00		118	30-160			
Surrogate: Decachlorobiphenyl [2C]	10.1			ug/kg	8.00		126	30-160			
Surrogate: Tetrachlorometaxylene	6.72			ug/kg	8.00		84.0	30-160			
Surrogate: Tetrachlorometaxylene [2C]	7.01			ug/kg	8.00		87.6	30-160			



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:41

Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BMG0254 - EPA 8081B

Instrument: ECD6 Analyst: RT/JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BMG0254-MS1)		Source: 24G0171-07		Prepared: 12-Jul-2024 Analyzed: 20-Aug-2024 07:47							
alpha-BHC	3.07	0.25	0.50	ug/kg	4.00	ND	76.9	28-120			
beta-BHC	2.84	0.25	0.50	ug/kg	4.00	ND	71.1	33-120			
gamma-BHC (Lindane)	2.97	0.25	0.50	ug/kg	4.00	ND	74.2	30-124			
delta-BHC	3.06	0.25	0.50	ug/kg	4.00	ND	76.5	30-120			
Heptachlor	3.08	0.25	0.50	ug/kg	4.00	ND	77.0	26-120			
Aldrin	2.84	0.50	0.50	ug/kg	4.00	ND	70.9	26-120			
Heptachlor Epoxide	2.63	0.25	0.50	ug/kg	4.00	ND	65.8	26-120			
trans-Chlordane (beta-Chlordane)	2.89	0.50	0.50	ug/kg	4.00	ND	72.3	21-120			
cis-Chlordane (alpha-chlordane)	2.80	0.25	0.50	ug/kg	4.00	ND	70.0	39-120			
Endosulfan I	2.89	0.25	0.50	ug/kg	4.00	ND	72.3	17-143			
4,4'-DDE	5.77	0.50	1.00	ug/kg	8.00	ND	72.1	35-120			
Dieldrin	5.99	0.50	1.00	ug/kg	8.00	ND	74.9	10-140			
Endrin	6.51	0.50	1.00	ug/kg	8.00	ND	81.4	45-120			
Endosulfan II	6.16	0.50	1.00	ug/kg	8.00	ND	77.0	10-139			
4,4'-DDD	6.43	0.50	1.00	ug/kg	8.00	ND	80.3	50-120			
Endrin Aldehyde	4.82	0.50	1.00	ug/kg	8.00	ND	60.2	10-120			
4,4'-DDT	6.66	0.50	1.00	ug/kg	8.00	ND	83.2	39-120			
Endosulfan Sulfate	6.81	0.50	1.00	ug/kg	8.00	ND	85.1	38-120			
Endrin Ketone	5.89	0.50	1.00	ug/kg	8.00	ND	73.7	17-120			
Methoxychlor	34.9	2.50	5.00	ug/kg	40.0	ND	87.2	10-140			
Hexachlorobutadiene	2.54	0.25	0.50	ug/kg	4.00	ND	63.5	15-120			
Hexachlorobenzene	2.55	0.25	0.50	ug/kg	4.00	ND	63.8	26-128			
Surrogate: Decachlorobiphenyl	7.32			ug/kg	8.00		91.5	30-160			
Surrogate: Decachlorobiphenyl [2C]	7.03			ug/kg	8.00		87.8	30-160			
Surrogate: Tetrachlorometaxylene	6.28			ug/kg	8.00		78.5	30-160			
Surrogate: Tetrachlorometaxylene [2C]	6.66			ug/kg	8.00		83.3	30-160			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:41

Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BMG0254 - EPA 8081B

Instrument: ECD6 Analyst: RT/JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BMG0254-MSD1)		Source: 24G0171-07		Prepared: 12-Jul-2024 Analyzed: 18-Aug-2024 22:45							
alpha-BHC	3.15	0.25	0.50	ug/kg	4.00	ND	78.8	28-120	2.45	30	
beta-BHC	3.28	0.25	0.50	ug/kg	4.00	ND	82.0	33-120	14.30	30	
gamma-BHC (Lindane)	3.12	0.25	0.50	ug/kg	4.00	ND	78.0	30-124	4.94	30	
delta-BHC	3.21	0.25	0.50	ug/kg	4.00	ND	80.3	30-120	4.95	30	
Heptachlor	3.62	0.25	0.50	ug/kg	4.00	ND	90.5	26-120	16.10	30	
Aldrin	2.94	0.50	0.50	ug/kg	4.00	ND	73.5	26-120	3.70	30	
Heptachlor Epoxide	2.72	0.25	0.50	ug/kg	4.00	ND	68.0	26-120	3.37	30	
trans-Chlordane (beta-Chlordane)	2.66	0.50	0.50	ug/kg	4.00	ND	66.4	21-120	8.49	30	
cis-Chlordane (alpha-chlordane)	2.69	0.25	0.50	ug/kg	4.00	ND	67.3	39-120	4.05	30	
Endosulfan I	2.85	0.25	0.50	ug/kg	4.00	ND	71.1	17-143	1.67	30	
4,4'-DDE	5.57	0.50	1.00	ug/kg	8.00	ND	69.7	35-120	3.46	30	
Dieldrin	5.89	0.50	1.00	ug/kg	8.00	ND	73.6	10-140	1.66	30	
Endrin	7.61	0.50	1.00	ug/kg	8.00	ND	95.1	45-120	15.50	30	
Endosulfan II	6.41	0.50	1.00	ug/kg	8.00	ND	80.1	10-139	3.98	30	
4,4'-DDD	7.74	0.50	1.00	ug/kg	8.00	ND	96.8	50-120	18.60	30	
Endrin Aldehyde	5.12	0.50	1.00	ug/kg	8.00	ND	64.0	10-120	6.04	30	
4,4'-DDT	8.32	0.50	1.00	ug/kg	8.00	ND	104	39-120	22.20	30	
Endosulfan Sulfate	7.07	0.50	1.00	ug/kg	8.00	ND	88.3	38-120	3.68	30	
Endrin Ketone	6.93	0.50	1.00	ug/kg	8.00	ND	86.6	17-120	16.10	30	
Methoxychlor	44.2	2.50	5.00	ug/kg	40.0	ND	111	10-140	23.60	30	
Hexachlorobutadiene	2.60	0.25	0.50	ug/kg	4.00	ND	64.9	15-120	2.17	30	
Hexachlorobenzene	2.68	0.25	0.50	ug/kg	4.00	ND	67.0	26-128	4.84	30	
Surrogate: Decachlorobiphenyl	9.19			ug/kg	8.00		115	30-160			
Surrogate: Decachlorobiphenyl [2C]	7.32			ug/kg	8.00		91.5	30-160			
Surrogate: Tetrachlorometaxylene	6.28			ug/kg	8.00		78.5	30-160			
Surrogate: Tetrachlorometaxylene [2C]	6.50			ug/kg	8.00		81.3	30-160			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:41

Analysis by: Analytical Resources, LLC

Aroclor PCB - Quality Control

Batch BMG0250 - EPA 8082A

Instrument: ECD5 Analyst: NRB

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0250-BLK1) Prepared: 15-Jul-2024 Analyzed: 24-Jul-2024 22:01											
Aroclor 1016	ND	2.0	4.0	ug/kg							U
Aroclor 1221	ND	2.0	4.0	ug/kg							U
Aroclor 1232	ND	2.0	4.0	ug/kg							U
Aroclor 1242	ND	2.0	4.0	ug/kg							U
Aroclor 1248	ND	2.0	4.0	ug/kg							U
Aroclor 1254	ND	2.0	4.0	ug/kg							U
Aroclor 1260	ND	2.0	4.0	ug/kg							U
Aroclor 1262	ND	2.0	4.0	ug/kg							U
Aroclor 1268	ND	2.0	4.0	ug/kg							U
Surrogate: Decachlorobiphenyl	7.40			ug/kg	8.00		92.5	40-126			
Surrogate: Tetrachlorometaxylene	6.38			ug/kg	8.00		79.7	44-120			
Surrogate: Decachlorobiphenyl [2C]	7.40			ug/kg	8.00		92.5	40-126			
Surrogate: Tetrachlorometaxylene [2C]	6.35			ug/kg	8.00		79.3	44-120			



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Analysis by: Analytical Resources, LLC

Aroclor PCB - Quality Control

Batch BMG0250 - EPA 8082A

Instrument: ECD5 Analyst: NRB

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0250-BS1)						Prepared: 15-Jul-2024 Analyzed: 24-Jul-2024 22:22					
Aroclor 1016	92.6	2.0	4.0	ug/kg	101		91.8	56-120			
Aroclor 1260	89.2	2.0	4.0	ug/kg	101		88.5	58-120			
Surrogate: Decachlorobiphenyl	7.24			ug/kg	8.00		90.4	40-126			
Surrogate: Tetrachlorometaxylene	7.23			ug/kg	8.00		90.3	44-120			
Surrogate: Decachlorobiphenyl [2C]	7.24			ug/kg	8.00		90.5	40-126			
Surrogate: Tetrachlorometaxylene [2C]	6.90			ug/kg	8.00		86.2	44-120			



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Analysis by: Analytical Resources, LLC

Aroclor PCB - Quality Control

Batch BMG0250 - EPA 8082A

Instrument: ECD5 Analyst: NRB

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMG0250-BSD1)					Prepared: 15-Jul-2024 Analyzed: 24-Jul-2024 22:43					
Aroclor 1016	96.9	2.0	4.0	ug/kg	101		96.1 56-120	4.56	30	
Aroclor 1260	95.3	2.0	4.0	ug/kg	101		94.5 58-120	6.63	30	
Surrogate: Decachlorobiphenyl	6.73			ug/kg	8.00		84.1 40-126			
Surrogate: Tetrachlorometaxylene	6.61			ug/kg	8.00		82.6 44-120			
Surrogate: Decachlorobiphenyl [2C]	6.84			ug/kg	8.00		85.6 40-126			
Surrogate: Tetrachlorometaxylene [2C]	6.33			ug/kg	8.00		79.1 44-120			



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:41

Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BMG0273 - EPA 6020B

Instrument: ICPMS1 Analyst: DOE

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0273-BLK1)						Prepared: 11-Jul-2024 Analyzed: 18-Jul-2024 12:36						
Antimony	121	ND	0.10	0.20	mg/kg							U
Chromium	52	ND	0.26	0.50	mg/kg							U
Chromium	53	ND	0.24	0.50	mg/kg							U
Lead	208	ND	0.05	0.10	mg/kg							U
Silver	107	ND	0.02	0.20	mg/kg							U
Arsenic	75a	ND	0.04	0.20	mg/kg							U
Cadmium	111	ND	0.03	0.10	mg/kg							U
Copper	63	ND	0.17	0.50	mg/kg							U
Selenium	78	ND	0.18	0.50	mg/kg							U
Zinc	66	ND	2.9	6.0	mg/kg							U
LCS (BMG0273-BS1)						Prepared: 11-Jul-2024 Analyzed: 18-Jul-2024 12:41						
Antimony	121	24.9	0.10	0.20	mg/kg	25.0		99.7	80-120			
Chromium	52	26.1	0.26	0.50	mg/kg	25.0		105	80-120			
Chromium	53	25.1	0.24	0.50	mg/kg	25.0		100	80-120			
Lead	208	27.0	0.05	0.10	mg/kg	25.0		108	80-120			
Silver	107	26.5	0.02	0.20	mg/kg	25.0		106	80-120			
Arsenic	75a	24.6	0.04	0.20	mg/kg	25.0		98.3	80-120			
Cadmium	111	24.8	0.03	0.10	mg/kg	25.0		99.1	80-120			
Copper	63	26.5	0.17	0.50	mg/kg	25.0		106	80-120			
Selenium	78	77.6	0.18	0.50	mg/kg	80.0		96.9	80-120			
Zinc	66	80.7	2.9	6.0	mg/kg	80.0		101	80-120			
Duplicate (BMG0273-DUP1)						Source: 24G0171-01 Prepared: 11-Jul-2024 Analyzed: 18-Jul-2024 13:04						
Antimony	121	ND	0.13	0.26	mg/kg		ND					U
Lead	208	8.25	0.07	0.13	mg/kg		9.14			10.30	20	
Silver	107	0.14	0.03	0.26	mg/kg		0.16			13.80	20	J
Arsenic	75a	12.8	0.05	0.26	mg/kg		12.1			5.33	20	
Cadmium	111	0.09	0.04	0.13	mg/kg		0.14			38.40	20	L, J
Copper	63	43.9	0.22	0.65	mg/kg		45.6			3.63	20	
Selenium	78	1.15	0.23	0.65	mg/kg		1.41			20.90	20	L
Zinc	66	91.1	3.8	7.7	mg/kg		98.2			7.46	20	
Duplicate (BMG0273-DUP2)						Source: 24G0171-01 Prepared: 11-Jul-2024 Analyzed: 19-Jul-2024 22:59						
Chromium	52	38.5	0.84	1.61	mg/kg		35.6			7.76	20	D
Matrix Spike (BMG0273-MS1)						Source: 24G0171-01 Prepared: 11-Jul-2024 Analyzed: 18-Jul-2024 13:08						



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:41

Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BMG0273 - EPA 6020B

Instrument: ICPMS1 Analyst: DOE

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BMG0273-MS1)		Source: 24G0171-01			Prepared: 11-Jul-2024 Analyzed: 18-Jul-2024 13:08							
Antimony	121	1.78	0.13	0.26	mg/kg	32.2	ND	5.5	75-125			*
Lead	208	40.9	0.07	0.13	mg/kg	32.2	9.14	98.6	75-125			
Silver	107	18.1	0.03	0.26	mg/kg	32.2	0.16	55.6	75-125			*
Arsenic	75a	47.2	0.05	0.26	mg/kg	32.2	12.1	109	75-125			
Cadmium	111	32.3	0.04	0.13	mg/kg	32.2	0.14	99.8	75-125			
Copper	63	76.2	0.22	0.64	mg/kg	32.2	45.6	95.2	75-125			
Selenium	78	97.0	0.23	0.64	mg/kg	103	1.41	92.7	75-125			
Zinc	66	186	3.8	7.7	mg/kg	103	98.2	85.2	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike (BMG0273-MS2)		Source: 24G0171-01			Prepared: 11-Jul-2024 Analyzed: 19-Jul-2024 23:03							
Chromium	52	60.6	0.84	1.61	mg/kg	32.2	35.6	77.5	75-125			D

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Post Spike (BMG0273-PS1)		Source: 24G0171-01			Prepared: 11-Jul-2024 Analyzed: 18-Jul-2024 13:13							
Antimony	121	474			mg/kg	500	ND	94.7	80-120			
Silver	107	514			mg/kg	500	0.16	102	80-120			
Selenium	78	1580			mg/kg	1600	1.41	97.2	80-120			

Post Spike (BMG0273-PS3)		Source: 24G0171-01			Prepared: 11-Jul-2024 Analyzed: 23-Jul-2024 14:01							
Cadmium	111	527			mg/kg	500	0.14	105	80-120			



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Reported:
16-Sep-2024 10:41

Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BMG0336 - EPA 7471B

Instrument: HYDRA Analyst: ML

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0336-BLK1)					Prepared: 18-Jul-2024 Analyzed: 22-Jul-2024 11:49						
Mercury	ND	0.00525	0.0250	mg/kg							U
LCS (BMG0336-BS1)					Prepared: 18-Jul-2024 Analyzed: 22-Jul-2024 11:51						
Mercury	0.495	0.00525	0.0250	mg/kg	0.500		99.0	80-120			
Duplicate (BMG0336-DUP1)					Source: 24G0171-01 Prepared: 18-Jul-2024 Analyzed: 22-Jul-2024 11:56						
Mercury	0.0727	0.00494	0.0235	mg/kg		0.0731			0.55	20	
Matrix Spike (BMG0336-MS1)					Source: 24G0171-01 Prepared: 18-Jul-2024 Analyzed: 22-Jul-2024 11:58						
Mercury	0.356	0.00488	0.0233	mg/kg	0.233	0.0731	122	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:41

Analysis by: Analytical Resources, LLC

Wet Chemistry - Quality Control

Batch BMG0226 - PSEP 1986

Instrument: BAL2 Analyst: LERB

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0226-BLK1)						Prepared: 10-Jul-2024 Analyzed: 10-Jul-2024 11:40					
Volatile Solids	ND	0.01	0.01	%							U
Total Solids	ND	0.04	0.04	%							U



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Project: PAMP Sediments
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Reported:
16-Sep-2024 10:41

Analysis by: Analytical Resources, LLC

Wet Chemistry - Quality Control

Batch BMG0720 - EPA 9060A m

Instrument: TOC Cube Analyst: ARR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0720-BLK1)					Prepared: 29-Jul-2024 Analyzed: 29-Jul-2024 23:03					
Total Organic Carbon	ND	0.02	0.02	%						U
LCS (BMG0720-BS1)					Prepared: 29-Jul-2024 Analyzed: 30-Jul-2024 00:34					
Total Organic Carbon	46.1	0.02	0.02	%	44.4	104	80-120			



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Reported:
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Certified Analyses included in this Report

Analyte	Certifications
EPA 6020B in Solid	
Silver-107	NELAP,DoD-ELAP,WADOE
Chromium-52	NELAP,DoD-ELAP,WADOE,ADEC
Chromium-53	NELAP,DoD-ELAP,WADOE,ADEC
Lead-208	NELAP,DoD-ELAP,WADOE,ADEC
Antimony-121	NELAP,DoD-ELAP,WADOE
EPA 6020B UCT-KED in Solid	
Arsenic-75a	NELAP,DoD-ELAP,WADOE,ADEC
Cadmium-111	NELAP,DoD-ELAP,WADOE,ADEC
Copper-63	NELAP,DoD-ELAP,WADOE
Selenium-78	NELAP,DoD-ELAP,WADOE
Zinc-66	NELAP,DoD-ELAP,WADOE
EPA 7471B in Solid	
Mercury	WADOE,NELAP,DoD-ELAP
EPA 8081B in Solid	
alpha-BHC	DoD-ELAP,NELAP,WADOE
alpha-BHC [2C]	DoD-ELAP,NELAP,WADOE
beta-BHC	DoD-ELAP,NELAP,WADOE
beta-BHC [2C]	DoD-ELAP,NELAP,WADOE
gamma-BHC (Lindane)	DoD-ELAP,NELAP,WADOE
gamma-BHC (Lindane) [2C]	DoD-ELAP,NELAP,WADOE
delta-BHC	DoD-ELAP,NELAP,WADOE
delta-BHC [2C]	DoD-ELAP,NELAP,WADOE
Heptachlor	DoD-ELAP,NELAP,WADOE
Heptachlor [2C]	DoD-ELAP,NELAP,WADOE
Aldrin	DoD-ELAP,NELAP,WADOE
Aldrin [2C]	DoD-ELAP,NELAP,WADOE
Heptachlor Epoxide	DoD-ELAP,NELAP,WADOE
Heptachlor Epoxide [2C]	DoD-ELAP,NELAP,WADOE
trans-Chlordane (beta-Chlordane)	DoD-ELAP,NELAP



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trans-Chlordane (beta-Chlordane)	DoD-ELAP,NELAP
cis-Chlordane (alpha-chlordane)	DoD-ELAP,NELAP,WADOE
cis-Chlordane (alpha-chlordane)	DoD-ELAP,NELAP,WADOE
Endosulfan I	DoD-ELAP,NELAP,WADOE
Endosulfan I [2C]	DoD-ELAP,NELAP,WADOE
4,4'-DDE	DoD-ELAP,NELAP,WADOE
4,4'-DDE [2C]	DoD-ELAP,NELAP,WADOE
Dieldrin	DoD-ELAP,NELAP,WADOE
Dieldrin [2C]	DoD-ELAP,NELAP,WADOE
Endrin	DoD-ELAP,NELAP,WADOE
Endrin [2C]	DoD-ELAP,NELAP,WADOE
Endosulfan II	DoD-ELAP,NELAP,WADOE
Endosulfan II [2C]	DoD-ELAP,NELAP,WADOE
4,4'-DDD	DoD-ELAP,NELAP,WADOE
4,4'-DDD [2C]	DoD-ELAP,NELAP,WADOE
Endrin Aldehyde	DoD-ELAP,NELAP,WADOE
Endrin Aldehyde [2C]	DoD-ELAP,NELAP,WADOE
4,4'-DDT	DoD-ELAP,NELAP,WADOE
4,4'-DDT [2C]	DoD-ELAP,NELAP,WADOE
Endosulfan Sulfate	DoD-ELAP,NELAP,WADOE
Endosulfan Sulfate [2C]	DoD-ELAP,NELAP,WADOE
Endrin Ketone	DoD-ELAP,NELAP,WADOE
Endrin Ketone [2C]	DoD-ELAP,NELAP,WADOE
Methoxychlor	DoD-ELAP,NELAP,WADOE
Methoxychlor [2C]	DoD-ELAP,NELAP,WADOE
Hexachlorobutadiene	DoD-ELAP,NELAP,WADOE
Hexachlorobutadiene [2C]	DoD-ELAP,NELAP,WADOE
Hexachlorobenzene	DoD-ELAP,NELAP,WADOE
Hexachlorobenzene [2C]	DoD-ELAP,NELAP,WADOE
2,4'-DDE	DoD-ELAP,NELAP,WADOE
2,4'-DDE [2C]	DoD-ELAP,NELAP,WADOE
2,4'-DDD	DoD-ELAP,NELAP,WADOE
2,4'-DDD [2C]	DoD-ELAP,NELAP,WADOE



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Reported:

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2,4'-DDT	DoD-ELAP,NELAP,WADOE
2,4'-DDT [2C]	DoD-ELAP,NELAP,WADOE
Oxychlordan	DoD-ELAP,NELAP,WADOE
Oxychlordan [2C]	DoD-ELAP,NELAP,WADOE
cis-Nonachlor	DoD-ELAP,NELAP,WADOE
cis-Nonachlor [2C]	DoD-ELAP,NELAP,WADOE
trans-Nonachlor	DoD-ELAP,NELAP,WADOE
trans-Nonachlor [2C]	DoD-ELAP,NELAP,WADOE
Mirex	DoD-ELAP,NELAP,WADOE
Mirex [2C]	DoD-ELAP,NELAP,WADOE

EPA 8082A in Solid

Aroclor 1016	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1016 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1242	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1242 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1248	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1248 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1260	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1260 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1262	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1262 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1268	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1268 [2C]	WADOE,DoD-ELAP,NELAP,ADEC

EPA 8270E in Solid

Phenol	DoD-ELAP,NELAP,WADOE
bis(2-chloroethyl) ether	DoD-ELAP,NELAP,WADOE
2-Chlorophenol	DoD-ELAP,NELAP,WADOE



Shannon & Wilson, Inc

5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:41

1,3-Dichlorobenzene	DoD-ELAP,NELAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,NELAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,NELAP,WADOE
Benzyl Alcohol	DoD-ELAP,NELAP,WADOE
2,2'-Oxybis(1-chloropropane)	DoD-ELAP,NELAP
2-Methylphenol	DoD-ELAP,NELAP,WADOE
Hexachloroethane	DoD-ELAP,NELAP,WADOE
N-Nitroso-di-n-Propylamine	DoD-ELAP,NELAP,WADOE
4-Methylphenol	DoD-ELAP,NELAP,WADOE
Nitrobenzene	DoD-ELAP,NELAP,WADOE
Isophorone	DoD-ELAP,NELAP,WADOE
2-Nitrophenol	DoD-ELAP,NELAP,WADOE
2,4-Dimethylphenol	DoD-ELAP,NELAP,WADOE
Bis(2-Chloroethoxy)methane	DoD-ELAP,NELAP,WADOE
2,4-Dichlorophenol	DoD-ELAP,NELAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,NELAP,WADOE
Naphthalene	DoD-ELAP,NELAP,WADOE,ADEC
Benzoic acid	DoD-ELAP,NELAP,WADOE
4-Chloroaniline	DoD-ELAP,NELAP,WADOE
Hexachlorobutadiene	DoD-ELAP,NELAP,WADOE
4-Chloro-3-Methylphenol	DoD-ELAP,NELAP,WADOE
2-Methylnaphthalene	DoD-ELAP,NELAP,WADOE,ADEC
Hexachlorocyclopentadiene	DoD-ELAP,NELAP,WADOE
2,4,6-Trichlorophenol	DoD-ELAP,NELAP,WADOE
2,4,5-Trichlorophenol	DoD-ELAP,NELAP,WADOE
2-Chloronaphthalene	DoD-ELAP,NELAP,WADOE
2-Nitroaniline	DoD-ELAP,NELAP,WADOE
Acenaphthylene	DoD-ELAP,NELAP,WADOE,ADEC
Dimethylphthalate	DoD-ELAP,NELAP,WADOE
2,6-Dinitrotoluene	DoD-ELAP,NELAP,WADOE
Acenaphthene	DoD-ELAP,NELAP,WADOE,ADEC
3-Nitroaniline	DoD-ELAP,NELAP,WADOE
2,4-Dinitrophenol	DoD-ELAP,NELAP,WADOE



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Dibenzofuran	DoD-ELAP,NELAP,WADOE,ADEC
4-Nitrophenol	DoD-ELAP,NELAP,WADOE
2,4-Dinitrotoluene	DoD-ELAP,NELAP,WADOE
Fluorene	DoD-ELAP,NELAP,WADOE,ADEC
4-Chlorophenylphenyl ether	DoD-ELAP,NELAP
Diethyl phthalate	DoD-ELAP,NELAP,WADOE
4-Nitroaniline	DoD-ELAP,NELAP,WADOE
4,6-Dinitro-2-methylphenol	DoD-ELAP,NELAP,WADOE
N-Nitrosodiphenylamine	DoD-ELAP,NELAP,WADOE
4-Bromophenyl phenyl ether	DoD-ELAP,NELAP,WADOE
Hexachlorobenzene	DoD-ELAP,NELAP,WADOE
Pentachlorophenol	DoD-ELAP,NELAP,WADOE
Phenanthrene	DoD-ELAP,NELAP,WADOE,ADEC
Anthracene	DoD-ELAP,NELAP,WADOE,ADEC
Carbazole	DoD-ELAP,NELAP,WADOE,ADEC
Di-n-Butylphthalate	DoD-ELAP,NELAP,WADOE
Fluoranthene	DoD-ELAP,NELAP,WADOE,ADEC
Pyrene	DoD-ELAP,NELAP,WADOE,ADEC
Butylbenzylphthalate	DoD-ELAP,NELAP,WADOE
Benzo(a)anthracene	DoD-ELAP,NELAP,WADOE,ADEC
3,3'-Dichlorobenzidine	DoD-ELAP,NELAP,WADOE
Chrysene	DoD-ELAP,NELAP,WADOE,ADEC
bis(2-Ethylhexyl)phthalate	DoD-ELAP,NELAP,WADOE
Di-n-Octylphthalate	DoD-ELAP,NELAP,WADOE
Benzofluoranthenes, Total	WADOE,ADEC
Benzo(a)pyrene	DoD-ELAP,NELAP,WADOE,ADEC
Indeno(1,2,3-cd)pyrene	DoD-ELAP,NELAP,WADOE,ADEC
Dibenzo(a,h)anthracene	DoD-ELAP,NELAP,WADOE,ADEC
Benzo(g,h,i)perylene	DoD-ELAP,NELAP,WADOE,ADEC
1-Methylnaphthalene	DoD-ELAP,NELAP,WADOE,ADEC

EPA 8270E-SIM in Solid

Tributyltin Ion	NELAP,WADOE,DoD-ELAP
Phenol	NELAP,WADOE



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1,3-Dichlorobenzene	NELAP,WADOE
1,4-Dichlorobenzene	NELAP,WADOE
1,2-Dichlorobenzene	NELAP,WADOE
Benzyl Alcohol	NELAP,WADOE
2-Methylphenol	NELAP,WADOE
N-Nitroso-di-n-Propylamine	NELAP,WADOE
4-Methylphenol	NELAP,WADOE
2,4-Dimethylphenol	NELAP,WADOE
1,2,4-Trichlorobenzene	NELAP,WADOE
Hexachlorobutadiene	NELAP,WADOE
N-Nitrosodimethylamine	NELAP,WADOE
Dimethylphthalate	NELAP,WADOE
Diethyl phthalate	NELAP,WADOE
N-Nitrosodiphenylamine	NELAP,WADOE
Hexachlorobenzene	NELAP,WADOE
Pentachlorophenol	NELAP,WADOE
Butylbenzylphthalate	NELAP,WADOE
Dibenzo(a,h)anthracene	NELAP,WADOE

EPA 9060A m in Solid

Total Organic Carbon	NELAP,WADOE

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2025
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program, PJLA Testing	66169	02/28/2025
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2025
WADOE	WA Dept of Ecology	C558	06/30/2025
WA-DW	Ecology - Drinking Water	C558	06/30/2025



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Notes and Definitions

*	Flagged value is not within established control limits.
D	The reported value is from a dilution
D1	Surrogate was not detected due to sample extract dilution
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
J	Estimated concentration value detected below the reporting limit.
L	Analyte concentration is ≤ 5 times the reporting limit and the replicate control limit defaults to $\pm$ RL instead of 20% RPD
P1	The reported value is greater than 40% difference between the concentrations determined on two GC columns where applicable.
Q	Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria ($<20\%$ RSD, $<20\%$ drift or minimum RRF)
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.

ADEC Contaminated Sites Program Laboratory Data Review Checklist

Completed By:	Ashley Jaramillo	CS Site Name:	NA	Lab Name:	Analytical Resources, LLC.
Title:	Senior Chemist	ADEC File No.:	NA	Lab Report No.:	24G0171
Consulting Firm:	Shannon & Wilson, Inc.	Hazard ID No.:	NA	Lab Report Date:	9/16/24

Note: Any N/A or No box checked must have an explanation in the comments box.

1. Laboratory

- a. Did an ADEC Contaminated Sites Laboratory Approval Program (CS-LAP) approved laboratory receive and perform all of the submitted sample analyses?

Yes ☐ No ☒ N/A ☐

Comments: Project samples were sent to Analytical Resources, LLC (ARI) Tukwila, Washington for the analysis of Grain Size by PSEP-PS, total solids by SM 2540, total volatile solids by PSEP 1986, SVOCs by 8270E, SVOC-SIM by 8270E-SIM, tributyltin (TBT) by 8270E-SIM, pesticide by 8081B, PCBs by 8082A, TOC by 9060A, metals by 6020B, and mercury by 7471. ARI is certified under DEC approval 17-015 dated 4/13/2023, expiring 3/28/2025. Grain Size by PSEP-PS was subcontracted to AMTEST Laboratories (AMTEST) in Tukwila, Washington. The DEC CS project does not certify for this analysis.

- b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses CS-LAP approved?

Yes ☐ No ☒ N/A ☐

Comments: Grain Size by PSEP-PS was subcontracted to AMTEST in Tukwila, Washington. The DEC CS project does not certify for this analysis.

2. Chain of Custody (CoC)

- a. Is the CoC information completed, signed, and dated (including released/received by)?

Yes ☒ No ☐ N/A ☐

Comments: The sample samples on the CoC were correct, however, the laboratory logged in the samples with slightly different nomenclature, i.e., CoC name = 113733-SB4S1 and login name = 11373-SB4S1. The incorrect sample names provided by the laboratory appear in the lab report, but the correct sample names appear in the analytical table. Data quality and/or usability is not affected.

b. Were the correct analyses requested?

Yes ☒ No ☐ N/A ☐

Analyses requested: No methods were listed on the CoC for Grain size, total solids, total volatile solids, SVOCs, SVOC-SIM, TBT, pesticides, PDBs, TOC, metals, and mercury. The laboratories analyzed Grain Size by PSEP-PS, total solids by SM 2540, total volatile solids by PSEP 1986, SVOCs by 8270E, SVOC-SIM by 8270E-SIM, TBT by 8270E-SIM, pesticide by 8081B, PCBs by 8082A, TOC by 9060A, metals by 6020B, and mercury by 7471.

Comments: These are the correct methods for this project. Data quality and/or usability not affected.

3. Laboratory Sample Receipt Documentation

a. Is the sample/cooler temperature documented and within range at receipt (0° to 6° C)?

Yes ☒ No ☐ N/A ☐

Cooler temperature(s): Cooler temperatures were not reported, rather a temperature blank was included with the samples in the cooler and is used to access temperature preservation. The temperature blank was 3.5°C at sample login at ARI. The temperature blank was 1.2°C at sample login at AMTEST.

Sample temperature(s): Sample temperatures were not reported.

Comments: The temperature blank was within the acceptable temperature range.

b. Is the sample preservation acceptable – acidified waters, methanol preserved soil (GRO, BTEX, VOCs, etc.)?

Yes ☐ No ☐ N/A ☒

Comments: Sample preservation not required.

c. Is the sample condition documented – broken, leaking, zero headspace (VOA vials); canister vacuum/pressure checked and no open valves, etc.?

Yes ☒ No ☐ N/A ☐

Comments: Samples were noted to be in good condition.

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, canister not holding a vacuum, etc.?

Yes ☐ No ☐ N/A ☒

Comments: No discrepancies were noted by the laboratory at sample login.

e. Is the data quality or usability affected?

Yes ☐ No ☒ N/A ☐

Comments: No laboratory sample receipt documentation discrepancies were noted at sample login.

4. Case Narrative

- a. Is the case narrative present and understandable?

Yes ☒ No ☐ N/A ☐

Comments: Click or tap here to enter text.

- b. Are there discrepancies, errors, or QC failures identified by the lab?

Yes ☒ No ☐ N/A ☐

Comments:

The samples were submitted to AMTEST Laboratories for grainsize analysis. The AMTEST report is included with the ARI laboratory report in its entirety. Data quality and/or usability not affected.

Initial and continuing SVOC calibrations were within method requirements, with accepted excursions outside the 20% window. Associated positive results have been "Q"-flagged. Response for 3,3'-dichlorobenzidine was low of limits. All other "Q"-flagged compounds showed response high of control limits. Evaluation of ICV or CCV is outside of the scope of a stage 2a data review and the laboratory didn't indicate an effect on project data due to the discrepancy, therefore sample results are not considered affected.

The SVOC blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) outside of control limits are flagged on the summary sheet. See section 6.b. for details regarding impacts to data quality and/or usability.

SVOC batch BMG0256 matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD) were within advisory control limits, reported under work order 24G0170. As this data is reported in another work order, we do not discuss this case narrative entry further.

Initial and continuing SVOC-SIM calibrations were within method requirements, with accepted excursions outside the 20% window. SVOC-SIM associated positive results have been "Q"-flagged. Response was high of limits for benzoic acid and pentachlorophenol in SMG0337-ICV1 and high of limits for dibenzo(a,h)anthracene in SMG0337-ICV2. Internal standard areas were within limits. Evaluation of ICV or CCV is outside of the scope of a stage 2a data review and the laboratory didn't indicate an effect on project data due to the discrepancy, therefore sample results are not considered affected.

SVOC-SIM surrogate recoveries outside of control limits are flagged on the summary sheets. See section 6.d. for details regarding impacts to data quality and/or usability.

SVOC-SIM batch BMG0256 matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD) were within advisory

control limits, reported under work order 24G0170. As this data is reported in another work order, we do not discuss this case narrative entry further.

TBT batch BMG0255 matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD) were within advisory control limits, reported under work order 24G0181. As this data is reported in another work order, we do not discuss this case narrative entry further.

Initial and continuing pesticide calibrations were within method requirements with excursions. Several standards had response outside limits high on the STX-CLP column for 2,4'-DDD, 2,4'-DDE, 2,4'-DDT, 4,4'-DDD, 4,4'-DDT, cis-Nonachlor, Endosulfan II, Endosulfan Sulfate, Endrin, Endrin Aldehyde, Endrin Ketone, Heptachlor, Methoxychlor, Mirex, Oxychlorane, and trans-Nonachlor. Response was noted low for hexachlorobutadiene in SMG0367-ICV1. Several standards had response high of limits on the CLP2 column for 2,4'-DDD, 2,4'-DDT and endrin ketone, and low of limits for decachlorobiphenyl (DCBP) and dieldrin. Evaluation of ICV or CCV is outside of the scope of a stage 2a data review and the laboratory didn't indicate an effect on project data due to the discrepancy, therefore sample results are not considered affected.

Pesticide internal standard areas for hexabromobiphenyl (HBB) were low of limits on the STX-CLP column in 11373-SB4S2, 11373-SB4S3, 11373-SB4S4, 11373-SB4S5, 11373-SB4S6, SMG0367-CCV4, SMG0367-CCV6, and SMG0367-PEM3. Evaluation of the internal standard is outside the scope of a stage 2a data review and the laboratory didn't indicate an effect on project data due to this discrepancy, therefore samples results are not considered affected.

The pesticide blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent differences (RPD) outside of control limits are flagged on the summary sheet. See section 6.b. for details regarding impacts to data quality and/or usability.

Pesticide results that have been "P1"-flagged indicate a greater than 40% difference between the results on the two analytical columns. The P1 flag was applied to 4,4'-DDD in 11373-SB4S5. Consequently, the result of this analyte in the noted sample is considered an estimate, however, this analyte in the noted sample has been previously flagged due to a LCS/CLSD recovery failure, see 6.b.iii, below. No additional flags were added due to this discrepancy.

PCB batch BMG0250 matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD) were within advisory control limits, reported under work order 24G0170. As this data is reported in another work order, we do not discuss this case narrative entry further.

CS Site Name: NA
Lab Report No.: 24G0171

Metals matrix spike (MS) percent recoveries outside advisory control limits are flagged on the summary sheet. A post spike had an acceptable recovery. See section 6.c. for details regarding impacts to data quality and/or usability.

The solids batch BMG0226 replicates (DUP1, DUP2) relative percent differences (RPD) were within advisory control limits, reported under work order 24G0170. As this data is reported in another work order, we do not discuss this case narrative entry further.

The batch BMG0720 TOC matrix spike (MS) percent recoveries were within control limits. The DUP1 relative percent difference (RPD) for TOC was high of advisory control limits, reported under work order 24G0167. As this data is reported in another work order, we do not discuss this case narrative entry further.

AMTEST

No CoC was included with the AMTEST lab report. No data quality control discrepancies were noted in the laboratory report, data quality and/or usability not affected.

c. Were all the corrective actions documented?

Yes ☐ No ☐ N/A ☒

Comments: Corrective actions not required.

d. What is the effect on data quality/usability according to the case narrative?

Comments: Effect on data quality and/or usability due to discrepancies, errors, or QC failures identified by the lab in the case narrative are either discussed above in Section 4.b. or elsewhere in this checklist.

5. Sample Results

a. Are the correct analyses performed/reported as requested on CoC?

Yes ☒ No ☐ N/A ☐

Comments: No methods were listed on the CoC for Grain size, total solids, total volatile solids, SVOCs, SVOC-SIM, TBT, pesticides, PDBs, TOC, metals, and mercury. The laboratories analyzed Grain Size by PSEP-PS, total solids by SM 2540, total volatile solids by PSEP 1986, SVOCs by 8270E, SVOC-SIM by 8270E-SIM, TBT by 8270E-SIM, pesticide by 8081B, PCBs by 8082A, TOC by 9060A, metals by 6020B, and mercury by 7471. These are the correct methods for this project. Data quality and/or usability not affected.

b. Are all applicable holding times met?

Yes ☒ No ☐ N/A ☐

Comments: Click or tap here to enter text.

CS Site Name: NA

Lab Report No.: 24G0171

- c. Are all soils reported on a dry weight basis?

Yes ☒ No ☐ N/A ☐

Comments: Click or tap here to enter text.

- d. Are the reported limits of quantitation (LoQ) or limits of detections (LOD), or reporting limits (RL) less than the Cleanup Level or the action level for the project?

Yes ☐ No ☒ N/A ☐

Comments: Analytical sensitivity was evaluated to verify that LODs met applicable DEC migration to groundwater cleanup levels for non-detect results, as appropriate. Analytes with LODs that do not meet applicable cleanup levels are bolded in the analytical results table. Data quality and/or usability may be affected as these analytes cannot be detected, if present, at their respective cleanup level.

- e. Is the data quality or usability affected?

Yes ☒ No ☐ N/A ☐

Comments: See 5.d. above.

6. QC Samples

- a. Method Blank

- i. Was one method blank reported per matrix, analysis, and 20 samples?

Yes ☒ No ☐ N/A ☐

Comments: Click or tap here to enter text.

- ii. Are all method blank results less than LOQ (or RL)?

Yes ☒ No ☐

Comments: However, SVOC-SIM analytes benzyl alcohol was detected in the method blank sample for batch BMG0256 at a concentration below the LOQ. Benzyl alcohol was not detected in any associated project samples, data quality and/or usability not affected.

- iii. If above LoQ or RL, what samples are affected?

Comments: Not applicable, see 6.a.ii, above.

- iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes ☐ No ☐ N/A ☒

Comments: See 6.a.ii, above.

- v. Data quality or usability affected?

Yes ☐ No ☒ N/A ☐

Comments: See 6.a.ii, above.

CS Site Name: NA

Lab Report No.: 24G0171

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

- i. Organics – Are one LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

Yes ☐ No ☒ N/A ☐

Comments: LCS/LCSDs were reported for SVOC, SVOC-SIM, TBT, pesticide, and PCB analyses.

- ii. Metals/Inorganics – Are one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes ☐ No ☒ N/A ☐

Comments:

A LCS was reported for metals, mercury, and TOC analyses.

A laboratory duplicate sample was reported for metals and mercury.

- iii. Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes ☐ No ☒ N/A ☐

Comments: The LCS/LCSD %Rs for SVOC analyte isophorone was above laboratory limits in batch BMF0256. This analyte was not detected in associated project samples. Data quality and/or usability not affected.

The %Rs for pesticide analytes endrin, 4,4'-DDD, 4,4'-DDT, endosulfan sulfate, and endrin ketone were above laboratory limits in batch BMG0254. 4,4'-DDD was detected in associated project samples 11373-SB4S3, 11373-SB4S4, 11373-SB4S6, and 11373-SB4S5, consequently, the 4,4'-DDD result in the noted samples are considered an estimate, biased high, and is flagged 'JH*' in the analytical table. Data quality is considered affected; however, data is considered usable with applied flags. Endrin, 4,4'-DDT, endosulfan sulfate, and endrin ketone were not detected in associated project samples. Data quality and/or usability not affected.

- iv. Precision – Are all relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? Was the RPD reported from LCS/LCSD, and or sample/sample duplicate? (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes ☐ No ☒ N/A ☐

Comments: The metal laboratory duplicate had RPD failures for cadmium and selenium in batch BMG0273. The parent sample 113733-SB4S1 cadmium and selenium results are considered estimated and are

flagged 'J*' in the analytical summary table. Data quality is considered affected; however, data is considered usable with applied flags.

- v. If %R or RPD is outside of acceptable limits, what samples are affected?
Comments: See 6.b.iii and 6.b.iv, above.

- vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes ☒ No ☐ N/A ☐

Comments: See 6.b.iii and 6.b.iv, above.

- vii. Is the data quality or usability affected?

Yes ☒ No ☐ N/A ☐

Comments: See 6.b.iii and 6.b.iv, above.

c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

- i. Organics – Are one MS/MSD reported per matrix, analysis and 20 samples?

Yes ☐ No ☒ N/A ☐

Comments: MS/MSD samples were reported for pesticides analyses.

- ii. Metals/Inorganics – Are one MS/MSD reported per matrix, analysis and 20 samples?

Yes ☐ No ☒ N/A ☐

Comments: MS samples were reported for metals and mercury analyses.

- iii. Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable?

Yes ☐ No ☒ N/A ☐

Comments: The MS %Rs for metals analyte antimony was <10% for parent sample 11373-SB4S1. Antimony was not detected in the parent sample. Consequently, the antimony result in the noted parent sample is considered unusable and is flagged 'R*' as rejected in the analytical table.

The MS %R for metals analyte silver was below laboratory limits in parent sample 11373-SB4S1. Silver was detected in the noted sample. Consequently, the silver result in the noted parent sample is considered an estimated, biased low, and flagged 'JL*' in the analytical table. Data quality is affected as noted, however, data is considered usable with applied flags.

CS Site Name: NA

Lab Report No.: 24G0171

- iv. Precision – Are all relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from MS/MSD, and or sample/sample duplicate.

Yes ☒ No ☐ N/A ☐

Comments:

- v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments: See 6.c.iii above.

- vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes ☒ No ☐ N/A ☐

Comments: See 6.c.iii above.

- vii. Is the data quality or usability affected?

Yes ☒ No ☐ N/A ☐

Comments: See 6.c.iii above.

- d. Surrogates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only

- i. Are surrogate/IDA recoveries reported for organic analyses – field, QC, and laboratory samples?

Yes ☒ No ☐ N/A ☐

Comments: Click or tap here to enter text.

- ii. Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods 50-150 %R for field samples and 60-120 %R for QC samples; all other analyses see the laboratory report pages)

Yes ☐ No ☒ N/A ☐

Comments: The SVOC-SIM surrogate p-Terphenyl-d14 was recovered above the laboratory limits in samples 11373-SB4S1 and 11373-SB4S4. p-Terphenyl-d14 controls the following analytes: Butylbenzylphthalate, and Dibenzo[a,h]anthracene. These analytes were not detected in the noted project samples. Data quality and/or usability not affected.

- iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined?

Yes ☐ No ☐ N/A ☒

Comments: See 6.d.ii above.

- iv. Is the data quality or usability affected?

Yes ☐ No ☒ N/A ☐

Comments: See 6.d.ii above.

CS Site Name: NA

Lab Report No.: 24G0171

e. Trip Blanks

- i. Is one trip blank reported per matrix, analysis, and for each cooler containing volatile samples? Yes ☐ No ☐ N/A ☒

Comments: Volatile analyses were not included with this work order. No trip blank required.

- ii. Are all results less than LoQ or RL?

Yes ☐ No ☐ N/A ☒

Comments: Volatile analyses were not included with this work order. No trip blank required.

- iii. If above LoQ or RL, what samples are affected?

Comments: Not applicable. Volatile analyses were not included with this work order. No trip blank required.

- iv. Is the data quality or usability affected?

Yes ☐ No ☒ N/A ☐

Comments: Volatile analyses were not included with this work order. No trip blank required.

f. Field Duplicate

- i. Are one field duplicate submitted per matrix, analysis, and 10 project samples?

Yes ☒ No ☐ N/A ☐

Comments: Click or tap here to enter text.

- ii. Was the duplicate submitted blind to lab?

Yes ☒ No ☐ N/A ☐

Comments: 113733-SB4S12 and 113733-SB4S14 are the field duplicates of 113733-SB4S2 and 113733-SB4S4. 113733-SB4S12 and 113733-SB4S14 were reported un work order 24G0167.

CS Site Name: NA

Lab Report No.: 24G0171

- iii. Precision – All relative percent differences (RPD) less than specified project objectives? (Recommended: 30% water or air, 50% soil)

$$RPD (\%) = \left| \frac{R_1 - R_2}{\left(\frac{R_1 + R_2}{2}\right)} \right| \times 100$$

Where R_1 = Sample Concentration

R_2 = Field Duplicate Concentration

Is the data quality or usability affected? (Explain)

Yes ☐ No ☐ N/A ☐

Comments: Where calculable, analytical results met the comparison criterion ($\leq 50\%$ for soils) for the field duplicate pair 113733-SB4S12/113733-SB4S2 with the following exception: alpha-BHC. Consequently, the results of this analyte in the aforementioned field duplicate pair are considered estimated, with no direction of bias, and have been flagged 'J*' in the analytical table. Data is considered affected; however, data is considered usable with applied flags. In addition, SVOC analytes fluoranthene, phenanthrene, and pyrene were detected in the field duplicate and/or project sample above the LOQ but not detected in the field duplicate and/or project sample above the detection limit. While an RPD cannot be calculated for these analytes, these results are considered a precision failure. Consequently, the results of the noted analytes in the field duplicate pair are considered estimates, no direction of bias, and are flagged 'J*' in the analytical table. Data is considered affected; however, data is considered usable with applied flags.

Where calculable, analytical results met the comparison criterion ($\leq 50\%$ for soils) for the field duplicate pair 113733-SB4S14/113733-SB4S4 with the following exceptions: SVOC analytes 2-methylnaphthalene and naphthalene. Consequently, the results of this analyte in the aforementioned field duplicate pair are considered estimated, with no direction of bias, and have been flagged 'J*' in the analytical table. Data is considered affected; however, data is considered usable with applied flags. In addition, 4,4'-DDD, aroclor 1254 and aroclor 1260 were detected in the field duplicate and/or project sample above the LOQ but not detected in the field duplicate and/or project sample above the detection limit. While an RPD cannot be calculated for these analytes, these results are considered a precision failure. Consequently, the results of the noted analytes in the field duplicate pair are considered estimates, no direction of bias, and are flagged 'J*' in the analytical table, unless previously flagged elsewhere in this checklist. Data is considered affected; however, data is considered usable with applied flags.

CS Site Name: NA

Lab Report No.: 24G0171

iv. Is the data quality or usability affected? (Explain)

Yes ☒ No ☐ N/A ☐

Comments: See 6.f.iii above.

g. Decontamination or Equipment Blanks

i. Were decontamination or equipment blanks collected?

Yes ☐ No ☐ N/A ☒

Comments: Samples were not collected with reusable equipment; equipment blank not required.

ii. Are all results less than LoQ or RL?

Yes ☐ No ☐ N/A ☒

Comments: Samples were not collected with reusable equipment; equipment blank not required.

iii. If above LoQ or RL, specify what samples are affected.

Comments: Not applicable. Samples were not collected with reusable equipment; equipment blank not required.

iv. Are data quality or usability affected?

Yes ☐ No ☒ N/A ☐

Comments: Samples were not collected with reusable equipment; equipment blank not required.

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Are they defined and appropriate?

Yes ☐ No ☐ N/A ☐

Comments: Some analytes were run at a dilution. These analytes are flagged with a 'D' in the analytical report; however, these flags do not appear in the analytical table.

See 4.b. above for other flags.



Analytical Resources, LLC
Analytical Chemists and Consultants
Tukwila, WA

16 September 2024

Dan McMahon
Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage, AK 99518

RE: PAMP Sediments (113733)

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)
24G0178

Associated SDG ID(s)
N/A

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, LLC

Susan Dunnihoo, Director, Client Services

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Chain of Custody Record & Laboratory Analysis Request

AR Assigned Number: 24G0178 Turn-around Requested: standard

Date: 7/8/24

AR Client Company: Shannon & Wilson, Inc. Phone: 907-433-3223

Page: 1 of 1

Client Contact: Dan McMahon

No. of Coolers: 1 Cooler Temps: 1



Analytical Resources, LLC
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6202 (fax)

Client Project Name: <u>PAMP Sediment</u>					Analysis Requested								Notes/Comments		
Client Project #: <u>113733</u>		Samplers: <u>AJR</u>			SVOC/TBT/ Pest/PCB	TS/TVS/TOC	Metals	Grainsize							
Sample ID	Date	Time	Matrix	No. Containers											
113733-SB3S1	07/01/24	12:30	Sed	3	✓	✓	✓	✓							
113733-SB3S2	07/01/24	12:40	Sed	3	✓	✓	✓	✓							
113733-SB3S3	07/01/24	13:05	Sed	3	✓	✓	✓	✓							
113733-SB3S4	07/01/24	13:10	Sed	3	✓	✓	✓	✓							
113733-SB3S5	07/01/24	14:25	Sed	3	✓	✓	✓	✓							
Comments/Special Instructions					Relinquished by: (Signature) <u>[Signature]</u>			Received by: (Signature) <u>[Signature]</u>			Relinquished by: (Signature)			Received by: (Signature)	
					Printed Name: <u>Aur Pizzo</u>			Printed Name: <u>Sydney Acevedo</u>			Printed Name:			Printed Name:	
					Company: <u>STW</u>			Company: <u>AR-1</u>			Company:			Company:	
					Date & Time: <u>7/8/24</u> <u>800</u>			Date & Time: <u>7/9/24</u> <u>1131</u>			Date & Time:			Date & Time:	

Limits of Liability: Analytical Resources, LLC (AR) will perform all requested services in accordance with appropriate methodology following AR Standard Operating Procedures and the AR Quality Assurance Program. This program meets standards for the industry. The total liability of AR, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by AR release AR from any liability in excess thereof, notwithstanding any provision to the contrary in any contract, purchase order or co-signed agreement between AR and the Client.

Sample Retention Policy: Unless specified by work order or contract, all water/soil samples submitted to AR will be discarded or returned, no sooner than 90 days after receipt or 60 days after submission of hard copy data, whichever is longer. Sediment samples submitted under PSDDA/PSEP/SMS protocol will be stored frozen for up to one year and then discarded.



Analytical Resources, LLC
Analytical Chemists and Consultants

SUBCONTRACT ORDER
To: AmTest Laboratories
ARI Work Order:24G0178

SENDING LABORATORY:

Analytical Resources, LLC
4611 S. 134th Place, Suite 100
Tukwila, WA 98168
Phone: (206) 695-6200
Fax: (206) 695-6202
Project Manager: Susan Dunnihoo
E-Mail: sue.dunnihoo@arilabs.com

RECEIVING LABORATORY:

AmTest Laboratories
13600 NE 126th Pl Suite C
Kirkland, WA 98034
Phone :425-885-1664
Fax: -

PLEASE SEND DATA AND INVOICE TO subdata@arilabs.com

Analysis	Due	Expires	Sub Laboratory ID	Comments
Sample ID: 24G0178-01				
Sampled: 07/07/24 12:30 Matrix: Solid				
Grainsize PSEP (Subc)	07/23/24	01/06/25 05:18		
<i>Containers Supplied:</i>				
24G0178-01 A Ziploc Bag, Gallon				
Sample ID: 24G0178-02				
Sampled: 07/07/24 12:40 Matrix: Solid				
Grainsize PSEP (Subc)	07/23/24	01/06/25 05:28		
<i>Containers Supplied:</i>				
24G0178-02 A Ziploc Bag, Gallon				
Sample ID: 24G0178-03				
Sampled: 07/07/24 13:05 Matrix: Solid				
Grainsize PSEP (Subc)	07/23/24	01/06/25 05:53		
<i>Containers Supplied:</i>				
24G0178-03 A Ziploc Bag, Gallon				
Sample ID: 24G0178-04				
Sampled: 07/07/24 13:10 Matrix: Solid				
Grainsize PSEP (Subc)	07/23/24	01/06/25 05:58		
<i>Containers Supplied:</i>				
24G0178-04 A Ziploc Bag, Gallon				

1.2°C

SF

7/11/24 1245

Released By Matt De 07/11/24 1245 Date Received By Date

Released By Date Received By Date

Printed: 7/9/2024 2:56:33PM



Analytical Resources, LLC
Analytical Chemists and Consultants

SUBCONTRACT ORDER
To: AmTest Laboratories
ARI Work Order:24G0178

Analysis	Due	Expires	Sub Laboratory ID	Comments
Sample ID: 24G0178-05				
Sampled: 07/07/24 14:25	Matrix: Solid			
Grainsize PSEP (Subc)	07/23/24	01/06/25 07:13		
Containers Supplied:				
24G0178-05 A				
Ziploc Bag, Gallon				

1.2°C

SF

7/11/24 1245

Mattto Davis 07/11/24 1245

Released By Date Received By Date

Released By Date Received By Date

Printed: 7/9/2024 2:56:33PM

ARI ARIS



Shannon & Wilson, Inc

5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:51

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
113733-SB3S1	24G0178-01	Solid	07-Jul-2024 12:30	09-Jul-2024 11:31
113733-SB3S2	24G0178-02	Solid	07-Jul-2024 12:40	09-Jul-2024 11:31
113733-SB3S3	24G0178-03	Solid	07-Jul-2024 13:05	09-Jul-2024 11:31
113733-SB3S4	24G0178-04	Solid	07-Jul-2024 13:10	09-Jul-2024 11:31
113733-SB3S5	24G0178-05	Solid	07-Jul-2024 14:25	09-Jul-2024 11:31



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:51

Work Order Case Narrative

Client: Shannon & Wilson, Inc
Project: PAMP Sediments
Work Order: 24G0178

Sample receipt

Samples as listed on the preceding page were received 09-Jul-2024 11:31 under ARI work order 24G0178. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Grainsize

The samples were submitted to AmTest Laboratories for grainsize analysis. The AmTest report is included here in its entirety.

Semivolatiles - EPA Method SW8270E

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements, with accepted excursions low outside the 20% window. Associated positive results have been "Q"-flagged.

Internal standard areas were within limits.

The surrogate recoveries outside of control limits are flagged on the summary sheets.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent differences (RPD) outside of control limits are flagged on the summary sheet.

The batch BMG0260 matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent differences (RPD) outside of advisory control limits are flagged on the summary sheet, reported under work order 24G0167.

Semivolatiles - EPA Method SW8270E-SIM

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements, with accepted excursions low outside the 20% window. Associated positive results have been "Q"-flagged.

Internal standard areas were within limits.

The surrogate recoveries outside of control limits are flagged on the summary sheets.



Shannon & Wilson, Inc

5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:51

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent differences (RPD) outside of control limits are flagged on the summary sheet.

The batch BMG0260 matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent differences (RPD) outside of advisory control limits are flagged on the summary sheet, reported under work order 24G0167.

Butyl Tin(s)- EPA Method SW8270E-SIM

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent differences (RPD) were within control limits.

The matrix spike/matrix spike duplicate (MS/MSD) percent recoveries were within advisory control limits. The relative percent differences (RPD) outside advisory control limits are flagged on the summary sheet.

Chlorinated Pesticides - EPA Method SW8081B

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements with excursions. Several standards had response outside limits high on the STX-CLP column for 2,4'-DDD, 2,4'-DDE, 2,4'-DDT, 4,4'-DDD, 4,4'-DDT, cis-Nonachlor, Endosulfan II, Endosulfan Sulfate, Endrin, Endrin Aldehyde, Endrin Ketone, Heptachlor, Methoxychlor, Oxychlorane, and trans-Nonachlor. Several standards had response low of limits on the CLP2 column for 4,4'-DDT, (DCPB), Dieldrin, Endrin Aldehyde, Endrin Ketone, and Methoxychlor.

The internal standard areas for hexabromobiphenyl (HBB) were low of limits on the STX-CLP column in 113733-SB3S1, 113733-SB3S2, 113733-SB3S3, 113733-SB3S4, 113733-SB3S5, SMG0341-CCV5, SMG0341-CCV6, SMG0351-PEM3 and SMG0351-PEM4.

The surrogate recoveries outside of control limits are flagged on the summary sheets.

The method blank(s) were clean at the reporting limits.



Shannon & Wilson, Inc

5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:51

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent differences (RPD) outside of control limits are flagged on the summary sheets.

The batch BMG0258 matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent differences (RPD) outside of advisory control limits are flagged on the summary sheets, reported under work order 24G0167

Results that have been "P1"-flagged indicate a greater than 40% difference between the results on the two analytical columns.

PCB Aroclors - EPA Method SW8082A

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent differences (RPD) were within control limits.

The batch BMG0257 matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD) were within advisory control limits, reported under work order 24G0168.

Total Metals - EPA Method 6020B

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations including interference checks were within method requirements for reported elements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

The batch BMG0273 duplicate (DUP) relative percent differences (RPD) were within advisory control limits, reported under work order 24G0171.

The batch BMG0273 matrix spike (MS) percent recoveries outside advisory control limits are flagged on the summary sheet, reported under work order 24G0171. A post spike had an acceptable recovery.

Total Mercury - EPA Method 7471B



Shannon & Wilson, Inc

5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:51

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

The batch BMG0336 matrix spike (MS) percent recoveries and the duplicate (DUP) relative percent difference (RPD) were within advisory control limits, reported under work order 24G0171.

Wet Chemistry

The sample(s) were prepared and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The TOC blank spike (BS/LCS) percent recoveries were within control limits.

The solids replicates (DUP1, DUP2) relative percent differences (RPD) were within advisory control limits.

The TOC batch BMH0093 matrix spike (MS) percent recoveries and the replicates (DUP1, DUP2) relative percent differences (RPD) were within advisory control limits, reported under work order 24G0168.



WORK ORDER

24G0178

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Shannon & Wilson, Inc

Project Manager: Susan Dunnihoo

Project: PAMP Sediments

Project Number: 113733

Report To:

Shannon & Wilson, Inc
Dan McMahon
5430 Fairbanks Street, Suite 3
Anchorage, AK 99518
Phone: (907) 433-3223
Fax: -

Invoice To:

Shannon & Wilson, Inc
Dan McMahon
5430 Fairbanks Street, Suite 3
Anchorage, AK 99518
Phone : (907) 433-3223
Fax: -

Date Due: 23-Jul-2024 18:00 (10 day TAT)

Received By: Sydni Acevedo

Date Received: 09-Jul-2024 11:31

Logged In By: Robert Leesemann

Date Logged In: 09-Jul-2024 14:40

Samples Received at: -1.6°C

Intact, properly signed and dated custody seals attached to outside of cooler(s).....No
Custody papers properly filled out (in, signed, analyses requested, etc).....Yes
Was sufficient ice used (if appropriate).....Yes
All bottles arrived in good condition (unbroken).....Yes
Number of containers listed on COC match number received.....Yes
Correct bottles used for the requested analyses.....Yes
Analyses/bottles require preservation (attach preservation sheet excluding VOC).....No
Sample split at ARL.....No

Custody papers included with the cooler..... Yes
Was a temperature blank included in the cooler..... No
All bottles sealed in individual plastic bags..... No
All bottle labels complete and legible..... Yes
Bottle labels and tags agree with COC..... Yes
All VOC vials free of air bubbles..... No
Sufficient amount of sample sent in each bottle..... Yes

Analysis	Due	TAT	Expires	Comments



WORK ORDER

24G0178

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Shannon & Wilson, Inc

Project Manager: Susan Dunnihoo

Project: PAMP Sediments

Project Number: 113733

Analysis	Due	TAT	Expires	Comments

24G0178-01 113733-SB3S1 [Solid] Sampled 07-Jul-2024 12:30 (GMT-08:00)
Pacific Time (US & Canada)

A = Ziploc Bag, Gallon

B = Glass WM, Clear, 16 oz

C = Glass WM, Clear, 8 oz

8081B Pest (PSDDA)	23-Jul-2024 15:00	10	21-Jul-2024 23:59	Use Version
8082A PCB Solid 4	23-Jul-2024 15:00	10	21-Jul-2024 23:59	
8270E SVOA and SIM SVOA dual scan	23-Jul-2024 15:00	10	21-Jul-2024 12:30	
8270E-SIM Butyl Tins	23-Jul-2024 15:00	10	21-Jul-2024 23:59	
Carbon, 9060A m Solid	23-Jul-2024 15:00	10	04-Aug-2024 23:59	
Freeze and Hold Org - Met- Conv - Shar	23-Jul-2024 15:00	10	07-Jul-2025 12:30	
Metals, DMMP 2021 (Solid)	23-Jul-2024 15:00	10	03-Jan-2025 12:30	
Solids, Total Volatile (TVS) PSEP	23-Jul-2024 15:00	10	06-Aug-2024 23:59	
Solids, Total, Dried at 103 -105 °C, Soli	23-Jul-2024 15:00	10	04-Aug-2024 23:59	

24G0178-02 113733-SB3S2 [Solid] Sampled 07-Jul-2024 12:40 (GMT-08:00)
Pacific Time (US & Canada)

A = Ziploc Bag, Gallon

B = Glass WM, Clear, 16 oz

C = Glass WM, Clear, 8 oz

8081B Pest (PSDDA)	23-Jul-2024 15:00	10	21-Jul-2024 23:59	Use Version
8082A PCB Solid 4	23-Jul-2024 15:00	10	21-Jul-2024 23:59	
8270E SVOA and SIM SVOA dual scan	23-Jul-2024 15:00	10	21-Jul-2024 12:40	
8270E-SIM Butyl Tins	23-Jul-2024 15:00	10	21-Jul-2024 23:59	
Carbon, 9060A m Solid	23-Jul-2024 15:00	10	04-Aug-2024 23:59	
Freeze and Hold Org - Met- Conv - Shar	23-Jul-2024 15:00	10	07-Jul-2025 12:40	
Metals, DMMP 2021 (Solid)	23-Jul-2024 15:00	10	03-Jan-2025 12:40	
Solids, Total Volatile (TVS) PSEP	23-Jul-2024 15:00	10	06-Aug-2024 23:59	
Solids, Total, Dried at 103 -105 °C, Soli	23-Jul-2024 15:00	10	04-Aug-2024 23:59	

24G0178-03 113733-SB3S3 [Solid] Sampled 07-Jul-2024 13:05 (GMT-08:00)
Pacific Time (US & Canada)

A = Ziploc Bag, Gallon

B = Glass WM, Clear, 16 oz

C = Glass WM, Clear, 8 oz

8081B Pest (PSDDA)	23-Jul-2024 15:00	10	21-Jul-2024 23:59	Use Version
8082A PCB Solid 4	23-Jul-2024 15:00	10	21-Jul-2024 23:59	
8270E SVOA and SIM SVOA dual scan	23-Jul-2024 15:00	10	21-Jul-2024 13:05	
8270E-SIM Butyl Tins	23-Jul-2024 15:00	10	21-Jul-2024 23:59	
Carbon, 9060A m Solid	23-Jul-2024 15:00	10	04-Aug-2024 23:59	
Freeze and Hold Org - Met- Conv - Shar	23-Jul-2024 15:00	10	07-Jul-2025 13:05	
Metals, DMMP 2021 (Solid)	23-Jul-2024 15:00	10	03-Jan-2025 13:05	
Solids, Total Volatile (TVS) PSEP	23-Jul-2024 15:00	10	06-Aug-2024 23:59	
Solids, Total, Dried at 103 -105 °C, Soli	23-Jul-2024 15:00	10	04-Aug-2024 23:59	



WORK ORDER

24G0178

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Shannon & Wilson, Inc

Project Manager: Susan Dunnihoo

Project: PAMP Sediments

Project Number: 113733

Analysis	Due	TAT	Expires	Comments

**24G0178-04 113733-SB3S4 [Solid] Sampled 07-Jul-2024 13:10 (GMT-08:00)
Pacific Time (US & Canada)**

A = Ziploc Bag, Gallon

B = Glass WM, Clear, 16 oz

C = Glass WM, Clear, 8 oz

8081B Pest (PSDDA)	23-Jul-2024 15:00	10	21-Jul-2024 23:59	Use Version
8082A PCB Solid 4	23-Jul-2024 15:00	10	21-Jul-2024 23:59	
8270E SVOA and SIM SVOA dual scan	23-Jul-2024 15:00	10	21-Jul-2024 13:10	
8270E-SIM Butyl Tins	23-Jul-2024 15:00	10	21-Jul-2024 23:59	
Carbon, 9060A m Solid	23-Jul-2024 15:00	10	04-Aug-2024 23:59	
Freeze and Hold Org - Met- Conv - Shar	23-Jul-2024 15:00	10	07-Jul-2025 13:10	
Metals, DMMP 2021 (Solid)	23-Jul-2024 15:00	10	03-Jan-2025 13:10	
Solids, Total Volatile (TVS) PSEP	23-Jul-2024 15:00	10	06-Aug-2024 23:59	
Solids, Total, Dried at 103 -105 °C, Soli	23-Jul-2024 15:00	10	04-Aug-2024 23:59	

**24G0178-05 113733-SB3S5 [Solid] Sampled 07-Jul-2024 14:25 (GMT-08:00)
Pacific Time (US & Canada)**

A = Ziploc Bag, Gallon

B = Glass WM, Clear, 16 oz

C = Glass WM, Clear, 8 oz

8081B Pest (PSDDA)	23-Jul-2024 15:00	10	21-Jul-2024 23:59	Use Version
8082A PCB Solid 4	23-Jul-2024 15:00	10	21-Jul-2024 23:59	
8270E SVOA and SIM SVOA dual scan	23-Jul-2024 15:00	10	21-Jul-2024 14:25	
8270E-SIM Butyl Tins	23-Jul-2024 15:00	10	21-Jul-2024 23:59	
Carbon, 9060A m Solid	23-Jul-2024 15:00	10	04-Aug-2024 23:59	
Freeze and Hold Org - Met- Conv - Shar	23-Jul-2024 15:00	10	07-Jul-2025 14:25	
Metals, DMMP 2021 (Solid)	23-Jul-2024 15:00	10	03-Jan-2025 14:25	
Solids, Total Volatile (TVS) PSEP	23-Jul-2024 15:00	10	06-Aug-2024 23:59	
Solids, Total, Dried at 103 -105 °C, Soli	23-Jul-2024 15:00	10	04-Aug-2024 23:59	



WORK ORDER

24G0178

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Shannon & Wilson, Inc

Project Manager: Susan Dunnihoo

Project: PAMP Sediments

Project Number: 113733

Analysis	Due	TAT	Expires	Comments

AmTest Laboratories

24G0178-01 113733-SB3S1 [Solid] Sampled 07-Jul-2024 12:30 (GMT-08:00)
Pacific Time (US & Canada)

A = Ziploc Bag, Gallon

Grainsize PSEP (Subc)	23-Jul-2024 15:00	10	06-Jan-2025 16:47

24G0178-02 113733-SB3S2 [Solid] Sampled 07-Jul-2024 12:40 (GMT-08:00)
Pacific Time (US & Canada)

A = Ziploc Bag, Gallon

Grainsize PSEP (Subc)	23-Jul-2024 15:00	10	06-Jan-2025 16:47

24G0178-03 113733-SB3S3 [Solid] Sampled 07-Jul-2024 13:05 (GMT-08:00)
Pacific Time (US & Canada)

A = Ziploc Bag, Gallon

Grainsize PSEP (Subc)	23-Jul-2024 15:00	10	06-Jan-2025 16:47

24G0178-04 113733-SB3S4 [Solid] Sampled 07-Jul-2024 13:10 (GMT-08:00)
Pacific Time (US & Canada)

A = Ziploc Bag, Gallon

Grainsize PSEP (Subc)	23-Jul-2024 15:00	10	06-Jan-2025 16:47

24G0178-05 113733-SB3S5 [Solid] Sampled 07-Jul-2024 14:25 (GMT-08:00)
Pacific Time (US & Canada)

A = Ziploc Bag, Gallon

Grainsize PSEP (Subc)	23-Jul-2024 15:00	10	06-Jan-2025 16:47

Analysis groups included in this work order

8270E SVOA and SIM SVOA dual scan (solid)

8270E-SIM Dual Scan SV(	Solids, Total, PSEP (Extrac	8270E SVOC (20ug/kg sol

Metals, DMMP 2021 (Solid)

Met 6020B - Pb	Met 6020B - Ag	Met 6020B - As UCT	Met 6020B - Cd UCT
Met 6020B - Cu UCT	Solids, Total, Metals Corre	Met 6020B - Sb	Met 6020B - Se UCT
Met 6020B - Zn UCT	Met 7471B Hg	Metals Prep Hg	Metals Prep ICPMS
Met 6020B - Cr			

Reviewed By

Date

Page 4 of 4



Cooler Receipt Form

ARI Client: Shannon & Wilson

Project Name: PAMP Sediment

COC No(s): _____ NA

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: 2460178

Tracking No: _____ NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler? _____

YES NO

Were custody papers included with the cooler? _____

YES NO

Were custody papers properly filled out (ink, signed, etc.) _____

YES NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 1131

-1.6

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: 8117

Cooler Accepted by: SA

Date: 7/9/24

Time: 1131

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? _____

YES NO

What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____

Was sufficient ice used (if appropriate)? _____

NA YES NO

How were bottles sealed in plastic bags? _____

Individually Grouped Not

Did all bottles arrive in good condition (unbroken)? _____

YES NO

Were all bottle labels complete and legible? _____

YES NO

Did the number of containers listed on COC match with the number of containers received? _____

YES NO

Did all bottle labels and tags agree with custody papers? _____

YES NO

Were all bottles used correct for the requested analyses? _____

YES NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs) ...

NA YES NO

Were all VOC vials free of air bubbles? _____

NA YES NO

Was sufficient amount of sample sent in each bottle? _____

YES NO

Date VOC Trip Blank was made at ARI: _____

NA

Were the sample(s) split by ARI? NA YES

Date/Time: _____

Equipment: _____

Split by: _____

Samples Logged by: RL Date: 7-9-24 Time: 14:40 Labels checked by: _____

**** Notify Project Manager of discrepancies or concerns ****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

sample received unfrozen

By: _____

Date: _____

Am Test Inc.
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***Professional
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September 13, 2024

Susan Dunnihoo
4611 S 134th Pl Suite 100
Tukwila, WA 98168

Project: ARI GRAIN SIZES
Project Number: 24G0178
Project Manager: Susan Dunnihoo
RE: ARI GRAIN SIZES

Enclosed are the results of analyses for samples received by our laboratory on 7/11/2024.
Please feel free to contact me with any questions or considerations regarding this report.

Sincerely,

A handwritten signature in black ink that reads "Aaron Young". The signature is written in a cursive, flowing style.

ElementStationManager For Aaron Young
President

Am Test Inc.
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**Professional
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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 09/13/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0178

Reported Samples

Lab ID	Sample	Matrix	Qualifiers	Date Sampled	Date Received
A24G0247-01	24G0178-01	Solid		07/07/2024	07/11/2024
A24G0247-02	24G0178-02	Solid		07/07/2024	07/11/2024
A24G0247-03	24G0178-03	Solid		07/07/2024	07/11/2024
A24G0247-04	24G0178-04	Solid		07/07/2024	07/11/2024
A24G0247-05	24G0178-05	Solid		07/07/2024	07/11/2024

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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 09/13/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0178

AMTEST Identification Number: A24G0247-01
Client Identification: 24G0178-01
Sampling Date: 07/07/24 12:30

Conventional Chemistry Parameters by APHA/EPA Methods

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
% Solids	77.0	%			SM 2540G_2011	HV	09/10/2024

Full Grain Size (Hydrometer/Sieve)

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
PHI -2.25 (4.75 mm) Gravel	ND	%	U	0.100	PSEP 1986 P.9	HV	09/10/2024
PHI -2.00 (4.00 mm)	ND	%	U	0.100	PSEP 1986 P.9	HV	09/10/2024
PHI -1.00 (2.00 mm)	ND	%	U	0.100	PSEP 1986 P.9	HV	09/10/2024
PHI 0.00 (1.00 mm) Sand	ND	%	U	0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +1.00 (0.50 mm)	0.100	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +2.00 (0.25 mm)	0.100	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +3.00 (0.125 mm)	0.100	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +4.00 (0.063 mm)	3.60	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +5.00 (0.032 mm) Silt	57.1	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +6.00 (0.016 mm)	14.8	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +7.00 (0.008 mm)	7.80	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +8.00 (0.004 mm)	3.70	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +9.00 (0.002 mm) Clay	2.10	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +10.0 (0.001 mm)	1.00	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI >10.0 (< 0.001 mm)	9.40	%		0.100	PSEP 1986 P.9	HV	09/10/2024

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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 09/13/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0178

AMTEST Identification Number: A24G0247-02
Client Identification: 24G0178-02
Sampling Date: 07/07/24 12:40

Conventional Chemistry Parameters by APHA/EPA Methods

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
% Solids	77.4	%			SM 2540G_2011	HV	09/10/2024

Full Grain Size (Hydrometer/Sieve)

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
PHI -2.25 (4.75 mm) Gravel	0.200	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI -2.00 (4.00 mm)	0.100	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI -1.00 (2.00 mm)	0.700	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI 0.00 (1.00 mm) Sand	0.800	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +1.00 (0.50 mm)	0.600	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +2.00 (0.25 mm)	0.600	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +3.00 (0.125 mm)	0.800	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +4.00 (0.063 mm)	8.60	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +5.00 (0.032 mm) Silt	53.3	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +6.00 (0.016 mm)	13.3	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +7.00 (0.008 mm)	7.20	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +8.00 (0.004 mm)	2.80	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +9.00 (0.002 mm) Clay	2.30	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +10.0 (0.001 mm)	1.40	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI >10.0 (< 0.001 mm)	7.30	%		0.100	PSEP 1986 P.9	HV	09/10/2024

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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 09/13/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0178

AMTEST Identification Number: A24G0247-03
Client Identification: 24G0178-03
Sampling Date: 07/07/24 13:05

Conventional Chemistry Parameters by APHA/EPA Methods

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
% Solids	79.0	%			SM 2540G_2011	HV	09/10/2024

Full Grain Size (Hydrometer/Sieve)

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
PHI -2.25 (4.75 mm) Gravel	ND	%	U	0.100	PSEP 1986 P.9	HV	09/10/2024
PHI -2.00 (4.00 mm)	ND	%	U	0.100	PSEP 1986 P.9	HV	09/10/2024
PHI -1.00 (2.00 mm)	0.100	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI 0.00 (1.00 mm) Sand	0.100	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +1.00 (0.50 mm)	ND	%	U	0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +2.00 (0.25 mm)	0.100	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +3.00 (0.125 mm)	0.500	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +4.00 (0.063 mm)	15.8	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +5.00 (0.032 mm) Silt	58.5	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +6.00 (0.016 mm)	12.0	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +7.00 (0.008 mm)	3.20	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +8.00 (0.004 mm)	1.70	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +9.00 (0.002 mm) Clay	0.700	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +10.0 (0.001 mm)	0.300	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI >10.0 (< 0.001 mm)	6.80	%		0.100	PSEP 1986 P.9	HV	09/10/2024

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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 09/13/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0178

AMTEST Identification Number: A24G0247-04
Client Identification: 24G0178-04
Sampling Date: 07/07/24 13:10

Conventional Chemistry Parameters by APHA/EPA Methods

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
% Solids	79.4	%			SM 2540G_2011	HV	09/10/2024

Full Grain Size (Hydrometer/Sieve)

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
PHI -2.25 (4.75 mm) Gravel	ND	%	U	0.100	PSEP 1986 P.9	HV	09/10/2024
PHI -2.00 (4.00 mm)	ND	%	U	0.100	PSEP 1986 P.9	HV	09/10/2024
PHI -1.00 (2.00 mm)	0.600	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI 0.00 (1.00 mm) Sand	0.100	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +1.00 (0.50 mm)	0.100	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +2.00 (0.25 mm)	0.400	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +3.00 (0.125 mm)	0.400	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +4.00 (0.063 mm)	12.9	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +5.00 (0.032 mm) Silt	69.8	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +6.00 (0.016 mm)	6.40	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +7.00 (0.008 mm)	2.70	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +8.00 (0.004 mm)	0.400	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +9.00 (0.002 mm) Clay	0.400	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +10.0 (0.001 mm)	0.300	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI >10.0 (< 0.001 mm)	5.50	%		0.100	PSEP 1986 P.9	HV	09/10/2024

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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 09/13/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0178

AMTEST Identification Number: A24G0247-05
Client Identification: 24G0178-05
Sampling Date: 07/07/24 14:25

Conventional Chemistry Parameters by APHA/EPA Methods

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
% Solids	81.6	%			SM 2540G_2011	HV	09/10/2024

Full Grain Size (Hydrometer/Sieve)

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
PHI -2.25 (4.75 mm) Gravel	ND	%	U	0.100	PSEP 1986 P.9	HV	09/10/2024
PHI -2.00 (4.00 mm)	ND	%	U	0.100	PSEP 1986 P.9	HV	09/10/2024
PHI -1.00 (2.00 mm)	ND	%	U	0.100	PSEP 1986 P.9	HV	09/10/2024
PHI 0.00 (1.00 mm) Sand	0.200	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +1.00 (0.50 mm)	0.200	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +2.00 (0.25 mm)	0.900	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +3.00 (0.125 mm)	2.10	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +4.00 (0.063 mm)	15.0	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +5.00 (0.032 mm) Silt	44.9	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +6.00 (0.016 mm)	15.1	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +7.00 (0.008 mm)	6.50	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +8.00 (0.004 mm)	3.50	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +9.00 (0.002 mm) Clay	2.20	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +10.0 (0.001 mm)	1.30	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI >10.0 (< 0.001 mm)	8.10	%		0.100	PSEP 1986 P.9	HV	09/10/2024

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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 09/13/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0178

Quality Control

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBI0132 - No Prep - WC Soil										
Duplicate (BBI0132-DUP1)			Source: A24G0246-04		Prepared & Analyzed: 09/10/24					
% Solids	75.4			%		75.4			0.07	20
Duplicate (BBI0132-DUP2)			Source: A24G0246-04		Prepared & Analyzed: 09/10/24					
% Solids	75.2			%		75.4			0.3	20
Duplicate (BBI0132-DUP3)			Source: A24G0248-02		Prepared & Analyzed: 09/10/24					
% Solids	73.4			%		73.6			0.3	20
Duplicate (BBI0132-DUP4)			Source: A24G0248-02		Prepared & Analyzed: 09/10/24					
% Solids	72.9			%		73.6			1	20

Quality Control

Full Grain Size (Hydrometer/Sieve)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBI0168 - Hydrometer/Sieve										
Duplicate (BBI0168-DUP1)			Source: A24G0248-02		Prepared & Analyzed: 09/10/24					
PHI +1.00 (0.50 mm)	0.100		0.100	%		ND			200	200
PHI +10.0 (0.001 mm)	1.80		0.100	%		1.80			0	200
PHI +2.00 (0.25 mm)	0.100		0.100	%		ND			200	200
PHI +3.00 (0.125 mm)	0.300		0.100	%		0.200			40	200
PHI +4.00 (0.063 mm)	4.40		0.100	%		3.90			12	200
PHI +5.00 (0.032 mm) Silt	50.0		0.100	%		54.9			9	200
PHI +6.00 (0.016 mm)	18.8		0.100	%		15.3			21	200
PHI +7.00 (0.008 mm)	7.60		0.100	%		7.40			3	200
PHI +8.00 (0.004 mm)	2.90		0.100	%		3.90			29	200
PHI +9.00 (0.002 mm) Clay	2.80		0.100	%		2.90			4	200
PHI >10.0 (< 0.001 mm)	9.60		0.100	%		9.60			0	200
PHI 0.00 (1.00 mm) Sand	0.100		0.100	%		0.100			0	200
PHI -1.00 (2.00 mm)	0.300		0.100	%		ND			200	200
PHI -2.00 (4.00 mm)	ND	U	0.100	%		ND				200



ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 09/13/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0178

Quality Control
(Continued)

Full Grain Size (Hydrometer/Sieve) (Continued)

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

Batch: BBI0168 - Hydrometer/Sieve (Continued)

Duplicate (BBI0168-DUP1)		Source: A24G0248-02			Prepared & Analyzed: 09/10/24					
PHI -2.25 (4.75 mm) Gravel	1.10		0.100	%		ND			200	200
Duplicate (BBI0168-DUP2)		Source: A24G0248-02			Prepared & Analyzed: 09/10/24					
PHI +1.00 (0.50 mm)	ND	U	0.100	%		ND				200
PHI +10.0 (0.001 mm)	0.700		0.100	%		1.80			88	200
PHI +2.00 (0.25 mm)	0.100		0.100	%		ND			200	200
PHI +3.00 (0.125 mm)	0.400		0.100	%		0.200			67	200
PHI +4.00 (0.063 mm)	5.30		0.100	%		3.90			30	200
PHI +5.00 (0.032 mm) Silt	54.8		0.100	%		54.9			0.2	200
PHI +6.00 (0.016 mm)	15.8		0.100	%		15.3			3	200
PHI +7.00 (0.008 mm)	8.00		0.100	%		7.40			8	200
PHI +8.00 (0.004 mm)	3.80		0.100	%		3.90			3	200
PHI +9.00 (0.002 mm) Clay	1.60		0.100	%		2.90			58	200
PHI >10.0 (< 0.001 mm)	9.20		0.100	%		9.60			4	200
PHI 0.00 (1.00 mm) Sand	ND	U	0.100	%		0.100			200	200
PHI -1.00 (2.00 mm)	0.100		0.100	%		ND			200	200
PHI -2.00 (4.00 mm)	ND	U	0.100	%		ND				200
PHI -2.25 (4.75 mm) Gravel	0.100		0.100	%		ND			200	200

Am Test Inc.
13600 NE 126th Place Suite C
Kirkland, WA
(425) 885-1664
www.amtestlab.com



**Professional
Analytical
Services**

ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 09/13/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0178

Notes and Definitions

Item	Definition
U	The compound was analyzed for but was not detected (Non-detect) at or above the MRL/MDL.
Dry	Sample results reported on a dry weight basis.
ND	Analyte NOT DETECTED at or above the reporting limit.
RPD	Relative Percent Difference
%REC	Percent Recovery
Source	Sample that was matrix spiked or duplicated.



Analytical Resources, LLC
Analytical Chemists and Consultants

A24G0247

SUBCONTRACT ORDER
To: AmTest Laboratories
ARI Work Order:24G0178

SENDING LABORATORY:

Analytical Resources, LLC
4611 S. 134th Place, Suite 100
Tukwila, WA 98168
Phone: (206) 695-6200
Fax: (206) 695-6202
Project Manager: Susan Dunnihoo
E-Mail: sue.dunnihoo@arilabs.com

RECEIVING LABORATORY:

AmTest Laboratories
13600 NE 126th Pl Suite C
Kirkland, WA 98034
Phone :425-885-1664
Fax: -

PLEASE SEND DATA AND INVOICE TO subdata@arilabs.com

Analysis	Due	Expires	Sub Laboratory ID	Comments

Sample ID: 24G0178-01

Sampled: 07/07/24 12:30 Matrix: Solid

01

Grainsize PSEP (Subc) 07/23/24 01/06/25 05:18

Containers Supplied:

24G0178-01 A

Ziploc Bag, Gallon

Sample ID: 24G0178-02

Sampled: 07/07/24 12:40 Matrix: Solid

02

Grainsize PSEP (Subc) 07/23/24 01/06/25 05:28

Containers Supplied:

24G0178-02 A

Ziploc Bag, Gallon

Sample ID: 24G0178-03

Sampled: 07/07/24 13:05 Matrix: Solid

03

Grainsize PSEP (Subc) 07/23/24 01/06/25 05:53

Containers Supplied:

24G0178-03 A

Ziploc Bag, Gallon

Sample ID: 24G0178-04

Sampled: 07/07/24 13:10 Matrix: Solid

Grainsize PSEP (Subc) 07/23/24 01/06/25 05:58

Containers Supplied:

24G0178-04 A

Ziploc Bag, Gallon

1.2°C

SF

7/11/24 1245

Released By

Date

Received By

Date

Released By

Date

Received By

Date

Printed: 7/9/2024 2:56:33PM

Page 1 of 2

24G0178 ARISample FINAL 16 Sep 2024 1051 - Page 25 of 142



SUBCONTRACT ORDER
To: AmTest Laboratories
ARI Work Order:24G0178

Analysis	Due	Expires	Sub Laboratory ID	Comments
Sample ID: 24G0178-05 Sampled: 07/07/24 14:25 Matrix: Solid			05	
Grainsize PSEP (Sube)	07/23/24	01/06/25 07:13		
Containers Supplied:				
24G0178-05 A Ziploc Bag, Gallon				

1.2°C

SF

7/11/24 1245

Released By Mattie Davis 07/11/24 1245 Date Received By _____ Date

Released By _____ Date Received By _____ Date



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:51

113733-SB3S1
24G0178-01 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM

Sampled: 07/07/2024 12:30

Instrument: NT14 Analyst: RJL

Analyzed: 08/03/2024 08:13

Sample Preparation: Preparation Method: EPA 3546 (Microwave) Sample Size: 13.42 g (wet) Extract ID: 24G0178-01 B 04
Preparation Batch: BMG0260 Dry Weight: 10.03 g
Prepared: 07/15/2024 Final Volume: 1 mL % Solids: 74.76

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	2.5	5.0	3.6	ug/kg	J
1,3-Dichlorobenzene	541-73-1	1	2.5	5.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	2.5	5.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	2.5	5.0	ND	ug/kg	U
2-Methylphenol	95-48-7	1	2.5	5.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	10.0	19.9	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	5.0	5.0	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	2.5	5.0	ND	ug/kg	U
N-Nitrosodimethylamine	62-75-9	1	12.5	24.9	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	2.5	5.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	10.0	19.9	17.1	ug/kg	J
N-Nitrosodiphenylamine	86-30-6	1	2.5	5.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	2.5	5.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	2.5	5.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	2.5	5.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol					27-120 %	74.9	%
Surrogate: p-Terphenyl-d14					37-120 %	89.4	%



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Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:51

113733-SB3S1
24G0178-01 (Solid)

Butyl Tins

Method: EPA 8270E-SIM
Instrument: NT17 Analyst: JZ

Sampled: 07/07/2024 12:30

Analyzed: 08/05/2024 22:07

Sample Preparation: Preparation Method: EPA 3546 (Microwave)
Preparation Batch: BMG0259
Prepared: 07/15/2024

Sample Size: 6.72 g (wet)

Final Volume: 0.5 mL

Extract ID: 24G0178-01 B 03

Dry Weight: 5.02 g

% Solids: 74.76

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CMH0022
Cleaned: 02-Aug-2024

Initial Volume: 0.5 uL

Final Volume: 0.5 uL

Extract ID: 24G0178-01 B 03

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Tributyltin Ion	36643-28-4	1	1.92	3.84	ND	ug/kg	U
Surrogate: Triphenyltin				30-160 %	92.5	%	
Surrogate: Tripropyltin				30-160 %	48.2	%	



Shannon & Wilson, Inc

5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:51

113733-SB3S1
24G0178-01 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/07/2024 12:30

Instrument: ECD6 Analyst: RT

Analyzed: 07/30/2024 21:11

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 16.73 g (wet)	Extract ID: 24G0178-01 B 02
	Preparation Batch: BMG0258	Final Volume: 2.5 mL	Dry Weight: 12.51 g
	Prepared: 07/15/2024		% Solids: 74.76

Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL	Extract ID: 24G0178-01 B 02
	Cleanup Batch: CMG0194	Final Volume: 2.5 uL	
	Cleaned: 29-Jul-2024		

Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL	Extract ID: 24G0178-01 B 02
	Cleanup Batch: CMG0193	Final Volume: 2.5 uL	
	Cleaned: 29-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.25	0.50	0.28	ug/kg	J
beta-BHC	319-85-7	1	0.25	0.50	ND	ug/kg	U
gamma-BHC (Lindane)	58-89-9	1	0.25	0.50	ND	ug/kg	U
delta-BHC	319-86-8	1	0.25	0.50	ND	ug/kg	U
Heptachlor	76-44-8	1	0.25	0.50	ND	ug/kg	U
Aldrin	309-00-2	1	0.50	0.50	ND	ug/kg	U
Heptachlor Epoxide	1024-57-3	1	0.25	0.50	ND	ug/kg	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.50	0.50	ND	ug/kg	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.25	0.50	ND	ug/kg	U
Endosulfan I	959-98-8	1	0.25	0.50	ND	ug/kg	U
4,4'-DDE	72-55-9	1	0.50	1.00	ND	ug/kg	U
Dieldrin	60-57-1	1	0.50	1.00	ND	ug/kg	U
Endrin	72-20-8	1	0.50	1.00	ND	ug/kg	U
Endosulfan II	33213-65-9	1	0.50	1.00	ND	ug/kg	U
4,4'-DDD	72-54-8	1	0.50	1.00	ND	ug/kg	U
Endrin Aldehyde	7421-93-4	1	0.50	1.00	ND	ug/kg	U
4,4'-DDT	50-29-3	1	0.50	1.00	ND	ug/kg	U
Endosulfan Sulfate	1031-07-8	1	0.50	1.00	ND	ug/kg	U
Endrin Ketone	53494-70-5	1	0.50	1.00	ND	ug/kg	U
Methoxychlor	72-43-5	1	2.50	5.00	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	0.25	0.50	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	0.25	0.50	ND	ug/kg	U
2,4'-DDE	3424-82-6	1	0.50	1.00	ND	ug/kg	U
2,4'-DDD	53-19-0	1	0.50	1.00	ND	ug/kg	U
2,4'-DDT	789-02-6	1	0.50	1.00	ND	ug/kg	U
Oxychlordane	27304-13-8	1	0.50	1.00	ND	ug/kg	U
cis-Nonachlor	5103-73-1	1	0.50	1.00	ND	ug/kg	U
trans-Nonachlor	39765-80-5	1	0.50	1.00	ND	ug/kg	U
Mirex	2385-85-5	1	1.00	1.00	ND	ug/kg	U



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:51

113733-SB3S1
24G0178-01 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/07/2024 12:30

Instrument: ECD6 Analyst: RT

Analyzed: 07/30/2024 21:11

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Decachlorobiphenyl		30-160 %	94.6	%	
Surrogate: Decachlorobiphenyl [2C]		30-160 %	85.3	%	
Surrogate: Tetrachlorometaxylene		30-160 %	68.5	%	
Surrogate: Tetrachlorometaxylene [2C]		30-160 %	64.5	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:51

113733-SB3S1

24G0178-01 (Solid)

Aroclor PCB

Method: EPA 8082A

Sampled: 07/07/2024 12:30

Instrument: ECD5 Analyst: AA

Analyzed: 07/25/2024 23:47

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 16.75 g (wet) Final Volume: 2.5 mL	Extract ID: 24G0178-01 B 01 Dry Weight: 12.52 g % Solids: 74.76
	Preparation Batch: BMG0257		
	Prepared: 07/16/2024		
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0178-01 B 01
	Cleanup Batch: CMG0174		
	Cleaned: 25-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfuric Acid	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0178-01 B 01
	Cleanup Batch: CMG0172		
	Cleaned: 25-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0178-01 B 01
	Cleanup Batch: CMG0173		
	Cleaned: 25-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	2.0	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	2.0	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	2.0	4.0	6.2	ug/kg	
Aroclor 1260	11096-82-5	1	2.0	4.0	4.2	ug/kg	
Aroclor 1262	37324-23-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1268	11100-14-4	1	2.0	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl					40-126 %	75.2	%
Surrogate: Tetrachlorometaxylene					44-120 %	75.2	%
Surrogate: Decachlorobiphenyl [2C]					40-126 %	78.9	%
Surrogate: Tetrachlorometaxylene [2C]					44-120 %	72.3	%



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:51

113733-SB3S1
24G0178-01 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED

Sampled: 07/07/2024 12:30

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 15:24

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0178-01 B 05

Preparation Batch: BMG0273

Sample Size: 1.033 g (wet)

Dry Weight: 0.76 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 73.09

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.05	0.26	16.6	mg/kg	
Cadmium	7440-43-9	20	0.04	0.13	0.15	mg/kg	
Copper	7440-50-8	20	0.23	0.66	48.4	mg/kg	
Selenium	7782-49-2	20	0.24	0.66	1.20	mg/kg	
Zinc	7440-66-6	20	3.9	7.9	101	mg/kg	



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:51

113733-SB3S1
24G0178-01 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B

Sampled: 07/07/2024 12:30

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 15:24

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0178-01 B 05

Preparation Batch: BMG0273

Sample Size: 1.033 g (wet)

Dry Weight: 0.76 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 73.09

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	20	0.14	0.26	ND	mg/kg	U
Chromium	7440-47-3	50	0.86	1.66	37.1	mg/kg	D
Lead	7439-92-1	20	0.07	0.13	11.8	mg/kg	
Silver	7440-22-4	20	0.03	0.26	0.21	mg/kg	J



Shannon & Wilson, Inc

5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:51

113733-SB3S1

24G0178-01 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B

Sampled: 07/07/2024 12:30

Instrument: HYDRA Analyst: ML

Analyzed: 07/22/2024 12:19

Sample Preparation:

Preparation Method: SMM EPA 7471B

Extract ID: 24G0178-01 C

Preparation Batch: BMG0336

Sample Size: 0.267 g (wet)

Dry Weight: 0.20 g

Prepared: 07/18/2024

Final Volume: 50 mL

% Solids: 73.09

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00538	0.0256	0.0713	mg/kg	



Shannon & Wilson, Inc

5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:51

113733-SB3S1

24G0178-01 (Solid)

Wet Chemistry

Method: EPA 9060A m

Sampled: 07/07/2024 12:30

Instrument: Accumet AB150 Analyst: ARR

Analyzed: 08/08/2024 16:23

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0178-01 C

Preparation Batch: BMH0093

Sample Size: 0.3617 g (wet)

Dry Weight: 0.26 g

Prepared: 08/06/2024

Final Volume: 0.3617 mL

% Solids: 73.09

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.45	%	F



Shannon & Wilson, Inc
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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:51

113733-SB3S1
24G0178-01 (Solid)

Wet Chemistry

Method: PSEP 1986

Sampled: 07/07/2024 12:30

Instrument: BAL2 Analyst: LERB

Analyzed: 07/11/2024 14:15

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0178-01

Preparation Batch: BMG0276

Sample Size: 5 g (wet)

Prepared: 07/11/2024

Final Volume: 5 mL

% Solids: 73.09

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Volatile Solids		1	0.01	0.01	2.29	%	



Shannon & Wilson, Inc
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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:51

113733-SB3S1
24G0178-01 (Solid)

Wet Chemistry

Method: SM 2540 G-11

Sampled: 07/07/2024 12:30

Instrument: BAL2 Analyst: LERB

Analyzed: 07/11/2024 14:15

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0178-01

Preparation Batch: BMG0276

Sample Size: 5 g (wet)

Prepared: 07/11/2024

Final Volume: 5 mL

% Solids: 73.09

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	73.09	%	



Shannon & Wilson, Inc

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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:51

113733-SB3S1

24G0178-01RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/07/2024 12:30

Instrument: NT14 Analyst: RJL

Analyzed: 08/08/2024 23:07

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0178-01RE1 B 04

Preparation Batch: BMG0260

Sample Size: 13.42 g (wet)

Dry Weight: 10.03 g

Prepared: 07/15/2024

Final Volume: 1 mL

% Solids: 74.76

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	10.0	19.9	ND	ug/kg	U
bis(2-chloroethyl) ether	111-44-4	1	34.9	49.8	ND	ug/kg	U
2-Chlorophenol	95-57-8	1	19.9	19.9	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	10.0	19.9	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	10.0	19.9	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	10.0	19.9	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	19.9	19.9	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	10.0	19.9	ND	ug/kg	U
2-Methylphenol	95-48-7	1	10.0	19.9	ND	ug/kg	U
Hexachloroethane	67-72-1	1	10.0	19.9	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	15.0	19.9	ND	ug/kg	U
4-Methylphenol	106-44-5	1	15.0	19.9	ND	ug/kg	U
Nitrobenzene	98-95-3	1	10.0	19.9	ND	ug/kg	U
Isophorone	78-59-1	1	15.0	19.9	ND	ug/kg	U
2-Nitrophenol	88-75-5	1	10.0	19.9	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	49.8	99.7	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	1	10.0	19.9	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	1	49.8	99.7	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	10.0	19.9	ND	ug/kg	U
Naphthalene	91-20-3	1	10.0	19.9	ND	ug/kg	U
Benzoic acid	65-85-0	1	99.7	199	ND	ug/kg	U
4-Chloroaniline	106-47-8	1	49.8	99.7	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	10.0	19.9	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	1	49.8	99.7	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	10.0	19.9	ND	ug/kg	U
Hexachlorocyclopentadiene	77-47-4	1	49.8	99.7	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	1	49.8	99.7	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	1	49.8	99.7	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	1	10.0	19.9	ND	ug/kg	U
2-Nitroaniline	88-74-4	1	49.8	99.7	ND	ug/kg	U
Acenaphthylene	208-96-8	1	10.0	19.9	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	10.0	19.9	ND	ug/kg	U
2,6-Dinitrotoluene	606-20-2	1	49.8	99.7	ND	ug/kg	U
Acenaphthene	83-32-9	1	10.0	19.9	ND	ug/kg	U
3-Nitroaniline	99-09-2	1	49.8	99.7	ND	ug/kg	U



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:51

113733-SB3S1
24G0178-01RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/07/2024 12:30

Instrument: NT14 Analyst: RJL

Analyzed: 08/08/2024 23:07

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2,4-Dinitrophenol	51-28-5	1	99.7	199	ND	ug/kg	U
Dibenzofuran	132-64-9	1	19.9	19.9	ND	ug/kg	U
4-Nitrophenol	100-02-7	1	49.8	99.7	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	1	49.8	99.7	ND	ug/kg	U
Fluorene	86-73-7	1	19.9	19.9	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	1	34.9	49.8	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	34.9	49.8	ND	ug/kg	U
4-Nitroaniline	100-01-6	1	49.8	99.7	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	1	99.7	199	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	10.0	19.9	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	1	19.9	19.9	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	19.9	19.9	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	49.8	99.7	ND	ug/kg	U
Phenanthrene	85-01-8	1	10.0	19.9	ND	ug/kg	U
Anthracene	120-12-7	1	10.0	19.9	ND	ug/kg	U
Carbazole	86-74-8	1	10.0	19.9	ND	ug/kg	U
Di-n-Butylphthalate	84-74-2	1	10.0	19.9	ND	ug/kg	U
Fluoranthene	206-44-0	1	10.0	19.9	ND	ug/kg	U
Pyrene	129-00-0	1	10.0	19.9	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	10.0	19.9	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	1	10.0	19.9	ND	ug/kg	U
3,3'-Dichlorobenzidine	91-94-1	1	49.8	99.7	ND	ug/kg	U
Chrysene	218-01-9	1	10.0	19.9	ND	ug/kg	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	39.9	49.8	ND	ug/kg	U
Di-n-Octylphthalate	117-84-0	1	10.0	19.9	ND	ug/kg	U
Benzo(a)fluoranthene, Total		1	29.9	39.9	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	10.0	19.9	ND	ug/kg	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	19.9	19.9	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	19.9	19.9	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	19.9	19.9	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	10.0	19.9	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	73.7	%	
Surrogate: Phenol-d5				29-120 %	69.7	%	
Surrogate: 2-Chlorophenol-d4				31-120 %	78.1	%	
Surrogate: 1,2-Dichlorobenzene-d4				32-120 %	72.1	%	
Surrogate: Nitrobenzene-d5				30-120 %	67.6	%	
Surrogate: 2-Fluorobiphenyl				35-120 %	60.7	%	



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Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:51

113733-SB3S1

24G0178-01RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/07/2024 12:30

Instrument: NT14 Analyst: RJL

Analyzed: 08/08/2024 23:07

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: 2,4,6-Tribromophenol		24-134 %	80.1	%	
Surrogate: p-Terphenyl-d14		37-120 %	89.4	%	



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Reported:
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113733-SB3S1
24G0178-01RE1 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM

Sampled: 07/07/2024 12:30

Instrument: NT14 Analyst: RJL

Analyzed: 08/08/2024 23:07

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0178-01RE1 B 04

Preparation Batch: BMG0260

Sample Size: 13.42 g (wet)

Dry Weight: 10.03 g

Prepared: 07/15/2024

Final Volume: 1 mL

% Solids: 74.76

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Benzyl Alcohol	100-51-6	1	10.0	19.9	ND	ug/kg	U
Benzoic acid	65-85-0	1	498	498	ND	ug/kg	U
4-Methylphenol	106-44-5	1	2.5	5.0	8.3	ug/kg	
2,4-Dimethylphenol	105-67-9	1	10.0	19.9	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	249	249	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	72.2	%	
Surrogate: p-Terphenyl-d14				37-120 %	86.2	%	



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Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:51

113733-SB3S2
24G0178-02 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM

Sampled: 07/07/2024 12:40

Instrument: NT14 Analyst: RJL

Analyzed: 08/03/2024 08:51

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0178-02 B 04

Preparation Batch: BMG0260

Sample Size: 13.47 g (wet)

Dry Weight: 10.00 g

Prepared: 07/15/2024

Final Volume: 1 mL

% Solids: 74.23

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	2.5	5.0	2.9	ug/kg	J
1,3-Dichlorobenzene	541-73-1	1	2.5	5.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	2.5	5.0	5.3	ug/kg	
1,2-Dichlorobenzene	95-50-1	1	2.5	5.0	ND	ug/kg	U
2-Methylphenol	95-48-7	1	2.5	5.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	10.0	20.0	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	5.0	5.0	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	2.5	5.0	ND	ug/kg	U
N-Nitrosodimethylamine	62-75-9	1	12.5	25.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	2.5	5.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	10.0	20.0	17.7	ug/kg	J
N-Nitrosodiphenylamine	86-30-6	1	2.5	5.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	2.5	5.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	2.5	5.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	2.5	5.0	ND	ug/kg	U

Surrogate: 2-Fluorophenol

27-120 %

89.2

%

Surrogate: p-Terphenyl-d14

37-120 %

102

%



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Reported:
16-Sep-2024 10:51

113733-SB3S2
24G0178-02 (Solid)

Butyl Tins

Method: EPA 8270E-SIM
Instrument: NT17 Analyst: JZ

Sampled: 07/07/2024 12:40

Analyzed: 08/05/2024 22:20

Sample Preparation: Preparation Method: EPA 3546 (Microwave)
Preparation Batch: BMG0259
Prepared: 07/15/2024

Sample Size: 6.77 g (wet)

Final Volume: 0.5 mL

Extract ID: 24G0178-02 B 03

Dry Weight: 5.03 g

% Solids: 74.23

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CMH0022
Cleaned: 02-Aug-2024

Initial Volume: 0.5 uL

Final Volume: 0.5 uL

Extract ID: 24G0178-02 B 03

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Tributyltin Ion	36643-28-4	1	1.92	3.84	ND	ug/kg	U
Surrogate: Triphenyltin				30-160 %	103	%	
Surrogate: Tripropyltin				30-160 %	42.6	%	



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Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:51

113733-SB3S2
24G0178-02 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/07/2024 12:40

Instrument: ECD6 Analyst: RT

Analyzed: 07/30/2024 21:30

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 16.87 g (wet)	Extract ID: 24G0178-02 B 02
	Preparation Batch: BMG0258	Final Volume: 2.5 mL	Dry Weight: 12.52 g
	Prepared: 07/15/2024		% Solids: 74.23

Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL	Extract ID: 24G0178-02 B 02
	Cleanup Batch: CMG0194	Final Volume: 2.5 uL	
	Cleaned: 29-Jul-2024		

Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL	Extract ID: 24G0178-02 B 02
	Cleanup Batch: CMG0193	Final Volume: 2.5 uL	
	Cleaned: 29-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.25	0.50	0.55	ug/kg	
beta-BHC	319-85-7	1	0.25	0.50	ND	ug/kg	U
gamma-BHC (Lindane)	58-89-9	1	0.25	0.50	ND	ug/kg	U
delta-BHC	319-86-8	1	0.25	0.50	ND	ug/kg	U
Heptachlor	76-44-8	1	0.25	0.50	ND	ug/kg	U
Aldrin	309-00-2	1	0.50	0.50	ND	ug/kg	U
Heptachlor Epoxide	1024-57-3	1	0.25	0.50	ND	ug/kg	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.50	0.50	ND	ug/kg	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.25	0.50	ND	ug/kg	U
Endosulfan I	959-98-8	1	0.25	0.50	ND	ug/kg	U
4,4'-DDE	72-55-9	1	0.50	1.00	1.07	ug/kg	
Dieldrin	60-57-1	1	0.50	1.00	ND	ug/kg	U
Endrin	72-20-8	1	0.50	1.00	ND	ug/kg	U
Endosulfan II	33213-65-9	1	0.50	1.00	ND	ug/kg	U
4,4'-DDD	72-54-8	1	0.50	1.00	6.88	ug/kg	P1
Endrin Aldehyde	7421-93-4	1	0.50	1.00	ND	ug/kg	U
4,4'-DDT	50-29-3	1	0.50	1.00	ND	ug/kg	U
Endosulfan Sulfate	1031-07-8	1	0.50	1.00	ND	ug/kg	U
Endrin Ketone	53494-70-5	1	0.50	1.00	ND	ug/kg	U
Methoxychlor	72-43-5	1	2.50	4.99	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	0.25	0.50	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	0.25	0.50	ND	ug/kg	U
2,4'-DDE	3424-82-6	1	0.50	1.00	ND	ug/kg	U
2,4'-DDD	53-19-0	1	0.50	1.00	2.43	ug/kg	P1
2,4'-DDT	789-02-6	1	0.50	1.00	ND	ug/kg	U
Oxychlordane	27304-13-8	1	0.50	1.00	ND	ug/kg	U
cis-Nonachlor	5103-73-1	1	0.50	1.00	ND	ug/kg	U
trans-Nonachlor	39765-80-5	1	0.50	1.00	ND	ug/kg	U
Mirex	2385-85-5	1	1.00	1.00	ND	ug/kg	U



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:51

113733-SB3S2

24G0178-02 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/07/2024 12:40

Instrument: ECD6 Analyst: RT

Analyzed: 07/30/2024 21:30

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Decachlorobiphenyl		30-160 %	91.5	%	
Surrogate: Decachlorobiphenyl [2C]		30-160 %	86.7	%	
Surrogate: Tetrachlorometaxylene		30-160 %	76.5	%	
Surrogate: Tetrachlorometaxylene [2C]		30-160 %	67.0	%	



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Reported:

16-Sep-2024 10:51

113733-SB3S2

24G0178-02 (Solid)

Aroclor PCB

Method: EPA 8082A

Sampled: 07/07/2024 12:40

Instrument: ECD5 Analyst: AA

Analyzed: 07/26/2024 00:07

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 16.86 g (wet) Final Volume: 2.5 mL	Extract ID: 24G0178-02 B 01 Dry Weight: 12.52 g % Solids: 74.23
	Preparation Batch: BMG0257		
	Prepared: 07/16/2024		
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0178-02 B 01
	Cleanup Batch: CMG0174		
	Cleaned: 25-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfuric Acid	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0178-02 B 01
	Cleanup Batch: CMG0172		
	Cleaned: 25-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0178-02 B 01
	Cleanup Batch: CMG0173		
	Cleaned: 25-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	2.0	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	2.0	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	2.0	4.0	9.5	ug/kg	
Aroclor 1260	11096-82-5	1	2.0	4.0	5.3	ug/kg	
Aroclor 1262	37324-23-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1268	11100-14-4	1	2.0	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl					40-126 %	75.2	%
Surrogate: Tetrachlorometaxylene					44-120 %	76.0	%
Surrogate: Decachlorobiphenyl [2C]					40-126 %	76.8	%
Surrogate: Tetrachlorometaxylene [2C]					44-120 %	75.8	%



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Reported:

16-Sep-2024 10:51

113733-SB3S2

24G0178-02 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED

Sampled: 07/07/2024 12:40

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 15:29

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0178-02 B 05

Preparation Batch: BMG0273

Sample Size: 1.051 g (wet)

Dry Weight: 0.74 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 70.57

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.05	0.27	14.2	mg/kg	
Cadmium	7440-43-9	20	0.04	0.13	0.14	mg/kg	
Copper	7440-50-8	20	0.23	0.67	43.9	mg/kg	
Selenium	7782-49-2	20	0.24	0.67	1.05	mg/kg	
Zinc	7440-66-6	20	3.9	8.1	86.4	mg/kg	



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113733-SB3S2
24G0178-02 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B

Sampled: 07/07/2024 12:40

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 15:29

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0178-02 B 05

Preparation Batch: BMG0273

Sample Size: 1.051 g (wet)

Dry Weight: 0.74 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 70.57

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	20	0.14	0.27	ND	mg/kg	U
Chromium	7440-47-3	20	0.32	0.67	31.6	mg/kg	
Lead	7439-92-1	20	0.07	0.13	8.28	mg/kg	
Silver	7440-22-4	20	0.03	0.27	0.20	mg/kg	J



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Reported:
16-Sep-2024 10:51

113733-SB3S2
24G0178-02 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B

Sampled: 07/07/2024 12:40

Instrument: HYDRA Analyst: ML

Analyzed: 07/22/2024 12:22

Sample Preparation:

Preparation Method: SMM EPA 7471B

Extract ID: 24G0178-02 C

Preparation Batch: BMG0336

Sample Size: 0.218 g (wet)

Dry Weight: 0.15 g

Prepared: 07/18/2024

Final Volume: 50 mL

% Solids: 70.57

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00683	0.0325	0.0433	mg/kg	



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Reported:

16-Sep-2024 10:51

113733-SB3S2

24G0178-02 (Solid)

Wet Chemistry

Method: EPA 9060A m

Sampled: 07/07/2024 12:40

Instrument: Accumet AB150 Analyst: ARR

Analyzed: 08/08/2024 16:53

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0178-02 C

Preparation Batch: BMH0093

Sample Size: 0.523 g (wet)

Dry Weight: 0.37 g

Prepared: 08/06/2024

Final Volume: 0.523 mL

% Solids: 70.57

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.36	%	F



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:51

113733-SB3S2
24G0178-02 (Solid)

Wet Chemistry

Method: PSEP 1986

Sampled: 07/07/2024 12:40

Instrument: BAL2 Analyst: LERB

Analyzed: 07/11/2024 14:15

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0178-02

Preparation Batch: BMG0276

Sample Size: 5 g (wet)

Prepared: 07/11/2024

Final Volume: 5 mL

% Solids: 70.57

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Volatile Solids		1	0.01	0.01	1.74	%	



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Reported:
16-Sep-2024 10:51

113733-SB3S2
24G0178-02 (Solid)

Wet Chemistry

Method: SM 2540 G-11

Sampled: 07/07/2024 12:40

Instrument: BAL2 Analyst: LERB

Analyzed: 07/11/2024 14:15

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0178-02

Preparation Batch: BMG0276

Sample Size: 5 g (wet)

Prepared: 07/11/2024

Final Volume: 5 mL

% Solids: 70.57

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	70.57	%	



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Reported:

16-Sep-2024 10:51

113733-SB3S2

24G0178-02RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/07/2024 12:40

Instrument: NT14 Analyst: RJL

Analyzed: 08/08/2024 23:45

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0178-02RE1 B 04

Preparation Batch: BMG0260

Sample Size: 13.47 g (wet)

Dry Weight: 10.00 g

Prepared: 07/15/2024

Final Volume: 1 mL

% Solids: 74.23

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	10.0	20.0	ND	ug/kg	U
bis(2-chloroethyl) ether	111-44-4	1	35.0	50.0	ND	ug/kg	U
2-Chlorophenol	95-57-8	1	20.0	20.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	10.0	20.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	10.0	20.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	10.0	20.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	20.0	20.0	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	10.0	20.0	ND	ug/kg	U
2-Methylphenol	95-48-7	1	10.0	20.0	ND	ug/kg	U
Hexachloroethane	67-72-1	1	10.0	20.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	15.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	15.0	20.0	26.2	ug/kg	
Nitrobenzene	98-95-3	1	10.0	20.0	ND	ug/kg	U
Isophorone	78-59-1	1	15.0	20.0	ND	ug/kg	U
2-Nitrophenol	88-75-5	1	10.0	20.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	50.0	100	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	1	10.0	20.0	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	1	50.0	100	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	10.0	20.0	ND	ug/kg	U
Naphthalene	91-20-3	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	100	200	ND	ug/kg	U
4-Chloroaniline	106-47-8	1	50.0	100	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	10.0	20.0	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	1	50.0	100	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	10.0	20.0	ND	ug/kg	U
Hexachlorocyclopentadiene	77-47-4	1	50.0	100	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	1	50.0	100	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	1	50.0	100	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	1	10.0	20.0	ND	ug/kg	U
2-Nitroaniline	88-74-4	1	50.0	100	ND	ug/kg	U
Acenaphthylene	208-96-8	1	10.0	20.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	10.0	20.0	ND	ug/kg	U
2,6-Dinitrotoluene	606-20-2	1	50.0	100	ND	ug/kg	U
Acenaphthene	83-32-9	1	10.0	20.0	ND	ug/kg	U
3-Nitroaniline	99-09-2	1	50.0	100	ND	ug/kg	U



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Reported:
16-Sep-2024 10:51

113733-SB3S2
24G0178-02RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/07/2024 12:40

Instrument: NT14 Analyst: RJL

Analyzed: 08/08/2024 23:45

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2,4-Dinitrophenol	51-28-5	1	100	200	ND	ug/kg	U
Dibenzofuran	132-64-9	1	20.0	20.0	ND	ug/kg	U
4-Nitrophenol	100-02-7	1	50.0	100	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	1	50.0	100	ND	ug/kg	U
Fluorene	86-73-7	1	20.0	20.0	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	1	35.0	50.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	35.0	50.0	ND	ug/kg	U
4-Nitroaniline	100-01-6	1	50.0	100	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	1	100	200	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	10.0	20.0	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	1	20.0	20.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	20.0	20.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	50.0	100	ND	ug/kg	U
Phenanthrene	85-01-8	1	10.0	20.0	ND	ug/kg	U
Anthracene	120-12-7	1	10.0	20.0	ND	ug/kg	U
Carbazole	86-74-8	1	10.0	20.0	ND	ug/kg	U
Di-n-Butylphthalate	84-74-2	1	10.0	20.0	ND	ug/kg	U
Fluoranthene	206-44-0	1	10.0	20.0	ND	ug/kg	U
Pyrene	129-00-0	1	10.0	20.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	10.0	20.0	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	1	10.0	20.0	ND	ug/kg	U
3,3'-Dichlorobenzidine	91-94-1	1	50.0	100	ND	ug/kg	U
Chrysene	218-01-9	1	10.0	20.0	ND	ug/kg	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	40.0	50.0	ND	ug/kg	U
Di-n-Octylphthalate	117-84-0	1	10.0	20.0	ND	ug/kg	U
Benzo(a)fluoranthene, Total		1	30.0	40.0	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	10.0	20.0	ND	ug/kg	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	20.0	20.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	20.0	20.0	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	20.0	20.0	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	10.0	20.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	88.4	%	
Surrogate: Phenol-d5				29-120 %	82.7	%	
Surrogate: 2-Chlorophenol-d4				31-120 %	94.9	%	
Surrogate: 1,2-Dichlorobenzene-d4				32-120 %	90.9	%	
Surrogate: Nitrobenzene-d5				30-120 %	84.5	%	
Surrogate: 2-Fluorobiphenyl				35-120 %	72.3	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:51

113733-SB3S2

24G0178-02RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/07/2024 12:40

Instrument: NT14 Analyst: RJL

Analyzed: 08/08/2024 23:45

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: 2,4,6-Tribromophenol		24-134 %	85.9	%	
Surrogate: p-Terphenyl-d14		37-120 %	105	%	



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Reported:
16-Sep-2024 10:51

113733-SB3S2
24G0178-02RE1 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM

Sampled: 07/07/2024 12:40

Instrument: NT14 Analyst: RJL

Analyzed: 08/08/2024 23:45

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0178-02RE1 B 04

Preparation Batch: BMG0260

Sample Size: 13.47 g (wet)

Dry Weight: 10.00 g

Prepared: 07/15/2024

Final Volume: 1 mL

% Solids: 74.23

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Benzyl Alcohol	100-51-6	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	500	500	ND	ug/kg	U
4-Methylphenol	106-44-5	1	2.5	5.0	25.3	ug/kg	
2,4-Dimethylphenol	105-67-9	1	10.0	20.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	250	250	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	85.9	%	
Surrogate: p-Terphenyl-d14				37-120 %	99.1	%	



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Reported:
16-Sep-2024 10:51

113733-SB3S3
24G0178-03 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM

Sampled: 07/07/2024 13:05

Instrument: NT14 Analyst: RJL

Analyzed: 08/03/2024 09:29

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0178-03 B 04

Preparation Batch: BMG0260

Sample Size: 13.31 g (wet)

Dry Weight: 10.03 g

Prepared: 07/15/2024

Final Volume: 1 mL

% Solids: 75.38

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	2.5	5.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	2.5	5.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	2.5	5.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	2.5	5.0	ND	ug/kg	U
2-Methylphenol	95-48-7	1	2.5	5.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	10.0	19.9	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	5.0	5.0	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	2.5	5.0	ND	ug/kg	U
N-Nitrosodimethylamine	62-75-9	1	12.5	24.9	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	2.5	5.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	10.0	19.9	11.5	ug/kg	J
N-Nitrosodiphenylamine	86-30-6	1	2.5	5.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	2.5	5.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	2.5	5.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	2.5	5.0	ND	ug/kg	U

Surrogate: 2-Fluorophenol

27-120 % 86.8 %

Surrogate: p-Terphenyl-d14

37-120 % 101 %



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Reported:
16-Sep-2024 10:51

113733-SB3S3
24G0178-03 (Solid)

Butyl Tins

Method: EPA 8270E-SIM
Instrument: NT17 Analyst: JZ

Sampled: 07/07/2024 13:05

Analyzed: 08/05/2024 22:34

Sample Preparation: Preparation Method: EPA 3546 (Microwave)
Preparation Batch: BMG0259
Prepared: 07/15/2024

Sample Size: 6.64 g (wet)

Final Volume: 0.5 mL

Extract ID: 24G0178-03 B 03

Dry Weight: 5.01 g

% Solids: 75.38

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CMH0022
Cleaned: 02-Aug-2024

Initial Volume: 0.5 uL

Final Volume: 0.5 uL

Extract ID: 24G0178-03 B 03

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Tributyltin Ion	36643-28-4	1	1.93	3.86	ND	ug/kg	U
Surrogate: Triphenyltin				30-160 %	97.6	%	
Surrogate: Tripropyltin				30-160 %	64.7	%	



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Reported:

16-Sep-2024 10:51

113733-SB3S3
24G0178-03 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/07/2024 13:05

Instrument: ECD6 Analyst: RT

Analyzed: 07/30/2024 21:48

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 16.62 g (wet)	Extract ID: 24G0178-03 B 02
	Preparation Batch: BMG0258		
	Prepared: 07/15/2024		
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL	Extract ID: 24G0178-03 B 02
	Cleanup Batch: CMG0194		
	Cleaned: 29-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL	Extract ID: 24G0178-03 B 02
	Cleanup Batch: CMG0193		
	Cleaned: 29-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.25	0.50	ND	ug/kg	U
beta-BHC	319-85-7	1	0.25	0.50	ND	ug/kg	U
gamma-BHC (Lindane)	58-89-9	1	0.25	0.50	ND	ug/kg	U
delta-BHC	319-86-8	1	0.25	0.50	ND	ug/kg	U
Heptachlor	76-44-8	1	0.25	0.50	ND	ug/kg	U
Aldrin	309-00-2	1	0.50	0.50	ND	ug/kg	U
Heptachlor Epoxide	1024-57-3	1	0.25	0.50	ND	ug/kg	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.50	0.50	ND	ug/kg	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.25	0.50	ND	ug/kg	U
Endosulfan I	959-98-8	1	0.25	0.50	ND	ug/kg	U
4,4'-DDE	72-55-9	1	0.50	1.00	ND	ug/kg	U
Dieldrin	60-57-1	1	0.50	1.00	ND	ug/kg	U
Endrin	72-20-8	1	0.50	1.00	ND	ug/kg	U
Endosulfan II	33213-65-9	1	0.50	1.00	ND	ug/kg	U
4,4'-DDD	72-54-8	1	0.50	1.00	ND	ug/kg	U
Endrin Aldehyde	7421-93-4	1	0.50	1.00	ND	ug/kg	U
4,4'-DDT	50-29-3	1	0.50	1.00	ND	ug/kg	U
Endosulfan Sulfate	1031-07-8	1	0.50	1.00	ND	ug/kg	U
Endrin Ketone	53494-70-5	1	0.50	1.00	ND	ug/kg	U
Methoxychlor	72-43-5	1	2.49	4.99	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	0.25	0.50	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	0.25	0.50	ND	ug/kg	U
2,4'-DDE	3424-82-6	1	0.50	1.00	ND	ug/kg	U
2,4'-DDD	53-19-0	1	0.50	1.00	ND	ug/kg	U
2,4'-DDT	789-02-6	1	0.50	1.00	ND	ug/kg	U
Oxychlordane	27304-13-8	1	0.50	1.00	ND	ug/kg	U
cis-Nonachlor	5103-73-1	1	0.50	1.00	ND	ug/kg	U
trans-Nonachlor	39765-80-5	1	0.50	1.00	ND	ug/kg	U
Mirex	2385-85-5	1	1.00	1.00	ND	ug/kg	U



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Reported:
16-Sep-2024 10:51

113733-SB3S3
24G0178-03 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/07/2024 13:05

Instrument: ECD6 Analyst: RT

Analyzed: 07/30/2024 21:48

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Decachlorobiphenyl		30-160 %	100	%	
Surrogate: Decachlorobiphenyl [2C]		30-160 %	85.7	%	
Surrogate: Tetrachlorometaxylene		30-160 %	75.5	%	
Surrogate: Tetrachlorometaxylene [2C]		30-160 %	68.3	%	



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Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:51

113733-SB3S3

24G0178-03 (Solid)

Aroclor PCB

Method: EPA 8082A

Sampled: 07/07/2024 13:05

Instrument: ECD5 Analyst: AA

Analyzed: 07/26/2024 00:28

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 16.58 g (wet) Final Volume: 2.5 mL	Extract ID: 24G0178-03 B 01 Dry Weight: 12.50 g % Solids: 75.38
	Preparation Batch: BMG0257		
	Prepared: 07/16/2024		
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0178-03 B 01
	Cleanup Batch: CMG0174		
	Cleaned: 25-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfuric Acid	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0178-03 B 01
	Cleanup Batch: CMG0172		
	Cleaned: 25-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0178-03 B 01
	Cleanup Batch: CMG0173		
	Cleaned: 25-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	2.0	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	2.0	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	2.0	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1262	37324-23-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1268	11100-14-4	1	2.0	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl					40-126 %	72.0	%
Surrogate: Tetrachlorometaxylene					44-120 %	68.9	%
Surrogate: Decachlorobiphenyl [2C]					40-126 %	74.7	%
Surrogate: Tetrachlorometaxylene [2C]					44-120 %	68.6	%



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Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:51

113733-SB3S3

24G0178-03 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED

Sampled: 07/07/2024 13:05

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 15:51

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0178-03 B 05

Preparation Batch: BMG0273

Sample Size: 1.05 g (wet)

Dry Weight: 0.76 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 72.29

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.05	0.26	9.88	mg/kg	
Cadmium	7440-43-9	20	0.04	0.13	0.09	mg/kg	J
Copper	7440-50-8	20	0.23	0.66	23.4	mg/kg	
Selenium	7782-49-2	20	0.24	0.66	0.93	mg/kg	
Zinc	7440-66-6	20	3.8	7.9	60.4	mg/kg	



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:51

113733-SB3S3
24G0178-03 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B

Sampled: 07/07/2024 13:05

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 15:51

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0178-03 B 05

Preparation Batch: BMG0273

Sample Size: 1.05 g (wet)

Dry Weight: 0.76 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 72.29

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	20	0.13	0.26	ND	mg/kg	U
Chromium	7440-47-3	20	0.32	0.66	23.5	mg/kg	
Lead	7439-92-1	20	0.07	0.13	4.93	mg/kg	
Silver	7440-22-4	20	0.03	0.26	0.09	mg/kg	J



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:51

113733-SB3S3

24G0178-03 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B

Sampled: 07/07/2024 13:05

Instrument: HYDRA Analyst: ML

Analyzed: 07/22/2024 12:24

Sample Preparation:

Preparation Method: SMM EPA 7471B

Extract ID: 24G0178-03 C

Preparation Batch: BMG0336

Sample Size: 0.254 g (wet)

Dry Weight: 0.18 g

Prepared: 07/18/2024

Final Volume: 50 mL

% Solids: 72.29

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00572	0.0272	0.0487	mg/kg	



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Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:51

113733-SB3S3

24G0178-03 (Solid)

Wet Chemistry

Method: EPA 9060A m

Sampled: 07/07/2024 13:05

Instrument: Accumet AB150 Analyst: ARR

Analyzed: 08/08/2024 17:24

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0178-03 C

Preparation Batch: BMH0093

Sample Size: 0.5207 g (wet)

Dry Weight: 0.38 g

Prepared: 08/06/2024

Final Volume: 0.5207 mL

% Solids: 72.29

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.32	%	F



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Reported:
16-Sep-2024 10:51

113733-SB3S3
24G0178-03 (Solid)

Wet Chemistry

Method: PSEP 1986

Sampled: 07/07/2024 13:05

Instrument: BAL2 Analyst: LERB

Analyzed: 07/11/2024 14:15

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0178-03

Preparation Batch: BMG0276

Sample Size: 5 g (wet)

Prepared: 07/11/2024

Final Volume: 5 mL

% Solids: 72.29

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Volatile Solids		1	0.01	0.01	1.50	%	



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Reported:
16-Sep-2024 10:51

113733-SB3S3
24G0178-03 (Solid)

Wet Chemistry

Method: SM 2540 G-11

Sampled: 07/07/2024 13:05

Instrument: BAL2 Analyst: LERB

Analyzed: 07/11/2024 14:15

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0178-03

Preparation Batch: BMG0276

Sample Size: 5 g (wet)

Prepared: 07/11/2024

Final Volume: 5 mL

% Solids: 72.29

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	72.29	%	



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Project: PAMP Sediments

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Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:51

113733-SB3S3

24G0178-03RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/07/2024 13:05

Instrument: NT14 Analyst: RJL

Analyzed: 08/09/2024 00:23

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0178-03RE1 B 04

Preparation Batch: BMG0260

Sample Size: 13.31 g (wet)

Dry Weight: 10.03 g

Prepared: 07/15/2024

Final Volume: 1 mL

% Solids: 75.38

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	10.0	19.9	ND	ug/kg	U
bis(2-chloroethyl) ether	111-44-4	1	34.9	49.8	ND	ug/kg	U
2-Chlorophenol	95-57-8	1	19.9	19.9	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	10.0	19.9	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	10.0	19.9	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	10.0	19.9	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	19.9	19.9	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	10.0	19.9	ND	ug/kg	U
2-Methylphenol	95-48-7	1	10.0	19.9	ND	ug/kg	U
Hexachloroethane	67-72-1	1	10.0	19.9	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	15.0	19.9	ND	ug/kg	U
4-Methylphenol	106-44-5	1	15.0	19.9	ND	ug/kg	U
Nitrobenzene	98-95-3	1	10.0	19.9	ND	ug/kg	U
Isophorone	78-59-1	1	15.0	19.9	ND	ug/kg	U
2-Nitrophenol	88-75-5	1	10.0	19.9	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	49.8	99.7	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	1	10.0	19.9	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	1	49.8	99.7	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	10.0	19.9	ND	ug/kg	U
Naphthalene	91-20-3	1	10.0	19.9	ND	ug/kg	U
Benzoic acid	65-85-0	1	99.7	199	ND	ug/kg	U
4-Chloroaniline	106-47-8	1	49.8	99.7	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	10.0	19.9	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	1	49.8	99.7	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	10.0	19.9	ND	ug/kg	U
Hexachlorocyclopentadiene	77-47-4	1	49.8	99.7	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	1	49.8	99.7	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	1	49.8	99.7	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	1	10.0	19.9	ND	ug/kg	U
2-Nitroaniline	88-74-4	1	49.8	99.7	ND	ug/kg	U
Acenaphthylene	208-96-8	1	10.0	19.9	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	10.0	19.9	ND	ug/kg	U
2,6-Dinitrotoluene	606-20-2	1	49.8	99.7	ND	ug/kg	U
Acenaphthene	83-32-9	1	10.0	19.9	ND	ug/kg	U
3-Nitroaniline	99-09-2	1	49.8	99.7	ND	ug/kg	U



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Project: PAMP Sediments
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Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:51

113733-SB3S3
24G0178-03RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/07/2024 13:05

Instrument: NT14 Analyst: RJL

Analyzed: 08/09/2024 00:23

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2,4-Dinitrophenol	51-28-5	1	99.7	199	ND	ug/kg	U
Dibenzofuran	132-64-9	1	19.9	19.9	ND	ug/kg	U
4-Nitrophenol	100-02-7	1	49.8	99.7	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	1	49.8	99.7	ND	ug/kg	U
Fluorene	86-73-7	1	19.9	19.9	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	1	34.9	49.8	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	34.9	49.8	ND	ug/kg	U
4-Nitroaniline	100-01-6	1	49.8	99.7	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	1	99.7	199	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	10.0	19.9	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	1	19.9	19.9	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	19.9	19.9	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	49.8	99.7	ND	ug/kg	U
Phenanthrene	85-01-8	1	10.0	19.9	ND	ug/kg	U
Anthracene	120-12-7	1	10.0	19.9	ND	ug/kg	U
Carbazole	86-74-8	1	10.0	19.9	ND	ug/kg	U
Di-n-Butylphthalate	84-74-2	1	10.0	19.9	ND	ug/kg	U
Fluoranthene	206-44-0	1	10.0	19.9	ND	ug/kg	U
Pyrene	129-00-0	1	10.0	19.9	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	10.0	19.9	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	1	10.0	19.9	ND	ug/kg	U
3,3'-Dichlorobenzidine	91-94-1	1	49.8	99.7	ND	ug/kg	U
Chrysene	218-01-9	1	10.0	19.9	ND	ug/kg	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	39.9	49.8	ND	ug/kg	U
Di-n-Octylphthalate	117-84-0	1	10.0	19.9	ND	ug/kg	U
Benzo(a)fluoranthene, Total		1	29.9	39.9	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	10.0	19.9	ND	ug/kg	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	19.9	19.9	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	19.9	19.9	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	19.9	19.9	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	10.0	19.9	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	83.5	%	
Surrogate: Phenol-d5				29-120 %	76.2	%	
Surrogate: 2-Chlorophenol-d4				31-120 %	89.5	%	
Surrogate: 1,2-Dichlorobenzene-d4				32-120 %	87.4	%	
Surrogate: Nitrobenzene-d5				30-120 %	81.4	%	
Surrogate: 2-Fluorobiphenyl				35-120 %	69.1	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:51

113733-SB3S3

24G0178-03RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/07/2024 13:05

Instrument: NT14 Analyst: RJL

Analyzed: 08/09/2024 00:23

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: 2,4,6-Tribromophenol		24-134 %	79.3	%	
Surrogate: p-Terphenyl-d14		37-120 %	102	%	



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Reported:
16-Sep-2024 10:51

113733-SB3S3
24G0178-03RE1 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM

Sampled: 07/07/2024 13:05

Instrument: NT14 Analyst: RJL

Analyzed: 08/09/2024 00:23

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0178-03RE1 B 04

Preparation Batch: BMG0260

Sample Size: 13.31 g (wet)

Dry Weight: 10.03 g

Prepared: 07/15/2024

Final Volume: 1 mL

% Solids: 75.38

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Benzyl Alcohol	100-51-6	1	10.0	19.9	ND	ug/kg	U
Benzoic acid	65-85-0	1	498	498	ND	ug/kg	U
4-Methylphenol	106-44-5	1	2.5	5.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	10.0	19.9	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	249	249	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	81.7	%	
Surrogate: p-Terphenyl-d14				37-120 %	98.3	%	



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Project: PAMP Sediments
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Reported:
16-Sep-2024 10:51

113733-SB3S4
24G0178-04 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM

Sampled: 07/07/2024 13:10

Instrument: NT14 Analyst: RJL

Analyzed: 08/03/2024 10:08

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0178-04 B 04

Preparation Batch: BMG0260

Sample Size: 13.05 g (wet)

Dry Weight: 10.02 g

Prepared: 07/15/2024

Final Volume: 1 mL

% Solids: 76.79

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	2.5	5.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	2.5	5.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	2.5	5.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	2.5	5.0	ND	ug/kg	U
2-Methylphenol	95-48-7	1	2.5	5.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	10.0	20.0	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	5.0	5.0	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	2.5	5.0	ND	ug/kg	U
N-Nitrosodimethylamine	62-75-9	1	12.5	24.9	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	2.5	5.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	10.0	20.0	10.6	ug/kg	J
N-Nitrosodiphenylamine	86-30-6	1	2.5	5.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	2.5	5.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	2.5	5.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	2.5	5.0	ND	ug/kg	U

Surrogate: 2-Fluorophenol

27-120 % 98.4 %

Surrogate: p-Terphenyl-d14

37-120 % 118 %



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Reported:
16-Sep-2024 10:51

113733-SB3S4
24G0178-04 (Solid)

Butyl Tins

Method: EPA 8270E-SIM
Instrument: NT17 Analyst: JZ

Sampled: 07/07/2024 13:10

Analyzed: 08/05/2024 22:47

Sample Preparation: Preparation Method: EPA 3546 (Microwave)
Preparation Batch: BMG0259
Prepared: 07/15/2024

Sample Size: 6.55 g (wet)

Final Volume: 0.5 mL

Extract ID: 24G0178-04 B 03

Dry Weight: 5.03 g

% Solids: 76.79

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CMH0022
Cleaned: 02-Aug-2024

Initial Volume: 0.5 uL

Final Volume: 0.5 uL

Extract ID: 24G0178-04 B 03

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Tributyltin Ion	36643-28-4	1	1.92	3.84	ND	ug/kg	U
Surrogate: Triphenyltin				30-160 %	111	%	
Surrogate: Tripropyltin				30-160 %	70.9	%	



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Reported:
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113733-SB3S4
24G0178-04 (Solid)

Chlorinated Pesticides

Method: EPA 8081B			Sampled: 07/07/2024 13:10	
Instrument: ECD6 Analyst: RT			Analyzed: 07/30/2024 22:06	
Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 16.31 g (wet)	Extract ID: 24G0178-04 B 02	
	Preparation Batch: BMG0258		Dry Weight: 12.52 g	
	Prepared: 07/15/2024		% Solids: 76.79	
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL	Extract ID: 24G0178-04 B 02	
	Cleanup Batch: CMG0194			
	Cleaned: 29-Jul-2024			
Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL	Extract ID: 24G0178-04 B 02	
	Cleanup Batch: CMG0193			
	Cleaned: 29-Jul-2024			

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.25	0.50	ND	ug/kg	U
beta-BHC	319-85-7	1	0.25	0.50	ND	ug/kg	U
gamma-BHC (Lindane)	58-89-9	1	0.25	0.50	ND	ug/kg	U
delta-BHC	319-86-8	1	0.25	0.50	ND	ug/kg	U
Heptachlor	76-44-8	1	0.25	0.50	ND	ug/kg	U
Aldrin	309-00-2	1	0.50	0.50	ND	ug/kg	U
Heptachlor Epoxide	1024-57-3	1	0.25	0.50	ND	ug/kg	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.50	0.50	ND	ug/kg	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.25	0.50	ND	ug/kg	U
Endosulfan I	959-98-8	1	0.25	0.50	ND	ug/kg	U
4,4'-DDE	72-55-9	1	0.50	1.00	ND	ug/kg	U
Dieldrin	60-57-1	1	0.50	1.00	ND	ug/kg	U
Endrin	72-20-8	1	0.50	1.00	ND	ug/kg	U
Endosulfan II	33213-65-9	1	0.50	1.00	ND	ug/kg	U
4,4'-DDD	72-54-8	1	0.50	1.00	ND	ug/kg	U
Endrin Aldehyde	7421-93-4	1	0.50	1.00	ND	ug/kg	U
4,4'-DDT	50-29-3	1	0.50	1.00	ND	ug/kg	U
Endosulfan Sulfate	1031-07-8	1	0.50	1.00	ND	ug/kg	U
Endrin Ketone	53494-70-5	1	0.50	1.00	ND	ug/kg	U
Methoxychlor	72-43-5	1	2.50	4.99	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	0.25	0.50	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	0.25	0.50	ND	ug/kg	U
2,4'-DDE	3424-82-6	1	0.50	1.00	ND	ug/kg	U
2,4'-DDD	53-19-0	1	0.50	1.00	ND	ug/kg	U
2,4'-DDT	789-02-6	1	0.50	1.00	ND	ug/kg	U
Oxychlordane	27304-13-8	1	0.50	1.00	ND	ug/kg	U
cis-Nonachlor	5103-73-1	1	0.50	1.00	ND	ug/kg	U
trans-Nonachlor	39765-80-5	1	0.50	1.00	ND	ug/kg	U
Mirex	2385-85-5	1	1.00	1.00	ND	ug/kg	U



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:51

113733-SB3S4
24G0178-04 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/07/2024 13:10

Instrument: ECD6 Analyst: RT

Analyzed: 07/30/2024 22:06

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Decachlorobiphenyl		30-160 %	103	%	
Surrogate: Decachlorobiphenyl [2C]		30-160 %	84.6	%	
Surrogate: Tetrachlorometaxylene		30-160 %	67.5	%	
Surrogate: Tetrachlorometaxylene [2C]		30-160 %	67.3	%	



Shannon & Wilson, Inc

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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:51

113733-SB3S4

24G0178-04 (Solid)

Aroclor PCB

Method: EPA 8082A

Sampled: 07/07/2024 13:10

Instrument: ECD5 Analyst: AA

Analyzed: 07/26/2024 00:49

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 16.31 g (wet) Final Volume: 2.5 mL	Extract ID: 24G0178-04 B 01 Dry Weight: 12.52 g % Solids: 76.79
	Preparation Batch: BMG0257		
	Prepared: 07/16/2024		
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0178-04 B 01
	Cleanup Batch: CMG0174		
	Cleaned: 25-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfuric Acid	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0178-04 B 01
	Cleanup Batch: CMG0172		
	Cleaned: 25-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0178-04 B 01
	Cleanup Batch: CMG0173		
	Cleaned: 25-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	2.0	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	2.0	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	2.0	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1262	37324-23-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1268	11100-14-4	1	2.0	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				40-126 %	74.0	%	
Surrogate: Tetrachlorometaxylene				44-120 %	70.6	%	
Surrogate: Decachlorobiphenyl [2C]				40-126 %	76.7	%	
Surrogate: Tetrachlorometaxylene [2C]				44-120 %	70.6	%	



Shannon & Wilson, Inc

5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:51

113733-SB3S4

24G0178-04 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED

Sampled: 07/07/2024 13:10

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 15:55

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0178-04 B 05

Preparation Batch: BMG0273

Sample Size: 1.079 g (wet)

Dry Weight: 0.83 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 77.38

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.05	0.24	10.8	mg/kg	
Cadmium	7440-43-9	20	0.04	0.12	0.11	mg/kg	J
Copper	7440-50-8	20	0.21	0.60	28.8	mg/kg	
Selenium	7782-49-2	20	0.22	0.60	0.93	mg/kg	
Zinc	7440-66-6	20	3.5	7.2	65.2	mg/kg	



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Reported:
16-Sep-2024 10:51

113733-SB3S4
24G0178-04 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B

Sampled: 07/07/2024 13:10

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 15:55

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0178-04 B 05

Preparation Batch: BMG0273

Sample Size: 1.079 g (wet)

Dry Weight: 0.83 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 77.38

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	20	0.12	0.24	ND	mg/kg	U
Chromium	7440-47-3	20	0.29	0.60	24.8	mg/kg	
Lead	7439-92-1	20	0.06	0.12	5.61	mg/kg	
Silver	7440-22-4	20	0.03	0.24	0.11	mg/kg	J



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Reported:

16-Sep-2024 10:51

113733-SB3S4

24G0178-04 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B

Sampled: 07/07/2024 13:10

Instrument: HYDRA Analyst: ML

Analyzed: 07/22/2024 12:26

Sample Preparation:

Preparation Method: SMM EPA 7471B

Extract ID: 24G0178-04 C

Preparation Batch: BMG0336

Sample Size: 0.218 g (wet)

Dry Weight: 0.17 g

Prepared: 07/18/2024

Final Volume: 50 mL

% Solids: 77.38

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00622	0.0296	0.0503	mg/kg	



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Reported:

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113733-SB3S4

24G0178-04 (Solid)

Wet Chemistry

Method: EPA 9060A m

Sampled: 07/07/2024 13:10

Instrument: Accumet AB150 Analyst: ARR

Analyzed: 08/08/2024 20:27

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0178-04 C

Preparation Batch: BMH0093

Sample Size: 0.5358 g (wet)

Dry Weight: 0.41 g

Prepared: 08/06/2024

Final Volume: 0.5358 mL

% Solids: 77.38

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.49	%	F



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Reported:
16-Sep-2024 10:51

113733-SB3S4
24G0178-04 (Solid)

Wet Chemistry

Method: PSEP 1986

Sampled: 07/07/2024 13:10

Instrument: BAL2 Analyst: LERB

Analyzed: 07/11/2024 14:15

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0178-04

Preparation Batch: BMG0276

Sample Size: 5 g (wet)

Prepared: 07/11/2024

Final Volume: 5 mL

% Solids: 77.38

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Volatile Solids		1	0.01	0.01	1.51	%	



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Reported:

16-Sep-2024 10:51

113733-SB3S4

24G0178-04 (Solid)

Wet Chemistry

Method: SM 2540 G-11

Sampled: 07/07/2024 13:10

Instrument: BAL2 Analyst: LERB

Analyzed: 07/11/2024 14:15

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0178-04

Preparation Batch: BMG0276

Sample Size: 5 g (wet)

Prepared: 07/11/2024

Final Volume: 5 mL

% Solids: 77.38

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	77.38	%	



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Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:51

113733-SB3S4

24G0178-04RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/07/2024 13:10

Instrument: NT14 Analyst: RJL

Analyzed: 08/09/2024 01:02

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0178-04RE1 B 04

Preparation Batch: BMG0260

Sample Size: 13.05 g (wet)

Dry Weight: 10.02 g

Prepared: 07/15/2024

Final Volume: 1 mL

% Solids: 76.79

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	10.0	20.0	ND	ug/kg	U
bis(2-chloroethyl) ether	111-44-4	1	34.9	49.9	ND	ug/kg	U
2-Chlorophenol	95-57-8	1	20.0	20.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	10.0	20.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	10.0	20.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	10.0	20.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	20.0	20.0	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	10.0	20.0	ND	ug/kg	U
2-Methylphenol	95-48-7	1	10.0	20.0	ND	ug/kg	U
Hexachloroethane	67-72-1	1	10.0	20.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	15.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	15.0	20.0	ND	ug/kg	U
Nitrobenzene	98-95-3	1	10.0	20.0	ND	ug/kg	U
Isophorone	78-59-1	1	15.0	20.0	ND	ug/kg	U
2-Nitrophenol	88-75-5	1	10.0	20.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	49.9	99.8	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	1	10.0	20.0	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	1	49.9	99.8	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	10.0	20.0	ND	ug/kg	U
Naphthalene	91-20-3	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	99.8	200	ND	ug/kg	U
4-Chloroaniline	106-47-8	1	49.9	99.8	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	10.0	20.0	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	1	49.9	99.8	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	10.0	20.0	ND	ug/kg	U
Hexachlorocyclopentadiene	77-47-4	1	49.9	99.8	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	1	49.9	99.8	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	1	49.9	99.8	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	1	10.0	20.0	ND	ug/kg	U
2-Nitroaniline	88-74-4	1	49.9	99.8	ND	ug/kg	U
Acenaphthylene	208-96-8	1	10.0	20.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	10.0	20.0	ND	ug/kg	U
2,6-Dinitrotoluene	606-20-2	1	49.9	99.8	ND	ug/kg	U
Acenaphthene	83-32-9	1	10.0	20.0	ND	ug/kg	U
3-Nitroaniline	99-09-2	1	49.9	99.8	ND	ug/kg	U



Shannon & Wilson, Inc
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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:51

113733-SB3S4
24G0178-04RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/07/2024 13:10

Instrument: NT14 Analyst: RJL

Analyzed: 08/09/2024 01:02

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2,4-Dinitrophenol	51-28-5	1	99.8	200	ND	ug/kg	U
Dibenzofuran	132-64-9	1	20.0	20.0	ND	ug/kg	U
4-Nitrophenol	100-02-7	1	49.9	99.8	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	1	49.9	99.8	ND	ug/kg	U
Fluorene	86-73-7	1	20.0	20.0	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	1	34.9	49.9	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	34.9	49.9	ND	ug/kg	U
4-Nitroaniline	100-01-6	1	49.9	99.8	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	1	99.8	200	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	10.0	20.0	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	1	20.0	20.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	20.0	20.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	49.9	99.8	ND	ug/kg	U
Phenanthrene	85-01-8	1	10.0	20.0	ND	ug/kg	U
Anthracene	120-12-7	1	10.0	20.0	ND	ug/kg	U
Carbazole	86-74-8	1	10.0	20.0	ND	ug/kg	U
Di-n-Butylphthalate	84-74-2	1	10.0	20.0	ND	ug/kg	U
Fluoranthene	206-44-0	1	10.0	20.0	ND	ug/kg	U
Pyrene	129-00-0	1	10.0	20.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	10.0	20.0	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	1	10.0	20.0	ND	ug/kg	U
3,3'-Dichlorobenzidine	91-94-1	1	49.9	99.8	ND	ug/kg	U
Chrysene	218-01-9	1	10.0	20.0	ND	ug/kg	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	39.9	49.9	ND	ug/kg	U
Di-n-Octylphthalate	117-84-0	1	10.0	20.0	ND	ug/kg	U
Benzo(a)fluoranthene, Total		1	29.9	39.9	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	10.0	20.0	ND	ug/kg	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	20.0	20.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	20.0	20.0	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	20.0	20.0	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	10.0	20.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	92.0	%	
Surrogate: Phenol-d5				29-120 %	85.9	%	
Surrogate: 2-Chlorophenol-d4				31-120 %	99.8	%	
Surrogate: 1,2-Dichlorobenzene-d4				32-120 %	99.9	%	
Surrogate: Nitrobenzene-d5				30-120 %	90.8	%	
Surrogate: 2-Fluorobiphenyl				35-120 %	80.8	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:51

113733-SB3S4

24G0178-04RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/07/2024 13:10

Instrument: NT14 Analyst: RJL

Analyzed: 08/09/2024 01:02

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: 2,4,6-Tribromophenol		24-134 %	80.6	%	
Surrogate: p-Terphenyl-d14		37-120 %	118	%	



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Reported:
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113733-SB3S4
24G0178-04RE1 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM

Sampled: 07/07/2024 13:10

Instrument: NT14 Analyst: RJL

Analyzed: 08/09/2024 01:02

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0178-04RE1 B 04

Preparation Batch: BMG0260

Sample Size: 13.05 g (wet)

Dry Weight: 10.02 g

Prepared: 07/15/2024

Final Volume: 1 mL

% Solids: 76.79

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Benzyl Alcohol	100-51-6	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	499	499	ND	ug/kg	U
4-Methylphenol	106-44-5	1	2.5	5.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	10.0	20.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	249	249	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	92.1	%	
Surrogate: p-Terphenyl-d14				37-120 %	112	%	



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Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:51

113733-SB3S5
24G0178-05 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM

Sampled: 07/07/2024 14:25

Instrument: NT14 Analyst: RJL

Analyzed: 08/03/2024 10:46

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0178-05 B 04

Preparation Batch: BMG0260

Sample Size: 12.85 g (wet)

Dry Weight: 10.02 g

Prepared: 07/15/2024

Final Volume: 1 mL

% Solids: 78.00

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	2.5	5.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	2.5	5.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	2.5	5.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	2.5	5.0	ND	ug/kg	U
2-Methylphenol	95-48-7	1	2.5	5.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	10.0	20.0	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	5.0	5.0	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	2.5	5.0	ND	ug/kg	U
N-Nitrosodimethylamine	62-75-9	1	12.5	24.9	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	2.5	5.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	10.0	20.0	10.2	ug/kg	J
N-Nitrosodiphenylamine	86-30-6	1	2.5	5.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	2.5	5.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	2.5	5.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	2.5	5.0	ND	ug/kg	U

Surrogate: 2-Fluorophenol

27-120 %

83.4

%

Surrogate: p-Terphenyl-d14

37-120 %

103

%



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:51

113733-SB3S5
24G0178-05 (Solid)

Butyl Tins

Method: EPA 8270E-SIM
Instrument: NT17 Analyst: JZ

Sampled: 07/07/2024 14:25

Analyzed: 08/05/2024 23:01

Sample Preparation: Preparation Method: EPA 3546 (Microwave)
Preparation Batch: BMG0259
Prepared: 07/15/2024

Sample Size: 6.43 g (wet)

Final Volume: 0.5 mL

Extract ID: 24G0178-05 B 03

Dry Weight: 5.02 g

% Solids: 78.00

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CMH0022
Cleaned: 02-Aug-2024

Initial Volume: 0.5 uL

Final Volume: 0.5 uL

Extract ID: 24G0178-05 B 03

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Tributyltin Ion	36643-28-4	1	1.92	3.85	ND	ug/kg	U
Surrogate: Triphenyltin				30-160 %	129	%	
Surrogate: Tripropyltin				30-160 %	96.3	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:51

113733-SB3S5
24G0178-05 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/07/2024 14:25

Instrument: ECD6 Analyst: RT

Analyzed: 07/30/2024 22:25

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 16.08 g (wet)	Extract ID: 24G0178-05 B 02
	Preparation Batch: BMG0258	Final Volume: 2.5 mL	Dry Weight: 12.54 g
	Prepared: 07/15/2024		% Solids: 78.00

Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL	Extract ID: 24G0178-05 B 02
	Cleanup Batch: CMG0194	Final Volume: 2.5 uL	
	Cleaned: 29-Jul-2024		

Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL	Extract ID: 24G0178-05 B 02
	Cleanup Batch: CMG0193	Final Volume: 2.5 uL	
	Cleaned: 29-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.25	0.50	ND	ug/kg	U
beta-BHC	319-85-7	1	0.25	0.50	ND	ug/kg	U
gamma-BHC (Lindane)	58-89-9	1	0.25	0.50	ND	ug/kg	U
delta-BHC	319-86-8	1	0.25	0.50	ND	ug/kg	U
Heptachlor	76-44-8	1	0.25	0.50	ND	ug/kg	U
Aldrin	309-00-2	1	0.50	0.50	ND	ug/kg	U
Heptachlor Epoxide	1024-57-3	1	0.25	0.50	ND	ug/kg	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.50	0.50	ND	ug/kg	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.25	0.50	ND	ug/kg	U
Endosulfan I	959-98-8	1	0.25	0.50	ND	ug/kg	U
4,4'-DDE	72-55-9	1	0.50	1.00	ND	ug/kg	U
Dieldrin	60-57-1	1	0.50	1.00	ND	ug/kg	U
Endrin	72-20-8	1	0.50	1.00	ND	ug/kg	U
Endosulfan II	33213-65-9	1	0.50	1.00	ND	ug/kg	U
4,4'-DDD	72-54-8	1	0.50	1.00	ND	ug/kg	U
Endrin Aldehyde	7421-93-4	1	0.50	1.00	ND	ug/kg	U
4,4'-DDT	50-29-3	1	0.50	1.00	ND	ug/kg	U
Endosulfan Sulfate	1031-07-8	1	0.50	1.00	ND	ug/kg	U
Endrin Ketone	53494-70-5	1	0.50	1.00	ND	ug/kg	U
Methoxychlor	72-43-5	1	2.49	4.98	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	0.25	0.50	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	0.25	0.50	ND	ug/kg	U
2,4'-DDE	3424-82-6	1	0.50	1.00	ND	ug/kg	U
2,4'-DDD	53-19-0	1	0.50	1.00	ND	ug/kg	U
2,4'-DDT	789-02-6	1	0.50	1.00	ND	ug/kg	U
Oxychlordane	27304-13-8	1	0.50	1.00	ND	ug/kg	U
cis-Nonachlor	5103-73-1	1	0.50	1.00	ND	ug/kg	U
trans-Nonachlor	39765-80-5	1	0.50	1.00	ND	ug/kg	U
Mirex	2385-85-5	1	1.00	1.00	ND	ug/kg	U



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:51

113733-SB3S5
24G0178-05 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/07/2024 14:25

Instrument: ECD6 Analyst: RT

Analyzed: 07/30/2024 22:25

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Decachlorobiphenyl		30-160 %	100	%	
Surrogate: Decachlorobiphenyl [2C]		30-160 %	81.7	%	
Surrogate: Tetrachlorometaxylene		30-160 %	66.5	%	
Surrogate: Tetrachlorometaxylene [2C]		30-160 %	65.4	%	



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Reported:

16-Sep-2024 10:51

113733-SB3S5

24G0178-05 (Solid)

Aroclor PCB

Method: EPA 8082A

Sampled: 07/07/2024 14:25

Instrument: ECD5 Analyst: AA

Analyzed: 07/26/2024 01:10

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 16.07 g (wet) Final Volume: 2.5 mL	Extract ID: 24G0178-05 B 01 Dry Weight: 12.53 g % Solids: 78.00
	Preparation Batch: BMG0257		
	Prepared: 07/16/2024		
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0178-05 B 01
	Cleanup Batch: CMG0174		
	Cleaned: 25-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfuric Acid	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0178-05 B 01
	Cleanup Batch: CMG0172		
	Cleaned: 25-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0178-05 B 01
	Cleanup Batch: CMG0173		
	Cleaned: 25-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	2.0	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	2.0	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	2.0	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1262	37324-23-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1268	11100-14-4	1	2.0	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl					40-126 %	84.1	%
Surrogate: Tetrachlorometaxylene					44-120 %	76.2	%
Surrogate: Decachlorobiphenyl [2C]					40-126 %	82.7	%
Surrogate: Tetrachlorometaxylene [2C]					44-120 %	74.7	%



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Reported:

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113733-SB3S5

24G0178-05 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED

Sampled: 07/07/2024 14:25

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 16:00

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0178-05 B 05

Preparation Batch: BMG0273

Sample Size: 1.084 g (wet)

Dry Weight: 0.85 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 78.66

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.04	0.23	8.95	mg/kg	
Cadmium	7440-43-9	20	0.04	0.12	0.09	mg/kg	J
Copper	7440-50-8	20	0.20	0.59	29.9	mg/kg	
Selenium	7782-49-2	20	0.21	0.59	1.07	mg/kg	
Zinc	7440-66-6	20	3.4	7.0	65.5	mg/kg	



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Project: PAMP Sediments
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Reported:
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113733-SB3S5
24G0178-05 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B

Sampled: 07/07/2024 14:25

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 16:00

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0178-05 B 05

Preparation Batch: BMG0273

Sample Size: 1.084 g (wet)

Dry Weight: 0.85 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 78.66

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	20	0.12	0.23	ND	mg/kg	U
Chromium	7440-47-3	20	0.28	0.59	24.6	mg/kg	
Lead	7439-92-1	20	0.06	0.12	5.61	mg/kg	
Silver	7440-22-4	20	0.03	0.23	0.11	mg/kg	J



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Reported:

16-Sep-2024 10:51

113733-SB3S5

24G0178-05 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B

Sampled: 07/07/2024 14:25

Instrument: HYDRA Analyst: ML

Analyzed: 07/22/2024 12:29

Sample Preparation:

Preparation Method: SMM EPA 7471B

Extract ID: 24G0178-05 C

Preparation Batch: BMG0336

Sample Size: 0.256 g (wet)

Dry Weight: 0.20 g

Prepared: 07/18/2024

Final Volume: 50 mL

% Solids: 78.66

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00521	0.0248	0.0651	mg/kg	



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Reported:
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113733-SB3S5
24G0178-05 (Solid)

Wet Chemistry

Method: EPA 9060A m

Sampled: 07/07/2024 14:25

Instrument: Accumet AB150 Analyst: ARR

Analyzed: 08/08/2024 20:57

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0178-05 C

Preparation Batch: BMH0093

Sample Size: 0.5219 g (wet)

Dry Weight: 0.41 g

Prepared: 08/06/2024

Final Volume: 0.5219 mL

% Solids: 78.66

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.33	%	F



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Reported:
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113733-SB3S5
24G0178-05 (Solid)

Wet Chemistry

Method: PSEP 1986

Sampled: 07/07/2024 14:25

Instrument: BAL2 Analyst: LERB

Analyzed: 07/11/2024 14:15

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0178-05

Preparation Batch: BMG0276

Sample Size: 5 g (wet)

Prepared: 07/11/2024

Final Volume: 5 mL

% Solids: 78.66

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Volatile Solids		1	0.01	0.01	1.70	%	



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Reported:
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113733-SB3S5
24G0178-05 (Solid)

Wet Chemistry

Method: SM 2540 G-11

Sampled: 07/07/2024 14:25

Instrument: BAL2 Analyst: LERB

Analyzed: 07/11/2024 14:15

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0178-05

Preparation Batch: BMG0276

Sample Size: 5 g (wet)

Prepared: 07/11/2024

Final Volume: 5 mL

% Solids: 78.66

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	78.66	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:51

113733-SB385

24G0178-05RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/07/2024 14:25

Instrument: NT14 Analyst: RJL

Analyzed: 08/09/2024 01:40

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0178-05RE1 B 04

Preparation Batch: BMG0260

Sample Size: 12.85 g (wet)

Dry Weight: 10.02 g

Prepared: 07/15/2024

Final Volume: 1 mL

% Solids: 78.00

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	10.0	20.0	ND	ug/kg	U
bis(2-chloroethyl) ether	111-44-4	1	34.9	49.9	ND	ug/kg	U
2-Chlorophenol	95-57-8	1	20.0	20.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	10.0	20.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	10.0	20.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	10.0	20.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	20.0	20.0	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	10.0	20.0	ND	ug/kg	U
2-Methylphenol	95-48-7	1	10.0	20.0	ND	ug/kg	U
Hexachloroethane	67-72-1	1	10.0	20.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	15.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	15.0	20.0	ND	ug/kg	U
Nitrobenzene	98-95-3	1	10.0	20.0	ND	ug/kg	U
Isophorone	78-59-1	1	15.0	20.0	ND	ug/kg	U
2-Nitrophenol	88-75-5	1	10.0	20.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	49.9	99.8	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	1	10.0	20.0	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	1	49.9	99.8	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	10.0	20.0	ND	ug/kg	U
Naphthalene	91-20-3	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	99.8	200	ND	ug/kg	U
4-Chloroaniline	106-47-8	1	49.9	99.8	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	10.0	20.0	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	1	49.9	99.8	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	10.0	20.0	ND	ug/kg	U
Hexachlorocyclopentadiene	77-47-4	1	49.9	99.8	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	1	49.9	99.8	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	1	49.9	99.8	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	1	10.0	20.0	ND	ug/kg	U
2-Nitroaniline	88-74-4	1	49.9	99.8	ND	ug/kg	U
Acenaphthylene	208-96-8	1	10.0	20.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	10.0	20.0	ND	ug/kg	U
2,6-Dinitrotoluene	606-20-2	1	49.9	99.8	ND	ug/kg	U
Acenaphthene	83-32-9	1	10.0	20.0	ND	ug/kg	U
3-Nitroaniline	99-09-2	1	49.9	99.8	ND	ug/kg	U



Shannon & Wilson, Inc
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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:51

113733-SB3S5
24G0178-05RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/07/2024 14:25

Instrument: NT14 Analyst: RJL

Analyzed: 08/09/2024 01:40

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2,4-Dinitrophenol	51-28-5	1	99.8	200	ND	ug/kg	U
Dibenzofuran	132-64-9	1	20.0	20.0	ND	ug/kg	U
4-Nitrophenol	100-02-7	1	49.9	99.8	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	1	49.9	99.8	ND	ug/kg	U
Fluorene	86-73-7	1	20.0	20.0	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	1	34.9	49.9	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	34.9	49.9	ND	ug/kg	U
4-Nitroaniline	100-01-6	1	49.9	99.8	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	1	99.8	200	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	10.0	20.0	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	1	20.0	20.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	20.0	20.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	49.9	99.8	ND	ug/kg	U
Phenanthrene	85-01-8	1	10.0	20.0	ND	ug/kg	U
Anthracene	120-12-7	1	10.0	20.0	ND	ug/kg	U
Carbazole	86-74-8	1	10.0	20.0	ND	ug/kg	U
Di-n-Butylphthalate	84-74-2	1	10.0	20.0	ND	ug/kg	U
Fluoranthene	206-44-0	1	10.0	20.0	ND	ug/kg	U
Pyrene	129-00-0	1	10.0	20.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	10.0	20.0	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	1	10.0	20.0	ND	ug/kg	U
3,3'-Dichlorobenzidine	91-94-1	1	49.9	99.8	ND	ug/kg	U
Chrysene	218-01-9	1	10.0	20.0	ND	ug/kg	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	39.9	49.9	ND	ug/kg	U
Di-n-Octylphthalate	117-84-0	1	10.0	20.0	ND	ug/kg	U
Benzo(a)fluoranthene, Total		1	29.9	39.9	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	10.0	20.0	ND	ug/kg	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	20.0	20.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	20.0	20.0	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	20.0	20.0	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	10.0	20.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	79.3	%	
Surrogate: Phenol-d5				29-120 %	70.2	%	
Surrogate: 2-Chlorophenol-d4				31-120 %	94.5	%	
Surrogate: 1,2-Dichlorobenzene-d4				32-120 %	80.2	%	
Surrogate: Nitrobenzene-d5				30-120 %	78.0	%	
Surrogate: 2-Fluorobiphenyl				35-120 %	67.1	%	



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Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:51

113733-SB3S5

24G0178-05RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/07/2024 14:25

Instrument: NT14 Analyst: RJL

Analyzed: 08/09/2024 01:40

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: 2,4,6-Tribromophenol		24-134 %	70.6	%	
Surrogate: p-Terphenyl-d14		37-120 %	101	%	



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Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:51

113733-SB3S5
24G0178-05RE1 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM

Sampled: 07/07/2024 14:25

Instrument: NT14 Analyst: RJL

Analyzed: 08/09/2024 01:40

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0178-05RE1 B 04

Preparation Batch: BMG0260

Sample Size: 12.85 g (wet)

Dry Weight: 10.02 g

Prepared: 07/15/2024

Final Volume: 1 mL

% Solids: 78.00

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Benzyl Alcohol	100-51-6	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	499	499	ND	ug/kg	U
4-Methylphenol	106-44-5	1	2.5	5.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	10.0	20.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	249	249	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	79.5	%	
Surrogate: p-Terphenyl-d14				37-120 %	96.3	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:51

113733-SB3S1

24G0178-01 (Solid)

Geotechnical Methods

Method: PSEP-PS

Sampled: 07/07/2024 12:30

Analysis by: AmTest Laboratories

Instrument: ALAB Analyst:

Analyzed: 09/10/2024 00:00

Sample Preparation:

Preparation Method: No Prep Geo

Preparation Batch: B100924

Prepared: 09/10/2024

Extract ID: 24G0178-01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phi Size < -2.25	GS_MFG	1	0.1	ND	%	U
Phi Size -2.25 to -2	GS_FG	1	0.1	ND	%	U
Phi Size -2 to -1	GS_VFG	1	0.1	ND	%	U
Phi Size -1 to 0	GS_VCS	1	0.1	ND	%	U
Phi Size 0 to 1	GS_CS	1	0.1	0.1	%	
Phi Size 1 to 2	GS_MS	1	0.1	0.1	%	
Phi Size 2 to 3	GS_FS	1	0.1	0.1	%	
Phi Size 3 to 4	GS_VFS	1	0.1	3.6	%	
Phi Size 4 to 5	GS_CSILT	1	0.1	57.1	%	
Phi Size 5 to 6	GS_MSILT	1	0.1	14.8	%	
Phi Size 6 to 7	GS_FSILT	1	0.1	7.8	%	
Phi Size 7 to 8	GS_VFSILT	1	0.1	3.7	%	
Phi Size 8 to 9	GS_CCLAY	1	0.1	2.1	%	
Phi Size 9 to 10	GS_MCLAY	1	0.1	1	%	
Phi Size >10	GS_FCLAY	1	0.1	9.4	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:51

113733-SB3S2

24G0178-02 (Solid)

Geotechnical Methods

Method: PSEP-PS

Sampled: 07/07/2024 12:40

Analysis by: AmTest Laboratories

Instrument: ALAB Analyst:

Analyzed: 09/10/2024 00:00

Sample Preparation:

Preparation Method: No Prep Geo

Preparation Batch: B100924

Prepared: 09/10/2024

Extract ID: 24G0178-02

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phi Size < -2.25	GS_MFG	1	0.1	0.2	%	
Phi Size -2.25 to -2	GS_FG	1	0.1	0.1	%	
Phi Size -2 to -1	GS_VFG	1	0.1	0.7	%	
Phi Size -1 to 0	GS_VCS	1	0.1	0.8	%	
Phi Size 0 to 1	GS_CS	1	0.1	0.6	%	
Phi Size 1 to 2	GS_MS	1	0.1	0.6	%	
Phi Size 2 to 3	GS_FS	1	0.1	0.8	%	
Phi Size 3 to 4	GS_VFS	1	0.1	8.6	%	
Phi Size 4 to 5	GS_CSILT	1	0.1	53.3	%	
Phi Size 5 to 6	GS_MSILT	1	0.1	13.3	%	
Phi Size 6 to 7	GS_FSILT	1	0.1	7.2	%	
Phi Size 7 to 8	GS_VFSILT	1	0.1	2.8	%	
Phi Size 8 to 9	GS_CCLAY	1	0.1	2.3	%	
Phi Size 9 to 10	GS_MCLAY	1	0.1	1.4	%	
Phi Size >10	GS_FCLAY	1	0.1	7.3	%	



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:51

113733-SB3S3
24G0178-03 (Solid)

Geotechnical Methods

Method: PSEP-PS

Sampled: 07/07/2024 13:05

Analysis by: AmTest Laboratories

Instrument: ALAB Analyst:

Analyzed: 09/10/2024 00:00

Sample Preparation: Preparation Method: No Prep Geo
Preparation Batch: B100924
Prepared: 09/10/2024

Extract ID: 24G0178-03

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phi Size < -2.25	GS_MFG	1	0.1	ND	%	U
Phi Size -2.25 to -2	GS_FG	1	0.1	ND	%	U
Phi Size -2 to -1	GS_VFG	1	0.1	0.1	%	
Phi Size -1 to 0	GS_VCS	1	0.1	0.1	%	
Phi Size 0 to 1	GS_CS	1	0.1	ND	%	U
Phi Size 1 to 2	GS_MS	1	0.1	0.1	%	
Phi Size 2 to 3	GS_FS	1	0.1	0.5	%	
Phi Size 3 to 4	GS_VFS	1	0.1	15.8	%	
Phi Size 4 to 5	GS_CSILT	1	0.1	58.5	%	
Phi Size 5 to 6	GS_MSILT	1	0.1	12.0	%	
Phi Size 6 to 7	GS_FSILT	1	0.1	3.2	%	
Phi Size 7 to 8	GS_VFSILT	1	0.1	1.7	%	
Phi Size 8 to 9	GS_CCLAY	1	0.1	0.7	%	
Phi Size 9 to 10	GS_MCLAY	1	0.1	0.3	%	
Phi Size >10	GS_FCLAY	1	0.1	6.8	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:51

113733-SB3S4

24G0178-04 (Solid)

Geotechnical Methods

Method: PSEP-PS

Sampled: 07/07/2024 13:10

Analysis by: AmTest Laboratories

Instrument: ALAB Analyst:

Analyzed: 09/10/2024 00:00

Sample Preparation:

Preparation Method: No Prep Geo

Preparation Batch: B100924

Prepared: 09/10/2024

Extract ID: 24G0178-04

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phi Size < -2.25	GS_MFG	1	0.1	ND	%	U
Phi Size -2.25 to -2	GS_FG	1	0.1	ND	%	U
Phi Size -2 to -1	GS_VFG	1	0.1	0.6	%	
Phi Size -1 to 0	GS_VCS	1	0.1	0.1	%	
Phi Size 0 to 1	GS_CS	1	0.1	0.1	%	
Phi Size 1 to 2	GS_MS	1	0.1	0.4	%	
Phi Size 2 to 3	GS_FS	1	0.1	0.4	%	
Phi Size 3 to 4	GS_VFS	1	0.1	12.9	%	
Phi Size 4 to 5	GS_CSILT	1	0.1	69.8	%	
Phi Size 5 to 6	GS_MSILT	1	0.1	6.4	%	
Phi Size 6 to 7	GS_FSILT	1	0.1	2.7	%	
Phi Size 7 to 8	GS_VFSILT	1	0.1	0.4	%	
Phi Size 8 to 9	GS_CCLAY	1	0.1	0.4	%	
Phi Size 9 to 10	GS_MCLAY	1	0.1	0.3	%	
Phi Size >10	GS_FCLAY	1	0.1	5.5	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:51

113733-SB3S5

24G0178-05 (Solid)

Geotechnical Methods

Method: PSEP-PS

Sampled: 07/07/2024 14:25

Analysis by: AmTest Laboratories

Instrument: ALAB Analyst:

Analyzed: 09/10/2024 00:00

Sample Preparation:

Preparation Method: No Prep Geo

Preparation Batch: B100924

Prepared: 09/10/2024

Extract ID: 24G0178-05

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phi Size < -2.25	GS_MFG	1	0.1	ND	%	U
Phi Size -2.25 to -2	GS_FG	1	0.1	ND	%	U
Phi Size -2 to -1	GS_VFG	1	0.1	ND	%	U
Phi Size -1 to 0	GS_VCS	1	0.1	0.2	%	
Phi Size 0 to 1	GS_CS	1	0.1	0.2	%	
Phi Size 1 to 2	GS_MS	1	0.1	0.9	%	
Phi Size 2 to 3	GS_FS	1	0.1	2.1	%	
Phi Size 3 to 4	GS_VFS	1	0.1	15.0	%	
Phi Size 4 to 5	GS_CSILT	1	0.1	44.9	%	
Phi Size 5 to 6	GS_MSILT	1	0.1	15.1	%	
Phi Size 6 to 7	GS_FSILT	1	0.1	6.5	%	
Phi Size 7 to 8	GS_VFSILT	1	0.1	3.5	%	
Phi Size 8 to 9	GS_CCLAY	1	0.1	2.2	%	
Phi Size 9 to 10	GS_MCLAY	1	0.1	1.3	%	
Phi Size >10	GS_FCLAY	1	0.1	8.1	%	



Shannon & Wilson, Inc
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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:51

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0260 - EPA 8270E

Instrument: NT14 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0260-BLK1)						Prepared: 15-Jul-2024 Analyzed: 02-Aug-2024 14:14					
Phenol	ND	10.0	20.0	ug/kg							U
bis(2-chloroethyl) ether	ND	35.0	50.0	ug/kg							U
2-Chlorophenol	ND	20.0	20.0	ug/kg							U
1,3-Dichlorobenzene	ND	10.0	20.0	ug/kg							U
1,4-Dichlorobenzene	ND	10.0	20.0	ug/kg							U
1,2-Dichlorobenzene	ND	10.0	20.0	ug/kg							U
Benzyl Alcohol	ND	20.0	20.0	ug/kg							U
2,2'-Oxybis(1-chloropropane)	ND	10.0	20.0	ug/kg							U
2-Methylphenol	ND	10.0	20.0	ug/kg							U
Hexachloroethane	ND	10.0	20.0	ug/kg							U
N-Nitroso-di-n-Propylamine	ND	15.0	20.0	ug/kg							U
4-Methylphenol	ND	15.0	20.0	ug/kg							U
Nitrobenzene	ND	10.0	20.0	ug/kg							U
Isophorone	ND	15.0	20.0	ug/kg							U
2-Nitrophenol	ND	10.0	20.0	ug/kg							U
2,4-Dimethylphenol	ND	50.0	100	ug/kg							U
Bis(2-Chloroethoxy)methane	ND	10.0	20.0	ug/kg							U
2,4-Dichlorophenol	ND	50.0	100	ug/kg							U
1,2,4-Trichlorobenzene	ND	10.0	20.0	ug/kg							U
Naphthalene	ND	10.0	20.0	ug/kg							U
Benzoic acid	ND	100	200	ug/kg							U
4-Chloroaniline	ND	50.0	100	ug/kg							U
Hexachlorobutadiene	ND	10.0	20.0	ug/kg							U
4-Chloro-3-Methylphenol	ND	50.0	100	ug/kg							U
2-Methylnaphthalene	ND	10.0	20.0	ug/kg							U
Hexachlorocyclopentadiene	ND	50.0	100	ug/kg							U
2,4,6-Trichlorophenol	ND	50.0	100	ug/kg							U
2,4,5-Trichlorophenol	ND	50.0	100	ug/kg							U
2-Chloronaphthalene	ND	10.0	20.0	ug/kg							U
2-Nitroaniline	ND	50.0	100	ug/kg							U
Acenaphthylene	ND	10.0	20.0	ug/kg							U
Dimethylphthalate	ND	10.0	20.0	ug/kg							U
2,6-Dinitrotoluene	ND	50.0	100	ug/kg							U
Acenaphthene	ND	10.0	20.0	ug/kg							U
3-Nitroaniline	ND	50.0	100	ug/kg							U



Shannon & Wilson, Inc
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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:51

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0260 - EPA 8270E

Instrument: NT14 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0260-BLK1)						Prepared: 15-Jul-2024 Analyzed: 02-Aug-2024 14:14					
2,4-Dinitrophenol	ND	100	200	ug/kg							U
Dibenzofuran	ND	20.0	20.0	ug/kg							U
4-Nitrophenol	ND	50.0	100	ug/kg							U
2,4-Dinitrotoluene	ND	50.0	100	ug/kg							U
Fluorene	ND	20.0	20.0	ug/kg							U
4-Chlorophenylphenyl ether	ND	35.0	50.0	ug/kg							U
Diethyl phthalate	ND	35.0	50.0	ug/kg							U
4-Nitroaniline	ND	50.0	100	ug/kg							U
4,6-Dinitro-2-methylphenol	ND	100	200	ug/kg							U
N-Nitrosodiphenylamine	ND	10.0	20.0	ug/kg							U
4-Bromophenyl phenyl ether	ND	20.0	20.0	ug/kg							U
Hexachlorobenzene	ND	20.0	20.0	ug/kg							U
Pentachlorophenol	ND	50.0	100	ug/kg							U
Phenanthrene	ND	10.0	20.0	ug/kg							U
Anthracene	ND	10.0	20.0	ug/kg							U
Carbazole	ND	10.0	20.0	ug/kg							U
Di-n-Butylphthalate	ND	10.0	20.0	ug/kg							U
Fluoranthene	ND	10.0	20.0	ug/kg							U
Pyrene	ND	10.0	20.0	ug/kg							U
Butylbenzylphthalate	ND	10.0	20.0	ug/kg							U
Benzo(a)anthracene	ND	10.0	20.0	ug/kg							U
3,3'-Dichlorobenzidine	ND	50.0	100	ug/kg							U
Chrysene	ND	10.0	20.0	ug/kg							U
bis(2-Ethylhexyl)phthalate	ND	40.0	50.0	ug/kg							U
Di-n-Octylphthalate	ND	10.0	20.0	ug/kg							U
Benzo(a)fluoranthene, Total	ND	30.0	40.0	ug/kg							U
Benzo(a)pyrene	ND	10.0	20.0	ug/kg							U
Indeno(1,2,3-cd)pyrene	ND	20.0	20.0	ug/kg							U
Dibenzo(a,h)anthracene	ND	20.0	20.0	ug/kg							U
Benzo(g,h,i)perylene	ND	20.0	20.0	ug/kg							U
1-Methylnaphthalene	ND	10.0	20.0	ug/kg							U
Surrogate: 2-Fluorophenol	764			ug/kg	750		102	27-120			
Surrogate: Phenol-d5	758			ug/kg	750		101	29-120			
Surrogate: 2-Chlorophenol-d4	795			ug/kg	750		106	31-120			
Surrogate: 1,2-Dichlorobenzene-d4	514			ug/kg	500		103	32-120			



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Project: PAMP Sediments
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Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0260 - EPA 8270E

Instrument: NT14 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0260-BLK1)						Prepared: 15-Jul-2024 Analyzed: 02-Aug-2024 14:14					
Surrogate: Nitrobenzene-d5	564			ug/kg	500		113	30-120			
Surrogate: 2-Fluorobiphenyl	543			ug/kg	500		109	35-120			
Surrogate: 2,4,6-Tribromophenol	696			ug/kg	750		92.8	24-134			
Surrogate: p-Terphenyl-d14	664			ug/kg	500		133	37-120			*



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Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0260 - EPA 8270E

Instrument: NT14 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0260-BS1)						Prepared: 15-Jul-2024 Analyzed: 02-Aug-2024 14:53					
Phenol	392	10.0	20.0	ug/kg	500		78.5	31-120			
bis(2-chloroethyl) ether	436	35.0	50.0	ug/kg	500		87.2	36-120			
2-Chlorophenol	373	20.0	20.0	ug/kg	500		74.7	39-120			
1,3-Dichlorobenzene	389	10.0	20.0	ug/kg	500		77.7	40-120			
1,4-Dichlorobenzene	431	10.0	20.0	ug/kg	500		86.1	39-120			
1,2-Dichlorobenzene	395	10.0	20.0	ug/kg	500		79.1	40-120			
Benzyl Alcohol	349	20.0	20.0	ug/kg	500		69.8	19-120			Q
2,2'-Oxybis(1-chloropropane)	465	10.0	20.0	ug/kg	500		93.0	32-120			
2-Methylphenol	396	10.0	20.0	ug/kg	500		79.1	11-120			
Hexachloroethane	469	10.0	20.0	ug/kg	500		93.8	38-120			
N-Nitroso-di-n-Propylamine	391	15.0	20.0	ug/kg	500		78.2	24-120			
4-Methylphenol	419	15.0	20.0	ug/kg	500		83.8	29-120			
Nitrobenzene	457	10.0	20.0	ug/kg	500		91.4	36-120			
Isophorone	560	15.0	20.0	ug/kg	500		112	37-126			
2-Nitrophenol	359	10.0	20.0	ug/kg	500		71.7	30-120			
2,4-Dimethylphenol	548	50.0	100	ug/kg	1500		36.5	10-120			
Bis(2-Chloroethoxy)methane	482	10.0	20.0	ug/kg	500		96.5	39-126			
2,4-Dichlorophenol	1210	50.0	100	ug/kg	1500		80.8	28-120			
1,2,4-Trichlorobenzene	388	10.0	20.0	ug/kg	500		77.6	35-120			
Naphthalene	423	10.0	20.0	ug/kg	500		84.7	41-120			
Benzoic acid	1240	100	200	ug/kg	2250		55.1	10-120			
4-Chloroaniline	924	50.0	100	ug/kg	1500		61.6	10-120			
Hexachlorobutadiene	405	10.0	20.0	ug/kg	500		80.9	37-120			
4-Chloro-3-Methylphenol	1270	50.0	100	ug/kg	1500		84.8	32-120			
2-Methylnaphthalene	394	10.0	20.0	ug/kg	500		78.8	43-120			
Hexachlorocyclopentadiene	1250	50.0	100	ug/kg	1500		83.2	10-120			
2,4,6-Trichlorophenol	1270	50.0	100	ug/kg	1500		84.7	40-120			
2,4,5-Trichlorophenol	1390	50.0	100	ug/kg	1500		92.9	51.5-129			
2-Chloronaphthalene	418	10.0	20.0	ug/kg	500		83.6	40-120			
2-Nitroaniline	1320	50.0	100	ug/kg	1500		88.1	40-152			
Acenaphthylene	393	10.0	20.0	ug/kg	500		78.6	42-120			
Dimethylphthalate	451	10.0	20.0	ug/kg	500		90.3	43-120			
2,6-Dinitrotoluene	1540	50.0	100	ug/kg	1500		102	31-156			
Acenaphthene	440	10.0	20.0	ug/kg	500		87.9	45-120			
3-Nitroaniline	997	50.0	100	ug/kg	1500		66.4	22-120			



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:51

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0260 - EPA 8270E

Instrument: NT14 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0260-BS1)						Prepared: 15-Jul-2024 Analyzed: 02-Aug-2024 14:53					
2,4-Dinitrophenol	1890	100	200	ug/kg	2750		68.8	13-160			Q
Dibenzofuran	389	20.0	20.0	ug/kg	500		77.8	43-120			
4-Nitrophenol	1410	50.0	100	ug/kg	1500		94.2	18-154			Q
2,4-Dinitrotoluene	1380	50.0	100	ug/kg	1500		91.8	44-150			
Fluorene	441	20.0	20.0	ug/kg	500		88.3	40-120			
4-Chlorophenylphenyl ether	455	35.0	50.0	ug/kg	500		91.1	36-141			
Diethyl phthalate	500	35.0	50.0	ug/kg	500		99.9	43-140			
4-Nitroaniline	1320	50.0	100	ug/kg	1500		87.7	15-120			
4,6-Dinitro-2-methylphenol	2430	100	200	ug/kg	2750		88.5	33-144			
N-Nitrosodiphenylamine	406	10.0	20.0	ug/kg	500		81.2	17-120			
4-Bromophenyl phenyl ether	451	20.0	20.0	ug/kg	500		90.1	39-120			
Hexachlorobenzene	429	20.0	20.0	ug/kg	500		85.9	33-120			
Pentachlorophenol	1140	50.0	100	ug/kg	1500		75.8	33-133			Q
Phenanthrene	425	10.0	20.0	ug/kg	500		85.0	49-120			
Anthracene	425	10.0	20.0	ug/kg	500		85.0	37-120			
Carbazole	616	10.0	20.0	ug/kg	500		123	30-135			
Di-n-Butylphthalate	543	10.0	20.0	ug/kg	500		109	48-126			
Fluoranthene	439	10.0	20.0	ug/kg	500		87.7	38-127			
Pyrene	433	10.0	20.0	ug/kg	500		86.6	39-122			
Butylbenzylphthalate	527	10.0	20.0	ug/kg	500		105	45-132			
Benzo(a)anthracene	434	10.0	20.0	ug/kg	500		86.7	44-120			
3,3'-Dichlorobenzidine	465	50.0	100	ug/kg	1000		46.5	10-120			
Chrysene	443	10.0	20.0	ug/kg	500		88.7	47-120			
bis(2-Ethylhexyl)phthalate	503	40.0	50.0	ug/kg	500		101	10-130			
Di-n-Octylphthalate	467	10.0	20.0	ug/kg	500		93.5	10-124			
Benzo(a)fluoranthene, Total	880	30.0	40.0	ug/kg	1000		88.0	30-160			
Benzo(a)pyrene	440	10.0	20.0	ug/kg	500		88.0	37-120			
Indeno(1,2,3-cd)pyrene	377	20.0	20.0	ug/kg	500		75.5	30-160			
Dibenzo(a,h)anthracene	402	20.0	20.0	ug/kg	500		80.5	30-160			
Benzo(g,h,i)perylene	448	20.0	20.0	ug/kg	500		89.7	10-150			
1-Methylnaphthalene	411	10.0	20.0	ug/kg	500		82.3	42-120			
Surrogate: 2-Fluorophenol	754			ug/kg	750		101	27-120			
Surrogate: Phenol-d5	770			ug/kg	750		103	29-120			
Surrogate: 2-Chlorophenol-d4	768			ug/kg	750		102	31-120			
Surrogate: 1,2-Dichlorobenzene-d4	484			ug/kg	500		96.7	32-120			



Shannon & Wilson, Inc

5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:51

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0260 - EPA 8270E

Instrument: NT14 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0260-BS1)											
Prepared: 15-Jul-2024 Analyzed: 02-Aug-2024 14:53											
Surrogate: Nitrobenzene-d5	561			ug/kg	500		112	30-120			
Surrogate: 2-Fluorobiphenyl	511			ug/kg	500		102	35-120			
Surrogate: 2,4,6-Tribromophenol	815			ug/kg	750		109	24-134			
Surrogate: p-Terphenyl-d14	578			ug/kg	500		116	37-120			



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:51

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0260 - EPA 8270E

Instrument: NT14 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMG0260-BSD1) Prepared: 15-Jul-2024 Analyzed: 02-Aug-2024 15:32											
Phenol	451	10.0	20.0	ug/kg	500		90.3	31-120	14.00	30	
bis(2-chloroethyl) ether	493	35.0	50.0	ug/kg	500		98.6	36-120	12.30	30	
2-Chlorophenol	438	20.0	20.0	ug/kg	500		87.6	39-120	16.00	30	
1,3-Dichlorobenzene	433	10.0	20.0	ug/kg	500		86.5	40-120	10.70	30	
1,4-Dichlorobenzene	488	10.0	20.0	ug/kg	500		97.6	39-120	12.50	30	
1,2-Dichlorobenzene	460	10.0	20.0	ug/kg	500		91.9	40-120	15.00	30	
Benzyl Alcohol	368	20.0	20.0	ug/kg	500		73.7	19-120	5.36	30	Q
2,2'-Oxybis(1-chloropropane)	505	10.0	20.0	ug/kg	500		101	32-120	8.26	30	
2-Methylphenol	464	10.0	20.0	ug/kg	500		92.7	11-120	15.80	30	
Hexachloroethane	520	10.0	20.0	ug/kg	500		104	38-120	10.40	30	
N-Nitroso-di-n-Propylamine	450	15.0	20.0	ug/kg	500		90.0	24-120	14.00	30	
4-Methylphenol	489	15.0	20.0	ug/kg	500		97.8	29-120	15.50	30	
Nitrobenzene	512	10.0	20.0	ug/kg	500		102	36-120	11.30	30	
Isophorone	709	15.0	20.0	ug/kg	500		142	37-126	23.60	30	*
2-Nitrophenol	407	10.0	20.0	ug/kg	500		81.5	30-120	12.80	30	
2,4-Dimethylphenol	876	50.0	100	ug/kg	1500		58.4	10-120	46.10	30	*
Bis(2-Chloroethoxy)methane	531	10.0	20.0	ug/kg	500		106	39-126	9.52	30	
2,4-Dichlorophenol	1520	50.0	100	ug/kg	1500		102	28-120	22.80	30	
1,2,4-Trichlorobenzene	444	10.0	20.0	ug/kg	500		88.7	35-120	13.30	30	
Naphthalene	473	10.0	20.0	ug/kg	500		94.6	41-120	11.10	30	
Benzoic acid	1410	100	200	ug/kg	2250		62.5	10-120	12.70	30	
4-Chloroaniline	1020	50.0	100	ug/kg	1500		67.8	10-120	9.53	30	
Hexachlorobutadiene	465	10.0	20.0	ug/kg	500		92.9	37-120	13.80	30	
4-Chloro-3-Methylphenol	1430	50.0	100	ug/kg	1500		95.5	32-120	11.80	30	
2-Methylnaphthalene	451	10.0	20.0	ug/kg	500		90.1	43-120	13.40	30	
Hexachlorocyclopentadiene	1400	50.0	100	ug/kg	1500		93.5	10-120	11.60	30	
2,4,6-Trichlorophenol	1420	50.0	100	ug/kg	1500		94.9	40-120	11.30	30	
2,4,5-Trichlorophenol	1530	50.0	100	ug/kg	1500		102	51.5-129	9.27	30	
2-Chloronaphthalene	461	10.0	20.0	ug/kg	500		92.1	40-120	9.76	30	
2-Nitroaniline	1450	50.0	100	ug/kg	1500		96.8	40-152	9.44	30	
Acenaphthylene	440	10.0	20.0	ug/kg	500		88.0	42-120	11.40	30	
Dimethylphthalate	501	10.0	20.0	ug/kg	500		100	43-120	10.50	30	
2,6-Dinitrotoluene	1700	50.0	100	ug/kg	1500		114	31-156	10.30	30	
Acenaphthene	495	10.0	20.0	ug/kg	500		99.0	45-120	11.80	30	
3-Nitroaniline	1090	50.0	100	ug/kg	1500		72.8	22-120	9.13	30	



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:51

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0260 - EPA 8270E

Instrument: NT14 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMG0260-BSD1) Prepared: 15-Jul-2024 Analyzed: 02-Aug-2024 15:32											
2,4-Dinitrophenol	2170	100	200	ug/kg	2750		78.9	13-160	13.70	30	Q
Dibenzofuran	441	20.0	20.0	ug/kg	500		88.1	43-120	12.50	30	
4-Nitrophenol	1410	50.0	100	ug/kg	1500		93.9	18-154	0.30	30	Q
2,4-Dinitrotoluene	1580	50.0	100	ug/kg	1500		105	44-150	13.60	30	
Fluorene	494	20.0	20.0	ug/kg	500		98.9	40-120	11.30	30	
4-Chlorophenylphenyl ether	517	35.0	50.0	ug/kg	500		103	36-141	12.70	30	
Diethyl phthalate	578	35.0	50.0	ug/kg	500		116	43-140	14.50	30	
4-Nitroaniline	1510	50.0	100	ug/kg	1500		100	15-120	13.50	30	
4,6-Dinitro-2-methylphenol	2770	100	200	ug/kg	2750		101	33-144	13.00	30	
N-Nitrosodiphenylamine	470	10.0	20.0	ug/kg	500		93.9	17-120	14.50	30	
4-Bromophenyl phenyl ether	516	20.0	20.0	ug/kg	500		103	39-120	13.60	30	
Hexachlorobenzene	484	20.0	20.0	ug/kg	500		96.9	33-120	12.10	30	
Pentachlorophenol	1260	50.0	100	ug/kg	1500		84.0	33-133	10.30	30	Q
Phenanthrene	481	10.0	20.0	ug/kg	500		96.3	49-120	12.40	30	
Anthracene	475	10.0	20.0	ug/kg	500		95.1	37-120	11.20	30	
Carbazole	696	10.0	20.0	ug/kg	500		139	30-135	12.10	30	*
Di-n-Butylphthalate	609	10.0	20.0	ug/kg	500		122	48-126	11.40	30	
Fluoranthene	502	10.0	20.0	ug/kg	500		100	38-127	13.40	30	
Pyrene	496	10.0	20.0	ug/kg	500		99.2	39-122	13.60	30	
Butylbenzylphthalate	600	10.0	20.0	ug/kg	500		120	45-132	13.00	30	
Benzo(a)anthracene	497	10.0	20.0	ug/kg	500		99.5	44-120	13.70	30	
3,3'-Dichlorobenzidine	590	50.0	100	ug/kg	1000		59.0	10-120	23.60	30	
Chrysene	506	10.0	20.0	ug/kg	500		101	47-120	13.30	30	
bis(2-Ethylhexyl)phthalate	552	40.0	50.0	ug/kg	500		110	10-130	9.28	30	
Di-n-Octylphthalate	512	10.0	20.0	ug/kg	500		102	10-124	9.11	30	
Benzo(a)fluoranthene, Total	986	30.0	40.0	ug/kg	1000		98.6	30-160	11.40	30	
Benzo(a)pyrene	506	10.0	20.0	ug/kg	500		101	37-120	13.90	30	
Indeno(1,2,3-cd)pyrene	441	20.0	20.0	ug/kg	500		88.1	30-160	15.50	30	
Dibenzo(a,h)anthracene	467	20.0	20.0	ug/kg	500		93.5	30-160	14.90	30	
Benzo(g,h,i)perylene	512	20.0	20.0	ug/kg	500		102	10-150	13.20	30	
1-Methylnaphthalene	465	10.0	20.0	ug/kg	500		93.0	42-120	12.20	30	
Surrogate: 2-Fluorophenol	733			ug/kg	750		97.7	27-120			
Surrogate: Phenol-d5	741			ug/kg	750		98.8	29-120			
Surrogate: 2-Chlorophenol-d4	741			ug/kg	750		98.8	31-120			
Surrogate: 1,2-Dichlorobenzene-d4	460			ug/kg	500		92.0	32-120			



Shannon & Wilson, Inc

5430 Fairbanks Street, Suite 3

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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

16-Sep-2024 10:51

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0260 - EPA 8270E

Instrument: NT14 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMG0260-BSD1)											
Prepared: 15-Jul-2024 Analyzed: 02-Aug-2024 15:32											
Surrogate: Nitrobenzene-d5	529			ug/kg	500		106	30-120			
Surrogate: 2-Fluorobiphenyl	479			ug/kg	500		95.7	35-120			
Surrogate: 2,4,6-Tribromophenol	805			ug/kg	750		107	24-134			
Surrogate: p-Terphenyl-d14	553			ug/kg	500		111	37-120			



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Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0260 - EPA 8270E

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - SIM - Quality Control

Batch BMG0260 - EPA 8270E-SIM

Instrument: NT14 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0260-BLK2)						Prepared: 15-Jul-2024 Analyzed: 02-Aug-2024 14:14					
Phenol	2.7	2.5	5.0	ug/kg							J
1,3-Dichlorobenzene	ND	2.5	5.0	ug/kg							U
1,4-Dichlorobenzene	ND	2.5	5.0	ug/kg							U
1,2-Dichlorobenzene	ND	2.5	5.0	ug/kg							U
Benzyl Alcohol	ND	10.0	20.0	ug/kg							U
Benzoic acid	ND	50.0	100	ug/kg							U
2-Methylphenol	ND	2.5	5.0	ug/kg							U
N-Nitroso-di-n-Propylamine	ND	10.0	20.0	ug/kg							U
4-Methylphenol	ND	2.5	5.0	ug/kg							U
2,4-Dimethylphenol	ND	10.0	20.0	ug/kg							U
1,2,4-Trichlorobenzene	ND	5.0	5.0	ug/kg							U
Hexachlorobutadiene	ND	2.5	5.0	ug/kg							U
N-Nitrosodimethylamine	ND	12.5	25.0	ug/kg							U
Dimethylphthalate	ND	2.5	5.0	ug/kg							U
Diethyl phthalate	18.8	10.0	20.0	ug/kg							J
N-Nitrosodiphenylamine	ND	2.5	5.0	ug/kg							U
Hexachlorobenzene	ND	2.5	5.0	ug/kg							U
Pentachlorophenol	ND	10.0	20.0	ug/kg							U
Butylbenzylphthalate	ND	2.5	5.0	ug/kg							U
Dibenzo(a,h)anthracene	ND	2.5	5.0	ug/kg							U
Surrogate: 2-Fluorophenol	740			ug/kg	750		98.6	27-120			
Surrogate: p-Terphenyl-d14	669			ug/kg	500		134	37-120			*



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Semivolatile Organic Compounds - SIM - Quality Control

Batch BMG0260 - EPA 8270E-SIM

Instrument: NT14 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0260-BS2)						Prepared: 15-Jul-2024 Analyzed: 02-Aug-2024 14:53					
Phenol	378	2.5	5.0	ug/kg	500		75.6	30-160			
1,3-Dichlorobenzene	378	2.5	5.0	ug/kg	500		75.6	30-120			
1,4-Dichlorobenzene	415	2.5	5.0	ug/kg	500		83.1	36-120			
1,2-Dichlorobenzene	384	2.5	5.0	ug/kg	500		76.8	36-120			
Benzyl Alcohol	361	10.0	20.0	ug/kg	500		72.3	25-123			
Benzoic acid	1490	50.0	100	ug/kg	2250		66.2	10-160			
2-Methylphenol	397	2.5	5.0	ug/kg	500		79.3	26-120			
N-Nitroso-di-n-Propylamine	380	10.0	20.0	ug/kg	500		76.0	30-160			
4-Methylphenol	432	2.5	5.0	ug/kg	500		86.3	30-160			
2,4-Dimethylphenol	521	10.0	20.0	ug/kg	1500		34.7	10-120			
1,2,4-Trichlorobenzene	373	5.0	5.0	ug/kg	500		74.6	35-120			
Hexachlorobutadiene	385	2.5	5.0	ug/kg	500		77.0	34-120			
N-Nitrosodimethylamine	767	12.5	25.0	ug/kg	1500		51.1	30-160			
Dimethylphthalate	437	2.5	5.0	ug/kg	500		87.3	38-120			
Diethyl phthalate	498	10.0	20.0	ug/kg	500		99.6	55-120			
N-Nitrosodiphenylamine	415	2.5	5.0	ug/kg	500		82.9	27-120			
Hexachlorobenzene	431	2.5	5.0	ug/kg	500		86.2	32-120			
Pentachlorophenol	1310	10.0	20.0	ug/kg	1500		87.5	26-120			E
Butylbenzylphthalate	464	2.5	5.0	ug/kg	500		92.8	32-142			
Dibenzo(a,h)anthracene	423	2.5	5.0	ug/kg	500		84.7	28-125			Q
Surrogate: 2-Fluorophenol	733			ug/kg	750		97.7	27-120			
Surrogate: p-Terphenyl-d14	592			ug/kg	500		118	37-120			



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Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - SIM - Quality Control

Batch BMG0260 - EPA 8270E-SIM

Instrument: NT14 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMG0260-BSD2)						Prepared: 15-Jul-2024 Analyzed: 02-Aug-2024 15:32					
Phenol	428	2.5	5.0	ug/kg	500		85.6	30-160	12.40	30	
1,3-Dichlorobenzene	422	2.5	5.0	ug/kg	500		84.4	30-120	11.00	30	
1,4-Dichlorobenzene	466	2.5	5.0	ug/kg	500		93.2	36-120	11.50	30	
1,2-Dichlorobenzene	434	2.5	5.0	ug/kg	500		86.8	36-120	12.20	30	
Benzyl Alcohol	399	10.0	20.0	ug/kg	500		79.8	25-123	9.91	30	
Benzoic acid	1620	50.0	100	ug/kg	2250		71.9	10-160	8.17	30	
2-Methylphenol	478	2.5	5.0	ug/kg	500		95.5	26-120	18.50	30	
N-Nitroso-di-n-Propylamine	433	10.0	20.0	ug/kg	500		86.7	30-160	13.10	30	
4-Methylphenol	504	2.5	5.0	ug/kg	500		101	30-160	15.50	30	
2,4-Dimethylphenol	827	10.0	20.0	ug/kg	1500		55.1	10-120	45.50	30	*
1,2,4-Trichlorobenzene	420	5.0	5.0	ug/kg	500		84.0	35-120	11.90	30	
Hexachlorobutadiene	436	2.5	5.0	ug/kg	500		87.3	34-120	12.50	30	
N-Nitrosodimethylamine	861	12.5	25.0	ug/kg	1500		57.4	30-160	11.60	30	
Dimethylphthalate	490	2.5	5.0	ug/kg	500		97.9	38-120	11.40	30	
Diethyl phthalate	568	10.0	20.0	ug/kg	500		114	55-120	13.20	30	
N-Nitrosodiphenylamine	481	2.5	5.0	ug/kg	500		96.2	27-120	14.90	30	
Hexachlorobenzene	496	2.5	5.0	ug/kg	500		99.2	32-120	14.10	30	
Pentachlorophenol	1500	10.0	20.0	ug/kg	1500		99.8	26-120	13.10	30	E
Butylbenzylphthalate	513	2.5	5.0	ug/kg	500		103	32-142	10.10	30	
Dibenzo(a,h)anthracene	483	2.5	5.0	ug/kg	500		96.6	28-125	13.10	30	Q
Surrogate: 2-Fluorophenol	717			ug/kg	750		95.6	27-120			
Surrogate: p-Terphenyl-d14	554			ug/kg	500		111	37-120			



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Reported:
16-Sep-2024 10:51

Analysis by: Analytical Resources, LLC

Butyl Tins - Quality Control

Batch BMG0259 - EPA 8270E-SIM

Instrument: NT17 Analyst: JZ

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0259-BLK1)					Prepared: 15-Jul-2024 Analyzed: 05-Aug-2024 17:21					
Tributyltin Ion	ND	1.93	3.86	ug/kg						U
Surrogate: Triphenyltin	28.8			ug/kg	45.2		63.7 30-160			
Surrogate: Tripropyltin	20.7			ug/kg	43.7		47.3 30-160			



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Reported:
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Analysis by: Analytical Resources, LLC

Butyl Tins - Quality Control

Batch BMG0259 - EPA 8270E-SIM

Instrument: NT17 Analyst: JZ

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0259-BS1)					Prepared: 15-Jul-2024 Analyzed: 05-Aug-2024 18:03					
Tributyltin Ion	31.0	1.93	3.86	ug/kg	44.6	69.5	30-160			
Surrogate: Triphenyltin	35.0			ug/kg	45.2	77.4	30-160			
Surrogate: Tripropyltin	26.2			ug/kg	43.7	59.9	30-160			



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Reported:
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Analysis by: Analytical Resources, LLC

Butyl Tins - Quality Control

Batch BMG0259 - EPA 8270E-SIM

Instrument: NT17 Analyst: JZ

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMG0259-BSD1)						Prepared: 15-Jul-2024 Analyzed: 05-Aug-2024 18:16					
Tributyltin Ion	33.5	1.93	3.86	ug/kg	44.6		75.2	30-160	7.85	30	
Surrogate: Triphenyltin	37.1			ug/kg	45.2		82.1	30-160			
Surrogate: Tripropyltin	25.8			ug/kg	43.7		58.9	30-160			



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Analysis by: Analytical Resources, LLC

Butyl Tins - Quality Control

Batch BMG0259 - EPA 8270E-SIM

Instrument: NT17 Analyst: JZ

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BMG0259-MS1)		Source: 24G0178-05		Prepared: 15-Jul-2024 Analyzed: 05-Aug-2024 23:14							
Tributyltin Ion	60.3	1.92	3.85	ug/kg	44.4	ND	136	30-160			
Surrogate: Triphenyltin	60.2			ug/kg	45.0	57.9	134	30-160			
Surrogate: Tripropyltin	41.4			ug/kg	43.6	42.0	94.9	30-160			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.



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Reported:
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Analysis by: Analytical Resources, LLC

Butyl Tins - Quality Control

Batch BMG0259 - EPA 8270E-SIM

Instrument: NT17 Analyst: JZ

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BMG0259-MSD1)		Source: 24G0178-05		Prepared: 15-Jul-2024 Analyzed: 05-Aug-2024 23:27							
Tributyltin Ion	44.1	1.92	3.85	ug/kg	44.4	ND	99.3	30-160	30.90	30	*
Surrogate: Triphenyltin	42.7			ug/kg	45.0	57.9	94.8	30-160			
Surrogate: Tripropyltin	29.3			ug/kg	43.6	42.0	67.3	30-160			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.



Shannon & Wilson, Inc
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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:51

Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BMG0258 - EPA 8081B

Instrument: ECD6 Analyst: RT/JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0258-BLK1) Prepared: 15-Jul-2024 Analyzed: 18-Aug-2024 02:40											
alpha-BHC	ND	0.25	0.50	ug/kg							U
beta-BHC	ND	0.25	0.50	ug/kg							U
gamma-BHC (Lindane)	ND	0.25	0.50	ug/kg							U
delta-BHC	ND	0.25	0.50	ug/kg							U
Heptachlor	ND	0.25	0.50	ug/kg							U
Aldrin	ND	0.50	0.50	ug/kg							U
Heptachlor Epoxide	ND	0.25	0.50	ug/kg							U
trans-Chlordane (beta-Chlordane)	ND	0.50	0.50	ug/kg							U
cis-Chlordane (alpha-chlordane)	ND	0.25	0.50	ug/kg							U
Endosulfan I	ND	0.25	0.50	ug/kg							U
4,4'-DDE	ND	0.50	1.00	ug/kg							U
Dieldrin	ND	0.50	1.00	ug/kg							U
Endrin	ND	0.50	1.00	ug/kg							U
Endosulfan II	ND	0.50	1.00	ug/kg							U
4,4'-DDD	ND	0.50	1.00	ug/kg							U
Endrin Aldehyde	ND	0.50	1.00	ug/kg							U
4,4'-DDT	ND	0.50	1.00	ug/kg							U
Endosulfan Sulfate	ND	0.50	1.00	ug/kg							U
Endrin Ketone	ND	0.50	1.00	ug/kg							U
Methoxychlor	ND	2.50	5.00	ug/kg							U
Hexachlorobutadiene	ND	0.25	0.50	ug/kg							U
Hexachlorobenzene	ND	0.25	0.50	ug/kg							U
2,4'-DDE	ND	0.50	1.00	ug/kg							U
2,4'-DDD	ND	0.50	1.00	ug/kg							U
2,4'-DDT	ND	0.50	1.00	ug/kg							U
Oxychlordane	ND	0.50	1.00	ug/kg							U
cis-Nonachlor	ND	0.50	1.00	ug/kg							U
trans-Nonachlor	ND	0.50	1.00	ug/kg							U
Mirex	ND	1.00	1.00	ug/kg							U
Surrogate: Decachlorobiphenyl	9.10			ug/kg	8.00		114	30-160			
Surrogate: Decachlorobiphenyl [2C]	8.94			ug/kg	8.00		112	30-160			
Surrogate: Tetrachlorometaxylene	27.5			ug/kg	8.00		344	30-160			*
Surrogate: Tetrachlorometaxylene [2C]	7.14			ug/kg	8.00		89.3	30-160			



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:51

Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BMG0258 - EPA 8081B

Instrument: ECD6 Analyst: RT/JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0258-BS1)						Prepared: 15-Jul-2024 Analyzed: 18-Aug-2024 03:00					
alpha-BHC [2C]	3.72	0.25	0.50	ug/kg	4.00		92.9	28-120			
beta-BHC [2C]	3.89	0.25	0.50	ug/kg	4.00		97.2	33-120			
gamma-BHC (Lindane) [2C]	3.75	0.25	0.50	ug/kg	4.00		93.8	30-124			
delta-BHC	4.07	0.25	0.50	ug/kg	4.00		102	30-120			
Heptachlor	4.23	0.25	0.50	ug/kg	4.00		106	26-120			
Aldrin	3.46	0.50	0.50	ug/kg	4.00		86.5	26-120			
Heptachlor Epoxide	3.77	0.25	0.50	ug/kg	4.00		94.3	26-120			
trans-Chlordane (beta-Chlordane) [2C]	3.80	0.50	0.50	ug/kg	4.00		95.0	21-120			
cis-Chlordane (alpha-chlordane) [2C]	3.75	0.25	0.50	ug/kg	4.00		93.7	39-120			
Endosulfan I [2C]	3.74	0.25	0.50	ug/kg	4.00		93.4	17-143			
4,4'-DDE [2C]	7.72	0.50	1.00	ug/kg	8.00		96.5	35-120			
Dieldrin [2C]	7.74	0.50	1.00	ug/kg	8.00		96.7	10-140			
Endrin [2C]	9.79	0.50	1.00	ug/kg	8.00		122	45-120			*
Endosulfan II [2C]	9.52	0.50	1.00	ug/kg	8.00		119	10-139			
4,4'-DDD [2C]	9.55	0.50	1.00	ug/kg	8.00		119	50-120			
Endrin Aldehyde [2C]	7.27	0.50	1.00	ug/kg	8.00		90.9	10-120			
4,4'-DDT	9.87	0.50	1.00	ug/kg	8.00		123	39-120			*
Endosulfan Sulfate [2C]	10.0	0.50	1.00	ug/kg	8.00		125	38-120			*
Endrin Ketone [2C]	9.50	0.50	1.00	ug/kg	8.00		119	17-120			
Methoxychlor [2C]	47.1	2.50	5.00	ug/kg	40.0		118	10-140			
Hexachlorobutadiene [2C]	3.06	0.25	0.50	ug/kg	4.00		76.6	15-120			
Hexachlorobenzene [2C]	3.23	0.25	0.50	ug/kg	4.00		80.7	26-128			
Surrogate: Decachlorobiphenyl	9.86			ug/kg	8.00		123	30-160			
Surrogate: Decachlorobiphenyl [2C]	9.54			ug/kg	8.00		119	30-160			
Surrogate: Tetrachlorometaxylene	11.0			ug/kg	8.00		137	30-160			
Surrogate: Tetrachlorometaxylene [2C]	7.29			ug/kg	8.00		91.1	30-160			



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Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BMG0258 - EPA 8081B

Instrument: ECD6 Analyst: RT

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0258-BS2) Prepared: 15-Jul-2024 Analyzed: 30-Jul-2024 13:29										
2,4'-DDE	9.02	0.50	1.00	ug/kg	8.00		113 30-160			
2,4'-DDD	8.42	0.50	1.00	ug/kg	8.00		105 30-160			
2,4'-DDT	9.21	0.50	1.00	ug/kg	8.00		115 30-160			
Oxychlorane	8.46	0.50	1.00	ug/kg	8.00		106 30-160			P1
cis-Nonachlor	7.83	0.50	1.00	ug/kg	8.00		97.9 30-160			
trans-Nonachlor	7.86	0.50	1.00	ug/kg	8.00		98.2 30-160			
Mirex	6.76	1.00	1.00	ug/kg	8.00		84.5 30-160			P1
Surrogate: Decachlorobiphenyl	6.78			ug/kg	8.00		84.7 30-160			
Surrogate: Decachlorobiphenyl [2C]	7.93			ug/kg	8.00		99.1 30-160			
Surrogate: Tetrachlorometaxylene	4.91			ug/kg	8.00		61.4 30-160			
Surrogate: Tetrachlorometaxylene [2C]	6.31			ug/kg	8.00		78.9 30-160			



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Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BMG0258 - EPA 8081B

Instrument: ECD6 Analyst: RT/JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0258-BS3)										
Prepared: 15-Jul-2024 Analyzed: 18-Aug-2024 03:21										
2,4'-DDE	6.65	0.50	1.00	ug/kg	8.00		83.1 30-160			
2,4'-DDD [2C]	7.33	0.50	1.00	ug/kg	8.00		91.6 30-160			
2,4'-DDT [2C]	7.73	0.50	1.00	ug/kg	8.00		96.6 30-160			
Oxychlorane	6.05	0.50	1.00	ug/kg	8.00		75.6 30-160			
cis-Nonachlor [2C]	7.52	0.50	1.00	ug/kg	8.00		94.0 30-160			
trans-Nonachlor [2C]	7.46	0.50	1.00	ug/kg	8.00		93.2 30-160			
Mirex [2C]	7.65	1.00	1.00	ug/kg	8.00		95.6 30-160			
Surrogate: Decachlorobiphenyl	9.73			ug/kg	8.00		122 30-160			
Surrogate: Decachlorobiphenyl [2C]	10.4			ug/kg	8.00		130 30-160			
Surrogate: Tetrachlorometaxylene	7.58			ug/kg	8.00		94.8 30-160			
Surrogate: Tetrachlorometaxylene [2C]	7.65			ug/kg	8.00		95.6 30-160			



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Reported:
16-Sep-2024 10:51

Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BMG0258 - EPA 8081B

Instrument: ECD6 Analyst: RT/JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMG0258-BS1)						Prepared: 15-Jul-2024 Analyzed: 18-Aug-2024 03:41					
alpha-BHC [2C]	3.63	0.25	0.50	ug/kg	4.00		90.8	28-120	2.25	30	
beta-BHC [2C]	3.75	0.25	0.50	ug/kg	4.00		93.7	33-120	3.74	30	
gamma-BHC (Lindane) [2C]	3.85	0.25	0.50	ug/kg	4.00		96.3	30-124	2.71	30	
delta-BHC	3.84	0.25	0.50	ug/kg	4.00		96.1	30-120	5.83	30	
Heptachlor	4.01	0.25	0.50	ug/kg	4.00		100	26-120	5.28	30	
Aldrin	3.35	0.50	0.50	ug/kg	4.00		83.8	26-120	3.13	30	
Heptachlor Epoxide	3.67	0.25	0.50	ug/kg	4.00		91.8	26-120	2.64	30	
trans-Chlordane (beta-Chlordane) [2C]	3.65	0.50	0.50	ug/kg	4.00		91.2	21-120	4.04	30	
cis-Chlordane (alpha-chlordane) [2C]	3.66	0.25	0.50	ug/kg	4.00		91.5	39-120	2.33	30	
Endosulfan I [2C]	3.65	0.25	0.50	ug/kg	4.00		91.3	17-143	2.31	30	
4,4'-DDE [2C]	7.50	0.50	1.00	ug/kg	8.00		93.8	35-120	2.84	30	
Dieldrin [2C]	7.53	0.50	1.00	ug/kg	8.00		94.2	10-140	2.64	30	
Endrin [2C]	10.2	0.50	1.00	ug/kg	8.00		128	45-120	4.50	30	*
Endosulfan II [2C]	9.88	0.50	1.00	ug/kg	8.00		124	10-139	3.71	30	
4,4'-DDD [2C]	10.1	0.50	1.00	ug/kg	8.00		126	50-120	5.44	30	*
Endrin Aldehyde [2C]	6.98	0.50	1.00	ug/kg	8.00		87.2	10-120	4.10	30	
4,4'-DDT [2C]	10.1	0.50	1.00	ug/kg	8.00		126	39-120	4.98	30	*
Endosulfan Sulfate [2C]	10.5	0.50	1.00	ug/kg	8.00		131	38-120	4.48	30	*
Endrin Ketone [2C]	10.3	0.50	1.00	ug/kg	8.00		129	17-120	8.47	30	*
Methoxychlor [2C]	50.1	2.50	5.00	ug/kg	40.0		125	10-140	6.20	30	
Hexachlorobutadiene [2C]	3.20	0.25	0.50	ug/kg	4.00		80.1	15-120	4.45	30	
Hexachlorobenzene [2C]	3.13	0.25	0.50	ug/kg	4.00		78.3	26-128	3.06	30	
Surrogate: Decachlorobiphenyl	9.71			ug/kg	8.00		121	30-160			
Surrogate: Decachlorobiphenyl [2C]	9.79			ug/kg	8.00		122	30-160			
Surrogate: Tetrachlorometaxylene	6.87			ug/kg	8.00		85.8	30-160			
Surrogate: Tetrachlorometaxylene [2C]	6.76			ug/kg	8.00		84.5	30-160			



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:51

Analysis by: Analytical Resources, LLC

Aroclor PCB - Quality Control

Batch BMG0257 - EPA 8082A

Instrument: ECD5 Analyst: AA

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0257-BLK1)										
Prepared: 16-Jul-2024 Analyzed: 25-Jul-2024 15:28										
Aroclor 1016	ND	2.0	4.0	ug/kg						U
Aroclor 1221	ND	2.0	4.0	ug/kg						U
Aroclor 1232	ND	2.0	4.0	ug/kg						U
Aroclor 1242	ND	2.0	4.0	ug/kg						U
Aroclor 1248	ND	2.0	4.0	ug/kg						U
Aroclor 1254	ND	2.0	4.0	ug/kg						U
Aroclor 1260	ND	2.0	4.0	ug/kg						U
Aroclor 1262	ND	2.0	4.0	ug/kg						U
Aroclor 1268	ND	2.0	4.0	ug/kg						U
Surrogate: Decachlorobiphenyl	5.99			ug/kg	8.00		74.8	40-126		
Surrogate: Tetrachlorometaxylene	5.84			ug/kg	8.00		72.9	44-120		
Surrogate: Decachlorobiphenyl [2C]	6.26			ug/kg	8.00		78.3	40-126		
Surrogate: Tetrachlorometaxylene [2C]	5.72			ug/kg	8.00		71.5	44-120		



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Project Manager: Dan McMahon

Reported:
16-Sep-2024 10:51

Analysis by: Analytical Resources, LLC

Aroclor PCB - Quality Control

Batch BMG0257 - EPA 8082A

Instrument: ECD5 Analyst: AA

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0257-BS1)						Prepared: 16-Jul-2024 Analyzed: 25-Jul-2024 15:48					
Aroclor 1016	92.3	2.0	4.0	ug/kg	101		91.6	56-120			
Aroclor 1260	92.1	2.0	4.0	ug/kg	101		91.3	58-120			
Surrogate: Decachlorobiphenyl	6.81			ug/kg	8.00		85.1	40-126			
Surrogate: Tetrachlorometaxylene	6.67			ug/kg	8.00		83.3	44-120			
Surrogate: Decachlorobiphenyl [2C]	7.06			ug/kg	8.00		88.3	40-126			
Surrogate: Tetrachlorometaxylene [2C]	6.43			ug/kg	8.00		80.4	44-120			



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Reported:
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Analysis by: Analytical Resources, LLC

Aroclor PCB - Quality Control

Batch BMG0257 - EPA 8082A

Instrument: ECD5 Analyst: AA

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMG0257-BSD1)						Prepared: 16-Jul-2024 Analyzed: 25-Jul-2024 16:09					
Aroclor 1016	99.3	2.0	4.0	ug/kg	101		98.5	56-120	7.32	30	
Aroclor 1260	98.9	2.0	4.0	ug/kg	101		98.1	58-120	7.19	30	
Surrogate: Decachlorobiphenyl	7.08			ug/kg	8.00		88.5	40-126			
Surrogate: Tetrachlorometaxylene	7.04			ug/kg	8.00		88.0	44-120			
Surrogate: Decachlorobiphenyl [2C]	7.42			ug/kg	8.00		92.8	40-126			
Surrogate: Tetrachlorometaxylene [2C]	6.75			ug/kg	8.00		84.4	44-120			



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Reported:
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Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BMG0273 - EPA 6020B

Instrument: ICPMS1 Analyst: DOE

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0273-BLK1)						Prepared: 11-Jul-2024 Analyzed: 18-Jul-2024 12:36						
Antimony	121	ND	0.10	0.20	mg/kg							U
Chromium	52	ND	0.26	0.50	mg/kg							U
Chromium	53	ND	0.24	0.50	mg/kg							U
Lead	208	ND	0.05	0.10	mg/kg							U
Silver	107	ND	0.02	0.20	mg/kg							U
Arsenic	75a	ND	0.04	0.20	mg/kg							U
Cadmium	111	ND	0.03	0.10	mg/kg							U
Copper	63	ND	0.17	0.50	mg/kg							U
Selenium	78	ND	0.18	0.50	mg/kg							U
Zinc	66	ND	2.9	6.0	mg/kg							U
LCS (BMG0273-BS1)						Prepared: 11-Jul-2024 Analyzed: 18-Jul-2024 12:41						
Antimony	121	24.9	0.10	0.20	mg/kg	25.0		99.7	80-120			
Chromium	52	26.1	0.26	0.50	mg/kg	25.0		105	80-120			
Chromium	53	25.1	0.24	0.50	mg/kg	25.0		100	80-120			
Lead	208	27.0	0.05	0.10	mg/kg	25.0		108	80-120			
Silver	107	26.5	0.02	0.20	mg/kg	25.0		106	80-120			
Arsenic	75a	24.6	0.04	0.20	mg/kg	25.0		98.3	80-120			
Cadmium	111	24.8	0.03	0.10	mg/kg	25.0		99.1	80-120			
Copper	63	26.5	0.17	0.50	mg/kg	25.0		106	80-120			
Selenium	78	77.6	0.18	0.50	mg/kg	80.0		96.9	80-120			
Zinc	66	80.7	2.9	6.0	mg/kg	80.0		101	80-120			



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Reported:
16-Sep-2024 10:51

Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BMG0336 - EPA 7471B

Instrument: HYDRA Analyst: ML

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0336-BLK1) Prepared: 18-Jul-2024 Analyzed: 22-Jul-2024 11:49										
Mercury	ND	0.00525	0.0250	mg/kg						U
LCS (BMG0336-BS1) Prepared: 18-Jul-2024 Analyzed: 22-Jul-2024 11:51										
Mercury	0.495	0.00525	0.0250	mg/kg	0.500		99.0 80-120			



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Project: PAMP Sediments
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Reported:
16-Sep-2024 10:51

Analysis by: Analytical Resources, LLC

Wet Chemistry - Quality Control

Batch BMG0276 - PSEP 1986

Instrument: BAL2 Analyst: LERB

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0276-BLK1)						Prepared: 11-Jul-2024 Analyzed: 11-Jul-2024 14:15					
Volatile Solids	ND	0.01	0.01	%							U
Total Solids	ND	0.04	0.04	%							U
Duplicate (BMG0276-DUP1)						Source: 24G0178-01 Prepared: 11-Jul-2024 Analyzed: 11-Jul-2024 14:15					
Volatile Solids	3.39	0.01	0.01	%		2.29			38.60	20	*
Total Solids	72.33	0.04	0.04	%		73.09			1.05	20	
Duplicate (BMG0276-DUP2)						Source: 24G0178-01 Prepared: 11-Jul-2024 Analyzed: 11-Jul-2024 14:15					
Volatile Solids	2.30	0.01	0.01	%		2.29			0.59	20	
Total Solids	73.79	0.04	0.04	%		73.09			0.95	20	



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Reported:
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Analysis by: Analytical Resources, LLC

Wet Chemistry - Quality Control

Batch BMH0093 - EPA 9060A m

Instrument: Accumet AB150 Analyst: ARR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Blank (BMH0093-BLK1)					Prepared: 06-Aug-2024 Analyzed: 07-Aug-2024 20:10					
Total Organic Carbon	ND	0.02	0.02	%						U
LCS (BMH0093-BS1)					Prepared: 06-Aug-2024 Analyzed: 07-Aug-2024 22:11					
Total Organic Carbon	44.8	0.02	0.02	%	44.4	101	80-120			



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Certified Analyses included in this Report

Analyte	Certifications
EPA 6020B in Solid	
Silver-107	NELAP,DoD-ELAP,WADOE
Chromium-52	NELAP,DoD-ELAP,WADOE,ADEC
Chromium-53	NELAP,DoD-ELAP,WADOE,ADEC
Lead-208	NELAP,DoD-ELAP,WADOE,ADEC
Antimony-121	NELAP,DoD-ELAP,WADOE
EPA 6020B UCT-KED in Solid	
Arsenic-75a	NELAP,DoD-ELAP,WADOE,ADEC
Cadmium-111	NELAP,DoD-ELAP,WADOE,ADEC
Copper-63	NELAP,DoD-ELAP,WADOE
Selenium-78	NELAP,DoD-ELAP,WADOE
Zinc-66	NELAP,DoD-ELAP,WADOE
EPA 7471B in Solid	
Mercury	WADOE,NELAP,DoD-ELAP
EPA 8081B in Solid	
alpha-BHC	DoD-ELAP,NELAP,WADOE
alpha-BHC [2C]	DoD-ELAP,NELAP,WADOE
beta-BHC	DoD-ELAP,NELAP,WADOE
beta-BHC [2C]	DoD-ELAP,NELAP,WADOE
gamma-BHC (Lindane)	DoD-ELAP,NELAP,WADOE
gamma-BHC (Lindane) [2C]	DoD-ELAP,NELAP,WADOE
delta-BHC	DoD-ELAP,NELAP,WADOE
delta-BHC [2C]	DoD-ELAP,NELAP,WADOE
Heptachlor	DoD-ELAP,NELAP,WADOE
Heptachlor [2C]	DoD-ELAP,NELAP,WADOE
Aldrin	DoD-ELAP,NELAP,WADOE
Aldrin [2C]	DoD-ELAP,NELAP,WADOE
Heptachlor Epoxide	DoD-ELAP,NELAP,WADOE
Heptachlor Epoxide [2C]	DoD-ELAP,NELAP,WADOE
trans-Chlordane (beta-Chlordane)	DoD-ELAP,NELAP



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trans-Chlordane (beta-Chlordane)	DoD-ELAP,NELAP
cis-Chlordane (alpha-chlordane)	DoD-ELAP,NELAP,WADOE
cis-Chlordane (alpha-chlordane)	DoD-ELAP,NELAP,WADOE
Endosulfan I	DoD-ELAP,NELAP,WADOE
Endosulfan I [2C]	DoD-ELAP,NELAP,WADOE
4,4'-DDE	DoD-ELAP,NELAP,WADOE
4,4'-DDE [2C]	DoD-ELAP,NELAP,WADOE
Dieldrin	DoD-ELAP,NELAP,WADOE
Dieldrin [2C]	DoD-ELAP,NELAP,WADOE
Endrin	DoD-ELAP,NELAP,WADOE
Endrin [2C]	DoD-ELAP,NELAP,WADOE
Endosulfan II	DoD-ELAP,NELAP,WADOE
Endosulfan II [2C]	DoD-ELAP,NELAP,WADOE
4,4'-DDD	DoD-ELAP,NELAP,WADOE
4,4'-DDD [2C]	DoD-ELAP,NELAP,WADOE
Endrin Aldehyde	DoD-ELAP,NELAP,WADOE
Endrin Aldehyde [2C]	DoD-ELAP,NELAP,WADOE
4,4'-DDT	DoD-ELAP,NELAP,WADOE
4,4'-DDT [2C]	DoD-ELAP,NELAP,WADOE
Endosulfan Sulfate	DoD-ELAP,NELAP,WADOE
Endosulfan Sulfate [2C]	DoD-ELAP,NELAP,WADOE
Endrin Ketone	DoD-ELAP,NELAP,WADOE
Endrin Ketone [2C]	DoD-ELAP,NELAP,WADOE
Methoxychlor	DoD-ELAP,NELAP,WADOE
Methoxychlor [2C]	DoD-ELAP,NELAP,WADOE
Hexachlorobutadiene	DoD-ELAP,NELAP,WADOE
Hexachlorobutadiene [2C]	DoD-ELAP,NELAP,WADOE
Hexachlorobenzene	DoD-ELAP,NELAP,WADOE
Hexachlorobenzene [2C]	DoD-ELAP,NELAP,WADOE
2,4'-DDE	DoD-ELAP,NELAP,WADOE
2,4'-DDE [2C]	DoD-ELAP,NELAP,WADOE
2,4'-DDD	DoD-ELAP,NELAP,WADOE
2,4'-DDD [2C]	DoD-ELAP,NELAP,WADOE



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2,4'-DDT	DoD-ELAP,NELAP,WADOE
2,4'-DDT [2C]	DoD-ELAP,NELAP,WADOE
Oxychlordan	DoD-ELAP,NELAP,WADOE
Oxychlordan [2C]	DoD-ELAP,NELAP,WADOE
cis-Nonachlor	DoD-ELAP,NELAP,WADOE
cis-Nonachlor [2C]	DoD-ELAP,NELAP,WADOE
trans-Nonachlor	DoD-ELAP,NELAP,WADOE
trans-Nonachlor [2C]	DoD-ELAP,NELAP,WADOE
Mirex	DoD-ELAP,NELAP,WADOE
Mirex [2C]	DoD-ELAP,NELAP,WADOE

EPA 8082A in Solid

Aroclor 1016	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1016 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1242	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1242 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1248	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1248 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1260	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1260 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1262	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1262 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1268	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1268 [2C]	WADOE,DoD-ELAP,NELAP,ADEC

EPA 8270E in Solid

Phenol	DoD-ELAP,NELAP,WADOE
bis(2-chloroethyl) ether	DoD-ELAP,NELAP,WADOE
2-Chlorophenol	DoD-ELAP,NELAP,WADOE



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1,3-Dichlorobenzene	DoD-ELAP,NELAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,NELAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,NELAP,WADOE
Benzyl Alcohol	DoD-ELAP,NELAP,WADOE
2,2'-Oxybis(1-chloropropane)	DoD-ELAP,NELAP
2-Methylphenol	DoD-ELAP,NELAP,WADOE
Hexachloroethane	DoD-ELAP,NELAP,WADOE
N-Nitroso-di-n-Propylamine	DoD-ELAP,NELAP,WADOE
4-Methylphenol	DoD-ELAP,NELAP,WADOE
Nitrobenzene	DoD-ELAP,NELAP,WADOE
Isophorone	DoD-ELAP,NELAP,WADOE
2-Nitrophenol	DoD-ELAP,NELAP,WADOE
2,4-Dimethylphenol	DoD-ELAP,NELAP,WADOE
Bis(2-Chloroethoxy)methane	DoD-ELAP,NELAP,WADOE
2,4-Dichlorophenol	DoD-ELAP,NELAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,NELAP,WADOE
Naphthalene	DoD-ELAP,NELAP,WADOE,ADEC
Benzoic acid	DoD-ELAP,NELAP,WADOE
4-Chloroaniline	DoD-ELAP,NELAP,WADOE
Hexachlorobutadiene	DoD-ELAP,NELAP,WADOE
4-Chloro-3-Methylphenol	DoD-ELAP,NELAP,WADOE
2-Methylnaphthalene	DoD-ELAP,NELAP,WADOE,ADEC
Hexachlorocyclopentadiene	DoD-ELAP,NELAP,WADOE
2,4,6-Trichlorophenol	DoD-ELAP,NELAP,WADOE
2,4,5-Trichlorophenol	DoD-ELAP,NELAP,WADOE
2-Chloronaphthalene	DoD-ELAP,NELAP,WADOE
2-Nitroaniline	DoD-ELAP,NELAP,WADOE
Acenaphthylene	DoD-ELAP,NELAP,WADOE,ADEC
Dimethylphthalate	DoD-ELAP,NELAP,WADOE
2,6-Dinitrotoluene	DoD-ELAP,NELAP,WADOE
Acenaphthene	DoD-ELAP,NELAP,WADOE,ADEC
3-Nitroaniline	DoD-ELAP,NELAP,WADOE
2,4-Dinitrophenol	DoD-ELAP,NELAP,WADOE



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Dibenzofuran	DoD-ELAP,NELAP,WADOE,ADEC
4-Nitrophenol	DoD-ELAP,NELAP,WADOE
2,4-Dinitrotoluene	DoD-ELAP,NELAP,WADOE
Fluorene	DoD-ELAP,NELAP,WADOE,ADEC
4-Chlorophenylphenyl ether	DoD-ELAP,NELAP
Diethyl phthalate	DoD-ELAP,NELAP,WADOE
4-Nitroaniline	DoD-ELAP,NELAP,WADOE
4,6-Dinitro-2-methylphenol	DoD-ELAP,NELAP,WADOE
N-Nitrosodiphenylamine	DoD-ELAP,NELAP,WADOE
4-Bromophenyl phenyl ether	DoD-ELAP,NELAP,WADOE
Hexachlorobenzene	DoD-ELAP,NELAP,WADOE
Pentachlorophenol	DoD-ELAP,NELAP,WADOE
Phenanthrene	DoD-ELAP,NELAP,WADOE,ADEC
Anthracene	DoD-ELAP,NELAP,WADOE,ADEC
Carbazole	DoD-ELAP,NELAP,WADOE,ADEC
Di-n-Butylphthalate	DoD-ELAP,NELAP,WADOE
Fluoranthene	DoD-ELAP,NELAP,WADOE,ADEC
Pyrene	DoD-ELAP,NELAP,WADOE,ADEC
Butylbenzylphthalate	DoD-ELAP,NELAP,WADOE
Benzo(a)anthracene	DoD-ELAP,NELAP,WADOE,ADEC
3,3'-Dichlorobenzidine	DoD-ELAP,NELAP,WADOE
Chrysene	DoD-ELAP,NELAP,WADOE,ADEC
bis(2-Ethylhexyl)phthalate	DoD-ELAP,NELAP,WADOE
Di-n-Octylphthalate	DoD-ELAP,NELAP,WADOE
Benzofluoranthenes, Total	WADOE,ADEC
Benzo(a)pyrene	DoD-ELAP,NELAP,WADOE,ADEC
Indeno(1,2,3-cd)pyrene	DoD-ELAP,NELAP,WADOE,ADEC
Dibenzo(a,h)anthracene	DoD-ELAP,NELAP,WADOE,ADEC
Benzo(g,h,i)perylene	DoD-ELAP,NELAP,WADOE,ADEC
1-Methylnaphthalene	DoD-ELAP,NELAP,WADOE,ADEC

EPA 8270E-SIM in Solid

Tributyltin Ion	NELAP,WADOE,DoD-ELAP
Phenol	NELAP,WADOE



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1,3-Dichlorobenzene	NELAP,WADOE
1,4-Dichlorobenzene	NELAP,WADOE
1,2-Dichlorobenzene	NELAP,WADOE
Benzyl Alcohol	NELAP,WADOE
2-Methylphenol	NELAP,WADOE
N-Nitroso-di-n-Propylamine	NELAP,WADOE
4-Methylphenol	NELAP,WADOE
2,4-Dimethylphenol	NELAP,WADOE
1,2,4-Trichlorobenzene	NELAP,WADOE
Hexachlorobutadiene	NELAP,WADOE
N-Nitrosodimethylamine	NELAP,WADOE
Dimethylphthalate	NELAP,WADOE
Diethyl phthalate	NELAP,WADOE
N-Nitrosodiphenylamine	NELAP,WADOE
Hexachlorobenzene	NELAP,WADOE
Pentachlorophenol	NELAP,WADOE
Butylbenzylphthalate	NELAP,WADOE
Dibenzo(a,h)anthracene	NELAP,WADOE

EPA 9060A m in Solid

Total Organic Carbon	NELAP,WADOE

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2025
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program, PJLA Testing	66169	02/28/2025
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2025
WADOE	WA Dept of Ecology	C558	06/30/2025
WA-DW	Ecology - Drinking Water	C558	06/30/2025



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Notes and Definitions

*	Flagged value is not within established control limits.
D	The reported value is from a dilution
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
F	Samples were frozen prior to analysis to extend hold time.
J	Estimated concentration value detected below the reporting limit.
L	Analyte concentration is ≤ 5 times the reporting limit and the replicate control limit defaults to $\pm$ RL instead of 20% RPD
P1	The reported value is greater than 40% difference between the concentrations determined on two GC columns where applicable.
Q	Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria ($<20\%$ RSD, $<20\%$ drift or minimum RRF)
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.

ADEC Contaminated Sites Program Laboratory Data Review Checklist

Completed By:	Ashley Jaramillo	CS Site Name:	NA	Lab Name:	Analytical Resources, LLC.
Title:	Senior Chemist	ADEC File No.:	NA	Lab Report No.:	24G0178
Consulting Firm:	Shannon & Wilson, Inc.	Hazard ID No.:	NA	Lab Report Date:	9/16/24

Note: Any N/A or No box checked must have an explanation in the comments box.

1. Laboratory

- a. Did an ADEC Contaminated Sites Laboratory Approval Program (CS-LAP) approved laboratory receive and perform all of the submitted sample analyses?

Yes ☐ No ☒ N/A ☐

Comments: Project samples were sent to Analytical Resources, LLC (ARI) Tukwila, Washington for the analysis of Grain Size by PSEP-PS, total solids by SM 2540, total volatile solids by PSEP 1986, SVOCs by 8270E, SVOC-SIM by 8270E-SIM, tributyltin (TBT) by 8270E-SIM, pesticide by 8081B, PCBs by 8082A, TOC by 9060A, metals by 6020B, and mercury by 7471. ARI is certified under DEC approval 17-015 dated 4/13/2023, expiring 3/28/2025. Grain Size by PSEP-PS was subcontracted to AMTEST Laboratories (AMTEST) in Tukwila, Washinton. The DEC CS project does not certify for this analysis.

- b. If the samples were transferred to another “network” laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses CS-LAP approved?

Yes ☐ No ☒ N/A ☐

Comments: Grain Size by PSEP-PS was subcontracted to AMTEST in Tukwila, Washinton. The DEC CS project does not certify for this analysis.

2. Chain of Custody (CoC)

- a. Is the CoC information completed, signed, and dated (including released/received by)?

Yes ☒ No ☐ N/A ☐

Comments: Click or tap here to enter text.

CS Site Name: NA

Lab Report No.: 24G0178

- b. Were the correct analyses requested?

Yes ☒ No ☐ N/A ☐

Analyses requested: No methods were listed on the CoC for Grain size, total solids, total volatile solids, SVOCs, SVOC-SIM, TBT, pesticides, PDBs, TOC, metals, and mercury. The laboratories analyzed Grain Size by PSEP-PS, total solids by SM 2540, total volatile solids by PSEP 1986, SVOCs by 8270E, SVOC-SIM by 8270E-SIM, TBT by 8270E-SIM, pesticide by 8081B, PCBs by 8082A, TOC by 9060A, metals by 6020B, and mercury by 7471.

Comments: These are the correct methods for this project. Data quality and/or usability not affected.

3. Laboratory Sample Receipt Documentation

- a. Is the sample/cooler temperature documented and within range at receipt (0° to 6° C)?

Yes ☒ No ☐ N/A ☐

Cooler temperature(s): Cooler temperatures were not reported, rather a temperature blank was included with the samples in the cooler and is used to access temperature preservation. The temperature blank was -1.6°C at sample login at ARI. The temperature blank was 1.2°C at sample login at AMTEST.

Sample temperature(s): Sample temperatures were not reported.

Comments: The temperature blank at ARI was below the acceptable range. The samples were noted to have been received unfrozen and no ice was noted in project samples. Data quality and/or usability not affected.

- b. Is the sample preservation acceptable – acidified waters, methanol preserved soil (GRO, BTEX, VOCs, etc.)?

Yes ☐ No ☐ N/A ☒

Comments: Sample preservation not required.

- c. Is the sample condition documented – broken, leaking, zero headspace (VOA vials); canister vacuum/pressure checked and no open valves, etc.?

Yes ☒ No ☐ N/A ☐

Comments: Samples were noted to be in good condition.

- d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, canister not holding a vacuum, etc.?

Yes ☒ No ☐ N/A ☐

Comments: The laboratory noted that the samples arrived unfrozen.

- e. Is the data quality or usability affected?

Yes ☐ No ☒ N/A ☐

Comments: No laboratory sample receipt documentation discrepancies were noted at sample login.

4. Case Narrative

- a. Is the case narrative present and understandable?

Yes ☒ No ☐ N/A ☐

Comments: Click or tap here to enter text.

- b. Are there discrepancies, errors, or QC failures identified by the lab?

Yes ☒ No ☐ N/A ☐

Comments:

The samples were submitted to AMTEST Laboratories for grainsize analysis. The AMTEST report is included with the ARI laboratory report in its entirety. Data quality and/or usability not affected.

Initial and continuing SVOC calibrations were within method requirements, with accepted excursions low outside the 20% window. Associated positive results have been "Q"-flagged. Evaluation of ICV or CCV is outside of the scope of a stage 2a data review and the laboratory didn't indicate an effect on project data due to the discrepancy, therefore sample results are not considered affected.

The SVOC surrogate recoveries outside of control limits are flagged on the summary sheets. See section 6.d. for details regarding impacts to data quality and/or usability, as applicable.

The SVOC blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent differences (RPD) outside of control limits are flagged on the summary sheet. See section 6.b. for details regarding impacts to data quality and/or usability, as applicable.

SVOC batch BMG0260 matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent differences (RPD) outside of advisory control limits are flagged on the summary sheet, reported under work order 24G0167. As this data is reported in another work order, we do not discuss this case narrative entry further.

Initial and continuing SVOC-SIM calibrations were within method requirements, with accepted excursions low outside the 20% window. Associated positive results have been "Q"-flagged. Evaluation of ICV or CCV is outside of the scope of a stage 2a data review and the laboratory didn't indicate an effect on project data due to the discrepancy, therefore sample results are not considered affected.

The SVOC-SIM surrogate recoveries outside of control limits are flagged on the summary sheets. See section 6.d. for details regarding impacts to data quality and/or usability, as applicable.

The SVOC-SIM blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent differences (RPD) outside of control limits are flagged on the summary sheet. See section 6.b. for details regarding impacts to data quality and/or usability, as applicable.

SVOC-SIM batch BMG0260 matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent differences (RPD) outside of advisory control limits are flagged on the summary sheet, reported under work order 24G0167. As this data is reported in another work order, we do not discuss this case narrative entry further.

The TBT matrix spike/matrix spike duplicate (MS/MSD) percent recoveries were within advisory control limits. The relative percent differences (RPD) outside advisory control limits are flagged on the summary sheet. See section 6.c. for details regarding impacts to data quality and/or usability, as applicable.

Initial and continuing pesticide calibrations were within method requirements with excursions. Several standards had response outside limits high on the STX-CLP column for 2,4'-DDD, 2,4.-DDE, 2,4.-DDT, 4,4'-DDD, 4,4.-DDT, cis-Nonachlor, Endosulfan II, Endosulfan Sulfate, Endrin, Endrin Aldehyde, Endrin Ketone, Heptachlor, Methoxychlor, Oxychlorane, and trans-Nonachlor. Several standards had response low of limits on the CLP2 column for 4,4.-DDT, (DCPB), Dieldrin, Endrin Aldehyde, Endrin Ketone, and Methoxychlor. Evaluation of ICV or CCV is outside of the scope of a stage 2a data review and the laboratory didn't indicate an effect on project data due to the discrepancy, therefore sample results are not considered affected.

The pesticide internal standard areas for hexabromobiphenyl (HBB) were low of limits on the STX-CLP column in 1113733-SB3S1, 113733-SB3S2, 113733-SB3S3, 113733-SB3S4, 113733-SB3S5, SMG0341-CCV5, SMG0341-CCV6, SMG0351-PEM3 and SMG0351-PEM4. Evaluation of the internal standard is outside the scope of a stage 2a data review and the laboratory didn't indicate an effect on project data due to this discrepancy, therefore samples results are not considered affected.

The pesticide surrogate recoveries outside of control limits are flagged on the summary sheets. See section 6.d. for details regarding impacts to data quality and/or usability, as applicable.

The pesticide blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent differences (RPD) outside of control limits are flagged on the summary sheets. See section 6.b. for details regarding impacts to data quality and/or usability, as applicable.

Pesticide batch BMG0258 matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent differences (RPD) outside of advisory control

CS Site Name: NA
Lab Report No.: 24G0178

limits are flagged on the summary sheets, reported under work order 24G0167. As this data is reported in another work order, we do not discuss this case narrative entry further.

Pesticide results that have been "P1"-flagged indicate a greater than 40% difference between the results on the two analytical columns. The P1 flag was applied to 4,4'-DDD in 113733-SB3S2 and 2,4'-DDD in 113733-SB3S2. Consequently, the result of this analyte in the noted sample is considered an estimate, however, this analyte in the noted sample has been previously flagged due to a LCS/CLSD recovery failure, see 6.b.iii, below. No additional flags were added due to this discrepancy.

PCB batch BMG0257 matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD) were within advisory control limits, reported under work order 24G0168. As this data is reported in another work order, we do not discuss this case narrative entry further.

The metals batch BMG0273 duplicate (DUP) relative percent differences (RPD) were within advisory control limits, reported under work order 24G0171. As this data is reported in another work order, we do not discuss this case narrative entry further.

Metals batch BMG0273 matrix spike (MS) percent recoveries outside advisory control limits are flagged on the summary sheet, reported under work order 24G0171. A post spike had an acceptable recovery. As this data is reported in another work order, we do not discuss this case narrative entry further.

The mercury batch BMG0336 matrix spike (MS) percent recoveries and the duplicate (DUP) relative percent difference (RPD) were within advisory control limits, reported under work order 24G0171. As this data is reported in another work order, we do not discuss this case narrative entry further.

The TOC batch BMH0093 matrix spike (MS) percent recoveries and the replicates (DUP1, DUP2) relative percent differences (RPD) were within advisory control limits, reported under work order 24G0168. As this data is reported in another work order, we do not discuss this case narrative entry further.

AMTEST

No CoC was included with the AMTEST lab report. No data quality control discrepancies were noted in the laboratory report, data quality and/or usability not affected.

c. Were all the corrective actions documented?

Yes ☐ No ☐ N/A ☒

Comments: Corrective actions not required.

CS Site Name: NA

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- d. What is the effect on data quality/usability according to the case narrative?
Comments: Effect on data quality and/or usability due to discrepancies, errors, or QC failures identified by the lab in the case narrative are either discussed above in Section 4.b. or elsewhere in this checklist.

5. Sample Results

- a. Are the correct analyses performed/reported as requested on CoC?
Yes ☒ No ☐ N/A ☐
Comments: No methods were listed on the CoC for Grain size, total solids, total volatile solids, SVOCs, SVOC-SIM, TBT, pesticides, PDBs, TOC, metals, and mercury. The laboratories analyzed Grain Size by PSEP-PS, total solids by SM 2540, total volatile solids by PSEP 1986, SVOCs by 8270E, SVOC-SIM by 8270E-SIM, TBT by 8270E-SIM, pesticide by 8081B, PCBs by 8082A, TOC by 9060A, metals by 6020B, and mercury by 7471. These are the correct methods for this project. Data quality and/or usability not affected.
- b. Are all applicable holding times met?
Yes ☒ No ☐ N/A ☐
Comments: Click or tap here to enter text.
- c. Are all soils reported on a dry weight basis?
Yes ☒ No ☐ N/A ☐
Comments: Click or tap here to enter text.
- d. Are the reported limits of quantitation (LoQ) or limits of detections (LOD), or reporting limits (RL) less than the Cleanup Level or the action level for the project?
Yes ☐ No ☒ N/A ☐
Comments: Analytical sensitivity was evaluated to verify that LODs met applicable DEC migration to groundwater cleanup levels for non-detect results, as appropriate. Analytes with LODs that do not meet applicable cleanup levels are bolded in the analytical results table. Data quality and/or usability may be affected as these analytes cannot be detected, if present, at their respective cleanup level.
- e. Is the data quality or usability affected?
Yes ☒ No ☐ N/A ☐
Comments: See 5.d. above.

CS Site Name: NA

Lab Report No.: 24G0178

6. QC Samples

a. Method Blank

- i. Was one method blank reported per matrix, analysis, and 20 samples?

Yes ☒ No ☐ N/A ☐

Comments: Click or tap here to enter text.

- ii. Are all method blank results less than LOQ (or RL)?

Yes ☒ No ☐

Comments: However, phenol and diethyl phthalate were detected in the method blank sample for batch BMG0260 at a concentration below the LOQ. Phenol was detected below the LOQ and within ten times the concentration detected in the method blank sample in the following associated project samples, 113733-SB3S1 and 113733-SB3S2. Diethyl phthalate was detected below the LOQ and within ten times the concentration detected in the method blank sample in the following associated project samples, 113733-SB3S1, 113733-SB3S2, 113733-SB3S3, 113733-SB3S4, and 113733-SB3S5. Consequently, the results of these analytes in the noted samples are considered not detected at the LOQ and are flagged 'B*' in the analytical table. Data quality is considered affected as noted, however, data is considered usable with a applied flags.

- iii. If above LoQ or RL, what samples are affected?

Comments: See 6.a.ii, above.

- iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes ☒ No ☐ N/A ☐

Comments: See 6.a.ii, above.

- v. Data quality or usability affected?

Yes ☒ No ☐ N/A ☐

Comments: See 6.a.ii, above.

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

- i. Organics – Are one LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

Yes ☐ No ☒ N/A ☐

Comments: LCS/LCSDs were reported for SVOC, SVOC-SIM, TBT, pesticide, and PCB analyses.

CS Site Name: NA

Lab Report No.: 24G0178

- ii. Metals/Inorganics – Are one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes ☐ No ☐ N/A ☐

Comments:

A LCS was reported for metals, mercury, and TOC analyses.

A laboratory duplicate sample was reported for volatile solids and total solids.

- iii. Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes ☐ No ☒ N/A ☐

Comments: The LCS and or LCSD %Rs for SVOC analytes isophorone and carbazole were above laboratory limits in batch BMF0260. These analytes were not detected in associated project samples. Data quality and/or usability not affected.

The %Rs for pesticide analytes endrin, 4,4'-DDD, 4,4'-DDT, endosulfan sulfate, and endrin ketone were above laboratory limits in batch BMG0258. 4,4'-DDD was detected in associated project sample 113733-SB3S2, consequently, the 4,4'-DDD result in the noted sample is considered an estimate, biased high, and is flagged 'JH*' in the analytical table. Data quality is considered affected; however, data is considered usable with applied flags. Endrin, 4,4'-DDT, endosulfan sulfate, and endrin ketone were not detected in associated project samples. Data quality and/or usability not affected.

- iv. Precision – Are all relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? Was the RPD reported from LCS/LCSD, and or sample/sample duplicate? (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes ☐ No ☒ N/A ☐

Comments: The LCS/LCSD RPD for SVOC and SOVC-SIM analyte 2,4-dimethylphenol was outside laboratory criteria. This analyte was not detected in associated project samples, consequently, the result of this analyte in samples 113733-SB3S1, 113733-SB3S2, 113733-SB3S3, 113733-SB3S4, and 113733-SB3S5 are considered estimates, not direction of bias, and are flagged 'J*' in the analytical table. Data quality is considered affected as noted, however, data is considered usable with applied flags.

The volatile solid laboratory duplicate RPD was outside laboratory limits for sample 113733-SB3S1. Volatile solids was detected in this sample,

CS Site Name: NA

Lab Report No.: 24G0178

consequently, the volatile solid result in the noted sample is considered an estimate, no direction of bias, and is flagged 'J*' in the analytical table. Data is considered affected as noted, however, data is considered usable with applied flags.

- v. If %R or RPD is outside of acceptable limits, what samples are affected?
Comments: See 6.b.iii and 6.b.iv, above.

- vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes ☒ No ☐ N/A ☐

Comments: See 6.b.iii and 6.b.iv, above.

- vii. Is the data quality or usability affected?

Yes ☒ No ☐ N/A ☐

Comments: See 6.b.iii and 6.b.iv, above.

c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

- i. Organics – Are one MS/MSD reported per matrix, analysis and 20 samples?

Yes ☐ No ☒ N/A ☐

Comments: MS/MSD samples were reported for TBT analysis.

- ii. Metals/Inorganics – Are one MS/MSD reported per matrix, analysis and 20 samples?

Yes ☐ No ☒ N/A ☐

Comments: Click or tap here to enter text.

- iii. Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable?

Yes ☒ No ☐ N/A ☐

Comments: Click or tap here to enter text.

- iv. Precision – Are all relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from MS/MSD, and or sample/sample duplicate.

Yes ☐ No ☒ N/A ☐

Comments: The TBT MS/MSD RPD was outside laboratory limits in parent sample 113733-SB3S5. TBT was not detected in the parent sample, consequently, the TBT result in the parent sample is considered an estimate, no direction of bias, and is flagged 'J*' in the analytical table. Data quality is considered affected as noted, however, data is considered usable with applied flags.

CS Site Name: NA

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- v. If %R or RPD is outside of acceptable limits, what samples are affected?
Comments: See 6.c.iv above.
- vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?
Yes ☒ No ☐ N/A ☐
Comments: See 6.c.iv above.
- vii. Is the data quality or usability affected?
Yes ☒ No ☐ N/A ☐
Comments: See 6.c.iv above.
- d. Surrogates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only
- i. Are surrogate/IDA recoveries reported for organic analyses – field, QC, and laboratory samples?
Yes ☒ No ☐ N/A ☐
Comments: Click or tap here to enter text.
- ii. Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods 50-150 %R for field samples and 60-120 %R for QC samples; all other analyses see the laboratory report pages)
Yes ☐ No ☒ N/A ☐
Comments: The SVOC surrogate p-Terphenyl-d14 was recovered above the laboratory limits in the method blank sample for batch BMG0260. Project samples are not affected by recovery failures in quality control samples. Data quality and/or usability not affected.
- iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined?
Yes ☐ No ☐ N/A ☒
Comments: See 6.d.ii above.
- iv. Is the data quality or usability affected?
Yes ☐ No ☒ N/A ☐
Comments: See 6.d.ii above.
- e. Trip Blanks
- i. Is one trip blank reported per matrix, analysis, and for each cooler containing volatile samples? Yes ☐ No ☐ N/A ☒
Comments: Volatile analyses were not included with this work order. No trip blank required.

CS Site Name: NA

Lab Report No.: 24G0178

- ii. Are all results less than LoQ or RL?

Yes ☐ No ☐ N/A ☒

Comments: Volatile analyses were not included with this work order. No trip blank required.

- iii. If above LoQ or RL, what samples are affected?

Comments: Not applicable. Volatile analyses were not included with this work order. No trip blank required.

- iv. Is the data quality or usability affected?

Yes ☐ No ☒ N/A ☐

Comments: Volatile analyses were not included with this work order. No trip blank required.

f. Field Duplicate

- i. Are one field duplicate submitted per matrix, analysis, and 10 project samples?

Yes ☐ No ☒ N/A ☐

Comments: Field duplicate samples were not submitted. Sample duplicates are submitted at the proper frequency for the project as a whole.

- ii. Was the duplicate submitted blind to lab?

Yes ☐ No ☐ N/A ☒

Comments: Field duplicate samples were not submitted.

- iii. Precision – All relative percent differences (RPD) less than specified project objectives? (Recommended: 30% water or air, 50% soil)

$$RPD (\%) = \left| \frac{R_1 - R_2}{\left(\frac{R_1 + R_2}{2}\right)} \right| \times 100$$

Where R_1 = Sample Concentration

R_2 = Field Duplicate Concentration

Is the data quality or usability affected? (Explain)

Yes ☐ No ☐ N/A ☒

Comments: Field duplicate samples were not submitted.

- iv. Is the data quality or usability affected? (Explain)

Yes ☐ No ☒ N/A ☐

Comments: Field duplicate samples were not submitted.

CS Site Name: NA

Lab Report No.: 24G0178

g. Decontamination or Equipment Blanks

i. Were decontamination or equipment blanks collected?

Yes ☐ No ☐ N/A ☒

Comments: Samples were not collected with reusable equipment; equipment blank not required.

ii. Are all results less than LoQ or RL?

Yes ☐ No ☐ N/A ☒

Comments: Samples were not collected with reusable equipment; equipment blank not required.

iii. If above LoQ or RL, specify what samples are affected.

Comments: Not applicable. Samples were not collected with reusable equipment; equipment blank not required.

iv. Are data quality or usability affected?

Yes ☐ No ☒ N/A ☐

Comments: Samples were not collected with reusable equipment; equipment blank not required.

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Are they defined and appropriate?

Yes ☐ No ☐ N/A ☐

Comments: Some analytes were run at a dilution. These analytes are flagged with a 'D' in the analytical report; however, these flags do not appear in the analytical table.

Samples for the analysis of TOC were frozen prior to analysis to extend holding time are flagged 'F' by the lab. These flags appear in the laboratory report, but do not appear in the analytical table. The results are not affected.

See 4.b. above for other flags.



Analytical Resources, LLC
Analytical Chemists and Consultants
Tukwila, WA

18 September 2024

Dan McMahon
Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage, AK 99518

RE: PAMP Sediments (113733)

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)
24G0181

Associated SDG ID(s)
N/A

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, LLC

Susan Dunnihoo, Director, Client Services

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Chain of Custody Record & Laboratory Analysis Request

AR Assigned Number: 24G0181	Turn-around Requested: standard

Date: 7/10/24

AR Client Company: Shannon & Wilson, Inc.	Phone: 907-433-3223

Page: 1	of 1

Client Contact: Dan McMahon

No. of Coolers:	Cooler Temps:



Analytical Resources, LLC
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6202 (fax)

Client Project Name: PAMP Sediment					Analysis Requested								Notes/Comments
Client Project #: 113733		Samplers: AJR			SVOC/TBT/ Pest/PCB	TS/TVS/TOC	Metals	Grainsize					

Sample ID	Date	Time	Matrix	No. Containers	SVOC/TBT/ Pest/PCB	TS/TVS/TOC	Metals	Grainsize					
113733-SB2S7	07/01/24	11:35	Sed	3	✓	✓	✓	✓					
113733-SB2S8	07/01/24	11:55	Sed	3	✓	✓	✓	✓					
113733-SB2S9	07/01/24	12:05	Sed	3	✓	✓	✓	✓					
113733-SB2S10	07/01/24	12:10	Sed	3	✓	✓	✓	✓					
113733-SB2S13	07/01/24	10:40	Sed	3	✓	✓	✓	✓					

Comments/Special Instructions	Relinquished by: (Signature) <i>[Signature]</i>	Received by: (Signature) <i>[Signature]</i>	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Aluc Rzew	Printed Name: Emma Stewart	Printed Name:	Printed Name:
	Company: SW	Company: AR	Company:	Company:
	Date & Time: 7/8/24 BDD	Date & Time: 7/9/24 11:27	Date & Time:	Date & Time:

Limits of Liability: Analytical Resources, LLC (AR) will perform all requested services in accordance with appropriate methodology following AR Standard Operating Procedures and the AR Quality Assurance Program. This program meets standards for the industry. The total liability of AR, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by AR release AR from any liability in excess thereof, notwithstanding any provision to the contrary in any contract, purchase order or co-signed agreement between AR and the Client.

Sample Retention Policy: Unless specified by work order or contract, all water/soil samples submitted to AR will be discarded or returned, no sooner than 90 days after receipt or 60 days after submission of hard copy data, whichever is longer. Sediment samples submitted under PSDDA/PSEP/SMS protocol will be stored frozen for up to one year and then discarded.



Analytical Resources, LLC
Analytical Chemists and Consultants

SUBCONTRACT ORDER
To: AmTest Laboratories
ARI Work Order:24G0181

SENDING LABORATORY:

Analytical Resources, LLC
4611 S. 134th Place, Suite 100
Tukwila, WA 98168
Phone: (206) 695-6200
Fax: (206) 695-6202
Project Manager: Susan Dunnihoo
E-Mail: sue.dunnihoo@arilabs.com

RECEIVING LABORATORY:

AmTest Laboratories
13600 NE 126th Pl Suite C
Kirkland, WA 98034
Phone :425-885-1664
Fax: -

PLEASE SEND DATA AND INVOICE TO subdata@arilabs.com

Analysis	Due	Expires	Sub Laboratory ID	Comments

Sample ID: 24G0181-01

Sampled: 07/01/24 11:35 Matrix: Solid

Grainsize PSEP (Subc) 07/23/24 12/31/24 04:23

Containers Supplied:

24G0181-01 A
Ziploc Bag, Gallon

Sample ID: 24G0181-02

Sampled: 07/01/24 11:55 Matrix: Solid

Grainsize PSEP (Subc) 07/23/24 12/31/24 04:43

Containers Supplied:

24G0181-02 A
Ziploc Bag, Gallon

Sample ID: 24G0181-03

Sampled: 07/01/24 12:05 Matrix: Solid

Grainsize PSEP (Subc) 07/23/24 12/31/24 04:53

Containers Supplied:

24G0181-03 A
Ziploc Bag, Gallon

Sample ID: 24G0181-04

Sampled: 07/01/24 12:10 Matrix: Solid

Grainsize PSEP (Subc) 07/23/24 12/31/24 04:58

Containers Supplied:

24G0181-04 A
Ziploc Bag, Gallon

1.2°C

Released By *Matt DeW* 07/10/24 1245

Date

Received By *SF*

Date

7/11/24 1245

Released By

Date

Received By

Date

Printed: 7/9/2024 3:30:43PM



Shannon & Wilson, Inc

5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

18-Sep-2024 17:06

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
113733-SB2S7	24G0181-01	Solid	01-Jul-2024 11:35	09-Jul-2024 11:37
113733-SB2S8	24G0181-02	Solid	01-Jul-2024 11:55	09-Jul-2024 11:37
113733-SB2S9	24G0181-03	Solid	01-Jul-2024 12:05	09-Jul-2024 11:37
113733-SB2S10	24G0181-04	Solid	01-Jul-2024 12:10	09-Jul-2024 11:37
113733-SB2S13	24G0181-05	Solid	01-Jul-2024 10:40	09-Jul-2024 11:37



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
18-Sep-2024 17:06

Work Order Case Narrative

Client: Shannon & Wilson, Inc
Project: PAMP Sediments
Work Order: 24G0181

Sample receipt

Samples as listed on the preceding page were received 09-Jul-2024 11:37 under ARI work order 24G0181. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Grainsize

The samples were submitted to AmTest Laboratories for grainsize analysis. The AmTest report is included here in its entirety.

Semivolatiles - EPA Method SW8270E

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements, with accepted excursions outside the 20% window. Associated positive results have been "Q"-flagged. Response for hexachlorobutadiene was high of control limits. Response for hexachlorocyclopentadiene, 2,4-dinitrophenol and 3,3'-dichlorobenzidine were low.

Internal standard areas were within limits.

The surrogate recoveries outside of control limits are flagged on the summary sheets.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent differences (RPD) outside of control limits are flagged on the summary sheet.

The batch BMG0256 matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent differences (RPD) outside advisory control limits are flagged on the summary sheet, reported under work order 24G0170.

Semivolatiles - EPA Method SW8270E-SIM

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements, with accepted excursions outside the 20% window. Associated positive results have been "Q"-flagged. Response for benzoic acid, pentachlorophenol and dibenzo(a,h)anthracene were high of control limits.

Internal standard areas were within limits.



Shannon & Wilson, Inc

5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

18-Sep-2024 17:06

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent differences (RPD) were within control limits.

The batch BMG0256 matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent differences (RPD) were within advisory control limits, reported under work order 24G0170.

Butyl Tin(s)- EPA Method SW8270E-SIM

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent differences (RPD) were within control limits.

The matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD) were within advisory control limits.

Chlorinated Pesticides - EPA Method SW8081B

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements with exceptions. Response was high on the STX- CLP column in several standards for 2,4'-DDD, 2,4'-DDE, 2,4'-DDT, 4,4'-DDD, 4,4'-DDT, cis-Nonachlor, Endosulfan II, Endosulfan Sulfate, Endrin, Endrin Aldehyde, Endrin Ketone, Heptachlor, Methoxychlor, Mirex, Oxychlorane, and trans-Nonachlor. Response was low for hexachlorobutadiene in SMG0367-ICV1. Response was high of limits on the CLP2 column in some standards for 2,4'DDD and 2,4'-DDT, and low of limits for decachlorobiphenyl (DCPB) and dieldrin.

The internal standard areas for hexabromobiphenyl (HBB) were low of limits on the STX-CLP column in 113733-SB2S7, 113733-SB2S8, 113733-SB2S9, 113733-SB2S10, 113733-SB2S13, SMG0367-CCV4, SMG0367-CCV6, and SMG0367-PEM3.

The surrogate percent recoveries were within control limits.



Shannon & Wilson, Inc

5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

18-Sep-2024 17:06

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent differences (RPD) outside of control limits are flagged on the summary sheet.

The batch BMG0254 matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD) were within advisory control limits, reported under work order 24G0171.

Results that have been "P1"-flagged indicate a greater than 40% difference between the results on the two analytical columns.

PCB Aroclors - EPA Method SW8082A

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

The batch BMG0250 matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD) were within advisory control limits, reported under work order 24G0170.

Total Metals - EPA Method 6020B

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations including interference checks were within method requirements for reported elements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

The batch BMG0273 duplicate (DUP) relative percent differences (RPD) were within advisory control limits, reported under work order 24G0171.

The batch BMG0273 matrix spike (MS) percent recoveries outside advisory control limits are flagged on the summary sheet, reported under work order 24G0171. A post spike had an acceptable recovery.

Total Mercury - EPA Method 7471B



Shannon & Wilson, Inc

5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

18-Sep-2024 17:06

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

The batch BMG0336 matrix spike (MS) percent recoveries and the duplicate (DUP) relative percent difference (RPD) were within advisory control limits, reported under work order 24G0171.

Wet Chemistry

The sample(s) were prepared and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

The solids replicates (DUP1, DUP2) relative percent difference (RPD) were outside advisory control limits and flagged on the summary sheet.

The TOC batch BMH0093 matrix spike (MS) percent recoveries and the replicates (DUP1, DUP2) relative percent differences (RPD) were within advisory control limits, reported under work order 24G0168.



WORK ORDER

24G0181

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Shannon & Wilson, Inc

Project Manager: Susan Dunnihoo

Project: PAMP Sediments

Project Number: 113733

Report To:

Shannon & Wilson, Inc
Dan McMahon
5430 Fairbanks Street, Suite 3
Anchorage, AK 99518
Phone: (907) 433-3223
Fax: -

Invoice To:

Shannon & Wilson, Inc
Dan McMahon
5430 Fairbanks Street, Suite 3
Anchorage, AK 99518
Phone: (907) 433-3223
Fax: -

Date Due: 23-Jul-2024 18:00 (10 day TAT)

Received By: Sydni Acevedo

Date Received: 09-Jul-2024 11:37

Logged In By: Robert Leesemann

Date Logged In: 09-Jul-2024 15:19

Samples Received at 3.8°C

Intact, properly signed and dated custody seals attached to outside of cooler(s).....No
Custody papers properly filled out (in, signed, analyses requested, etc).....Yes
Was sufficient ice used (if appropriate).....Yes
All bottles arrived in good condition (unbroken).....Yes
Number of containers listed on COC match number received.....Yes
Correct bottles used for the requested analyses.....Yes
Analyses/bottles require preservation (attach preservation sheet excluding VOC).....No
Sample split at ARL.....No

Custody papers included with the cooler..... Yes
Was a temperature blank included in the cooler..... No
All bottles sealed in individual plastic bags..... No
All bottle labels complete and legible..... Yes
Bottle labels and tags agree with COC..... Yes
All VOC vials free of air bubbles..... No
Sufficient amount of sample sent in each bottle..... Yes

Analysis	Due	TAT	Expires	Comments



WORK ORDER

24G0181

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Shannon & Wilson, Inc

Project Manager: Susan Dunnihoo

Project: PAMP Sediments

Project Number: 113733

Analysis	Due	TAT	Expires	Comments

24G0181-01 113733-SB2S7 [Solid] Sampled 01-Jul-2024 11:35 (GMT-08:00)

Pacific Time (US & Canada)

A = Ziploc Bag, Gallon

B = Glass WM, Clear, 16 oz

C = Glass WM, Clear, 8 oz

8081B Pest (PSDDA)	23-Jul-2024 15:00	10	15-Jul-2024 23:59	Use Version
8082A PCB Solid 4	23-Jul-2024 15:00	10	15-Jul-2024 23:59	
8270E SVOA and SIM SVOA dual scan	23-Jul-2024 15:00	10	15-Jul-2024 11:35	
8270E-SIM Butyl Tins	23-Jul-2024 15:00	10	15-Jul-2024 23:59	
Carbon, 9060A m Solid	23-Jul-2024 15:00	10	29-Jul-2024 23:59	
Freeze and Hold Org - Met- Conv - Sha	23-Jul-2024 15:00	10	01-Jul-2025 11:35	
Metals, DMMP 2021 (Solid)	23-Jul-2024 15:00	10	28-Dec-2024 11:35	
Solids, Total Volatile (TVS) PSEP	23-Jul-2024 15:00	10	06-Aug-2024 23:59	
Solids, Total, Dried at 103 -105 °C, Soli	23-Jul-2024 15:00	10	29-Jul-2024 23:59	

24G0181-02 113733-SB2S8 [Solid] Sampled 01-Jul-2024 11:55 (GMT-08:00)

Pacific Time (US & Canada)

A = Ziploc Bag, Gallon

B = Glass WM, Clear, 16 oz

C = Glass WM, Clear, 8 oz

8081B Pest (PSDDA)	23-Jul-2024 15:00	10	15-Jul-2024 23:59	Use Version
8082A PCB Solid 4	23-Jul-2024 15:00	10	15-Jul-2024 23:59	
8270E SVOA and SIM SVOA dual scan	23-Jul-2024 15:00	10	15-Jul-2024 11:55	
8270E-SIM Butyl Tins	23-Jul-2024 15:00	10	15-Jul-2024 23:59	
Carbon, 9060A m Solid	23-Jul-2024 15:00	10	29-Jul-2024 23:59	
Freeze and Hold Org - Met- Conv - Sha	23-Jul-2024 15:00	10	01-Jul-2025 11:55	
Metals, DMMP 2021 (Solid)	23-Jul-2024 15:00	10	28-Dec-2024 11:55	
Solids, Total Volatile (TVS) PSEP	23-Jul-2024 15:00	10	06-Aug-2024 23:59	
Solids, Total, Dried at 103 -105 °C, Soli	23-Jul-2024 15:00	10	29-Jul-2024 23:59	

24G0181-03 113733-SB2S9 [Solid] Sampled 01-Jul-2024 12:05 (GMT-08:00)

Pacific Time (US & Canada)

A = Ziploc Bag, Gallon

B = Glass WM, Clear, 16 oz

C = Glass WM, Clear, 8 oz

8081B Pest (PSDDA)	23-Jul-2024 15:00	10	15-Jul-2024 23:59	Use Version
8082A PCB Solid 4	23-Jul-2024 15:00	10	15-Jul-2024 23:59	
8270E SVOA and SIM SVOA dual scan	23-Jul-2024 15:00	10	15-Jul-2024 12:05	
8270E-SIM Butyl Tins	23-Jul-2024 15:00	10	15-Jul-2024 23:59	
Carbon, 9060A m Solid	23-Jul-2024 15:00	10	29-Jul-2024 23:59	
Freeze and Hold Org - Met- Conv - Sha	23-Jul-2024 15:00	10	01-Jul-2025 12:05	
Metals, DMMP 2021 (Solid)	23-Jul-2024 15:00	10	28-Dec-2024 12:05	
Solids, Total Volatile (TVS) PSEP	23-Jul-2024 15:00	10	06-Aug-2024 23:59	
Solids, Total, Dried at 103 -105 °C, Soli	23-Jul-2024 15:00	10	29-Jul-2024 23:59	



WORK ORDER

24G0181

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Shannon & Wilson, Inc

Project Manager: Susan Dunnihoo

Project: PAMP Sediments

Project Number: 113733

Analysis	Due	TAT	Expires	Comments

24G0181-04 113733-SB2S10 [Solid] Sampled 01-Jul-2024 12:10 (GMT-08:00)

Pacific Time (US & Canada)

A = Ziploc Bag, Gallon

B = Glass WM, Clear, 16 oz

C = Glass WM, Clear, 8 oz

8081B Pest (PSDDA)	23-Jul-2024 15:00	10	15-Jul-2024 23:59	Use Version
8082A PCB Solid 4	23-Jul-2024 15:00	10	15-Jul-2024 23:59	
8270E SVOA and SIM SVOA dual scan	23-Jul-2024 15:00	10	15-Jul-2024 12:10	
8270E-SIM Butyl Tins	23-Jul-2024 15:00	10	15-Jul-2024 23:59	
Carbon, 9060A m Solid	23-Jul-2024 15:00	10	29-Jul-2024 23:59	
Freeze and Hold Org - Met- Conv - Shar	23-Jul-2024 15:00	10	01-Jul-2025 12:10	
Metals, DMMP 2021 (Solid)	23-Jul-2024 15:00	10	28-Dec-2024 12:10	
Solids, Total Volatile (TVS) PSEP	23-Jul-2024 15:00	10	06-Aug-2024 23:59	
Solids, Total, Dried at 103 -105 °C, Soli	23-Jul-2024 15:00	10	29-Jul-2024 23:59	

24G0181-05 113733-SB2S13 [Solid] Sampled 01-Jul-2024 10:40 (GMT-08:00)

Pacific Time (US & Canada)

A = Ziploc Bag, Gallon

B = Glass WM, Clear, 16 oz

C = Glass WM, Clear, 8 oz

8081B Pest (PSDDA)	23-Jul-2024 15:00	10	15-Jul-2024 23:59	Use Version
8082A PCB Solid 4	23-Jul-2024 15:00	10	15-Jul-2024 23:59	
8270E SVOA and SIM SVOA dual scan	23-Jul-2024 15:00	10	15-Jul-2024 10:40	
8270E-SIM Butyl Tins	23-Jul-2024 15:00	10	15-Jul-2024 23:59	
Carbon, 9060A m Solid	23-Jul-2024 15:00	10	29-Jul-2024 23:59	
Freeze and Hold Org - Met- Conv - Shar	23-Jul-2024 15:00	10	01-Jul-2025 10:40	
Metals, DMMP 2021 (Solid)	23-Jul-2024 15:00	10	28-Dec-2024 10:40	
Solids, Total Volatile (TVS) PSEP	23-Jul-2024 15:00	10	06-Aug-2024 23:59	
Solids, Total, Dried at 103 -105 °C, Soli	23-Jul-2024 15:00	10	29-Jul-2024 23:59	



WORK ORDER

24G0181

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Shannon & Wilson, Inc

Project Manager: Susan Dunnihoo

Project: PAMP Sediments

Project Number: 113733

Analysis	Due	TAT	Expires	Comments

AmTest Laboratories

24G0181-01 113733-SB2S7 [Solid] Sampled 01-Jul-2024 11:35 (GMT-08:00)
Pacific Time (US & Canada)

A = Ziploc Bag, Gallon

Grainsize PSEP (Subc)	23-Jul-2024 15:00	10	31-Dec-2024 16:47

24G0181-02 113733-SB2S8 [Solid] Sampled 01-Jul-2024 11:55 (GMT-08:00)
Pacific Time (US & Canada)

A = Ziploc Bag, Gallon

Grainsize PSEP (Subc)	23-Jul-2024 15:00	10	31-Dec-2024 16:47

24G0181-03 113733-SB2S9 [Solid] Sampled 01-Jul-2024 12:05 (GMT-08:00)
Pacific Time (US & Canada)

A = Ziploc Bag, Gallon

Grainsize PSEP (Subc)	23-Jul-2024 15:00	10	31-Dec-2024 16:47

24G0181-04 113733-SB2S10 [Solid] Sampled 01-Jul-2024 12:10 (GMT-08:00)
Pacific Time (US & Canada)

A = Ziploc Bag, Gallon

Grainsize PSEP (Subc)	23-Jul-2024 15:00	10	31-Dec-2024 16:47

24G0181-05 113733-SB2S13 [Solid] Sampled 01-Jul-2024 10:40 (GMT-08:00)
Pacific Time (US & Canada)

A = Ziploc Bag, Gallon

Grainsize PSEP (Subc)	23-Jul-2024 15:00	10	31-Dec-2024 16:47

Analysis groups included in this work order

8270E SVOA and SIM SVOA dual scan (solid)

8270E-SIM Dual Scan SVI	Solids, Total, PSEP (Extrac	8270E SVOC (20ug/kg sol

Metals, DMMP 2021 (Solid)

Met 6020B - Pb	Met 6020B - Ag	Met 6020B - As UCT	Met 6020B - Cd UCT
Met 6020B - Cu UCT	Solids, Total, Metals Corre	Met 6020B - Sb	Met 6020B - Se UCT
Met 6020B - Zn UCT	Met 7471B Hg	Metals Prep Hg	Metals Prep ICPMS
Met 6020B - Cr			

Reviewed By

Date

Page 4 of 4



Cooler Receipt Form

ARI Client: Shannon + Wilson Inc

Project Name: PAMP SEDIMENT

COC No(s): NA

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: 24G0181

Tracking No: _____ NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler? YES NO

Were custody papers included with the cooler? YES NO

Were custody papers properly filled out (ink, signed, etc.) YES NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 11:37 3.8

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: 8117

Cooler Accepted by: [Signature] Date: 7/9/24 Time: 11:37

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES NO

What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____

Was sufficient ice used (if appropriate)? NA YES NO

How were bottles sealed in plastic bags? Individually Grouped Not

Did all bottles arrive in good condition (unbroken)? YES NO

Were all bottle labels complete and legible? YES NO

Did the number of containers listed on COC match with the number of containers received? YES NO

Did all bottle labels and tags agree with custody papers? YES NO

Were all bottles used correct for the requested analyses? YES NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs) ... NA YES NO

Were all VOC vials free of air bubbles? NA YES NO

Was sufficient amount of sample sent in each bottle? YES NO

Date VOC Trip Blank was made at ARI NA

Were the sample(s) split by ARI? NA YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: RL Date: 7-9-24 Time: 15:19 Labels checked by: _____

**** Notify Project Manager of discrepancies or concerns ****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: _____ Date: _____

Am Test Inc.
13600 NE 126th Place Suite C
Kirkland, WA
(425) 885-1664
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***Professional
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September 18, 2024

Susan Dunnihoo
4611 S 134th Pl Suite 100
Tukwila, WA 98168

Project: ARI GRAIN SIZES
Project Number: 24G0181
Project Manager: Susan Dunnihoo
RE: ARI GRAIN SIZES

Enclosed are the results of analyses for samples received by our laboratory on 7/11/2024.
Please feel free to contact me with any questions or considerations regarding this report.

Sincerely,

A handwritten signature in black ink that reads "Aaron Young". The signature is fluid and cursive, with the first name "Aaron" and the last name "Young" clearly distinguishable.

ElementStationManager For Aaron Young
President

Am Test Inc.
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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 09/18/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0181

Reported Samples

Lab ID	Sample	Matrix	Qualifiers	Date Sampled	Date Received
A24G0248-01	24G0181-01	Solid		07/01/2024	07/11/2024
A24G0248-02	24G0181-02	Solid		07/01/2024	07/11/2024
A24G0248-03	24G0181-03	Solid		07/01/2024	07/11/2024
A24G0248-04	24G0181-04	Solid		07/01/2024	07/11/2024
A24G0248-05	24G0181-05	Solid		07/01/2024	07/11/2024

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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 09/18/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0181

AMTEST Identification Number: A24G0248-01
Client Identification: 24G0181-01
Sampling Date: 07/01/24 11:35

Conventional Chemistry Parameters by APHA/EPA Methods

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
% Solids	77.6	%			SM 2540G_2011	HV	09/10/2024

Full Grain Size (Hydrometer/Sieve)

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
PHI -2.25 (4.75 mm) Gravel	0.100	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI -2.00 (4.00 mm)	ND	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI -1.00 (2.00 mm)	ND	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI 0.00 (1.00 mm) Sand	ND	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +1.00 (0.50 mm)	0.100	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +2.00 (0.25 mm)	ND	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +3.00 (0.125 mm)	0.500	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +4.00 (0.063 mm)	4.40	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +5.00 (0.032 mm) Silt	54.8	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +6.00 (0.016 mm)	14.5	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +7.00 (0.008 mm)	7.00	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +8.00 (0.004 mm)	4.20	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +9.00 (0.002 mm) Clay	2.90	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +10.0 (0.001 mm)	1.70	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI >10.0 (< 0.001 mm)	9.80	%		0.100	PSEP 1986 P.9	HV	09/10/2024

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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 09/18/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0181

AMTEST Identification Number: A24G0248-02
Client Identification: 24G0181-02
Sampling Date: 07/01/24 11:55

Conventional Chemistry Parameters by APHA/EPA Methods

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
% Solids	73.6	%			SM 2540G_2011	HV	09/10/2024

Full Grain Size (Hydrometer/Sieve)

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
PHI -2.25 (4.75 mm) Gravel	ND	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI -2.00 (4.00 mm)	ND	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI -1.00 (2.00 mm)	ND	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI 0.00 (1.00 mm) Sand	0.100	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +1.00 (0.50 mm)	ND	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +2.00 (0.25 mm)	ND	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +3.00 (0.125 mm)	0.200	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +4.00 (0.063 mm)	3.90	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +5.00 (0.032 mm) Silt	54.9	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +6.00 (0.016 mm)	15.3	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +7.00 (0.008 mm)	7.40	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +8.00 (0.004 mm)	3.90	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +9.00 (0.002 mm) Clay	2.90	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI +10.0 (0.001 mm)	1.80	%		0.100	PSEP 1986 P.9	HV	09/10/2024
PHI >10.0 (< 0.001 mm)	9.60	%		0.100	PSEP 1986 P.9	HV	09/10/2024

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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 09/18/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0181

AMTEST Identification Number: A24G0248-03
Client Identification: 24G0181-03
Sampling Date: 07/01/24 12:05

Conventional Chemistry Parameters by APHA/EPA Methods

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
% Solids	74.2	%			SM 2540G_2011	HV	09/16/2024

Full Grain Size (Hydrometer/Sieve)

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
PHI -2.25 (4.75 mm) Gravel	8.30	%		0.100	PSEP 1986 P.9	HV	09/16/2024
PHI -2.00 (4.00 mm)	0.200	%		0.100	PSEP 1986 P.9	HV	09/16/2024
PHI -1.00 (2.00 mm)	0.400	%		0.100	PSEP 1986 P.9	HV	09/16/2024
PHI 0.00 (1.00 mm) Sand	0.900	%		0.100	PSEP 1986 P.9	HV	09/16/2024
PHI +1.00 (0.50 mm)	1.00	%		0.100	PSEP 1986 P.9	HV	09/16/2024
PHI +2.00 (0.25 mm)	2.70	%		0.100	PSEP 1986 P.9	HV	09/16/2024
PHI +3.00 (0.125 mm)	2.90	%		0.100	PSEP 1986 P.9	HV	09/16/2024
PHI +4.00 (0.063 mm)	11.1	%		0.100	PSEP 1986 P.9	HV	09/16/2024
PHI +5.00 (0.032 mm) Silt	42.2	%		0.100	PSEP 1986 P.9	HV	09/16/2024
PHI +6.00 (0.016 mm)	11.8	%		0.100	PSEP 1986 P.9	HV	09/16/2024
PHI +7.00 (0.008 mm)	5.70	%		0.100	PSEP 1986 P.9	HV	09/16/2024
PHI +8.00 (0.004 mm)	1.80	%		0.100	PSEP 1986 P.9	HV	09/16/2024
PHI +9.00 (0.002 mm) Clay	2.10	%		0.100	PSEP 1986 P.9	HV	09/16/2024
PHI +10.0 (0.001 mm)	1.40	%		0.100	PSEP 1986 P.9	HV	09/16/2024
PHI >10.0 (< 0.001 mm)	7.60	%		0.100	PSEP 1986 P.9	HV	09/16/2024

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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 09/18/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0181

AMTEST Identification Number: A24G0248-04
Client Identification: 24G0181-04
Sampling Date: 07/01/24 12:10

Conventional Chemistry Parameters by APHA/EPA Methods

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
% Solids	81.4	%			SM 2540G_2011	HV	09/16/2024

Full Grain Size (Hydrometer/Sieve)

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
PHI -2.25 (4.75 mm) Gravel	13.4	%		0.100	PSEP 1986 P.9	HV	09/16/2024
PHI -2.00 (4.00 mm)	2.10	%		0.100	PSEP 1986 P.9	HV	09/16/2024
PHI -1.00 (2.00 mm)	3.90	%		0.100	PSEP 1986 P.9	HV	09/16/2024
PHI 0.00 (1.00 mm) Sand	3.60	%		0.100	PSEP 1986 P.9	HV	09/16/2024
PHI +1.00 (0.50 mm)	3.70	%		0.100	PSEP 1986 P.9	HV	09/16/2024
PHI +2.00 (0.25 mm)	9.60	%		0.100	PSEP 1986 P.9	HV	09/16/2024
PHI +3.00 (0.125 mm)	4.70	%		0.100	PSEP 1986 P.9	HV	09/16/2024
PHI +4.00 (0.063 mm)	7.70	%		0.100	PSEP 1986 P.9	HV	09/16/2024
PHI +5.00 (0.032 mm) Silt	20.6	%		0.100	PSEP 1986 P.9	HV	09/16/2024
PHI +6.00 (0.016 mm)	7.90	%		0.100	PSEP 1986 P.9	HV	09/16/2024
PHI +7.00 (0.008 mm)	7.00	%		0.100	PSEP 1986 P.9	HV	09/16/2024
PHI +8.00 (0.004 mm)	2.70	%		0.100	PSEP 1986 P.9	HV	09/16/2024
PHI +9.00 (0.002 mm) Clay	3.10	%		0.100	PSEP 1986 P.9	HV	09/16/2024
PHI +10.0 (0.001 mm)	1.90	%		0.100	PSEP 1986 P.9	HV	09/16/2024
PHI >10.0 (< 0.001 mm)	7.90	%		0.100	PSEP 1986 P.9	HV	09/16/2024

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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 09/18/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0181

AMTEST Identification Number: A24G0248-05
Client Identification: 24G0181-05
Sampling Date: 07/01/24 10:40

Conventional Chemistry Parameters by APHA/EPA Methods

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
% Solids	80.7	%			SM 2540G_2011	HV	09/16/2024

Full Grain Size (Hydrometer/Sieve)

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
PHI -2.25 (4.75 mm) Gravel	ND	%		0.100	PSEP 1986 P.9	HV	09/16/2024
PHI -2.00 (4.00 mm)	0.100	%		0.100	PSEP 1986 P.9	HV	09/16/2024
PHI -1.00 (2.00 mm)	ND	%		0.100	PSEP 1986 P.9	HV	09/16/2024
PHI 0.00 (1.00 mm) Sand	ND	%		0.100	PSEP 1986 P.9	HV	09/16/2024
PHI +1.00 (0.50 mm)	0.100	%		0.100	PSEP 1986 P.9	HV	09/16/2024
PHI +2.00 (0.25 mm)	0.400	%		0.100	PSEP 1986 P.9	HV	09/16/2024
PHI +3.00 (0.125 mm)	0.400	%		0.100	PSEP 1986 P.9	HV	09/16/2024
PHI +4.00 (0.063 mm)	3.60	%		0.100	PSEP 1986 P.9	HV	09/16/2024
PHI +5.00 (0.032 mm) Silt	51.0	%		0.100	PSEP 1986 P.9	HV	09/16/2024
PHI +6.00 (0.016 mm)	21.1	%		0.100	PSEP 1986 P.9	HV	09/16/2024
PHI +7.00 (0.008 mm)	8.20	%		0.100	PSEP 1986 P.9	HV	09/16/2024
PHI +8.00 (0.004 mm)	3.40	%		0.100	PSEP 1986 P.9	HV	09/16/2024
PHI +9.00 (0.002 mm) Clay	3.00	%		0.100	PSEP 1986 P.9	HV	09/16/2024
PHI +10.0 (0.001 mm)	1.90	%		0.100	PSEP 1986 P.9	HV	09/16/2024
PHI >10.0 (< 0.001 mm)	6.70	%		0.100	PSEP 1986 P.9	HV	09/16/2024

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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 09/18/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0181

Quality Control

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBI0132 - No Prep - WC Soil										
Duplicate (BBI0132-DUP1)			Source: A24G0246-04		Prepared & Analyzed: 09/10/24					
% Solids	75.4			%		75.4			0.07	20
Duplicate (BBI0132-DUP2)			Source: A24G0246-04		Prepared & Analyzed: 09/10/24					
% Solids	75.2			%		75.4			0.3	20
Duplicate (BBI0132-DUP3)			Source: A24G0248-02		Prepared & Analyzed: 09/10/24					
% Solids	73.4			%		73.6			0.3	20
Duplicate (BBI0132-DUP4)			Source: A24G0248-02		Prepared & Analyzed: 09/10/24					
% Solids	72.9			%		73.6			1	20
Batch: BBI0225 - No Prep - WC Soil										
Duplicate (BBI0225-DUP1)			Source: A24G0331-07		Prepared & Analyzed: 09/16/24					
% Solids	79.1			%		79.5			0.5	20
Duplicate (BBI0225-DUP2)			Source: A24G0331-07		Prepared & Analyzed: 09/16/24					
% Solids	78.7			%		79.5			1	20
Duplicate (BBI0225-DUP3)			Source: A24G0335-01		Prepared & Analyzed: 09/16/24					
% Solids	65.7			%		67.0			2	20
Duplicate (BBI0225-DUP4)			Source: A24G0335-01		Prepared & Analyzed: 09/16/24					
% Solids	74.3			%		67.0			10	20

Quality Control

Full Grain Size (Hydrometer/Sieve)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBI0168 - Hydrometer/Sieve										
Duplicate (BBI0168-DUP1)			Source: A24G0248-02		Prepared & Analyzed: 09/10/24					

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Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0181

Date Received: 07/11/24
Date Reported: 09/18/24

Quality Control
(Continued)

Full Grain Size (Hydrometer/Sieve) (Continued)

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

Batch: BBI0168 - Hydrometer/Sieve (Continued)

Duplicate (BBI0168-DUP1)			Source: A24G0248-02			Prepared & Analyzed: 09/10/24				
PHI +1.00 (0.50 mm)	0.100		0.100	%		ND			200	200
PHI +10.0 (0.001 mm)	1.80		0.100	%		1.80			0	200
PHI +2.00 (0.25 mm)	0.100		0.100	%		ND			200	200
PHI +3.00 (0.125 mm)	0.300		0.100	%		0.200			40	200
PHI +4.00 (0.063 mm)	4.40		0.100	%		3.90			12	200
PHI +5.00 (0.032 mm) Silt	50.0		0.100	%		54.9			9	200
PHI +6.00 (0.016 mm)	18.8		0.100	%		15.3			21	200
PHI +7.00 (0.008 mm)	7.60		0.100	%		7.40			3	200
PHI +8.00 (0.004 mm)	2.90		0.100	%		3.90			29	200
PHI +9.00 (0.002 mm) Clay	2.80		0.100	%		2.90			4	200
PHI >10.0 (< 0.001 mm)	9.60		0.100	%		9.60			0	200
PHI 0.00 (1.00 mm) Sand	0.100		0.100	%		0.100			0	200
PHI -1.00 (2.00 mm)	0.300		0.100	%		ND			200	200
PHI -2.00 (4.00 mm)	ND		0.100	%		ND				200
PHI -2.25 (4.75 mm) Gravel	1.10		0.100	%		ND			200	200

Duplicate (BBI0168-DUP2)			Source: A24G0248-02			Prepared & Analyzed: 09/10/24				
PHI +1.00 (0.50 mm)	ND		0.100	%		ND				200
PHI +10.0 (0.001 mm)	0.700		0.100	%		1.80			88	200
PHI +2.00 (0.25 mm)	0.100		0.100	%		ND			200	200
PHI +3.00 (0.125 mm)	0.400		0.100	%		0.200			67	200
PHI +4.00 (0.063 mm)	5.30		0.100	%		3.90			30	200
PHI +5.00 (0.032 mm) Silt	54.8		0.100	%		54.9			0.2	200
PHI +6.00 (0.016 mm)	15.8		0.100	%		15.3			3	200
PHI +7.00 (0.008 mm)	8.00		0.100	%		7.40			8	200
PHI +8.00 (0.004 mm)	3.80		0.100	%		3.90			3	200
PHI +9.00 (0.002 mm) Clay	1.60		0.100	%		2.90			58	200
PHI >10.0 (< 0.001 mm)	9.20		0.100	%		9.60			4	200
PHI 0.00 (1.00 mm) Sand	ND		0.100	%		0.100			200	200
PHI -1.00 (2.00 mm)	0.100		0.100	%		ND			200	200
PHI -2.00 (4.00 mm)	ND		0.100	%		ND				200
PHI -2.25 (4.75 mm) Gravel	0.100		0.100	%		ND			200	200

Batch: BBI0240 - Hydrometer/Sieve

Duplicate (BBI0240-DUP1)	Source: A24G0331-07	Prepared & Analyzed: 09/16/24



Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0181

Date Received: 07/11/24
Date Reported: 09/18/24

Quality Control
(Continued)

Full Grain Size (Hydrometer/Sieve) (Continued)

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

Batch: BBI0240 - Hydrometer/Sieve (Continued)

Duplicate (BBI0240-DUP1)			Source: A24G0331-07			Prepared & Analyzed: 09/16/24				
PHI +1.00 (0.50 mm)	0.300		0.100	%		0.200			40	200
PHI +10.0 (0.001 mm)	ND		0.100	%		0.300			200	200
PHI +2.00 (0.25 mm)	65.4		0.100	%		53.9			19	200
PHI +3.00 (0.125 mm)	25.6		0.100	%		35.9			33	200
PHI +4.00 (0.063 mm)	4.50		0.100	%		5.00			11	200
PHI +5.00 (0.032 mm) Silt	0.300		0.100	%		1.00			108	200
PHI +6.00 (0.016 mm)	ND		0.100	%		ND				200
PHI +7.00 (0.008 mm)	0.700		0.100	%		ND			200	200
PHI +8.00 (0.004 mm)	0.600		0.100	%		0.500			18	200
PHI +9.00 (0.002 mm) Clay	ND		0.100	%		0.500			200	200
PHI >10.0 (< 0.001 mm)	2.50		0.100	%		2.40			4	200
PHI 0.00 (1.00 mm) Sand	0.100		0.100	%		0.100			0	200
PHI -1.00 (2.00 mm)	0.100		0.100	%		0.100			0	200
PHI -2.00 (4.00 mm)	ND		0.100	%		ND				200
PHI -2.25 (4.75 mm) Gravel	ND		0.100	%		ND				200

Duplicate (BBI0240-DUP2)			Source: A24G0331-07			Prepared & Analyzed: 09/16/24				
PHI +1.00 (0.50 mm)	0.400		0.100	%		0.200			67	200
PHI +10.0 (0.001 mm)	ND		0.100	%		0.300			200	200
PHI +2.00 (0.25 mm)	63.7		0.100	%		53.9			17	200
PHI +3.00 (0.125 mm)	25.8		0.100	%		35.9			33	200
PHI +4.00 (0.063 mm)	5.20		0.100	%		5.00			4	200
PHI +5.00 (0.032 mm) Silt	0.400		0.100	%		1.00			86	200
PHI +6.00 (0.016 mm)	ND		0.100	%		ND				200
PHI +7.00 (0.008 mm)	0.300		0.100	%		ND			200	200
PHI +8.00 (0.004 mm)	0.800		0.100	%		0.500			46	200
PHI +9.00 (0.002 mm) Clay	0.100		0.100	%		0.500			133	200
PHI >10.0 (< 0.001 mm)	2.50		0.100	%		2.40			4	200
PHI 0.00 (1.00 mm) Sand	0.200		0.100	%		0.100			67	200
PHI -1.00 (2.00 mm)	0.200		0.100	%		0.100			67	200
PHI -2.00 (4.00 mm)	0.300		0.100	%		ND			200	200
PHI -2.25 (4.75 mm) Gravel	0.300		0.100	%		ND			200	200

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ANALYSIS REPORT

Date Received: 07/11/24
Date Reported: 09/18/24

Analytical Resources LLC
4611 S 134th Pl Suite 100
Tukwila, WA 98168
Attention: Susan Dunnihoo
Project Name: ARI GRAIN SIZES
Project #: 24G0181

Notes and Definitions

Item	Definition
Dry	Sample results reported on a dry weight basis.
ND	Analyte NOT DETECTED at or above the reporting limit.
RPD	Relative Percent Difference
%REC	Percent Recovery
Source	Sample that was matrix spiked or duplicated.



Analytical Resources, LLC
Analytical Chemists and Consultants

A24G0248

SUBCONTRACT ORDER
To: AmTest Laboratories
ARI Work Order:24G0181

SENDING LABORATORY:

Analytical Resources, LLC
4611 S. 134th Place, Suite 100
Tukwila, WA 98168
Phone: (206) 695-6200
Fax: (206) 695-6202
Project Manager: Susan Dunnihoo
E-Mail: sue.dunnihoo@arilabs.com

RECEIVING LABORATORY:

AmTest Laboratories
13600 NE 126th Pl Suite C
Kirkland, WA 98034
Phone :425-885-1664
Fax: -

PLEASE SEND DATA AND INVOICE TO subdata@arilabs.com

Analysis	Due	Expires	Sub Laboratory ID	Comments
Sample ID: 24G0181-01				
Sampled: 07/01/24 11:35	Matrix: Solid		01	
Grainsize PSEP (Subc)	07/23/24	12/31/24 04:23		
<i>Containers Supplied:</i>				
24G0181-01 A				
Ziploc Bag, Gallon				
Sample ID: 24G0181-02				
Sampled: 07/01/24 11:55	Matrix: Solid		02	
Grainsize PSEP (Subc)	07/23/24	12/31/24 04:43		
<i>Containers Supplied:</i>				
24G0181-02 A				
Ziploc Bag, Gallon				
Sample ID: 24G0181-03				
Sampled: 07/01/24 12:05	Matrix: Solid		03	
Grainsize PSEP (Subc)	07/23/24	12/31/24 04:53		
<i>Containers Supplied:</i>				
24G0181-03 A				
Ziploc Bag, Gallon				
Sample ID: 24G0181-04				
Sampled: 07/01/24 12:10	Matrix: Solid		04	
Grainsize PSEP (Subc)	07/23/24	12/31/24 04:58		
<i>Containers Supplied:</i>				
24G0181-04 A				
Ziploc Bag, Gallon				

1.2°C

Released By *Matt DeW* 07/11/24 1245 Received By *SF* 7/11/24 1245

Released By _____ Date _____ Received By _____ Date _____



SUBCONTRACT ORDER
To: AmTest Laboratories
ARI Work Order:24G0181

Analysis	Due	Expires	Sub Laboratory ID	Comments
Sample ID: 24G0181-05 Sampled: 07/01/24 10:40 Matrix: Solid			05	
Grainsize PSEP (Subc)	07/23/24	12/31/24 03:28		

Containers Supplied:

24G0181-05 A
Ziploc Bag, Gallon

1.2°C

Released By Mattie Davis Date 07/17/24 1245 Received By SF Date 7/11/24 1245

Released By _____ Date _____ Received By _____ Date _____



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
18-Sep-2024 17:06

113733-SB2S7
24G0181-01 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/01/2024 11:35

Instrument: NT10 Analyst: RJL

Analyzed: 07/31/2024 20:18

Sample Preparation: Preparation Method: EPA 3546 (Microwave)
Preparation Batch: BMG0256
Prepared: 07/12/2024

Sample Size: 12.98 g (wet)
Final Volume: 1 mL

Extract ID: 24G0181-01 B 04
Dry Weight: 10.00 g
% Solids: 77.03

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	10.0	20.0	ND	ug/kg	U
bis(2-chloroethyl) ether	111-44-4	1	35.0	50.0	ND	ug/kg	U
2-Chlorophenol	95-57-8	1	20.0	20.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	10.0	20.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	10.0	20.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	10.0	20.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	20.0	20.0	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	10.0	20.0	ND	ug/kg	U
2-Methylphenol	95-48-7	1	10.0	20.0	ND	ug/kg	U
Hexachloroethane	67-72-1	1	10.0	20.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	15.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	15.0	20.0	ND	ug/kg	U
Nitrobenzene	98-95-3	1	10.0	20.0	ND	ug/kg	U
Isophorone	78-59-1	1	15.0	20.0	ND	ug/kg	U
2-Nitrophenol	88-75-5	1	10.0	20.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	50.0	100	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	1	10.0	20.0	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	1	50.0	100	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	10.0	20.0	ND	ug/kg	U
Naphthalene	91-20-3	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	100	200	ND	ug/kg	U
4-Chloroaniline	106-47-8	1	50.0	100	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	10.0	20.0	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	1	50.0	100	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	10.0	20.0	13.8	ug/kg	J
Hexachlorocyclopentadiene	77-47-4	1	50.0	100	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	1	50.0	100	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	1	50.0	100	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	1	10.0	20.0	ND	ug/kg	U
2-Nitroaniline	88-74-4	1	50.0	100	ND	ug/kg	U
Acenaphthylene	208-96-8	1	10.0	20.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	10.0	20.0	ND	ug/kg	U



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
18-Sep-2024 17:06

113733-SB2S7
24G0181-01 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/01/2024 11:35

Instrument: NT10 Analyst: RJL

Analyzed: 07/31/2024 20:18

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2,6-Dinitrotoluene	606-20-2	1	50.0	100	ND	ug/kg	U
Acenaphthene	83-32-9	1	10.0	20.0	ND	ug/kg	U
3-Nitroaniline	99-09-2	1	50.0	100	ND	ug/kg	U
2,4-Dinitrophenol	51-28-5	1	100	200	ND	ug/kg	U
Dibenzofuran	132-64-9	1	20.0	20.0	ND	ug/kg	U
4-Nitrophenol	100-02-7	1	50.0	100	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	1	50.0	100	ND	ug/kg	U
Fluorene	86-73-7	1	20.0	20.0	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	1	35.0	50.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	35.0	50.0	ND	ug/kg	U
4-Nitroaniline	100-01-6	1	50.0	100	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	1	100	200	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	10.0	20.0	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	1	20.0	20.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	20.0	20.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	50.0	100	ND	ug/kg	U
Phenanthrene	85-01-8	1	10.0	20.0	ND	ug/kg	U
Anthracene	120-12-7	1	10.0	20.0	ND	ug/kg	U
Carbazole	86-74-8	1	10.0	20.0	ND	ug/kg	U
Di-n-Butylphthalate	84-74-2	1	10.0	20.0	ND	ug/kg	U
Fluoranthene	206-44-0	1	10.0	20.0	ND	ug/kg	U
Pyrene	129-00-0	1	10.0	20.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	10.0	20.0	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	1	10.0	20.0	ND	ug/kg	U
3,3'-Dichlorobenzidine	91-94-1	1	50.0	100	ND	ug/kg	U
Chrysene	218-01-9	1	10.0	20.0	ND	ug/kg	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	40.0	50.0	ND	ug/kg	U
Di-n-Octylphthalate	117-84-0	1	10.0	20.0	ND	ug/kg	U
Benzo(a)fluoranthene, Total		1	30.0	40.0	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	10.0	20.0	ND	ug/kg	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	20.0	20.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	20.0	20.0	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	20.0	20.0	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	10.0	20.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	84.6	%	
Surrogate: Phenol-d5				29-120 %	81.7	%	
Surrogate: 2-Chlorophenol-d4				31-120 %	85.5	%	



Shannon & Wilson, Inc

5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

18-Sep-2024 17:06

113733-SB2S7

24G0181-01 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/01/2024 11:35

Instrument: NT10 Analyst: RJL

Analyzed: 07/31/2024 20:18

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: 1,2-Dichlorobenzene-d4		32-120 %	80.2	%	
Surrogate: Nitrobenzene-d5		30-120 %	88.5	%	
Surrogate: 2-Fluorobiphenyl		35-120 %	82.7	%	
Surrogate: 2,4,6-Tribromophenol		24-134 %	84.2	%	
Surrogate: p-Terphenyl-d14		37-120 %	101	%	



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Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
18-Sep-2024 17:06

113733-SB2S7
24G0181-01 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM

Sampled: 07/01/2024 11:35

Instrument: NT10 Analyst: RJL

Analyzed: 07/31/2024 20:18

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0181-01 B 04

Preparation Batch: BMG0256

Sample Size: 12.98 g (wet)

Dry Weight: 10.00 g

Prepared: 07/12/2024

Final Volume: 1 mL

% Solids: 77.03

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	2.5	5.0	2.5	ug/kg	J
1,3-Dichlorobenzene	541-73-1	1	2.5	5.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	2.5	5.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	2.5	5.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	50.0	100	ND	ug/kg	U
2-Methylphenol	95-48-7	1	2.5	5.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	10.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	2.5	5.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	10.0	20.0	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	5.0	5.0	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	2.5	5.0	ND	ug/kg	U
N-Nitrosodimethylamine	62-75-9	1	12.5	25.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	2.5	5.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	10.0	20.0	16.0	ug/kg	J
N-Nitrosodiphenylamine	86-30-6	1	2.5	5.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	2.5	5.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	10.0	20.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	2.5	5.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	2.5	5.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	82.1	%	
Surrogate: p-Terphenyl-d14				37-120 %	97.2	%	Q



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
18-Sep-2024 17:06

113733-SB2S7
24G0181-01 (Solid)

Butyl Tins

Method: EPA 8270E-SIM			Sampled: 07/01/2024 11:35		
Instrument: NT17 Analyst: JZ			Analyzed: 07/23/2024 17:49		
Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 24G0181-01 B 03		
	Preparation Batch: BMG0255		Dry Weight: 5.01 g		
	Prepared: 07/12/2024		% Solids: 77.03		
Sample Cleanup:	Sample Size: 6.5 g (wet)		Extract ID: 24G0181-01 B 03		
	Final Volume: 0.5 mL				
	Cleanup Method: Silica Gel				
	Cleanup Batch: CMG0156				
	Initial Volume: 0.5 uL				
	Cleaned: 22-Jul-2024				

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Tributyltin Ion	36643-28-4	1	1.93	3.85	ND	ug/kg	U
Surrogate: Triphenyltin				30-160 %	80.6	%	
Surrogate: Tripropyltin				30-160 %	66.3	%	



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Reported:
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113733-SB2S7
24G0181-01 (Solid)

Chlorinated Pesticides

Method: EPA 8081B			Sampled: 07/01/2024 11:35
Instrument: ECD6 Analyst: RT			Analyzed: 07/31/2024 22:18
Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 24G0181-01 B 02
	Preparation Batch: BMG0254	Sample Size: 16.23 g (wet)	
	Prepared: 07/12/2024	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 24G0181-01 B 02
	Cleanup Batch: CMG0208	Initial Volume: 2.5 uL	
	Cleaned: 30-Jul-2024	Final Volume: 2.5 uL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:24G0181-01 B 02
	Cleanup Batch: CMG0207	Initial Volume: 2.5 uL	
	Cleaned: 30-Jul-2024	Final Volume: 2.5 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.25	0.50	0.40	ug/kg	J
beta-BHC	319-85-7	1	0.25	0.50	ND	ug/kg	U
gamma-BHC (Lindane)	58-89-9	1	0.25	0.50	ND	ug/kg	U
delta-BHC	319-86-8	1	0.25	0.50	ND	ug/kg	U
Heptachlor	76-44-8	1	0.25	0.50	ND	ug/kg	U
Aldrin	309-00-2	1	0.50	0.50	ND	ug/kg	U
Heptachlor Epoxide	1024-57-3	1	0.25	0.50	ND	ug/kg	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.50	0.50	ND	ug/kg	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.25	0.50	ND	ug/kg	U
Endosulfan I	959-98-8	1	0.25	0.50	ND	ug/kg	U
4,4'-DDE	72-55-9	1	0.50	1.00	ND	ug/kg	U
Dieldrin	60-57-1	1	0.50	1.00	ND	ug/kg	U
Endrin	72-20-8	1	0.50	1.00	ND	ug/kg	U
Endosulfan II	33213-65-9	1	0.50	1.00	ND	ug/kg	U
4,4'-DDD	72-54-8	1	0.50	1.00	1.10	ug/kg	
Endrin Aldehyde	7421-93-4	1	0.50	1.00	ND	ug/kg	U
4,4'-DDT	50-29-3	1	0.50	1.00	ND	ug/kg	U
Endosulfan Sulfate	1031-07-8	1	0.50	1.00	ND	ug/kg	U
Endrin Ketone	53494-70-5	1	0.50	1.00	ND	ug/kg	U
Methoxychlor	72-43-5	1	2.50	5.00	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	0.25	0.50	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	0.25	0.50	ND	ug/kg	U
2,4'-DDE	3424-82-6	1	0.50	1.00	ND	ug/kg	U
2,4'-DDD	53-19-0	1	0.50	1.00	ND	ug/kg	U
2,4'-DDT	789-02-6	1	0.50	1.00	ND	ug/kg	U
Oxychlordane	27304-13-8	1	0.50	1.00	ND	ug/kg	U
cis-Nonachlor	5103-73-1	1	0.50	1.00	ND	ug/kg	U
trans-Nonachlor	39765-80-5	1	0.50	1.00	ND	ug/kg	U
Mirex	2385-85-5	1	1.00	1.00	ND	ug/kg	U



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Reported:
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113733-SB2S7
24G0181-01 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/01/2024 11:35

Instrument: ECD6 Analyst: RT

Analyzed: 07/31/2024 22:18

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Decachlorobiphenyl		30-160 %	96.5	%	
Surrogate: Decachlorobiphenyl [2C]		30-160 %	76.5	%	
Surrogate: Tetrachlorometaxylene		30-160 %	70.1	%	
Surrogate: Tetrachlorometaxylene [2C]		30-160 %	68.5	%	



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Reported:

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113733-SB2S7

24G0181-01 (Solid)

Aroclor PCB

Method: EPA 8082A

Sampled: 07/01/2024 11:35

Instrument: ECD5 Analyst: NRB

Analyzed: 07/25/2024 04:59

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 16.25 g (wet) Final Volume: 2.5 mL	Extract ID: 24G0181-01 B 01 Dry Weight: 12.52 g % Solids: 77.03
	Preparation Batch: BMG0250		
	Prepared: 07/15/2024		
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0181-01 B 01
	Cleanup Batch: CMG0171		
	Cleaned: 24-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfuric Acid	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0181-01 B 01
	Cleanup Batch: CMG0169		
	Cleaned: 24-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0181-01 B 01
	Cleanup Batch: CMG0170		
	Cleaned: 24-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	2.0	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	2.0	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	2.0	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	2.0	4.0	4.6	ug/kg	
Aroclor 1262	37324-23-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1268	11100-14-4	1	2.0	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl					40-126 %	75.0	%
Surrogate: Tetrachlorometaxylene					44-120 %	74.1	%
Surrogate: Decachlorobiphenyl [2C]					40-126 %	77.5	%
Surrogate: Tetrachlorometaxylene [2C]					44-120 %	72.1	%



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113733-SB2S7

24G0181-01 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED

Sampled: 07/01/2024 11:35

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 16:05

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0181-01 B 05

Preparation Batch: BMG0273

Sample Size: 1.009 g (wet)

Dry Weight: 0.77 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 76.67

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.05	0.26	13.3	mg/kg	
Cadmium	7440-43-9	20	0.04	0.13	0.12	mg/kg	J
Copper	7440-50-8	20	0.22	0.65	37.8	mg/kg	
Selenium	7782-49-2	20	0.23	0.65	1.01	mg/kg	
Zinc	7440-66-6	20	3.8	7.8	78.0	mg/kg	



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Reported:
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113733-SB2S7
24G0181-01 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B

Sampled: 07/01/2024 11:35

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 16:05

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0181-01 B 05

Preparation Batch: BMG0273

Sample Size: 1.009 g (wet)

Dry Weight: 0.77 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 76.67

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	20	0.13	0.26	ND	mg/kg	U
Chromium	7440-47-3	20	0.31	0.65	28.3	mg/kg	
Lead	7439-92-1	20	0.07	0.13	6.97	mg/kg	
Silver	7440-22-4	20	0.03	0.26	0.16	mg/kg	J



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Reported:

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113733-SB2S7

24G0181-01 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B

Sampled: 07/01/2024 11:35

Instrument: HYDRA Analyst: ML

Analyzed: 07/22/2024 12:31

Sample Preparation:

Preparation Method: SMM EPA 7471B

Extract ID: 24G0181-01 C

Preparation Batch: BMG0336

Sample Size: 0.238 g (wet)

Dry Weight: 0.18 g

Prepared: 07/18/2024

Final Volume: 50 mL

% Solids: 76.67

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00575	0.0274	0.0581	mg/kg	



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113733-SB2S7

24G0181-01 (Solid)

Wet Chemistry

Method: EPA 9060A m

Sampled: 07/01/2024 11:35

Instrument: Accumet AB150 Analyst: ARR

Analyzed: 08/08/2024 21:28

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0181-01 C

Preparation Batch: BMH0093

Sample Size: 0.5275 g (wet)

Dry Weight: 0.40 g

Prepared: 08/06/2024

Final Volume: 0.5275 mL

% Solids: 76.67

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.50	%	F



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Reported:
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113733-SB2S7
24G0181-01 (Solid)

Wet Chemistry

Method: PSEP 1986

Sampled: 07/01/2024 11:35

Instrument: BAL2 Analyst: LERB

Analyzed: 07/11/2024 15:26

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0181-01

Preparation Batch: BMG0281

Sample Size: 5 g (wet)

Prepared: 07/11/2024

Final Volume: 5 mL

% Solids: 76.67

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Volatile Solids		1	0.01	0.01	1.50	%	



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Reported:

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113733-SB2S7

24G0181-01 (Solid)

Wet Chemistry

Method: SM 2540 G-11

Sampled: 07/01/2024 11:35

Instrument: BAL2 Analyst: LERB

Analyzed: 07/11/2024 15:26

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0181-01

Preparation Batch: BMG0281

Sample Size: 5 g (wet)

Prepared: 07/11/2024

Final Volume: 5 mL

% Solids: 76.67

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	76.67	%	



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Project Manager: Dan McMahon

Reported:

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113733-SB2S8
24G0181-02 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/01/2024 11:55

Instrument: NT10 Analyst: RJL

Analyzed: 07/31/2024 20:58

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0181-02 B 04

Preparation Batch: BMG0256

Sample Size: 12.9 g (wet)

Dry Weight: 10.01 g

Prepared: 07/12/2024

Final Volume: 1 mL

% Solids: 77.63

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	10.0	20.0	ND	ug/kg	U
bis(2-chloroethyl) ether	111-44-4	1	35.0	49.9	ND	ug/kg	U
2-Chlorophenol	95-57-8	1	20.0	20.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	10.0	20.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	10.0	20.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	10.0	20.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	20.0	20.0	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	10.0	20.0	ND	ug/kg	U
2-Methylphenol	95-48-7	1	10.0	20.0	ND	ug/kg	U
Hexachloroethane	67-72-1	1	10.0	20.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	15.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	15.0	20.0	ND	ug/kg	U
Nitrobenzene	98-95-3	1	10.0	20.0	ND	ug/kg	U
Isophorone	78-59-1	1	15.0	20.0	ND	ug/kg	U
2-Nitrophenol	88-75-5	1	10.0	20.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	49.9	99.9	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	1	10.0	20.0	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	1	49.9	99.9	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	10.0	20.0	ND	ug/kg	U
Naphthalene	91-20-3	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	99.9	200	ND	ug/kg	U
4-Chloroaniline	106-47-8	1	49.9	99.9	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	10.0	20.0	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	1	49.9	99.9	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	10.0	20.0	ND	ug/kg	U
Hexachlorocyclopentadiene	77-47-4	1	49.9	99.9	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	1	49.9	99.9	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	1	49.9	99.9	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	1	10.0	20.0	ND	ug/kg	U
2-Nitroaniline	88-74-4	1	49.9	99.9	ND	ug/kg	U
Acenaphthylene	208-96-8	1	10.0	20.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	10.0	20.0	ND	ug/kg	U
2,6-Dinitrotoluene	606-20-2	1	49.9	99.9	ND	ug/kg	U
Acenaphthene	83-32-9	1	10.0	20.0	ND	ug/kg	U
3-Nitroaniline	99-09-2	1	49.9	99.9	ND	ug/kg	U



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Reported:
18-Sep-2024 17:06

113733-SB2S8
24G0181-02 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/01/2024 11:55

Instrument: NT10 Analyst: RJL

Analyzed: 07/31/2024 20:58

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2,4-Dinitrophenol	51-28-5	1	99.9	200	ND	ug/kg	U
Dibenzofuran	132-64-9	1	20.0	20.0	ND	ug/kg	U
4-Nitrophenol	100-02-7	1	49.9	99.9	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	1	49.9	99.9	ND	ug/kg	U
Fluorene	86-73-7	1	20.0	20.0	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	1	35.0	49.9	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	35.0	49.9	ND	ug/kg	U
4-Nitroaniline	100-01-6	1	49.9	99.9	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	1	99.9	200	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	10.0	20.0	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	1	20.0	20.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	20.0	20.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	49.9	99.9	ND	ug/kg	U
Phenanthrene	85-01-8	1	10.0	20.0	ND	ug/kg	U
Anthracene	120-12-7	1	10.0	20.0	ND	ug/kg	U
Carbazole	86-74-8	1	10.0	20.0	ND	ug/kg	U
Di-n-Butylphthalate	84-74-2	1	10.0	20.0	ND	ug/kg	U
Fluoranthene	206-44-0	1	10.0	20.0	ND	ug/kg	U
Pyrene	129-00-0	1	10.0	20.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	10.0	20.0	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	1	10.0	20.0	ND	ug/kg	U
3,3'-Dichlorobenzidine	91-94-1	1	49.9	99.9	ND	ug/kg	U
Chrysene	218-01-9	1	10.0	20.0	ND	ug/kg	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	39.9	49.9	ND	ug/kg	U
Di-n-Octylphthalate	117-84-0	1	10.0	20.0	ND	ug/kg	U
Benzo(a)fluoranthene, Total		1	30.0	39.9	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	10.0	20.0	ND	ug/kg	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	20.0	20.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	20.0	20.0	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	20.0	20.0	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	10.0	20.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	89.2	%	
Surrogate: Phenol-d5				29-120 %	88.2	%	
Surrogate: 2-Chlorophenol-d4				31-120 %	90.4	%	
Surrogate: 1,2-Dichlorobenzene-d4				32-120 %	88.1	%	
Surrogate: Nitrobenzene-d5				30-120 %	93.2	%	
Surrogate: 2-Fluorobiphenyl				35-120 %	88.3	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

18-Sep-2024 17:06

113733-SB2S8

24G0181-02 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/01/2024 11:55

Instrument: NT10 Analyst: RJL

Analyzed: 07/31/2024 20:58

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: 2,4,6-Tribromophenol		24-134 %	89.0	%	
Surrogate: p-Terphenyl-d14		37-120 %	104	%	



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Reported:
18-Sep-2024 17:06

113733-SB2S8
24G0181-02 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM

Sampled: 07/01/2024 11:55

Instrument: NT10 Analyst: RJL

Analyzed: 07/31/2024 20:58

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0181-02 B 04

Preparation Batch: BMG0256

Sample Size: 12.9 g (wet)

Dry Weight: 10.01 g

Prepared: 07/12/2024

Final Volume: 1 mL

% Solids: 77.63

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	2.5	5.0	3.0	ug/kg	J
1,3-Dichlorobenzene	541-73-1	1	2.5	5.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	2.5	5.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	2.5	5.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	49.9	99.9	ND	ug/kg	U
2-Methylphenol	95-48-7	1	2.5	5.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	10.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	2.5	5.0	3.0	ug/kg	J
2,4-Dimethylphenol	105-67-9	1	10.0	20.0	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	5.0	5.0	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	2.5	5.0	ND	ug/kg	U
N-Nitrosodimethylamine	62-75-9	1	12.5	25.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	2.5	5.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	10.0	20.0	17.2	ug/kg	J
N-Nitrosodiphenylamine	86-30-6	1	2.5	5.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	2.5	5.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	10.0	20.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	2.5	5.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	2.5	5.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	86.3	%	
Surrogate: p-Terphenyl-d14				37-120 %	109	%	Q



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
18-Sep-2024 17:06

113733-SB2S8
24G0181-02 (Solid)

Butyl Tins

Method: EPA 8270E-SIM
Instrument: NT17 Analyst: JZ

Sampled: 07/01/2024 11:55

Analyzed: 07/23/2024 18:29

Sample Preparation: Preparation Method: EPA 3546 (Microwave)
Preparation Batch: BMG0255
Prepared: 07/12/2024

Sample Size: 6.48 g (wet)

Final Volume: 0.5 mL

Extract ID: 24G0181-02 B 03

Dry Weight: 5.03 g

% Solids: 77.63

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CMG0156
Cleaned: 22-Jul-2024

Initial Volume: 0.5 uL

Final Volume: 0.5 uL

Extract ID: 24G0181-02 B 03

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Tributyltin Ion	36643-28-4	1	1.92	3.84	ND	ug/kg	U
Surrogate: Triphenyltin				30-160 %	69.1	%	
Surrogate: Tripropyltin				30-160 %	76.2	%	



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Project: PAMP Sediments

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Project Manager: Dan McMahon

Reported:

18-Sep-2024 17:06

113733-SB2S8
24G0181-02 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/01/2024 11:55

Instrument: ECD6 Analyst: RT

Analyzed: 07/31/2024 22:36

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 16.18 g (wet)	Extract ID: 24G0181-02 B 02
	Preparation Batch: BMG0254	Final Volume: 2.5 mL	Dry Weight: 12.56 g
	Prepared: 07/12/2024		% Solids: 77.63

Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL	Extract ID: 24G0181-02 B 02
	Cleanup Batch: CMG0208	Final Volume: 2.5 uL	
	Cleaned: 30-Jul-2024		

Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL	Extract ID: 24G0181-02 B 02
	Cleanup Batch: CMG0207	Final Volume: 2.5 uL	
	Cleaned: 30-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.25	0.50	0.34	ug/kg	J
beta-BHC	319-85-7	1	0.25	0.50	ND	ug/kg	U
gamma-BHC (Lindane)	58-89-9	1	0.25	0.50	ND	ug/kg	U
delta-BHC	319-86-8	1	0.25	0.50	ND	ug/kg	U
Heptachlor	76-44-8	1	0.25	0.50	ND	ug/kg	U
Aldrin	309-00-2	1	0.50	0.50	ND	ug/kg	U
Heptachlor Epoxide	1024-57-3	1	0.25	0.50	ND	ug/kg	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.50	0.50	ND	ug/kg	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.25	0.50	ND	ug/kg	U
Endosulfan I	959-98-8	1	0.25	0.50	ND	ug/kg	U
4,4'-DDE	72-55-9	1	0.50	1.00	ND	ug/kg	U
Dieldrin	60-57-1	1	0.50	1.00	ND	ug/kg	U
Endrin	72-20-8	1	0.50	1.00	ND	ug/kg	U
Endosulfan II	33213-65-9	1	0.50	1.00	ND	ug/kg	U
4,4'-DDD	72-54-8	1	0.50	1.00	2.75	ug/kg	P1
Endrin Aldehyde	7421-93-4	1	0.50	1.00	ND	ug/kg	U
4,4'-DDT	50-29-3	1	0.50	1.00	ND	ug/kg	U
Endosulfan Sulfate	1031-07-8	1	0.50	1.00	ND	ug/kg	U
Endrin Ketone	53494-70-5	1	0.50	1.00	ND	ug/kg	U
Methoxychlor	72-43-5	1	2.49	4.98	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	0.25	0.50	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	0.25	0.50	ND	ug/kg	U
2,4'-DDE	3424-82-6	1	0.50	1.00	ND	ug/kg	U
2,4'-DDD	53-19-0	1	0.50	1.00	1.08	ug/kg	
2,4'-DDT	789-02-6	1	0.50	1.00	ND	ug/kg	U
Oxychlordane	27304-13-8	1	0.50	1.00	ND	ug/kg	U
cis-Nonachlor	5103-73-1	1	0.50	1.00	ND	ug/kg	U
trans-Nonachlor	39765-80-5	1	0.50	1.00	ND	ug/kg	U
Mirex	2385-85-5	1	1.00	1.00	ND	ug/kg	U



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Reported:
18-Sep-2024 17:06

113733-SB2S8
24G0181-02 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/01/2024 11:55

Instrument: ECD6 Analyst: RT

Analyzed: 07/31/2024 22:36

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Decachlorobiphenyl		30-160 %	97.4	%	
Surrogate: Decachlorobiphenyl [2C]		30-160 %	82.6	%	
Surrogate: Tetrachlorometaxylene		30-160 %	74.4	%	
Surrogate: Tetrachlorometaxylene [2C]		30-160 %	67.3	%	



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Reported:
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113733-SB2S8
24G0181-02 (Solid)

Aroclor PCB

Method: EPA 8082A

Sampled: 07/01/2024 11:55

Instrument: ECD5 Analyst: NRB

Analyzed: 07/25/2024 05:20

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 16.1 g (wet) Final Volume: 2.5 mL	Extract ID: 24G0181-02 B 01 Dry Weight: 12.50 g % Solids: 77.63
	Preparation Batch: BMG0250		
	Prepared: 07/15/2024		
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0181-02 B 01
	Cleanup Batch: CMG0171		
	Cleaned: 24-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfuric Acid	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0181-02 B 01
	Cleanup Batch: CMG0169		
	Cleaned: 24-Jul-2024		
Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0181-02 B 01
	Cleanup Batch: CMG0170		
	Cleaned: 24-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	2.0	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	2.0	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	2.0	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1262	37324-23-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1268	11100-14-4	1	2.0	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				40-126 %	75.1	%	
Surrogate: Tetrachlorometaxylene				44-120 %	73.2	%	
Surrogate: Decachlorobiphenyl [2C]				40-126 %	75.1	%	
Surrogate: Tetrachlorometaxylene [2C]				44-120 %	69.9	%	



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Reported:

18-Sep-2024 17:06

113733-SB2S8

24G0181-02 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED

Sampled: 07/01/2024 11:55

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 16:09

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0181-02 B 05

Preparation Batch: BMG0273

Sample Size: 1.083 g (wet)

Dry Weight: 0.78 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 72.28

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.05	0.26	11.9	mg/kg	
Cadmium	7440-43-9	20	0.04	0.13	0.12	mg/kg	J
Copper	7440-50-8	20	0.22	0.64	33.8	mg/kg	
Selenium	7782-49-2	20	0.23	0.64	1.07	mg/kg	
Zinc	7440-66-6	20	3.7	7.7	72.4	mg/kg	



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Project: PAMP Sediments

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Reported:

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113733-SB2S8

24G0181-02 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B

Sampled: 07/01/2024 11:55

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 16:09

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0181-02 B 05

Preparation Batch: BMG0273

Sample Size: 1.083 g (wet)

Dry Weight: 0.78 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 72.28

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	20	0.13	0.26	ND	mg/kg	U
Chromium	7440-47-3	20	0.33	0.64	28.0	mg/kg	
Lead	7439-92-1	20	0.07	0.13	6.70	mg/kg	
Silver	7440-22-4	20	0.03	0.26	0.16	mg/kg	J



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Reported:
18-Sep-2024 17:06

113733-SB2S8
24G0181-02 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B

Sampled: 07/01/2024 11:55

Instrument: HYDRA Analyst: ML

Analyzed: 07/22/2024 12:34

Sample Preparation:

Preparation Method: SMM EPA 7471B

Extract ID: 24G0181-02 C

Preparation Batch: BMG0336

Sample Size: 0.223 g (wet)

Dry Weight: 0.16 g

Prepared: 07/18/2024

Final Volume: 50 mL

% Solids: 72.28

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00651	0.0310	0.0518	mg/kg	



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Reported:
18-Sep-2024 17:06

113733-SB2S8
24G0181-02 (Solid)

Wet Chemistry

Method: EPA 9060A m

Sampled: 07/01/2024 11:55

Instrument: Accumet AB150 Analyst: ARR

Analyzed: 08/08/2024 21:58

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0181-02 C

Preparation Batch: BMH0093

Sample Size: 0.5348 g (wet)

Dry Weight: 0.39 g

Prepared: 08/06/2024

Final Volume: 0.5348 mL

% Solids: 72.28

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.40	%	F



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Reported:
18-Sep-2024 17:06

113733-SB2S8
24G0181-02 (Solid)

Wet Chemistry

Method: PSEP 1986

Sampled: 07/01/2024 11:55

Instrument: BAL2 Analyst: LERB

Analyzed: 07/11/2024 15:26

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0181-02

Preparation Batch: BMG0281

Sample Size: 5 g (wet)

Prepared: 07/11/2024

Final Volume: 5 mL

% Solids: 72.28

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Volatile Solids		1	0.01	0.01	1.89	%	



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Project: PAMP Sediments

Project Number: 113733

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Reported:

18-Sep-2024 17:06

113733-SB2S8

24G0181-02 (Solid)

Wet Chemistry

Method: SM 2540 G-11

Sampled: 07/01/2024 11:55

Instrument: BAL2 Analyst: LERB

Analyzed: 07/11/2024 15:26

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0181-02

Preparation Batch: BMG0281

Sample Size: 5 g (wet)

Prepared: 07/11/2024

Final Volume: 5 mL

% Solids: 72.28

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	72.28	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

18-Sep-2024 17:06

113733-SB2S9
24G0181-03 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/01/2024 12:05

Instrument: NT10 Analyst: RJL

Analyzed: 07/31/2024 21:37

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0181-03 B 04

Preparation Batch: BMG0256

Sample Size: 10.58 g (wet)

Dry Weight: 10.04 g

Prepared: 07/12/2024

Final Volume: 1 mL

% Solids: 94.89

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	10.0	19.9	ND	ug/kg	U
bis(2-chloroethyl) ether	111-44-4	1	34.9	49.8	ND	ug/kg	U
2-Chlorophenol	95-57-8	1	19.9	19.9	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	10.0	19.9	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	10.0	19.9	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	10.0	19.9	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	19.9	19.9	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	10.0	19.9	ND	ug/kg	U
2-Methylphenol	95-48-7	1	10.0	19.9	ND	ug/kg	U
Hexachloroethane	67-72-1	1	10.0	19.9	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	14.9	19.9	ND	ug/kg	U
4-Methylphenol	106-44-5	1	14.9	19.9	ND	ug/kg	U
Nitrobenzene	98-95-3	1	10.0	19.9	ND	ug/kg	U
Isophorone	78-59-1	1	14.9	19.9	ND	ug/kg	U
2-Nitrophenol	88-75-5	1	10.0	19.9	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	49.8	99.6	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	1	10.0	19.9	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	1	49.8	99.6	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	10.0	19.9	ND	ug/kg	U
Naphthalene	91-20-3	1	10.0	19.9	ND	ug/kg	U
Benzoic acid	65-85-0	1	99.6	199	ND	ug/kg	U
4-Chloroaniline	106-47-8	1	49.8	99.6	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	10.0	19.9	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	1	49.8	99.6	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	10.0	19.9	ND	ug/kg	U
Hexachlorocyclopentadiene	77-47-4	1	49.8	99.6	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	1	49.8	99.6	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	1	49.8	99.6	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	1	10.0	19.9	ND	ug/kg	U
2-Nitroaniline	88-74-4	1	49.8	99.6	ND	ug/kg	U
Acenaphthylene	208-96-8	1	10.0	19.9	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	10.0	19.9	ND	ug/kg	U
2,6-Dinitrotoluene	606-20-2	1	49.8	99.6	ND	ug/kg	U
Acenaphthene	83-32-9	1	10.0	19.9	ND	ug/kg	U
3-Nitroaniline	99-09-2	1	49.8	99.6	ND	ug/kg	U



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
18-Sep-2024 17:06

113733-SB2S9
24G0181-03 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/01/2024 12:05

Instrument: NT10 Analyst: RJL

Analyzed: 07/31/2024 21:37

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2,4-Dinitrophenol	51-28-5	1	99.6	199	ND	ug/kg	U
Dibenzofuran	132-64-9	1	19.9	19.9	ND	ug/kg	U
4-Nitrophenol	100-02-7	1	49.8	99.6	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	1	49.8	99.6	ND	ug/kg	U
Fluorene	86-73-7	1	19.9	19.9	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	1	34.9	49.8	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	34.9	49.8	ND	ug/kg	U
4-Nitroaniline	100-01-6	1	49.8	99.6	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	1	99.6	199	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	10.0	19.9	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	1	19.9	19.9	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	19.9	19.9	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	49.8	99.6	ND	ug/kg	U
Phenanthrene	85-01-8	1	10.0	19.9	ND	ug/kg	U
Anthracene	120-12-7	1	10.0	19.9	ND	ug/kg	U
Carbazole	86-74-8	1	10.0	19.9	ND	ug/kg	U
Di-n-Butylphthalate	84-74-2	1	10.0	19.9	ND	ug/kg	U
Fluoranthene	206-44-0	1	10.0	19.9	ND	ug/kg	U
Pyrene	129-00-0	1	10.0	19.9	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	10.0	19.9	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	1	10.0	19.9	ND	ug/kg	U
3,3'-Dichlorobenzidine	91-94-1	1	49.8	99.6	ND	ug/kg	U
Chrysene	218-01-9	1	10.0	19.9	ND	ug/kg	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	39.8	49.8	ND	ug/kg	U
Di-n-Octylphthalate	117-84-0	1	10.0	19.9	ND	ug/kg	U
Benzo(a)fluoranthene, Total		1	29.9	39.8	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	10.0	19.9	ND	ug/kg	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	19.9	19.9	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	19.9	19.9	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	19.9	19.9	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	10.0	19.9	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	85.2	%	
Surrogate: Phenol-d5				29-120 %	82.3	%	
Surrogate: 2-Chlorophenol-d4				31-120 %	85.9	%	
Surrogate: 1,2-Dichlorobenzene-d4				32-120 %	83.8	%	
Surrogate: Nitrobenzene-d5				30-120 %	92.1	%	
Surrogate: 2-Fluorobiphenyl				35-120 %	84.5	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

18-Sep-2024 17:06

113733-SB2S9

24G0181-03 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/01/2024 12:05

Instrument: NT10 Analyst: RJL

Analyzed: 07/31/2024 21:37

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: 2,4,6-Tribromophenol		24-134 %	84.0	%	
Surrogate: p-Terphenyl-d14		37-120 %	108	%	



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Reported:
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113733-SB2S9
24G0181-03 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM

Sampled: 07/01/2024 12:05

Instrument: NT10 Analyst: RJL

Analyzed: 07/31/2024 21:37

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0181-03 B 04

Preparation Batch: BMG0256

Sample Size: 10.58 g (wet)

Dry Weight: 10.04 g

Prepared: 07/12/2024

Final Volume: 1 mL

% Solids: 94.89

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	2.5	5.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	2.5	5.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	2.5	5.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	2.5	5.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	10.0	19.9	ND	ug/kg	U
Benzoic acid	65-85-0	1	49.8	99.6	ND	ug/kg	U
2-Methylphenol	95-48-7	1	2.5	5.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	10.0	19.9	ND	ug/kg	U
4-Methylphenol	106-44-5	1	2.5	5.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	10.0	19.9	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	5.0	5.0	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	2.5	5.0	ND	ug/kg	U
N-Nitrosodimethylamine	62-75-9	1	12.5	24.9	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	2.5	5.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	10.0	19.9	11.8	ug/kg	J
N-Nitrosodiphenylamine	86-30-6	1	2.5	5.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	2.5	5.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	10.0	19.9	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	2.5	5.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	2.5	5.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	83.9	%	
Surrogate: p-Terphenyl-d14				37-120 %	105	%	Q



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Reported:
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113733-SB2S9
24G0181-03 (Solid)

Butyl Tins

Method: EPA 8270E-SIM			Sampled: 07/01/2024 12:05		
Instrument: NT17 Analyst: JZ			Analyzed: 07/23/2024 18:43		
Sample Preparation:	Preparation Method: EPA 3546 (Microwave)			Extract ID: 24G0181-03 B 03	
	Preparation Batch: BMG0255	Sample Size: 5.29 g (wet)		Dry Weight: 5.02 g	
	Prepared: 07/12/2024	Final Volume: 0.5 mL		% Solids: 94.89	
Sample Cleanup:	Cleanup Method: Silica Gel			Extract ID: 24G0181-03 B 03	
	Cleanup Batch: CMG0156	Initial Volume: 0.5 uL			
	Cleaned: 22-Jul-2024	Final Volume: 0.5 uL			

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Tributyltin Ion	36643-28-4	1	1.92	3.84	ND	ug/kg	U
Surrogate: Triphenyltin				30-160 %	73.1	%	
Surrogate: Tripropyltin				30-160 %	49.3	%	



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Reported:

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113733-SB2S9

24G0181-03 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/01/2024 12:05

Instrument: ECD6 Analyst: RT

Analyzed: 07/31/2024 22:54

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 13.17 g (wet)	Extract ID: 24G0181-03 B 02
	Preparation Batch: BMG0254	Final Volume: 2.5 mL	Dry Weight: 12.50 g
	Prepared: 07/12/2024		% Solids: 94.89

Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL	Extract ID: 24G0181-03 B 02
	Cleanup Batch: CMG0208	Final Volume: 2.5 uL	
	Cleaned: 30-Jul-2024		

Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL	Extract ID: 24G0181-03 B 02
	Cleanup Batch: CMG0207	Final Volume: 2.5 uL	
	Cleaned: 30-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.25	0.50	ND	ug/kg	U
beta-BHC	319-85-7	1	0.25	0.50	ND	ug/kg	U
gamma-BHC (Lindane)	58-89-9	1	0.25	0.50	ND	ug/kg	U
delta-BHC	319-86-8	1	0.25	0.50	ND	ug/kg	U
Heptachlor	76-44-8	1	0.25	0.50	ND	ug/kg	U
Aldrin	309-00-2	1	0.50	0.50	ND	ug/kg	U
Heptachlor Epoxide	1024-57-3	1	0.25	0.50	ND	ug/kg	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.50	0.50	ND	ug/kg	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.25	0.50	ND	ug/kg	U
Endosulfan I	959-98-8	1	0.25	0.50	ND	ug/kg	U
4,4'-DDE	72-55-9	1	0.50	1.00	ND	ug/kg	U
Dieldrin	60-57-1	1	0.50	1.00	ND	ug/kg	U
Endrin	72-20-8	1	0.50	1.00	ND	ug/kg	U
Endosulfan II	33213-65-9	1	0.50	1.00	ND	ug/kg	U
4,4'-DDD	72-54-8	1	0.50	1.00	ND	ug/kg	U
Endrin Aldehyde	7421-93-4	1	0.50	1.00	ND	ug/kg	U
4,4'-DDT	50-29-3	1	0.50	1.00	ND	ug/kg	U
Endosulfan Sulfate	1031-07-8	1	0.50	1.00	ND	ug/kg	U
Endrin Ketone	53494-70-5	1	0.50	1.00	ND	ug/kg	U
Methoxychlor	72-43-5	1	2.50	5.00	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	0.25	0.50	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	0.25	0.50	ND	ug/kg	U
2,4'-DDE	3424-82-6	1	0.50	1.00	ND	ug/kg	U
2,4'-DDD	53-19-0	1	0.50	1.00	ND	ug/kg	U
2,4'-DDT	789-02-6	1	0.50	1.00	ND	ug/kg	U
Oxychlordane	27304-13-8	1	0.50	1.00	ND	ug/kg	U
cis-Nonachlor	5103-73-1	1	0.50	1.00	ND	ug/kg	U
trans-Nonachlor	39765-80-5	1	0.50	1.00	ND	ug/kg	U
Mirex	2385-85-5	1	1.00	1.00	ND	ug/kg	U



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Reported:
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113733-SB2S9
24G0181-03 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/01/2024 12:05

Instrument: ECD6 Analyst: RT

Analyzed: 07/31/2024 22:54

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Decachlorobiphenyl		30-160 %	98.8	%	
Surrogate: Decachlorobiphenyl [2C]		30-160 %	80.1	%	
Surrogate: Tetrachlorometaxylene		30-160 %	65.4	%	
Surrogate: Tetrachlorometaxylene [2C]		30-160 %	65.8	%	



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Reported:
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113733-SB2S9
24G0181-03 (Solid)

Aroclor PCB

Method: EPA 8082A			Sampled: 07/01/2024 12:05	
Instrument: ECD5 Analyst: NRB			Analyzed: 07/25/2024 05:41	
Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 13.2 g (wet)	Extract ID: 24G0181-03 B 01	
	Preparation Batch: BMG0250		Dry Weight: 12.53 g	
	Prepared: 07/15/2024		% Solids: 94.89	
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL	Extract ID: 24G0181-03 B 01	
	Cleanup Batch: CMG0171			
	Cleaned: 24-Jul-2024		Final Volume: 2.5 uL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid	Initial Volume: 2.5 uL	Extract ID: 24G0181-03 B 01	
	Cleanup Batch: CMG0169			
	Cleaned: 24-Jul-2024		Final Volume: 2.5 uL	
Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL	Extract ID: 24G0181-03 B 01	
	Cleanup Batch: CMG0170			
	Cleaned: 24-Jul-2024		Final Volume: 2.5 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	2.0	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	2.0	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	2.0	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1262	37324-23-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1268	11100-14-4	1	2.0	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				40-126 %	74.2	%	
Surrogate: Tetrachlorometaxylene				44-120 %	72.9	%	
Surrogate: Decachlorobiphenyl [2C]				40-126 %	75.8	%	
Surrogate: Tetrachlorometaxylene [2C]				44-120 %	70.8	%	



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Reported:

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113733-SB2S9

24G0181-03 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED

Sampled: 07/01/2024 12:05

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 16:14

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0181-03 B 05

Preparation Batch: BMG0273

Sample Size: 1.017 g (wet)

Dry Weight: 0.72 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 71.10

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.05	0.28	10.6	mg/kg	
Cadmium	7440-43-9	20	0.04	0.14	0.10	mg/kg	J
Copper	7440-50-8	20	0.24	0.69	30.1	mg/kg	
Selenium	7782-49-2	20	0.25	0.69	1.17	mg/kg	
Zinc	7440-66-6	20	4.0	8.3	78.1	mg/kg	



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Reported:
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113733-SB2S9
24G0181-03 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B

Sampled: 07/01/2024 12:05

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 16:14

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0181-03 B 05

Preparation Batch: BMG0273

Sample Size: 1.017 g (wet)

Dry Weight: 0.72 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 71.10

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	20	0.14	0.28	ND	mg/kg	U
Chromium	7440-47-3	20	0.33	0.69	27.4	mg/kg	
Lead	7439-92-1	20	0.07	0.14	5.86	mg/kg	
Silver	7440-22-4	20	0.03	0.28	0.13	mg/kg	J



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Reported:

18-Sep-2024 17:06

113733-SB2S9

24G0181-03 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B

Sampled: 07/01/2024 12:05

Instrument: HYDRA Analyst: ML

Analyzed: 07/22/2024 12:36

Sample Preparation:

Preparation Method: SMM EPA 7471B

Extract ID: 24G0181-03 C

Preparation Batch: BMG0336

Sample Size: 0.24 g (wet)

Dry Weight: 0.17 g

Prepared: 07/18/2024

Final Volume: 50 mL

% Solids: 71.10

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00615	0.0293	0.0419	mg/kg	



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113733-SB2S9

24G0181-03 (Solid)

Wet Chemistry

Method: EPA 9060A m

Sampled: 07/01/2024 12:05

Instrument: Accumet AB150 Analyst: ARR

Analyzed: 08/08/2024 22:28

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0181-03 C

Preparation Batch: BMH0093

Sample Size: 0.5438 g (wet)

Dry Weight: 0.39 g

Prepared: 08/06/2024

Final Volume: 0.5438 mL

% Solids: 71.10

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.33	%	F



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Reported:

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113733-SB2S9

24G0181-03 (Solid)

Wet Chemistry

Method: PSEP 1986

Sampled: 07/01/2024 12:05

Instrument: BAL2 Analyst: LERB

Analyzed: 07/11/2024 15:26

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0181-03

Preparation Batch: BMG0281

Sample Size: 5 g (wet)

Prepared: 07/11/2024

Final Volume: 5 mL

% Solids: 71.10

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Volatile Solids		1	0.01	0.01	1.37	%	



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Reported:
18-Sep-2024 17:06

113733-SB2S9
24G0181-03 (Solid)

Wet Chemistry

Method: SM 2540 G-11

Sampled: 07/01/2024 12:05

Instrument: BAL2 Analyst: LERB

Analyzed: 07/11/2024 15:26

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0181-03

Preparation Batch: BMG0281

Sample Size: 5 g (wet)

Prepared: 07/11/2024

Final Volume: 5 mL

% Solids: 71.10

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	71.10	%	



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Project Manager: Dan McMahon

Reported:

18-Sep-2024 17:06

113733-SB2S10

24G0181-04 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/01/2024 12:10

Instrument: NT10 Analyst: RJL

Analyzed: 07/31/2024 22:17

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0181-04 B 04

Preparation Batch: BMG0256

Sample Size: 11.66 g (wet)

Dry Weight: 10.01 g

Prepared: 07/12/2024

Final Volume: 1 mL

% Solids: 85.84

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	10.0	20.0	ND	ug/kg	U
bis(2-chloroethyl) ether	111-44-4	1	35.0	50.0	ND	ug/kg	U
2-Chlorophenol	95-57-8	1	20.0	20.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	10.0	20.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	10.0	20.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	10.0	20.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	20.0	20.0	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	10.0	20.0	ND	ug/kg	U
2-Methylphenol	95-48-7	1	10.0	20.0	ND	ug/kg	U
Hexachloroethane	67-72-1	1	10.0	20.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	15.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	15.0	20.0	ND	ug/kg	U
Nitrobenzene	98-95-3	1	10.0	20.0	ND	ug/kg	U
Isophorone	78-59-1	1	15.0	20.0	ND	ug/kg	U
2-Nitrophenol	88-75-5	1	10.0	20.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	50.0	99.9	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	1	10.0	20.0	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	1	50.0	99.9	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	10.0	20.0	ND	ug/kg	U
Naphthalene	91-20-3	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	99.9	200	ND	ug/kg	U
4-Chloroaniline	106-47-8	1	50.0	99.9	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	10.0	20.0	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	1	50.0	99.9	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	10.0	20.0	ND	ug/kg	U
Hexachlorocyclopentadiene	77-47-4	1	50.0	99.9	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	1	50.0	99.9	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	1	50.0	99.9	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	1	10.0	20.0	ND	ug/kg	U
2-Nitroaniline	88-74-4	1	50.0	99.9	ND	ug/kg	U
Acenaphthylene	208-96-8	1	10.0	20.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	10.0	20.0	ND	ug/kg	U
2,6-Dinitrotoluene	606-20-2	1	50.0	99.9	ND	ug/kg	U
Acenaphthene	83-32-9	1	10.0	20.0	ND	ug/kg	U
3-Nitroaniline	99-09-2	1	50.0	99.9	ND	ug/kg	U



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
18-Sep-2024 17:06

113733-SB2S10
24G0181-04 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/01/2024 12:10

Instrument: NT10 Analyst: RJL

Analyzed: 07/31/2024 22:17

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2,4-Dinitrophenol	51-28-5	1	99.9	200	ND	ug/kg	U
Dibenzofuran	132-64-9	1	20.0	20.0	ND	ug/kg	U
4-Nitrophenol	100-02-7	1	50.0	99.9	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	1	50.0	99.9	ND	ug/kg	U
Fluorene	86-73-7	1	20.0	20.0	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	1	35.0	50.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	35.0	50.0	ND	ug/kg	U
4-Nitroaniline	100-01-6	1	50.0	99.9	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	1	99.9	200	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	10.0	20.0	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	1	20.0	20.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	20.0	20.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	50.0	99.9	ND	ug/kg	U
Phenanthrene	85-01-8	1	10.0	20.0	ND	ug/kg	U
Anthracene	120-12-7	1	10.0	20.0	ND	ug/kg	U
Carbazole	86-74-8	1	10.0	20.0	ND	ug/kg	U
Di-n-Butylphthalate	84-74-2	1	10.0	20.0	ND	ug/kg	U
Fluoranthene	206-44-0	1	10.0	20.0	ND	ug/kg	U
Pyrene	129-00-0	1	10.0	20.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	10.0	20.0	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	1	10.0	20.0	ND	ug/kg	U
3,3'-Dichlorobenzidine	91-94-1	1	50.0	99.9	ND	ug/kg	U
Chrysene	218-01-9	1	10.0	20.0	ND	ug/kg	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	40.0	50.0	ND	ug/kg	U
Di-n-Octylphthalate	117-84-0	1	10.0	20.0	ND	ug/kg	U
Benzo(a)fluoranthene, Total		1	30.0	40.0	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	10.0	20.0	ND	ug/kg	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	20.0	20.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	20.0	20.0	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	20.0	20.0	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	10.0	20.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	90.6	%	
Surrogate: Phenol-d5				29-120 %	89.5	%	
Surrogate: 2-Chlorophenol-d4				31-120 %	97.2	%	
Surrogate: 1,2-Dichlorobenzene-d4				32-120 %	86.7	%	
Surrogate: Nitrobenzene-d5				30-120 %	94.3	%	
Surrogate: 2-Fluorobiphenyl				35-120 %	90.1	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

18-Sep-2024 17:06

113733-SB2S10

24G0181-04 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/01/2024 12:10

Instrument: NT10 Analyst: RJL

Analyzed: 07/31/2024 22:17

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: 2,4,6-Tribromophenol		24-134 %	93.3	%	
Surrogate: p-Terphenyl-d14		37-120 %	113	%	



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Reported:
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113733-SB2S10
24G0181-04 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM
Instrument: NT10 Analyst: RJL

Sampled: 07/01/2024 12:10
Analyzed: 07/31/2024 22:17

Sample Preparation: Preparation Method: EPA 3546 (Microwave)
Preparation Batch: BMG0256 Sample Size: 11.66 g (wet)
Prepared: 07/12/2024 Final Volume: 1 mL

Extract ID: 24G0181-04 B 04
Dry Weight: 10.01 g
% Solids: 85.84

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	2.5	5.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	2.5	5.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	2.5	5.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	2.5	5.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	50.0	99.9	ND	ug/kg	U
2-Methylphenol	95-48-7	1	2.5	5.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	10.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	2.5	5.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	10.0	20.0	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	5.0	5.0	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	2.5	5.0	ND	ug/kg	U
N-Nitrosodimethylamine	62-75-9	1	12.5	25.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	2.5	5.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	10.0	20.0	12.1	ug/kg	J
N-Nitrosodiphenylamine	86-30-6	1	2.5	5.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	2.5	5.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	10.0	20.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	2.5	5.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	2.5	5.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	88.0	%	
Surrogate: p-Terphenyl-d14				37-120 %	111	%	Q



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Reported:
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113733-SB2S10
24G0181-04 (Solid)

Butyl Tins

Method: EPA 8270E-SIM			Sampled: 07/01/2024 12:10		
Instrument: NT17 Analyst: JZ			Analyzed: 07/23/2024 18:56		
Sample Preparation:	Preparation Method: EPA 3546 (Microwave)			Extract ID: 24G0181-04 B 03	
	Preparation Batch: BMG0255	Sample Size: 5.86 g (wet)		Dry Weight: 5.03 g	
	Prepared: 07/12/2024	Final Volume: 0.5 mL		% Solids: 85.84	
Sample Cleanup:	Cleanup Method: Silica Gel			Extract ID: 24G0181-04 B 03	
	Cleanup Batch: CMG0156	Initial Volume: 0.5 uL			
	Cleaned: 22-Jul-2024	Final Volume: 0.5 uL			

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Tributyltin Ion	36643-28-4	1	1.92	3.84	ND	ug/kg	U
Surrogate: Triphenyltin				30-160 %	48.5	%	
Surrogate: Tripropyltin				30-160 %	46.9	%	



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Reported:
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113733-SB2S10
24G0181-04 (Solid)

Chlorinated Pesticides

Method: EPA 8081B			Sampled: 07/01/2024 12:10
Instrument: ECD6 Analyst: RT			Analyzed: 07/31/2024 23:13
Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 24G0181-04 B 02
	Preparation Batch: BMG0254	Sample Size: 14.56 g (wet)	
	Prepared: 07/12/2024	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 24G0181-04 B 02
	Cleanup Batch: CMG0208	Initial Volume: 2.5 uL	
	Cleaned: 30-Jul-2024	Final Volume: 2.5 uL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:24G0181-04 B 02
	Cleanup Batch: CMG0207	Initial Volume: 2.5 uL	
	Cleaned: 30-Jul-2024	Final Volume: 2.5 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.25	0.50	ND	ug/kg	U
beta-BHC	319-85-7	1	0.25	0.50	ND	ug/kg	U
gamma-BHC (Lindane)	58-89-9	1	0.25	0.50	ND	ug/kg	U
delta-BHC	319-86-8	1	0.25	0.50	ND	ug/kg	U
Heptachlor	76-44-8	1	0.25	0.50	ND	ug/kg	U
Aldrin	309-00-2	1	0.50	0.50	ND	ug/kg	U
Heptachlor Epoxide	1024-57-3	1	0.25	0.50	ND	ug/kg	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.50	0.50	ND	ug/kg	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.25	0.50	ND	ug/kg	U
Endosulfan I	959-98-8	1	0.25	0.50	ND	ug/kg	U
4,4'-DDE	72-55-9	1	0.50	1.00	ND	ug/kg	U
Dieldrin	60-57-1	1	0.50	1.00	ND	ug/kg	U
Endrin	72-20-8	1	0.50	1.00	ND	ug/kg	U
Endosulfan II	33213-65-9	1	0.50	1.00	ND	ug/kg	U
4,4'-DDD	72-54-8	1	0.50	1.00	ND	ug/kg	U
Endrin Aldehyde	7421-93-4	1	0.50	1.00	ND	ug/kg	U
4,4'-DDT	50-29-3	1	0.50	1.00	ND	ug/kg	U
Endosulfan Sulfate	1031-07-8	1	0.50	1.00	ND	ug/kg	U
Endrin Ketone	53494-70-5	1	0.50	1.00	ND	ug/kg	U
Methoxychlor	72-43-5	1	2.50	5.00	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	0.25	0.50	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	0.25	0.50	ND	ug/kg	U
2,4'-DDE	3424-82-6	1	0.50	1.00	ND	ug/kg	U
2,4'-DDD	53-19-0	1	0.50	1.00	ND	ug/kg	U
2,4'-DDT	789-02-6	1	0.50	1.00	ND	ug/kg	U
Oxychlordane	27304-13-8	1	0.50	1.00	ND	ug/kg	U
cis-Nonachlor	5103-73-1	1	0.50	1.00	ND	ug/kg	U
trans-Nonachlor	39765-80-5	1	0.50	1.00	ND	ug/kg	U
Mirex	2385-85-5	1	1.00	1.00	ND	ug/kg	U



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Reported:
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113733-SB2S10
24G0181-04 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/01/2024 12:10

Instrument: ECD6 Analyst: RT

Analyzed: 07/31/2024 23:13

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Decachlorobiphenyl		30-160 %	99.5	%	
Surrogate: Decachlorobiphenyl [2C]		30-160 %	82.9	%	
Surrogate: Tetrachlorometaxylene		30-160 %	68.5	%	
Surrogate: Tetrachlorometaxylene [2C]		30-160 %	70.4	%	



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Reported:
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113733-SB2S10
24G0181-04 (Solid)

Aroclor PCB

Method: EPA 8082A			Sampled: 07/01/2024 12:10	
Instrument: ECD5 Analyst: NRB			Analyzed: 07/25/2024 06:02	
Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 14.56 g (wet) Final Volume: 2.5 mL	Extract ID: 24G0181-04 B 01	
	Preparation Batch: BMG0250		Dry Weight: 12.50 g	
	Prepared: 07/15/2024		% Solids: 85.84	
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0181-04 B 01	
	Cleanup Batch: CMG0171			
	Cleaned: 24-Jul-2024			
Sample Cleanup:	Cleanup Method: Sulfuric Acid	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0181-04 B 01	
	Cleanup Batch: CMG0169			
	Cleaned: 24-Jul-2024			
Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL Final Volume: 2.5 uL	Extract ID: 24G0181-04 B 01	
	Cleanup Batch: CMG0170			
	Cleaned: 24-Jul-2024			

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	2.0	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	2.0	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	2.0	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1262	37324-23-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1268	11100-14-4	1	2.0	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				40-126 %	74.6	%	
Surrogate: Tetrachlorometaxylene				44-120 %	75.0	%	
Surrogate: Decachlorobiphenyl [2C]				40-126 %	77.6	%	
Surrogate: Tetrachlorometaxylene [2C]				44-120 %	73.3	%	



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Reported:

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113733-SB2S10

24G0181-04 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED

Sampled: 07/01/2024 12:10

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 16:18

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0181-04 B 05

Preparation Batch: BMG0273

Sample Size: 1.079 g (wet)

Dry Weight: 0.81 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 75.22

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.05	0.25	10.7	mg/kg	
Cadmium	7440-43-9	20	0.04	0.12	0.08	mg/kg	J
Copper	7440-50-8	20	0.21	0.62	28.7	mg/kg	
Selenium	7782-49-2	20	0.22	0.62	1.03	mg/kg	
Zinc	7440-66-6	20	3.6	7.4	65.7	mg/kg	



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Reported:
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113733-SB2S10
24G0181-04 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B

Sampled: 07/01/2024 12:10

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 16:18

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0181-04 B 05

Preparation Batch: BMG0273

Sample Size: 1.079 g (wet)

Dry Weight: 0.81 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 75.22

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	20	0.13	0.25	ND	mg/kg	U
Chromium	7440-47-3	20	0.30	0.62	25.9	mg/kg	
Lead	7439-92-1	20	0.06	0.12	5.64	mg/kg	
Silver	7440-22-4	20	0.03	0.25	0.12	mg/kg	J



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Reported:

18-Sep-2024 17:06

113733-SB2S10

24G0181-04 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B

Sampled: 07/01/2024 12:10

Instrument: HYDRA Analyst: ML

Analyzed: 07/22/2024 12:38

Sample Preparation:

Preparation Method: SMM EPA 7471B

Extract ID: 24G0181-04 C

Preparation Batch: BMG0336

Sample Size: 0.209 g (wet)

Dry Weight: 0.16 g

Prepared: 07/18/2024

Final Volume: 50 mL

% Solids: 75.22

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00668	0.0318	0.0406	mg/kg	



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113733-SB2S10

24G0181-04 (Solid)

Wet Chemistry

Method: EPA 9060A m

Sampled: 07/01/2024 12:10

Instrument: Accumet AB150 Analyst: ARR

Analyzed: 08/08/2024 22:59

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0181-04 C

Preparation Batch: BMH0093

Sample Size: 0.5151 g (wet)

Dry Weight: 0.39 g

Prepared: 08/06/2024

Final Volume: 0.5151 mL

% Solids: 75.22

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.30	%	F



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Reported:
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113733-SB2S10
24G0181-04 (Solid)

Wet Chemistry

Method: PSEP 1986

Sampled: 07/01/2024 12:10

Instrument: BAL2 Analyst: LERB

Analyzed: 07/11/2024 15:26

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0181-04

Preparation Batch: BMG0281

Sample Size: 5 g (wet)

Prepared: 07/11/2024

Final Volume: 5 mL

% Solids: 75.22

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Volatile Solids		1	0.01	0.01	1.19	%	



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Reported:
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113733-SB2S10
24G0181-04 (Solid)

Wet Chemistry

Method: SM 2540 G-11

Sampled: 07/01/2024 12:10

Instrument: BAL2 Analyst: LERB

Analyzed: 07/11/2024 15:26

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0181-04

Preparation Batch: BMG0281

Sample Size: 5 g (wet)

Prepared: 07/11/2024

Final Volume: 5 mL

% Solids: 75.22

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	75.22	%	



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Reported:
18-Sep-2024 17:06

113733-SB2S10
24G0181-04RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/01/2024 12:10

Instrument: NT10 Analyst: RJL

Analyzed: 08/01/2024 14:00

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0181-04RE1 B 04

Preparation Batch: BMG0256

Sample Size: 11.66 g (wet)

Dry Weight: 10.01 g

Prepared: 07/12/2024

Final Volume: 1 mL

% Solids: 85.84

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	10.0	20.0	ND	ug/kg	U
bis(2-chloroethyl) ether	111-44-4	1	35.0	50.0	ND	ug/kg	U
2-Chlorophenol	95-57-8	1	20.0	20.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	10.0	20.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	10.0	20.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	10.0	20.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	20.0	20.0	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	10.0	20.0	ND	ug/kg	U
2-Methylphenol	95-48-7	1	10.0	20.0	ND	ug/kg	U
Hexachloroethane	67-72-1	1	10.0	20.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	15.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	15.0	20.0	ND	ug/kg	U
Nitrobenzene	98-95-3	1	10.0	20.0	ND	ug/kg	U
Isophorone	78-59-1	1	15.0	20.0	ND	ug/kg	U
2-Nitrophenol	88-75-5	1	10.0	20.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	50.0	99.9	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	1	10.0	20.0	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	1	50.0	99.9	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	10.0	20.0	ND	ug/kg	U
Naphthalene	91-20-3	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	99.9	200	ND	ug/kg	U
4-Chloroaniline	106-47-8	1	50.0	99.9	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	10.0	20.0	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	1	50.0	99.9	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	10.0	20.0	ND	ug/kg	U
Hexachlorocyclopentadiene	77-47-4	1	50.0	99.9	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	1	50.0	99.9	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	1	50.0	99.9	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	1	10.0	20.0	ND	ug/kg	U
2-Nitroaniline	88-74-4	1	50.0	99.9	ND	ug/kg	U
Acenaphthylene	208-96-8	1	10.0	20.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	10.0	20.0	ND	ug/kg	U
2,6-Dinitrotoluene	606-20-2	1	50.0	99.9	ND	ug/kg	U
Acenaphthene	83-32-9	1	10.0	20.0	ND	ug/kg	U
3-Nitroaniline	99-09-2	1	50.0	99.9	ND	ug/kg	U



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
18-Sep-2024 17:06

113733-SB2S10
24G0181-04RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/01/2024 12:10

Instrument: NT10 Analyst: RJL

Analyzed: 08/01/2024 14:00

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2,4-Dinitrophenol	51-28-5	1	99.9	200	ND	ug/kg	U
Dibenzofuran	132-64-9	1	20.0	20.0	ND	ug/kg	U
4-Nitrophenol	100-02-7	1	50.0	99.9	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	1	50.0	99.9	ND	ug/kg	U
Fluorene	86-73-7	1	20.0	20.0	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	1	35.0	50.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	35.0	50.0	ND	ug/kg	U
4-Nitroaniline	100-01-6	1	50.0	99.9	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	1	99.9	200	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	10.0	20.0	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	1	20.0	20.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	20.0	20.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	50.0	99.9	ND	ug/kg	U
Phenanthrene	85-01-8	1	10.0	20.0	ND	ug/kg	U
Anthracene	120-12-7	1	10.0	20.0	ND	ug/kg	U
Carbazole	86-74-8	1	10.0	20.0	ND	ug/kg	U
Di-n-Butylphthalate	84-74-2	1	10.0	20.0	ND	ug/kg	U
Fluoranthene	206-44-0	1	10.0	20.0	ND	ug/kg	U
Pyrene	129-00-0	1	10.0	20.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	10.0	20.0	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	1	10.0	20.0	ND	ug/kg	U
3,3'-Dichlorobenzidine	91-94-1	1	50.0	99.9	ND	ug/kg	U
Chrysene	218-01-9	1	10.0	20.0	ND	ug/kg	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	40.0	50.0	ND	ug/kg	U
Di-n-Octylphthalate	117-84-0	1	10.0	20.0	ND	ug/kg	U
Benzo(a)fluoranthene, Total		1	30.0	40.0	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	10.0	20.0	ND	ug/kg	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	20.0	20.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	20.0	20.0	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	20.0	20.0	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	10.0	20.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	87.9	%	
Surrogate: Phenol-d5				29-120 %	82.1	%	
Surrogate: 2-Chlorophenol-d4				31-120 %	89.5	%	
Surrogate: 1,2-Dichlorobenzene-d4				32-120 %	86.3	%	
Surrogate: Nitrobenzene-d5				30-120 %	89.7	%	
Surrogate: 2-Fluorobiphenyl				35-120 %	90.2	%	



Shannon & Wilson, Inc

5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

18-Sep-2024 17:06

113733-SB2S10
24G0181-04RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/01/2024 12:10

Instrument: NT10 Analyst: RJL

Analyzed: 08/01/2024 14:00

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: 2,4,6-Tribromophenol		24-134 %	89.3	%	
Surrogate: p-Terphenyl-d14		37-120 %	133	%	*



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
18-Sep-2024 17:06

113733-SB2S10
24G0181-04RE1 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM

Sampled: 07/01/2024 12:10

Instrument: NT10 Analyst: RJL

Analyzed: 08/01/2024 14:00

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0181-04RE1 B 04

Preparation Batch: BMG0256

Sample Size: 11.66 g (wet)

Dry Weight: 10.01 g

Prepared: 07/12/2024

Final Volume: 1 mL

% Solids: 85.84

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	2.5	5.0	2.9	ug/kg	J
1,3-Dichlorobenzene	541-73-1	1	2.5	5.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	2.5	5.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	2.5	5.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	10.0	20.0	ND	ug/kg	U
Benzoic acid	65-85-0	1	50.0	99.9	ND	ug/kg	U
2-Methylphenol	95-48-7	1	2.5	5.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	10.0	20.0	ND	ug/kg	U
4-Methylphenol	106-44-5	1	2.5	5.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	10.0	20.0	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	5.0	5.0	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	2.5	5.0	ND	ug/kg	U
N-Nitrosodimethylamine	62-75-9	1	12.5	25.0	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	2.5	5.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	10.0	20.0	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	2.5	5.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	2.5	5.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	10.0	20.0	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	2.5	5.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	2.5	5.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	86.8	%	
Surrogate: p-Terphenyl-d14				37-120 %	116	%	



Shannon & Wilson, Inc

5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

18-Sep-2024 17:06

113733-SB2S13

24G0181-05 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/01/2024 10:40

Instrument: NT10 Analyst: RJL

Analyzed: 07/31/2024 22:56

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0181-05 B 04

Preparation Batch: BMG0256

Sample Size: 12.93 g (wet)

Dry Weight: 10.03 g

Prepared: 07/12/2024

Final Volume: 1 mL

% Solids: 77.59

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	10.0	19.9	ND	ug/kg	U
bis(2-chloroethyl) ether	111-44-4	1	34.9	49.8	ND	ug/kg	U
2-Chlorophenol	95-57-8	1	19.9	19.9	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	10.0	19.9	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	10.0	19.9	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	10.0	19.9	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	19.9	19.9	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	10.0	19.9	ND	ug/kg	U
2-Methylphenol	95-48-7	1	10.0	19.9	ND	ug/kg	U
Hexachloroethane	67-72-1	1	10.0	19.9	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	15.0	19.9	ND	ug/kg	U
4-Methylphenol	106-44-5	1	15.0	19.9	ND	ug/kg	U
Nitrobenzene	98-95-3	1	10.0	19.9	ND	ug/kg	U
Isophorone	78-59-1	1	15.0	19.9	ND	ug/kg	U
2-Nitrophenol	88-75-5	1	10.0	19.9	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	49.8	99.7	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	1	10.0	19.9	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	1	49.8	99.7	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	10.0	19.9	ND	ug/kg	U
Naphthalene	91-20-3	1	10.0	19.9	ND	ug/kg	U
Benzoic acid	65-85-0	1	99.7	199	ND	ug/kg	U
4-Chloroaniline	106-47-8	1	49.8	99.7	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	10.0	19.9	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	1	49.8	99.7	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	10.0	19.9	10.1	ug/kg	J
Hexachlorocyclopentadiene	77-47-4	1	49.8	99.7	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	1	49.8	99.7	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	1	49.8	99.7	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	1	10.0	19.9	ND	ug/kg	U
2-Nitroaniline	88-74-4	1	49.8	99.7	ND	ug/kg	U
Acenaphthylene	208-96-8	1	10.0	19.9	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	10.0	19.9	ND	ug/kg	U
2,6-Dinitrotoluene	606-20-2	1	49.8	99.7	ND	ug/kg	U
Acenaphthene	83-32-9	1	10.0	19.9	ND	ug/kg	U
3-Nitroaniline	99-09-2	1	49.8	99.7	ND	ug/kg	U



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
18-Sep-2024 17:06

113733-SB2S13
24G0181-05 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/01/2024 10:40

Instrument: NT10 Analyst: RJL

Analyzed: 07/31/2024 22:56

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2,4-Dinitrophenol	51-28-5	1	99.7	199	ND	ug/kg	U
Dibenzofuran	132-64-9	1	19.9	19.9	ND	ug/kg	U
4-Nitrophenol	100-02-7	1	49.8	99.7	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	1	49.8	99.7	ND	ug/kg	U
Fluorene	86-73-7	1	19.9	19.9	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	1	34.9	49.8	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	34.9	49.8	ND	ug/kg	U
4-Nitroaniline	100-01-6	1	49.8	99.7	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	1	99.7	199	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	10.0	19.9	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	1	19.9	19.9	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	19.9	19.9	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	49.8	99.7	ND	ug/kg	U
Phenanthrene	85-01-8	1	10.0	19.9	ND	ug/kg	U
Anthracene	120-12-7	1	10.0	19.9	ND	ug/kg	U
Carbazole	86-74-8	1	10.0	19.9	ND	ug/kg	U
Di-n-Butylphthalate	84-74-2	1	10.0	19.9	ND	ug/kg	U
Fluoranthene	206-44-0	1	10.0	19.9	ND	ug/kg	U
Pyrene	129-00-0	1	10.0	19.9	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	10.0	19.9	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	1	10.0	19.9	ND	ug/kg	U
3,3'-Dichlorobenzidine	91-94-1	1	49.8	99.7	ND	ug/kg	U
Chrysene	218-01-9	1	10.0	19.9	ND	ug/kg	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	39.9	49.8	ND	ug/kg	U
Di-n-Octylphthalate	117-84-0	1	10.0	19.9	ND	ug/kg	U
Benzo(a)fluoranthene, Total		1	29.9	39.9	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	10.0	19.9	12.9	ug/kg	J
Indeno(1,2,3-cd)pyrene	193-39-5	1	19.9	19.9	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	19.9	19.9	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	19.9	19.9	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	10.0	19.9	ND	ug/kg	U
<i>Surrogate: 2-Fluorophenol</i>				27-120 %	85.6	%	
<i>Surrogate: Phenol-d5</i>				29-120 %	83.3	%	
<i>Surrogate: 2-Chlorophenol-d4</i>				31-120 %	85.9	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>				32-120 %	81.6	%	
<i>Surrogate: Nitrobenzene-d5</i>				30-120 %	92.1	%	
<i>Surrogate: 2-Fluorobiphenyl</i>				35-120 %	85.2	%	



Shannon & Wilson, Inc

5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

18-Sep-2024 17:06

113733-SB2S13

24G0181-05 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/01/2024 10:40

Instrument: NT10 Analyst: RJL

Analyzed: 07/31/2024 22:56

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: 2,4,6-Tribromophenol		24-134 %	87.3	%	
Surrogate: p-Terphenyl-d14		37-120 %	107	%	



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
18-Sep-2024 17:06

113733-SB2S13
24G0181-05 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM

Sampled: 07/01/2024 10:40

Instrument: NT10 Analyst: RJL

Analyzed: 07/31/2024 22:56

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0181-05 B 04

Preparation Batch: BMG0256

Sample Size: 12.93 g (wet)

Dry Weight: 10.03 g

Prepared: 07/12/2024

Final Volume: 1 mL

% Solids: 77.59

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	2.5	5.0	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	2.5	5.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	2.5	5.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	2.5	5.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	10.0	19.9	ND	ug/kg	U
Benzoic acid	65-85-0	1	49.8	99.7	ND	ug/kg	U
2-Methylphenol	95-48-7	1	2.5	5.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	10.0	19.9	ND	ug/kg	U
4-Methylphenol	106-44-5	1	2.5	5.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	10.0	19.9	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	5.0	5.0	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	2.5	5.0	ND	ug/kg	U
N-Nitrosodimethylamine	62-75-9	1	12.5	24.9	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	2.5	5.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	10.0	19.9	13.4	ug/kg	J
N-Nitrosodiphenylamine	86-30-6	1	2.5	5.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	2.5	5.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	10.0	19.9	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	2.5	5.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	2.5	5.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	84.1	%	
Surrogate: p-Terphenyl-d14				37-120 %	102	%	Q



Shannon & Wilson, Inc
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Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
18-Sep-2024 17:06

113733-SB2S13
24G0181-05 (Solid)

Butyl Tins

Method: EPA 8270E-SIM			Sampled: 07/01/2024 10:40		
Instrument: NT17 Analyst: JZ			Analyzed: 07/23/2024 19:09		
Sample Preparation:	Preparation Method: EPA 3546 (Microwave)			Extract ID: 24G0181-05 B 03	
	Preparation Batch: BMG0255	Sample Size: 6.49 g (wet)		Dry Weight: 5.04 g	
	Prepared: 07/12/2024	Final Volume: 0.5 mL		% Solids: 77.59	
Sample Cleanup:	Cleanup Method: Silica Gel			Extract ID: 24G0181-05 B 03	
	Cleanup Batch: CMG0156	Initial Volume: 0.5 uL			
	Cleaned: 22-Jul-2024	Final Volume: 0.5 uL			

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Tributyltin Ion	36643-28-4	1	1.92	3.83	ND	ug/kg	U
Surrogate: Triphenyltin				30-160 %	45.7	%	
Surrogate: Tripropyltin				30-160 %	69.5	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

18-Sep-2024 17:06

113733-SB2S13

24G0181-05 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/01/2024 10:40

Instrument: ECD6 Analyst: RT

Analyzed: 07/31/2024 23:31

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 16.13 g (wet)	Extract ID: 24G0181-05 B 02
	Preparation Batch: BMG0254	Final Volume: 2.5 mL	Dry Weight: 12.52 g
	Prepared: 07/12/2024		% Solids: 77.59

Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL	Extract ID: 24G0181-05 B 02
	Cleanup Batch: CMG0208	Final Volume: 2.5 uL	
	Cleaned: 30-Jul-2024		

Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL	Extract ID: 24G0181-05 B 02
	Cleanup Batch: CMG0207	Final Volume: 2.5 uL	
	Cleaned: 30-Jul-2024		

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.25	0.50	ND	ug/kg	U
beta-BHC	319-85-7	1	0.25	0.50	ND	ug/kg	U
gamma-BHC (Lindane)	58-89-9	1	0.25	0.50	ND	ug/kg	U
delta-BHC	319-86-8	1	0.25	0.50	ND	ug/kg	U
Heptachlor	76-44-8	1	0.25	0.50	ND	ug/kg	U
Aldrin	309-00-2	1	0.50	0.50	ND	ug/kg	U
Heptachlor Epoxide	1024-57-3	1	0.25	0.50	ND	ug/kg	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.50	0.50	ND	ug/kg	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.25	0.50	ND	ug/kg	U
Endosulfan I	959-98-8	1	0.25	0.50	ND	ug/kg	U
4,4'-DDE	72-55-9	1	0.50	1.00	ND	ug/kg	U
Dieldrin	60-57-1	1	0.50	1.00	ND	ug/kg	U
Endrin	72-20-8	1	0.50	1.00	ND	ug/kg	U
Endosulfan II	33213-65-9	1	0.50	1.00	ND	ug/kg	U
4,4'-DDD	72-54-8	1	0.50	1.00	1.69	ug/kg	P1
Endrin Aldehyde	7421-93-4	1	0.50	1.00	ND	ug/kg	U
4,4'-DDT	50-29-3	1	0.50	1.00	ND	ug/kg	U
Endosulfan Sulfate	1031-07-8	1	0.50	1.00	ND	ug/kg	U
Endrin Ketone	53494-70-5	1	0.50	1.00	ND	ug/kg	U
Methoxychlor	72-43-5	1	2.50	4.99	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	0.25	0.50	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	0.25	0.50	ND	ug/kg	U
2,4'-DDE	3424-82-6	1	0.50	1.00	ND	ug/kg	U
2,4'-DDD	53-19-0	1	0.50	1.00	ND	ug/kg	U
2,4'-DDT	789-02-6	1	0.50	1.00	ND	ug/kg	U
Oxychlordane	27304-13-8	1	0.50	1.00	ND	ug/kg	U
cis-Nonachlor	5103-73-1	1	0.50	1.00	ND	ug/kg	U
trans-Nonachlor	39765-80-5	1	0.50	1.00	ND	ug/kg	U
Mirex	2385-85-5	1	1.00	1.00	ND	ug/kg	U



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
18-Sep-2024 17:06

113733-SB2S13
24G0181-05 (Solid)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 07/01/2024 10:40

Instrument: ECD6 Analyst: RT

Analyzed: 07/31/2024 23:31

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Decachlorobiphenyl		30-160 %	98.6	%	
Surrogate: Decachlorobiphenyl [2C]		30-160 %	84.0	%	
Surrogate: Tetrachlorometaxylene		30-160 %	68.5	%	
Surrogate: Tetrachlorometaxylene [2C]		30-160 %	66.6	%	



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Project: PAMP Sediments
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Project Manager: Dan McMahon

Reported:
18-Sep-2024 17:06

113733-SB2S13
24G0181-05 (Solid)

Aroclor PCB

Method: EPA 8082A			Sampled: 07/01/2024 10:40	
Instrument: ECD5 Analyst: NRB			Analyzed: 07/25/2024 06:23	
Sample Preparation:	Preparation Method: EPA 3546 (Microwave)	Sample Size: 16.18 g (wet)	Extract ID: 24G0181-05 B 01	
	Preparation Batch: BMG0250		Dry Weight: 12.55 g	
	Prepared: 07/15/2024		% Solids: 77.59	
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 2.5 uL	Extract ID: 24G0181-05 B 01	
	Cleanup Batch: CMG0171			
	Cleaned: 24-Jul-2024		Final Volume: 2.5 uL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid	Initial Volume: 2.5 uL	Extract ID: 24G0181-05 B 01	
	Cleanup Batch: CMG0169			
	Cleaned: 24-Jul-2024		Final Volume: 2.5 uL	
Sample Cleanup:	Cleanup Method: Sulfur	Initial Volume: 2.5 uL	Extract ID: 24G0181-05 B 01	
	Cleanup Batch: CMG0170			
	Cleaned: 24-Jul-2024		Final Volume: 2.5 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	2.0	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	2.0	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	2.0	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	2.0	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	2.0	4.0	3.4	ug/kg	J
Aroclor 1262	37324-23-5	1	2.0	4.0	ND	ug/kg	U
Aroclor 1268	11100-14-4	1	2.0	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				40-126 %	78.5	%	
Surrogate: Tetrachlorometaxylene				44-120 %	76.6	%	
Surrogate: Decachlorobiphenyl [2C]				40-126 %	81.9	%	
Surrogate: Tetrachlorometaxylene [2C]				44-120 %	77.7	%	



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Reported:

18-Sep-2024 17:06

113733-SB2S13

24G0181-05 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED

Sampled: 07/01/2024 10:40

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 16:23

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0181-05 B 05

Preparation Batch: BMG0273

Sample Size: 1.009 g (wet)

Dry Weight: 0.79 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 78.35

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.05	0.25	11.9	mg/kg	
Cadmium	7440-43-9	20	0.04	0.13	0.08	mg/kg	J
Copper	7440-50-8	20	0.22	0.63	30.6	mg/kg	
Selenium	7782-49-2	20	0.23	0.63	1.05	mg/kg	
Zinc	7440-66-6	20	3.7	7.6	68.2	mg/kg	



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
18-Sep-2024 17:06

113733-SB2S13
24G0181-05 (Solid)

Metals and Metallic Compounds

Method: EPA 6020B

Sampled: 07/01/2024 10:40

Instrument: ICPMS1 Analyst: DOE

Analyzed: 07/18/2024 16:23

Sample Preparation:

Preparation Method: SWN EPA 3050B

Extract ID: 24G0181-05 B 05

Preparation Batch: BMG0273

Sample Size: 1.009 g (wet)

Dry Weight: 0.79 g

Prepared: 07/11/2024

Final Volume: 50 mL

% Solids: 78.35

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	20	0.13	0.25	ND	mg/kg	U
Chromium	7440-47-3	20	0.30	0.63	26.5	mg/kg	
Lead	7439-92-1	20	0.07	0.13	5.99	mg/kg	
Silver	7440-22-4	20	0.03	0.25	0.12	mg/kg	J



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Project Number: 113733

Project Manager: Dan McMahon

Reported:

18-Sep-2024 17:06

113733-SB2S13

24G0181-05 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B

Sampled: 07/01/2024 10:40

Instrument: HYDRA Analyst: ML

Analyzed: 07/22/2024 12:45

Sample Preparation:

Preparation Method: SMM EPA 7471B

Extract ID: 24G0181-05 C

Preparation Batch: BMG0336

Sample Size: 0.27 g (wet)

Dry Weight: 0.21 g

Prepared: 07/18/2024

Final Volume: 50 mL

% Solids: 78.35

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00496	0.0236	0.0637	mg/kg	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

18-Sep-2024 17:06

113733-SB2S13

24G0181-05 (Solid)

Wet Chemistry

Method: EPA 9060A m

Sampled: 07/01/2024 10:40

Instrument: Accumet AB150 Analyst: ARR

Analyzed: 08/08/2024 23:29

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0181-05 C

Preparation Batch: BMH0093

Sample Size: 0.5319 g (wet)

Dry Weight: 0.42 g

Prepared: 08/06/2024

Final Volume: 0.5319 mL

% Solids: 78.35

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.44	%	F



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Reported:
18-Sep-2024 17:06

113733-SB2S13
24G0181-05 (Solid)

Wet Chemistry

Method: PSEP 1986

Sampled: 07/01/2024 10:40

Instrument: BAL2 Analyst: LERB

Analyzed: 07/11/2024 15:26

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0181-05

Preparation Batch: BMG0281

Sample Size: 5 g (wet)

Prepared: 07/11/2024

Final Volume: 5 mL

% Solids: 78.35

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Volatile Solids		1	0.01	0.01	1.99	%	



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Reported:

18-Sep-2024 17:06

113733-SB2S13

24G0181-05 (Solid)

Wet Chemistry

Method: SM 2540 G-11

Sampled: 07/01/2024 10:40

Instrument: BAL2 Analyst: LERB

Analyzed: 07/11/2024 15:26

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 24G0181-05

Preparation Batch: BMG0281

Sample Size: 5 g (wet)

Prepared: 07/11/2024

Final Volume: 5 mL

% Solids: 78.35

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	78.35	%	



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Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

18-Sep-2024 17:06

113733-SB2S13
24G0181-05RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/01/2024 10:40

Instrument: NT10 Analyst: RJL

Analyzed: 08/01/2024 14:41

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0181-05RE1 B 04

Preparation Batch: BMG0256

Sample Size: 12.93 g (wet)

Dry Weight: 10.03 g

Prepared: 07/12/2024

Final Volume: 1 mL

% Solids: 77.59

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	10.0	19.9	ND	ug/kg	U
bis(2-chloroethyl) ether	111-44-4	1	34.9	49.8	ND	ug/kg	U
2-Chlorophenol	95-57-8	1	19.9	19.9	ND	ug/kg	U
1,3-Dichlorobenzene	541-73-1	1	10.0	19.9	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	10.0	19.9	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	10.0	19.9	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	19.9	19.9	ND	ug/kg	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	10.0	19.9	ND	ug/kg	U
2-Methylphenol	95-48-7	1	10.0	19.9	ND	ug/kg	U
Hexachloroethane	67-72-1	1	10.0	19.9	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	15.0	19.9	ND	ug/kg	U
4-Methylphenol	106-44-5	1	15.0	19.9	ND	ug/kg	U
Nitrobenzene	98-95-3	1	10.0	19.9	ND	ug/kg	U
Isophorone	78-59-1	1	15.0	19.9	ND	ug/kg	U
2-Nitrophenol	88-75-5	1	10.0	19.9	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	49.8	99.7	ND	ug/kg	U
Bis(2-Chloroethoxy)methane	111-91-1	1	10.0	19.9	ND	ug/kg	U
2,4-Dichlorophenol	120-83-2	1	49.8	99.7	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	10.0	19.9	ND	ug/kg	U
Naphthalene	91-20-3	1	10.0	19.9	ND	ug/kg	U
Benzoic acid	65-85-0	1	99.7	199	ND	ug/kg	U
4-Chloroaniline	106-47-8	1	49.8	99.7	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	10.0	19.9	ND	ug/kg	U
4-Chloro-3-Methylphenol	59-50-7	1	49.8	99.7	ND	ug/kg	U
2-Methylnaphthalene	91-57-6	1	10.0	19.9	10.0	ug/kg	J
Hexachlorocyclopentadiene	77-47-4	1	49.8	99.7	ND	ug/kg	U
2,4,6-Trichlorophenol	88-06-2	1	49.8	99.7	ND	ug/kg	U
2,4,5-Trichlorophenol	95-95-4	1	49.8	99.7	ND	ug/kg	U
2-Chloronaphthalene	91-58-7	1	10.0	19.9	ND	ug/kg	U
2-Nitroaniline	88-74-4	1	49.8	99.7	ND	ug/kg	U
Acenaphthylene	208-96-8	1	10.0	19.9	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	10.0	19.9	ND	ug/kg	U
2,6-Dinitrotoluene	606-20-2	1	49.8	99.7	ND	ug/kg	U
Acenaphthene	83-32-9	1	10.0	19.9	ND	ug/kg	U
3-Nitroaniline	99-09-2	1	49.8	99.7	ND	ug/kg	U



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
18-Sep-2024 17:06

113733-SB2S13
24G0181-05RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/01/2024 10:40

Instrument: NT10 Analyst: RJL

Analyzed: 08/01/2024 14:41

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2,4-Dinitrophenol	51-28-5	1	99.7	199	ND	ug/kg	U
Dibenzofuran	132-64-9	1	19.9	19.9	ND	ug/kg	U
4-Nitrophenol	100-02-7	1	49.8	99.7	ND	ug/kg	U
2,4-Dinitrotoluene	121-14-2	1	49.8	99.7	ND	ug/kg	U
Fluorene	86-73-7	1	19.9	19.9	ND	ug/kg	U
4-Chlorophenylphenyl ether	7005-72-3	1	34.9	49.8	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	34.9	49.8	ND	ug/kg	U
4-Nitroaniline	100-01-6	1	49.8	99.7	ND	ug/kg	U
4,6-Dinitro-2-methylphenol	534-52-1	1	99.7	199	ND	ug/kg	U
N-Nitrosodiphenylamine	86-30-6	1	10.0	19.9	ND	ug/kg	U
4-Bromophenyl phenyl ether	101-55-3	1	19.9	19.9	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	19.9	19.9	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	49.8	99.7	ND	ug/kg	U
Phenanthrene	85-01-8	1	10.0	19.9	ND	ug/kg	U
Anthracene	120-12-7	1	10.0	19.9	ND	ug/kg	U
Carbazole	86-74-8	1	10.0	19.9	ND	ug/kg	U
Di-n-Butylphthalate	84-74-2	1	10.0	19.9	ND	ug/kg	U
Fluoranthene	206-44-0	1	10.0	19.9	ND	ug/kg	U
Pyrene	129-00-0	1	10.0	19.9	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	10.0	19.9	ND	ug/kg	U
Benzo(a)anthracene	56-55-3	1	10.0	19.9	ND	ug/kg	U
3,3'-Dichlorobenzidine	91-94-1	1	49.8	99.7	ND	ug/kg	U
Chrysene	218-01-9	1	10.0	19.9	ND	ug/kg	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	39.9	49.8	ND	ug/kg	U
Di-n-Octylphthalate	117-84-0	1	10.0	19.9	ND	ug/kg	U
Benzo(a)fluoranthene, Total		1	29.9	39.9	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	10.0	19.9	ND	ug/kg	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	19.9	19.9	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	19.9	19.9	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	19.9	19.9	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	10.0	19.9	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	86.8	%	
Surrogate: Phenol-d5				29-120 %	84.9	%	
Surrogate: 2-Chlorophenol-d4				31-120 %	86.0	%	
Surrogate: 1,2-Dichlorobenzene-d4				32-120 %	83.5	%	
Surrogate: Nitrobenzene-d5				30-120 %	89.4	%	
Surrogate: 2-Fluorobiphenyl				35-120 %	85.9	%	



Shannon & Wilson, Inc

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Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

18-Sep-2024 17:06

113733-SB2S13

24G0181-05RE1 (Solid)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 07/01/2024 10:40

Instrument: NT10 Analyst: RJL

Analyzed: 08/01/2024 14:41

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: 2,4,6-Tribromophenol		24-134 %	87.8	%	
Surrogate: p-Terphenyl-d14		37-120 %	110	%	



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Project Manager: Dan McMahon

Reported:
18-Sep-2024 17:06

113733-SB2S13
24G0181-05RE1 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM

Sampled: 07/01/2024 10:40

Instrument: NT10 Analyst: RJL

Analyzed: 08/01/2024 14:41

Sample Preparation:

Preparation Method: EPA 3546 (Microwave)

Extract ID: 24G0181-05RE1 B 04

Preparation Batch: BMG0256

Sample Size: 12.93 g (wet)

Dry Weight: 10.03 g

Prepared: 07/12/2024

Final Volume: 1 mL

% Solids: 77.59

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	2.5	5.0	3.5	ug/kg	J
1,3-Dichlorobenzene	541-73-1	1	2.5	5.0	ND	ug/kg	U
1,4-Dichlorobenzene	106-46-7	1	2.5	5.0	ND	ug/kg	U
1,2-Dichlorobenzene	95-50-1	1	2.5	5.0	ND	ug/kg	U
Benzyl Alcohol	100-51-6	1	10.0	19.9	ND	ug/kg	U
Benzoic acid	65-85-0	1	49.8	99.7	ND	ug/kg	U
2-Methylphenol	95-48-7	1	2.5	5.0	ND	ug/kg	U
N-Nitroso-di-n-Propylamine	621-64-7	1	10.0	19.9	ND	ug/kg	U
4-Methylphenol	106-44-5	1	2.5	5.0	ND	ug/kg	U
2,4-Dimethylphenol	105-67-9	1	10.0	19.9	ND	ug/kg	U
1,2,4-Trichlorobenzene	120-82-1	1	5.0	5.0	ND	ug/kg	U
Hexachlorobutadiene	87-68-3	1	2.5	5.0	ND	ug/kg	U
N-Nitrosodimethylamine	62-75-9	1	12.5	24.9	ND	ug/kg	U
Dimethylphthalate	131-11-3	1	2.5	5.0	ND	ug/kg	U
Diethyl phthalate	84-66-2	1	10.0	19.9	12.1	ug/kg	J
N-Nitrosodiphenylamine	86-30-6	1	2.5	5.0	ND	ug/kg	U
Hexachlorobenzene	118-74-1	1	2.5	5.0	ND	ug/kg	U
Pentachlorophenol	87-86-5	1	10.0	19.9	ND	ug/kg	U
Butylbenzylphthalate	85-68-7	1	2.5	5.0	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	2.5	5.0	ND	ug/kg	U
Surrogate: 2-Fluorophenol				27-120 %	82.0	%	
Surrogate: p-Terphenyl-d14				37-120 %	111	%	



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
18-Sep-2024 17:06

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0256 - EPA 8270E

Instrument: NT10 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0256-BLK1)						Prepared: 12-Jul-2024 Analyzed: 27-Jul-2024 15:56					
Phenol	ND	10.0	20.0	ug/kg							U
bis(2-chloroethyl) ether	ND	35.0	50.0	ug/kg							U
2-Chlorophenol	ND	20.0	20.0	ug/kg							U
1,3-Dichlorobenzene	ND	10.0	20.0	ug/kg							U
1,4-Dichlorobenzene	ND	10.0	20.0	ug/kg							U
1,2-Dichlorobenzene	ND	10.0	20.0	ug/kg							U
Benzyl Alcohol	ND	20.0	20.0	ug/kg							U
2,2'-Oxybis(1-chloropropane)	ND	10.0	20.0	ug/kg							U
2-Methylphenol	ND	10.0	20.0	ug/kg							U
Hexachloroethane	ND	10.0	20.0	ug/kg							U
N-Nitroso-di-n-Propylamine	ND	15.0	20.0	ug/kg							U
4-Methylphenol	ND	15.0	20.0	ug/kg							U
Nitrobenzene	ND	10.0	20.0	ug/kg							U
Isophorone	ND	15.0	20.0	ug/kg							U
2-Nitrophenol	ND	10.0	20.0	ug/kg							U
2,4-Dimethylphenol	ND	50.0	100	ug/kg							U
Bis(2-Chloroethoxy)methane	ND	10.0	20.0	ug/kg							U
2,4-Dichlorophenol	ND	50.0	100	ug/kg							U
1,2,4-Trichlorobenzene	ND	10.0	20.0	ug/kg							U
Naphthalene	ND	10.0	20.0	ug/kg							U
Benzoic acid	ND	100	200	ug/kg							U
4-Chloroaniline	ND	50.0	100	ug/kg							U
Hexachlorobutadiene	ND	10.0	20.0	ug/kg							U
4-Chloro-3-Methylphenol	ND	50.0	100	ug/kg							U
2-Methylnaphthalene	ND	10.0	20.0	ug/kg							U
Hexachlorocyclopentadiene	ND	50.0	100	ug/kg							U
2,4,6-Trichlorophenol	ND	50.0	100	ug/kg							U
2,4,5-Trichlorophenol	ND	50.0	100	ug/kg							U
2-Chloronaphthalene	ND	10.0	20.0	ug/kg							U
2-Nitroaniline	ND	50.0	100	ug/kg							U
Acenaphthylene	ND	10.0	20.0	ug/kg							U
Dimethylphthalate	ND	10.0	20.0	ug/kg							U
2,6-Dinitrotoluene	ND	50.0	100	ug/kg							U
Acenaphthene	ND	10.0	20.0	ug/kg							U
3-Nitroaniline	ND	50.0	100	ug/kg							U



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
18-Sep-2024 17:06

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0256 - EPA 8270E

Instrument: NT10 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0256-BLK1)						Prepared: 12-Jul-2024 Analyzed: 27-Jul-2024 15:56					
2,4-Dinitrophenol	ND	100	200	ug/kg							U
Dibenzofuran	ND	20.0	20.0	ug/kg							U
4-Nitrophenol	ND	50.0	100	ug/kg							U
2,4-Dinitrotoluene	ND	50.0	100	ug/kg							U
Fluorene	ND	20.0	20.0	ug/kg							U
4-Chlorophenylphenyl ether	ND	35.0	50.0	ug/kg							U
Diethyl phthalate	ND	35.0	50.0	ug/kg							U
4-Nitroaniline	ND	50.0	100	ug/kg							U
4,6-Dinitro-2-methylphenol	ND	100	200	ug/kg							U
N-Nitrosodiphenylamine	ND	10.0	20.0	ug/kg							U
4-Bromophenyl phenyl ether	ND	20.0	20.0	ug/kg							U
Hexachlorobenzene	ND	20.0	20.0	ug/kg							U
Pentachlorophenol	ND	50.0	100	ug/kg							U
Phenanthrene	ND	10.0	20.0	ug/kg							U
Anthracene	ND	10.0	20.0	ug/kg							U
Carbazole	ND	10.0	20.0	ug/kg							U
Di-n-Butylphthalate	ND	10.0	20.0	ug/kg							U
Fluoranthene	ND	10.0	20.0	ug/kg							U
Pyrene	ND	10.0	20.0	ug/kg							U
Butylbenzylphthalate	ND	10.0	20.0	ug/kg							U
Benzo(a)anthracene	ND	10.0	20.0	ug/kg							U
3,3'-Dichlorobenzidine	ND	50.0	100	ug/kg							U
Chrysene	ND	10.0	20.0	ug/kg							U
bis(2-Ethylhexyl)phthalate	ND	40.0	50.0	ug/kg							U
Di-n-Octylphthalate	ND	10.0	20.0	ug/kg							U
Benzo(a)fluoranthene, Total	ND	30.0	40.0	ug/kg							U
Benzo(a)pyrene	ND	10.0	20.0	ug/kg							U
Indeno(1,2,3-cd)pyrene	ND	20.0	20.0	ug/kg							U
Dibenzo(a,h)anthracene	ND	20.0	20.0	ug/kg							U
Benzo(g,h,i)perylene	ND	20.0	20.0	ug/kg							U
1-Methylnaphthalene	ND	10.0	20.0	ug/kg							U
Surrogate: 2-Fluorophenol	631			ug/kg	750		84.1	27-120			
Surrogate: Phenol-d5	628			ug/kg	750		83.7	29-120			
Surrogate: 2-Chlorophenol-d4	636			ug/kg	750		84.8	31-120			
Surrogate: 1,2-Dichlorobenzene-d4	445			ug/kg	500		88.9	32-120			



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Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0256 - EPA 8270E

Instrument: NT10 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0256-BLK1)											
Prepared: 12-Jul-2024 Analyzed: 27-Jul-2024 15:56											
Surrogate: Nitrobenzene-d5	450			ug/kg	500		90.1	30-120			
Surrogate: 2-Fluorobiphenyl	454			ug/kg	500		90.9	35-120			
Surrogate: 2,4,6-Tribromophenol	472			ug/kg	750		63.0	24-134			
Surrogate: p-Terphenyl-d14	538			ug/kg	500		108	37-120			



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Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0256 - EPA 8270E

Instrument: NT10 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0256-BS1)						Prepared: 12-Jul-2024 Analyzed: 27-Jul-2024 16:35					
Phenol	395	10.0	20.0	ug/kg	500		79.1	31-120			
bis(2-chloroethyl) ether	475	35.0	50.0	ug/kg	500		95.1	36-120			
2-Chlorophenol	376	20.0	20.0	ug/kg	500		75.3	39-120			
1,3-Dichlorobenzene	408	10.0	20.0	ug/kg	500		81.6	40-120			
1,4-Dichlorobenzene	437	10.0	20.0	ug/kg	500		87.3	39-120			
1,2-Dichlorobenzene	419	10.0	20.0	ug/kg	500		83.8	40-120			
Benzyl Alcohol	368	20.0	20.0	ug/kg	500		73.5	19-120			
2,2'-Oxybis(1-chloropropane)	503	10.0	20.0	ug/kg	500		101	32-120			
2-Methylphenol	445	10.0	20.0	ug/kg	500		88.9	11-120			
Hexachloroethane	491	10.0	20.0	ug/kg	500		98.1	38-120			
N-Nitroso-di-n-Propylamine	484	15.0	20.0	ug/kg	500		96.8	24-120			
4-Methylphenol	442	15.0	20.0	ug/kg	500		88.4	29-120			
Nitrobenzene	456	10.0	20.0	ug/kg	500		91.2	36-120			
Isophorone	695	15.0	20.0	ug/kg	500		139	37-126			*
2-Nitrophenol	364	10.0	20.0	ug/kg	500		72.8	30-120			
2,4-Dimethylphenol	900	50.0	100	ug/kg	1500		60.0	10-120			
Bis(2-Chloroethoxy)methane	499	10.0	20.0	ug/kg	500		99.9	39-126			
2,4-Dichlorophenol	1290	50.0	100	ug/kg	1500		85.7	28-120			
1,2,4-Trichlorobenzene	405	10.0	20.0	ug/kg	500		81.1	35-120			
Naphthalene	423	10.0	20.0	ug/kg	500		84.7	41-120			
Benzoic acid	1100	100	200	ug/kg	2250		48.9	10-120			
4-Chloroaniline	802	50.0	100	ug/kg	1500		53.5	10-120			
Hexachlorobutadiene	416	10.0	20.0	ug/kg	500		83.1	37-120			Q
4-Chloro-3-Methylphenol	1290	50.0	100	ug/kg	1500		85.8	32-120			
2-Methylnaphthalene	405	10.0	20.0	ug/kg	500		81.1	43-120			
Hexachlorocyclopentadiene	1600	50.0	100	ug/kg	1500		107	10-120			Q
2,4,6-Trichlorophenol	1340	50.0	100	ug/kg	1500		89.2	40-120			
2,4,5-Trichlorophenol	1490	50.0	100	ug/kg	1500		99.5	51.5-129			
2-Chloronaphthalene	444	10.0	20.0	ug/kg	500		88.8	40-120			
2-Nitroaniline	1350	50.0	100	ug/kg	1500		90.2	40-152			
Acenaphthylene	402	10.0	20.0	ug/kg	500		80.4	42-120			
Dimethylphthalate	500	10.0	20.0	ug/kg	500		100	43-120			
2,6-Dinitrotoluene	1600	50.0	100	ug/kg	1500		107	31-156			
Acenaphthene	449	10.0	20.0	ug/kg	500		89.8	45-120			
3-Nitroaniline	1050	50.0	100	ug/kg	1500		69.9	22-120			



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
18-Sep-2024 17:06

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0256 - EPA 8270E

Instrument: NT10 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0256-BS1)						Prepared: 12-Jul-2024 Analyzed: 27-Jul-2024 16:35					
2,4-Dinitrophenol	1620	100	200	ug/kg	2750		58.8	13-160			Q
Dibenzofuran	419	20.0	20.0	ug/kg	500		83.7	43-120			
4-Nitrophenol	1250	50.0	100	ug/kg	1500		83.2	18-154			
2,4-Dinitrotoluene	1420	50.0	100	ug/kg	1500		94.5	44-150			
Fluorene	434	20.0	20.0	ug/kg	500		86.8	40-120			
4-Chlorophenylphenyl ether	462	35.0	50.0	ug/kg	500		92.4	36-141			
Diethyl phthalate	540	35.0	50.0	ug/kg	500		108	43-140			
4-Nitroaniline	1190	50.0	100	ug/kg	1500		79.1	15-120			
4,6-Dinitro-2-methylphenol	2370	100	200	ug/kg	2750		86.1	33-144			
N-Nitrosodiphenylamine	457	10.0	20.0	ug/kg	500		91.4	17-120			
4-Bromophenyl phenyl ether	493	20.0	20.0	ug/kg	500		98.7	39-120			
Hexachlorobenzene	474	20.0	20.0	ug/kg	500		94.7	33-120			
Pentachlorophenol	1290	50.0	100	ug/kg	1500		85.9	33-133			
Phenanthrene	444	10.0	20.0	ug/kg	500		88.8	49-120			
Anthracene	454	10.0	20.0	ug/kg	500		90.8	37-120			
Carbazole	498	10.0	20.0	ug/kg	500		99.5	30-135			
Di-n-Butylphthalate	493	10.0	20.0	ug/kg	500		98.6	48-126			
Fluoranthene	486	10.0	20.0	ug/kg	500		97.1	38-127			
Pyrene	480	10.0	20.0	ug/kg	500		96.1	39-122			
Butylbenzylphthalate	507	10.0	20.0	ug/kg	500		101	45-132			
Benzo(a)anthracene	479	10.0	20.0	ug/kg	500		95.8	44-120			
3,3'-Dichlorobenzidine	477	50.0	100	ug/kg	1000		47.7	10-120			Q
Chrysene	466	10.0	20.0	ug/kg	500		93.2	47-120			
bis(2-Ethylhexyl)phthalate	563	40.0	50.0	ug/kg	500		113	10-130			Q
Di-n-Octylphthalate	471	10.0	20.0	ug/kg	500		94.2	10-124			
Benzo(a)fluoranthene, Total	999	30.0	40.0	ug/kg	1000		99.9	30-160			
Benzo(a)pyrene	495	10.0	20.0	ug/kg	500		99.1	37-120			
Indeno(1,2,3-cd)pyrene	466	20.0	20.0	ug/kg	500		93.1	30-160			
Dibenzo(a,h)anthracene	457	20.0	20.0	ug/kg	500		91.4	30-160			
Benzo(g,h,i)perylene	523	20.0	20.0	ug/kg	500		105	10-150			
1-Methylnaphthalene	423	10.0	20.0	ug/kg	500		84.5	42-120			
Surrogate: 2-Fluorophenol	678			ug/kg	750		90.4	27-120			
Surrogate: Phenol-d5	679			ug/kg	750		90.5	29-120			
Surrogate: 2-Chlorophenol-d4	665			ug/kg	750		88.7	31-120			
Surrogate: 1,2-Dichlorobenzene-d4	446			ug/kg	500		89.2	32-120			



Shannon & Wilson, Inc

5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

18-Sep-2024 17:06

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0256 - EPA 8270E

Instrument: NT10 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0256-BS1)											
Prepared: 12-Jul-2024 Analyzed: 27-Jul-2024 16:35											
Surrogate: Nitrobenzene-d5	482			ug/kg	500		96.4	30-120			
Surrogate: 2-Fluorobiphenyl	466			ug/kg	500		93.1	35-120			
Surrogate: 2,4,6-Tribromophenol	796			ug/kg	750		106	24-134			
Surrogate: p-Terphenyl-d14	535			ug/kg	500		107	37-120			



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Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0256 - EPA 8270E

Instrument: NT10 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMG0256-BSD1)						Prepared: 12-Jul-2024 Analyzed: 27-Jul-2024 17:14					
Phenol	407	10.0	20.0	ug/kg	500		81.5	31-120	3.02	30	
bis(2-chloroethyl) ether	478	35.0	50.0	ug/kg	500		95.6	36-120	0.56	30	
2-Chlorophenol	388	20.0	20.0	ug/kg	500		77.6	39-120	3.07	30	
1,3-Dichlorobenzene	412	10.0	20.0	ug/kg	500		82.4	40-120	1.03	30	
1,4-Dichlorobenzene	435	10.0	20.0	ug/kg	500		86.9	39-120	0.50	30	
1,2-Dichlorobenzene	425	10.0	20.0	ug/kg	500		84.9	40-120	1.38	30	
Benzyl Alcohol	390	20.0	20.0	ug/kg	500		78.0	19-120	5.94	30	
2,2'-Oxybis(1-chloropropane)	517	10.0	20.0	ug/kg	500		103	32-120	2.64	30	
2-Methylphenol	436	10.0	20.0	ug/kg	500		87.1	11-120	2.03	30	
Hexachloroethane	501	10.0	20.0	ug/kg	500		100	38-120	2.12	30	
N-Nitroso-di-n-Propylamine	506	15.0	20.0	ug/kg	500		101	24-120	4.57	30	
4-Methylphenol	447	15.0	20.0	ug/kg	500		89.4	29-120	1.17	30	
Nitrobenzene	465	10.0	20.0	ug/kg	500		93.1	36-120	2.01	30	
Isophorone	714	15.0	20.0	ug/kg	500		143	37-126	2.68	30	*
2-Nitrophenol	384	10.0	20.0	ug/kg	500		76.9	30-120	5.41	30	
2,4-Dimethylphenol	783	50.0	100	ug/kg	1500		52.2	10-120	13.90	30	
Bis(2-Chloroethoxy)methane	506	10.0	20.0	ug/kg	500		101	39-126	1.28	30	
2,4-Dichlorophenol	1290	50.0	100	ug/kg	1500		86.0	28-120	0.40	30	
1,2,4-Trichlorobenzene	410	10.0	20.0	ug/kg	500		82.0	35-120	1.13	30	
Naphthalene	424	10.0	20.0	ug/kg	500		84.9	41-120	0.24	30	
Benzoic acid	1110	100	200	ug/kg	2250		49.1	10-120	0.58	30	
4-Chloroaniline	795	50.0	100	ug/kg	1500		53.0	10-120	0.95	30	
Hexachlorobutadiene	417	10.0	20.0	ug/kg	500		83.5	37-120	0.40	30	Q
4-Chloro-3-Methylphenol	1340	50.0	100	ug/kg	1500		89.3	32-120	3.92	30	
2-Methylnaphthalene	420	10.0	20.0	ug/kg	500		84.0	43-120	3.57	30	
Hexachlorocyclopentadiene	1640	50.0	100	ug/kg	1500		110	10-120	2.78	30	Q
2,4,6-Trichlorophenol	1350	50.0	100	ug/kg	1500		89.9	40-120	0.77	30	
2,4,5-Trichlorophenol	1510	50.0	100	ug/kg	1500		101	51.5-129	1.40	30	
2-Chloronaphthalene	452	10.0	20.0	ug/kg	500		90.5	40-120	1.90	30	
2-Nitroaniline	1410	50.0	100	ug/kg	1500		93.9	40-152	4.04	30	
Acenaphthylene	442	10.0	20.0	ug/kg	500		88.4	42-120	9.43	30	
Dimethylphthalate	504	10.0	20.0	ug/kg	500		101	43-120	0.75	30	
2,6-Dinitrotoluene	1660	50.0	100	ug/kg	1500		110	31-156	3.28	30	
Acenaphthene	449	10.0	20.0	ug/kg	500		89.8	45-120	0.06	30	
3-Nitroaniline	1050	50.0	100	ug/kg	1500		70.2	22-120	0.34	30	



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Project: PAMP Sediments
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Project Manager: Dan McMahon

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Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0256 - EPA 8270E

Instrument: NT10 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMG0256-BSD1)						Prepared: 12-Jul-2024 Analyzed: 27-Jul-2024 17:14					
2,4-Dinitrophenol	1770	100	200	ug/kg	2750		64.3	13-160	8.95	30	Q
Dibenzofuran	423	20.0	20.0	ug/kg	500		84.5	43-120	0.95	30	
4-Nitrophenol	1250	50.0	100	ug/kg	1500		83.4	18-154	0.28	30	
2,4-Dinitrotoluene	1420	50.0	100	ug/kg	1500		94.4	44-150	0.09	30	
Fluorene	440	20.0	20.0	ug/kg	500		88.0	40-120	1.40	30	
4-Chlorophenylphenyl ether	466	35.0	50.0	ug/kg	500		93.3	36-141	0.94	30	
Diethyl phthalate	541	35.0	50.0	ug/kg	500		108	43-140	0.16	30	
4-Nitroaniline	1230	50.0	100	ug/kg	1500		82.0	15-120	3.70	30	
4,6-Dinitro-2-methylphenol	2430	100	200	ug/kg	2750		88.4	33-144	2.64	30	
N-Nitrosodiphenylamine	456	10.0	20.0	ug/kg	500		91.2	17-120	0.28	30	
4-Bromophenyl phenyl ether	500	20.0	20.0	ug/kg	500		100	39-120	1.37	30	
Hexachlorobenzene	483	20.0	20.0	ug/kg	500		96.6	33-120	1.95	30	
Pentachlorophenol	1320	50.0	100	ug/kg	1500		88.2	33-133	2.54	30	
Phenanthrene	444	10.0	20.0	ug/kg	500		88.9	49-120	0.03	30	
Anthracene	458	10.0	20.0	ug/kg	500		91.7	37-120	0.98	30	
Carbazole	512	10.0	20.0	ug/kg	500		102	30-135	2.90	30	
Di-n-Butylphthalate	495	10.0	20.0	ug/kg	500		99.1	48-126	0.45	30	
Fluoranthene	492	10.0	20.0	ug/kg	500		98.3	38-127	1.22	30	
Pyrene	484	10.0	20.0	ug/kg	500		96.7	39-122	0.67	30	
Butylbenzylphthalate	510	10.0	20.0	ug/kg	500		102	45-132	0.58	30	
Benzo(a)anthracene	470	10.0	20.0	ug/kg	500		93.9	44-120	1.97	30	
3,3'-Dichlorobenzidine	443	50.0	100	ug/kg	1000		44.3	10-120	7.49	30	Q
Chrysene	458	10.0	20.0	ug/kg	500		91.6	47-120	1.71	30	
bis(2-Ethylhexyl)phthalate	546	40.0	50.0	ug/kg	500		109	10-130	3.18	30	Q
Di-n-Octylphthalate	464	10.0	20.0	ug/kg	500		92.9	10-124	1.40	30	
Benzo(a)fluoranthene, Total	995	30.0	40.0	ug/kg	1000		99.5	30-160	0.47	30	
Benzo(a)pyrene	482	10.0	20.0	ug/kg	500		96.4	37-120	2.68	30	
Indeno(1,2,3-cd)pyrene	471	20.0	20.0	ug/kg	500		94.1	30-160	1.10	30	
Dibenzo(a,h)anthracene	463	20.0	20.0	ug/kg	500		92.7	30-160	1.43	30	
Benzo(g,h,i)perylene	540	20.0	20.0	ug/kg	500		108	10-150	3.24	30	
1-Methylnaphthalene	435	10.0	20.0	ug/kg	500		86.9	42-120	2.79	30	
Surrogate: 2-Fluorophenol	680			ug/kg	750		90.7	27-120			
Surrogate: Phenol-d5	685			ug/kg	750		91.3	29-120			
Surrogate: 2-Chlorophenol-d4	661			ug/kg	750		88.2	31-120			
Surrogate: 1,2-Dichlorobenzene-d4	430			ug/kg	500		86.0	32-120			



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
Anchorage AK, 99518

Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
18-Sep-2024 17:06

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0256 - EPA 8270E

Instrument: NT10 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMG0256-BSD1)											
Prepared: 12-Jul-2024 Analyzed: 27-Jul-2024 17:14											
Surrogate: Nitrobenzene-d5	482			ug/kg	500		96.5	30-120			
Surrogate: 2-Fluorobiphenyl	448			ug/kg	500		89.6	35-120			
Surrogate: 2,4,6-Tribromophenol	777			ug/kg	750		104	24-134			
Surrogate: p-Terphenyl-d14	526			ug/kg	500		105	37-120			



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Project Number: 113733
Project Manager: Dan McMahon

Reported:
18-Sep-2024 17:06

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BMG0256 - EPA 8270E

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - SIM - Quality Control

Batch BMG0256 - EPA 8270E-SIM

Instrument: NT10 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0256-BLK2)						Prepared: 12-Jul-2024 Analyzed: 27-Jul-2024 15:56					
Phenol	ND	2.5	5.0	ug/kg							U
1,3-Dichlorobenzene	ND	2.5	5.0	ug/kg							U
1,4-Dichlorobenzene	ND	2.5	5.0	ug/kg							U
1,2-Dichlorobenzene	ND	2.5	5.0	ug/kg							U
Benzyl Alcohol	11.0	10.0	20.0	ug/kg							J
Benzoic acid	ND	200	200	ug/kg							U
2-Methylphenol	ND	2.5	5.0	ug/kg							U
N-Nitroso-di-n-Propylamine	ND	10.0	20.0	ug/kg							U
4-Methylphenol	ND	2.5	5.0	ug/kg							U
2,4-Dimethylphenol	ND	10.0	20.0	ug/kg							U
1,2,4-Trichlorobenzene	ND	5.0	5.0	ug/kg							U
Hexachlorobutadiene	ND	2.5	5.0	ug/kg							U
N-Nitrosodimethylamine	ND	12.5	25.0	ug/kg							U
Dimethylphthalate	ND	2.5	5.0	ug/kg							U
Diethyl phthalate	ND	10.0	20.0	ug/kg							U
N-Nitrosodiphenylamine	ND	2.5	5.0	ug/kg							U
Hexachlorobenzene	ND	2.5	5.0	ug/kg							U
Pentachlorophenol	ND	100	100	ug/kg							U
Butylbenzylphthalate	ND	2.5	5.0	ug/kg							U
Dibenzo(a,h)anthracene	ND	2.5	5.0	ug/kg							U
Surrogate: 2-Fluorophenol	626			ug/kg	750		83.4	27-120			
Surrogate: p-Terphenyl-d14	486			ug/kg	500		97.1	37-120			



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Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - SIM - Quality Control

Batch BMG0256 - EPA 8270E-SIM

Instrument: NT10 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0256-BS2)						Prepared: 12-Jul-2024 Analyzed: 27-Jul-2024 16:35					
Phenol	400	2.5	5.0	ug/kg	500		79.9	30-160			
1,3-Dichlorobenzene	381	2.5	5.0	ug/kg	500		76.1	30-120			
1,4-Dichlorobenzene	430	2.5	5.0	ug/kg	500		86.1	36-120			
1,2-Dichlorobenzene	420	2.5	5.0	ug/kg	500		84.0	36-120			
Benzyl Alcohol	364	10.0	20.0	ug/kg	500		72.7	25-123			
Benzoic acid	1380	200	200	ug/kg	2250		61.4	10-160			Q
2-Methylphenol	431	2.5	5.0	ug/kg	500		86.2	26-120			
N-Nitroso-di-n-Propylamine	504	10.0	20.0	ug/kg	500		101	30-160			
4-Methylphenol	452	2.5	5.0	ug/kg	500		90.4	30-160			
2,4-Dimethylphenol	894	10.0	20.0	ug/kg	1500		59.6	10-120			
1,2,4-Trichlorobenzene	369	5.0	5.0	ug/kg	500		73.8	35-120			
Hexachlorobutadiene	391	2.5	5.0	ug/kg	500		78.3	34-120			
N-Nitrosodimethylamine	1040	12.5	25.0	ug/kg	1500		69.3	30-160			E
Dimethylphthalate	497	2.5	5.0	ug/kg	500		99.3	38-120			
Diethyl phthalate	549	10.0	20.0	ug/kg	500		110	55-120			
N-Nitrosodiphenylamine	461	2.5	5.0	ug/kg	500		92.2	27-120			
Hexachlorobenzene	446	2.5	5.0	ug/kg	500		89.2	32-120			
Pentachlorophenol	1130	100	100	ug/kg	1500		75.6	26-120			Q, E
Butylbenzylphthalate	506	2.5	5.0	ug/kg	500		101	32-142			
Dibenzo(a,h)anthracene	459	2.5	5.0	ug/kg	500		91.8	28-125			Q
Surrogate: 2-Fluorophenol	664			ug/kg	750		88.5	27-120			
Surrogate: p-Terphenyl-d14	521			ug/kg	500		104	37-120			



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Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - SIM - Quality Control

Batch BMG0256 - EPA 8270E-SIM

Instrument: NT10 Analyst: RJL

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMG0256-BSD2)						Prepared: 12-Jul-2024 Analyzed: 27-Jul-2024 17:14					
Phenol	407	2.5	5.0	ug/kg	500		81.5	30-160	1.92	30	
1,3-Dichlorobenzene	379	2.5	5.0	ug/kg	500		75.8	30-120	0.40	30	
1,4-Dichlorobenzene	430	2.5	5.0	ug/kg	500		86.0	36-120	0.10	30	
1,2-Dichlorobenzene	418	2.5	5.0	ug/kg	500		83.6	36-120	0.44	30	
Benzyl Alcohol	382	10.0	20.0	ug/kg	500		76.3	25-123	4.87	30	
Benzoic acid	1390	200	200	ug/kg	2250		61.9	10-160	0.72	30	Q
2-Methylphenol	441	2.5	5.0	ug/kg	500		88.2	26-120	2.34	30	
N-Nitroso-di-n-Propylamine	526	10.0	20.0	ug/kg	500		105	30-160	4.45	30	
4-Methylphenol	469	2.5	5.0	ug/kg	500		93.7	30-160	3.57	30	
2,4-Dimethylphenol	766	10.0	20.0	ug/kg	1500		51.0	10-120	15.50	30	
1,2,4-Trichlorobenzene	368	5.0	5.0	ug/kg	500		73.6	35-120	0.32	30	
Hexachlorobutadiene	391	2.5	5.0	ug/kg	500		78.3	34-120	0.00		
N-Nitrosodimethylamine	1090	12.5	25.0	ug/kg	1500		72.6	30-160	4.55	30	E
Dimethylphthalate	495	2.5	5.0	ug/kg	500		99.0	38-120	0.37	30	
Diethyl phthalate	552	10.0	20.0	ug/kg	500		110	55-120	0.46	30	
N-Nitrosodiphenylamine	462	2.5	5.0	ug/kg	500		92.4	27-120	0.25	30	
Hexachlorobenzene	443	2.5	5.0	ug/kg	500		88.5	32-120	0.76	30	
Pentachlorophenol	1130	100	100	ug/kg	1500		75.6	26-120	0.05	30	Q, E
Butylbenzylphthalate	507	2.5	5.0	ug/kg	500		101	32-142	0.20	30	
Dibenzo(a,h)anthracene	463	2.5	5.0	ug/kg	500		92.5	28-125	0.76	30	Q
Surrogate: 2-Fluorophenol	658			ug/kg	750		87.7	27-120			
Surrogate: p-Terphenyl-d14	510			ug/kg	500		102	37-120			



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
18-Sep-2024 17:06

Analysis by: Analytical Resources, LLC

Butyl Tins - Quality Control

Batch BMG0255 - EPA 8270E-SIM

Instrument: NT17 Analyst: JZ

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0255-BLK1) Prepared: 12-Jul-2024 Analyzed: 23-Jul-2024 13:44											
Tributyltin Ion	ND	1.93	3.86	ug/kg							U
Surrogate: Triphenyltin	31.3			ug/kg	45.2		69.4	30-160			
Surrogate: Tripropyltin	29.0			ug/kg	43.7		66.4	30-160			



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Reported:
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Analysis by: Analytical Resources, LLC

Butyl Tins - Quality Control

Batch BMG0255 - EPA 8270E-SIM

Instrument: NT17 Analyst: JZ

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0255-BS1)					Prepared: 12-Jul-2024 Analyzed: 23-Jul-2024 13:58					
Tributyltin Ion	34.7	1.93	3.86	ug/kg	44.6	77.9	30-160			
Surrogate: Triphenyltin	36.2			ug/kg	45.2	80.2	30-160			
Surrogate: Tripropyltin	31.3			ug/kg	43.7	71.6	30-160			



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Analysis by: Analytical Resources, LLC

Butyl Tins - Quality Control

Batch BMG0255 - EPA 8270E-SIM

Instrument: NT17 Analyst: JZ

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMG0255-BS1)						Prepared: 12-Jul-2024 Analyzed: 23-Jul-2024 14:11					
Tributyltin Ion	31.8	1.93	3.86	ug/kg	44.6		71.5	30-160	8.62	30	
Surrogate: Triphenyltin	32.0			ug/kg	45.2		70.8	30-160			
Surrogate: Tripropyltin	29.2			ug/kg	43.7		66.7	30-160			



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Analysis by: Analytical Resources, LLC

Butyl Tins - Quality Control

Batch BMG0255 - EPA 8270E-SIM

Instrument: NT17 Analyst: JZ

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BMG0255-MS1)		Source: 24G0181-01		Prepared: 12-Jul-2024 Analyzed: 23-Jul-2024 18:02							
Tributyltin Ion	32.1	1.93	3.86	ug/kg	44.6	ND	71.9	30-160			
Surrogate: Triphenyltin	31.0			ug/kg	45.2	36.3	68.6	30-160			
Surrogate: Tripropyltin	27.4			ug/kg	43.8	28.9	62.5	30-160			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.



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Project: PAMP Sediments
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Project Manager: Dan McMahon

Reported:
18-Sep-2024 17:06

Analysis by: Analytical Resources, LLC

Butyl Tins - Quality Control

Batch BMG0255 - EPA 8270E-SIM

Instrument: NT17 Analyst: JZ

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BMG0255-MSD1)		Source: 24G0181-01		Prepared: 12-Jul-2024 Analyzed: 23-Jul-2024 18:16							
Tributyltin Ion	33.0	1.93	3.86	ug/kg	44.6	ND	74.1	30-160	2.96	30	
Surrogate: Triphenyltin	31.9			ug/kg	45.2	36.3	70.7	30-160			
Surrogate: Tripropyltin	27.5			ug/kg	43.8	28.9	62.9	30-160			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
18-Sep-2024 17:06

Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BMG0254 - EPA 8081B

Instrument: ECD6 Analyst: RT/JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0254-BLK1) Prepared: 12-Jul-2024 Analyzed: 18-Aug-2024 14:55											
alpha-BHC	ND	0.25	0.50	ug/kg							U
beta-BHC	ND	0.25	0.50	ug/kg							U
gamma-BHC (Lindane)	ND	0.25	0.50	ug/kg							U
delta-BHC	ND	0.25	0.50	ug/kg							U
Heptachlor	ND	0.25	0.50	ug/kg							U
Aldrin	ND	0.50	0.50	ug/kg							U
Heptachlor Epoxide	ND	0.25	0.50	ug/kg							U
trans-Chlordane (beta-Chlordane)	ND	0.50	0.50	ug/kg							U
cis-Chlordane (alpha-chlordane)	ND	0.25	0.50	ug/kg							U
Endosulfan I	ND	0.25	0.50	ug/kg							U
4,4'-DDE	ND	0.50	1.00	ug/kg							U
Dieldrin	ND	0.50	1.00	ug/kg							U
Endrin	ND	0.50	1.00	ug/kg							U
Endosulfan II	ND	0.50	1.00	ug/kg							U
4,4'-DDD	ND	0.50	1.00	ug/kg							U
Endrin Aldehyde	ND	0.50	1.00	ug/kg							U
4,4'-DDT	ND	0.50	1.00	ug/kg							U
Endosulfan Sulfate	ND	0.50	1.00	ug/kg							U
Endrin Ketone	ND	0.50	1.00	ug/kg							U
Methoxychlor	ND	2.50	5.00	ug/kg							U
Hexachlorobutadiene	ND	0.25	0.50	ug/kg							U
Hexachlorobenzene	ND	0.25	0.50	ug/kg							U
2,4'-DDE	ND	0.50	1.00	ug/kg							U
2,4'-DDD	ND	0.50	1.00	ug/kg							U
2,4'-DDT	ND	0.50	1.00	ug/kg							U
Oxychlordane	ND	0.50	1.00	ug/kg							U
cis-Nonachlor	ND	0.50	1.00	ug/kg							U
trans-Nonachlor	ND	0.50	1.00	ug/kg							U
Mirex	ND	1.00	1.00	ug/kg							U
Surrogate: Decachlorobiphenyl	9.44			ug/kg	8.00		118	30-160			
Surrogate: Decachlorobiphenyl [2C]	9.11			ug/kg	8.00		114	30-160			
Surrogate: Tetrachlorometaxylene	7.64			ug/kg	8.00		95.5	30-160			
Surrogate: Tetrachlorometaxylene [2C]	6.73			ug/kg	8.00		84.1	30-160			



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
18-Sep-2024 17:06

Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BMG0254 - EPA 8081B

Instrument: ECD6 Analyst: RT/JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0254-BS1)						Prepared: 12-Jul-2024 Analyzed: 18-Aug-2024 15:15					
alpha-BHC [2C]	3.77	0.25	0.50	ug/kg	4.00		94.4	28-120			
beta-BHC [2C]	3.85	0.25	0.50	ug/kg	4.00		96.3	33-120			
gamma-BHC (Lindane) [2C]	3.83	0.25	0.50	ug/kg	4.00		95.7	30-124			
delta-BHC [2C]	3.79	0.25	0.50	ug/kg	4.00		94.8	30-120			
Heptachlor	4.12	0.25	0.50	ug/kg	4.00		103	26-120			
Aldrin	3.38	0.50	0.50	ug/kg	4.00		84.6	26-120			
Heptachlor Epoxide	3.60	0.25	0.50	ug/kg	4.00		90.1	26-120			
trans-Chlordane (beta-Chlordane) [2C]	3.72	0.50	0.50	ug/kg	4.00		93.0	21-120			
cis-Chlordane (alpha-chlordane) [2C]	3.59	0.25	0.50	ug/kg	4.00		89.9	39-120			
Endosulfan I [2C]	3.55	0.25	0.50	ug/kg	4.00		88.9	17-143			
4,4'-DDE [2C]	7.56	0.50	1.00	ug/kg	8.00		94.4	35-120			
Dieldrin [2C]	7.53	0.50	1.00	ug/kg	8.00		94.1	10-140			
Endrin [2C]	10.9	0.50	1.00	ug/kg	8.00		136	45-120			
Endosulfan II [2C]	9.99	0.50	1.00	ug/kg	8.00		125	10-139			
4,4'-DDD [2C]	10.2	0.50	1.00	ug/kg	8.00		127	50-120			
Endrin Aldehyde [2C]	9.34	0.50	1.00	ug/kg	8.00		117	10-120			P1
4,4'-DDT [2C]	9.84	0.50	1.00	ug/kg	8.00		123	39-120			
Endosulfan Sulfate [2C]	10.4	0.50	1.00	ug/kg	8.00		130	38-120			
Endrin Ketone [2C]	9.72	0.50	1.00	ug/kg	8.00		121	17-120			
Methoxychlor [2C]	51.0	2.50	5.00	ug/kg	40.0		128	10-140			
Hexachlorobutadiene [2C]	3.22	0.25	0.50	ug/kg	4.00		80.5	15-120			
Hexachlorobenzene [2C]	3.25	0.25	0.50	ug/kg	4.00		81.2	26-128			
Surrogate: Decachlorobiphenyl	9.42			ug/kg	8.00		118	30-160			
Surrogate: Decachlorobiphenyl [2C]	10.1			ug/kg	8.00		127	30-160			
Surrogate: Tetrachlorometaxylene	6.91			ug/kg	8.00		86.4	30-160			
Surrogate: Tetrachlorometaxylene [2C]	7.47			ug/kg	8.00		93.4	30-160			



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Reported:
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Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BMG0254 - EPA 8081B

Instrument: ECD6 Analyst: RT

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0254-BS2) Prepared: 12-Jul-2024 Analyzed: 31-Jul-2024 15:14											
2,4'-DDE	7.40	0.50	1.00	ug/kg	8.00		92.4	30-160			
2,4'-DDD	7.65	0.50	1.00	ug/kg	8.00		95.6	30-160			
2,4'-DDT	8.89	0.50	1.00	ug/kg	8.00		111	30-160			
Oxychlordane	6.96	0.50	1.00	ug/kg	8.00		87.0	30-160			P1
cis-Nonachlor	7.14	0.50	1.00	ug/kg	8.00		89.3	30-160			
trans-Nonachlor	6.79	0.50	1.00	ug/kg	8.00		84.8	30-160			
Mirex	6.81	1.00	1.00	ug/kg	8.00		85.1	30-160			P1
Surrogate: Decachlorobiphenyl	7.25			ug/kg	8.00		90.6	30-160			
Surrogate: Decachlorobiphenyl [2C]	6.97			ug/kg	8.00		87.2	30-160			
Surrogate: Tetrachlorometaxylene	5.06			ug/kg	8.00		63.2	30-160			
Surrogate: Tetrachlorometaxylene [2C]	5.35			ug/kg	8.00		66.9	30-160			



Shannon & Wilson, Inc
5430 Fairbanks Street, Suite 3
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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
18-Sep-2024 17:06

Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BMG0254 - EPA 8081B

Instrument: ECD6 Analyst: RT/JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0254-BS3)										
Prepared: 12-Jul-2024 Analyzed: 18-Aug-2024 15:36										
2,4'-DDE	5.96	0.50	1.00	ug/kg	8.00		74.5 30-160			
2,4'-DDD [2C]	6.46	0.50	1.00	ug/kg	8.00		80.7 30-160			
2,4'-DDT	6.45	0.50	1.00	ug/kg	8.00		80.6 30-160			
Oxychlorane	5.39	0.50	1.00	ug/kg	8.00		67.4 30-160			
cis-Nonachlor [2C]	6.47	0.50	1.00	ug/kg	8.00		80.9 30-160			
trans-Nonachlor [2C]	6.46	0.50	1.00	ug/kg	8.00		80.8 30-160			
Mirex [2C]	5.77	1.00	1.00	ug/kg	8.00		72.2 30-160			
Surrogate: Decachlorobiphenyl	9.16			ug/kg	8.00		114 30-160			
Surrogate: Decachlorobiphenyl [2C]	8.78			ug/kg	8.00		110 30-160			
Surrogate: Tetrachlorometaxylene	6.15			ug/kg	8.00		76.9 30-160			
Surrogate: Tetrachlorometaxylene [2C]	6.25			ug/kg	8.00		78.1 30-160			



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Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BMG0254 - EPA 8081B

Instrument: ECD6 Analyst: RT/JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMG0254-BSD1)						Prepared: 12-Jul-2024 Analyzed: 18-Aug-2024 15:56					
alpha-BHC [2C]	3.57	0.25	0.50	ug/kg	4.00		89.4	28-120	5.44	30	
beta-BHC [2C]	3.69	0.25	0.50	ug/kg	4.00		92.3	33-120	4.25	30	
gamma-BHC (Lindane) [2C]	3.79	0.25	0.50	ug/kg	4.00		94.7	30-124	1.08	30	
delta-BHC	3.75	0.25	0.50	ug/kg	4.00		93.7	30-120	0.13	30	
Heptachlor	4.01	0.25	0.50	ug/kg	4.00		100	26-120	2.86	30	
Aldrin	3.31	0.50	0.50	ug/kg	4.00		82.7	26-120	2.24	30	
Heptachlor Epoxide	3.71	0.25	0.50	ug/kg	4.00		92.8	26-120	2.94	30	
trans-Chlordane (beta-Chlordane) [2C]	3.60	0.50	0.50	ug/kg	4.00		89.9	21-120	3.33	30	
cis-Chlordane (alpha-chlordane) [2C]	3.52	0.25	0.50	ug/kg	4.00		88.1	39-120	2.00	30	
Endosulfan I	3.54	0.25	0.50	ug/kg	4.00		88.5	17-143	1.63	30	
4,4'-DDE [2C]	7.39	0.50	1.00	ug/kg	8.00		92.4	35-120	2.15	30	
Dieldrin [2C]	7.45	0.50	1.00	ug/kg	8.00		93.1	10-140	1.01	30	
Endrin [2C]	10.5	0.50	1.00	ug/kg	8.00		132	45-120	2.87	30	*
Endosulfan II [2C]	9.88	0.50	1.00	ug/kg	8.00		123	10-139	1.15	30	
4,4'-DDD [2C]	10.1	0.50	1.00	ug/kg	8.00		126	50-120	0.81	30	*
Endrin Aldehyde [2C]	9.12	0.50	1.00	ug/kg	8.00		114	10-120	2.39	30	P1
4,4'-DDT [2C]	9.74	0.50	1.00	ug/kg	8.00		122	39-120	0.96	30	*
Endosulfan Sulfate [2C]	10.3	0.50	1.00	ug/kg	8.00		129	38-120	0.63	30	*
Endrin Ketone [2C]	9.80	0.50	1.00	ug/kg	8.00		123	17-120	0.88	30	*
Methoxychlor [2C]	50.5	2.50	5.00	ug/kg	40.0		126	10-140	1.13	30	
Hexachlorobutadiene [2C]	3.09	0.25	0.50	ug/kg	4.00		77.2	15-120	4.15	30	
Hexachlorobenzene [2C]	3.02	0.25	0.50	ug/kg	4.00		75.4	26-128	7.44	30	
Surrogate: Decachlorobiphenyl	9.47			ug/kg	8.00		118	30-160			
Surrogate: Decachlorobiphenyl [2C]	10.1			ug/kg	8.00		126	30-160			
Surrogate: Tetrachlorometaxylene	6.72			ug/kg	8.00		84.0	30-160			
Surrogate: Tetrachlorometaxylene [2C]	7.01			ug/kg	8.00		87.6	30-160			



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Reported:
18-Sep-2024 17:06

Analysis by: Analytical Resources, LLC

Aroclor PCB - Quality Control

Batch BMG0250 - EPA 8082A

Instrument: ECD5 Analyst: NRB

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0250-BLK1) Prepared: 15-Jul-2024 Analyzed: 24-Jul-2024 22:01										
Aroclor 1016	ND	2.0	4.0	ug/kg						U
Aroclor 1221	ND	2.0	4.0	ug/kg						U
Aroclor 1232	ND	2.0	4.0	ug/kg						U
Aroclor 1242	ND	2.0	4.0	ug/kg						U
Aroclor 1248	ND	2.0	4.0	ug/kg						U
Aroclor 1254	ND	2.0	4.0	ug/kg						U
Aroclor 1260	ND	2.0	4.0	ug/kg						U
Aroclor 1262	ND	2.0	4.0	ug/kg						U
Aroclor 1268	ND	2.0	4.0	ug/kg						U
Surrogate: Decachlorobiphenyl	7.40			ug/kg	8.00		92.5	40-126		
Surrogate: Tetrachlorometaxylene	6.38			ug/kg	8.00		79.7	44-120		
Surrogate: Decachlorobiphenyl [2C]	7.40			ug/kg	8.00		92.5	40-126		
Surrogate: Tetrachlorometaxylene [2C]	6.35			ug/kg	8.00		79.3	44-120		



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Analysis by: Analytical Resources, LLC

Aroclor PCB - Quality Control

Batch BMG0250 - EPA 8082A

Instrument: ECD5 Analyst: NRB

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
LCS (BMG0250-BS1)					Prepared: 15-Jul-2024 Analyzed: 24-Jul-2024 22:22					
Aroclor 1016	92.6	2.0	4.0	ug/kg	101		91.8 56-120			
Aroclor 1260	89.2	2.0	4.0	ug/kg	101		88.5 58-120			
Surrogate: Decachlorobiphenyl	7.24			ug/kg	8.00		90.4 40-126			
Surrogate: Tetrachlorometaxylene	7.23			ug/kg	8.00		90.3 44-120			
Surrogate: Decachlorobiphenyl [2C]	7.24			ug/kg	8.00		90.5 40-126			
Surrogate: Tetrachlorometaxylene [2C]	6.90			ug/kg	8.00		86.2 44-120			



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Aroclor PCB - Quality Control

Batch BMG0250 - EPA 8082A

Instrument: ECD5 Analyst: NRB

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMG0250-BSD1)						Prepared: 15-Jul-2024 Analyzed: 24-Jul-2024 22:43					
Aroclor 1016	96.9	2.0	4.0	ug/kg	101		96.1	56-120	4.56	30	
Aroclor 1260	95.3	2.0	4.0	ug/kg	101		94.5	58-120	6.63	30	
Surrogate: Decachlorobiphenyl	6.73			ug/kg	8.00		84.1	40-126			
Surrogate: Tetrachlorometaxylene	6.61			ug/kg	8.00		82.6	44-120			
Surrogate: Decachlorobiphenyl [2C]	6.84			ug/kg	8.00		85.6	40-126			
Surrogate: Tetrachlorometaxylene [2C]	6.33			ug/kg	8.00		79.1	44-120			



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Reported:
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Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BMG0273 - EPA 6020B

Instrument: ICPMS1 Analyst: DOE

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0273-BLK1)						Prepared: 11-Jul-2024 Analyzed: 18-Jul-2024 12:36						
Antimony	121	ND	0.10	0.20	mg/kg							U
Chromium	52	ND	0.26	0.50	mg/kg							U
Chromium	53	ND	0.24	0.50	mg/kg							U
Lead	208	ND	0.05	0.10	mg/kg							U
Silver	107	ND	0.02	0.20	mg/kg							U
Arsenic	75a	ND	0.04	0.20	mg/kg							U
Cadmium	111	ND	0.03	0.10	mg/kg							U
Copper	63	ND	0.17	0.50	mg/kg							U
Selenium	78	ND	0.18	0.50	mg/kg							U
Zinc	66	ND	2.9	6.0	mg/kg							U
LCS (BMG0273-BS1)						Prepared: 11-Jul-2024 Analyzed: 18-Jul-2024 12:41						
Antimony	121	24.9	0.10	0.20	mg/kg	25.0		99.7	80-120			
Chromium	52	26.1	0.26	0.50	mg/kg	25.0		105	80-120			
Chromium	53	25.1	0.24	0.50	mg/kg	25.0		100	80-120			
Lead	208	27.0	0.05	0.10	mg/kg	25.0		108	80-120			
Silver	107	26.5	0.02	0.20	mg/kg	25.0		106	80-120			
Arsenic	75a	24.6	0.04	0.20	mg/kg	25.0		98.3	80-120			
Cadmium	111	24.8	0.03	0.10	mg/kg	25.0		99.1	80-120			
Copper	63	26.5	0.17	0.50	mg/kg	25.0		106	80-120			
Selenium	78	77.6	0.18	0.50	mg/kg	80.0		96.9	80-120			
Zinc	66	80.7	2.9	6.0	mg/kg	80.0		101	80-120			



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Reported:
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Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BMG0336 - EPA 7471B

Instrument: HYDRA Analyst: ML

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0336-BLK1) Prepared: 18-Jul-2024 Analyzed: 22-Jul-2024 11:49										
Mercury	ND	0.00525	0.0250	mg/kg						U
LCS (BMG0336-BS1) Prepared: 18-Jul-2024 Analyzed: 22-Jul-2024 11:51										
Mercury	0.495	0.00525	0.0250	mg/kg	0.500		99.0 80-120			



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Reported:
18-Sep-2024 17:06

Analysis by: Analytical Resources, LLC

Wet Chemistry - Quality Control

Batch BMG0281 - PSEP 1986

Instrument: BAL2 Analyst: LERB

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Blank (BMG0281-BLK1)					Prepared: 11-Jul-2024 Analyzed: 11-Jul-2024 15:26					
Volatile Solids	ND	0.01	0.01	%						U
Total Solids	ND	0.04	0.04	%						U
Duplicate (BMG0281-DUP1)					Source: 24G0181-01 Prepared: 11-Jul-2024 Analyzed: 11-Jul-2024 15:26					
Volatile Solids	1.94	0.01	0.01	%		1.50		25.60	20	*
Total Solids	76.97	0.04	0.04	%		76.67		0.39	20	
Duplicate (BMG0281-DUP2)					Source: 24G0181-01 Prepared: 11-Jul-2024 Analyzed: 11-Jul-2024 15:26					
Volatile Solids	2.16	0.01	0.01	%		1.50		36.40	20	*
Total Solids	77.93	0.04	0.04	%		76.67		1.63	20	



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Analysis by: Analytical Resources, LLC

Wet Chemistry - Quality Control

Batch BMH0093 - EPA 9060A m

Instrument: Accumet AB150 Analyst: ARR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Blank (BMH0093-BLK1)					Prepared: 06-Aug-2024 Analyzed: 07-Aug-2024 20:10					
Total Organic Carbon	ND	0.02	0.02	%						U
LCS (BMH0093-BS1)					Prepared: 06-Aug-2024 Analyzed: 07-Aug-2024 22:11					
Total Organic Carbon	44.8	0.02	0.02	%	44.4	101	80-120			



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Certified Analyses included in this Report

Analyte	Certifications
EPA 6020B in Solid	
Silver-107	NELAP,DoD-ELAP,WADOE
Chromium-52	NELAP,DoD-ELAP,WADOE,ADEC
Chromium-53	NELAP,DoD-ELAP,WADOE,ADEC
Lead-208	NELAP,DoD-ELAP,WADOE,ADEC
Antimony-121	NELAP,DoD-ELAP,WADOE
EPA 6020B UCT-KED in Solid	
Arsenic-75a	NELAP,DoD-ELAP,WADOE,ADEC
Cadmium-111	NELAP,DoD-ELAP,WADOE,ADEC
Copper-63	NELAP,DoD-ELAP,WADOE
Selenium-78	NELAP,DoD-ELAP,WADOE
Zinc-66	NELAP,DoD-ELAP,WADOE
EPA 7471B in Solid	
Mercury	WADOE,NELAP,DoD-ELAP
EPA 8081B in Solid	
alpha-BHC	DoD-ELAP,NELAP,WADOE
alpha-BHC [2C]	DoD-ELAP,NELAP,WADOE
beta-BHC	DoD-ELAP,NELAP,WADOE
beta-BHC [2C]	DoD-ELAP,NELAP,WADOE
gamma-BHC (Lindane)	DoD-ELAP,NELAP,WADOE
gamma-BHC (Lindane) [2C]	DoD-ELAP,NELAP,WADOE
delta-BHC	DoD-ELAP,NELAP,WADOE
delta-BHC [2C]	DoD-ELAP,NELAP,WADOE
Heptachlor	DoD-ELAP,NELAP,WADOE
Heptachlor [2C]	DoD-ELAP,NELAP,WADOE
Aldrin	DoD-ELAP,NELAP,WADOE
Aldrin [2C]	DoD-ELAP,NELAP,WADOE
Heptachlor Epoxide	DoD-ELAP,NELAP,WADOE
Heptachlor Epoxide [2C]	DoD-ELAP,NELAP,WADOE
trans-Chlordane (beta-Chlordane)	DoD-ELAP,NELAP



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trans-Chlordane (beta-Chlordane)	DoD-ELAP,NELAP
cis-Chlordane (alpha-chlordane)	DoD-ELAP,NELAP,WADOE
cis-Chlordane (alpha-chlordane)	DoD-ELAP,NELAP,WADOE
Endosulfan I	DoD-ELAP,NELAP,WADOE
Endosulfan I [2C]	DoD-ELAP,NELAP,WADOE
4,4'-DDE	DoD-ELAP,NELAP,WADOE
4,4'-DDE [2C]	DoD-ELAP,NELAP,WADOE
Dieldrin	DoD-ELAP,NELAP,WADOE
Dieldrin [2C]	DoD-ELAP,NELAP,WADOE
Endrin	DoD-ELAP,NELAP,WADOE
Endrin [2C]	DoD-ELAP,NELAP,WADOE
Endosulfan II	DoD-ELAP,NELAP,WADOE
Endosulfan II [2C]	DoD-ELAP,NELAP,WADOE
4,4'-DDD	DoD-ELAP,NELAP,WADOE
4,4'-DDD [2C]	DoD-ELAP,NELAP,WADOE
Endrin Aldehyde	DoD-ELAP,NELAP,WADOE
Endrin Aldehyde [2C]	DoD-ELAP,NELAP,WADOE
4,4'-DDT	DoD-ELAP,NELAP,WADOE
4,4'-DDT [2C]	DoD-ELAP,NELAP,WADOE
Endosulfan Sulfate	DoD-ELAP,NELAP,WADOE
Endosulfan Sulfate [2C]	DoD-ELAP,NELAP,WADOE
Endrin Ketone	DoD-ELAP,NELAP,WADOE
Endrin Ketone [2C]	DoD-ELAP,NELAP,WADOE
Methoxychlor	DoD-ELAP,NELAP,WADOE
Methoxychlor [2C]	DoD-ELAP,NELAP,WADOE
Hexachlorobutadiene	DoD-ELAP,NELAP,WADOE
Hexachlorobutadiene [2C]	DoD-ELAP,NELAP,WADOE
Hexachlorobenzene	DoD-ELAP,NELAP,WADOE
Hexachlorobenzene [2C]	DoD-ELAP,NELAP,WADOE
2,4'-DDE	DoD-ELAP,NELAP,WADOE
2,4'-DDE [2C]	DoD-ELAP,NELAP,WADOE
2,4'-DDD	DoD-ELAP,NELAP,WADOE
2,4'-DDD [2C]	DoD-ELAP,NELAP,WADOE



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2,4'-DDT	DoD-ELAP,NELAP,WADOE
2,4'-DDT [2C]	DoD-ELAP,NELAP,WADOE
Oxychlordan	DoD-ELAP,NELAP,WADOE
Oxychlordan [2C]	DoD-ELAP,NELAP,WADOE
cis-Nonachlor	DoD-ELAP,NELAP,WADOE
cis-Nonachlor [2C]	DoD-ELAP,NELAP,WADOE
trans-Nonachlor	DoD-ELAP,NELAP,WADOE
trans-Nonachlor [2C]	DoD-ELAP,NELAP,WADOE
Mirex	DoD-ELAP,NELAP,WADOE
Mirex [2C]	DoD-ELAP,NELAP,WADOE

EPA 8082A in Solid

Aroclor 1016	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1016 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1242	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1242 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1248	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1248 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1260	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1260 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1262	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1262 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1268	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1268 [2C]	WADOE,DoD-ELAP,NELAP,ADEC

EPA 8270E in Solid

Phenol	DoD-ELAP,NELAP,WADOE
bis(2-chloroethyl) ether	DoD-ELAP,NELAP,WADOE
2-Chlorophenol	DoD-ELAP,NELAP,WADOE



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1,3-Dichlorobenzene	DoD-ELAP,NELAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,NELAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,NELAP,WADOE
Benzyl Alcohol	DoD-ELAP,NELAP,WADOE
2,2'-Oxybis(1-chloropropane)	DoD-ELAP,NELAP
2-Methylphenol	DoD-ELAP,NELAP,WADOE
Hexachloroethane	DoD-ELAP,NELAP,WADOE
N-Nitroso-di-n-Propylamine	DoD-ELAP,NELAP,WADOE
4-Methylphenol	DoD-ELAP,NELAP,WADOE
Nitrobenzene	DoD-ELAP,NELAP,WADOE
Isophorone	DoD-ELAP,NELAP,WADOE
2-Nitrophenol	DoD-ELAP,NELAP,WADOE
2,4-Dimethylphenol	DoD-ELAP,NELAP,WADOE
Bis(2-Chloroethoxy)methane	DoD-ELAP,NELAP,WADOE
2,4-Dichlorophenol	DoD-ELAP,NELAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,NELAP,WADOE
Naphthalene	DoD-ELAP,NELAP,WADOE,ADEC
Benzoic acid	DoD-ELAP,NELAP,WADOE
4-Chloroaniline	DoD-ELAP,NELAP,WADOE
Hexachlorobutadiene	DoD-ELAP,NELAP,WADOE
4-Chloro-3-Methylphenol	DoD-ELAP,NELAP,WADOE
2-Methylnaphthalene	DoD-ELAP,NELAP,WADOE,ADEC
Hexachlorocyclopentadiene	DoD-ELAP,NELAP,WADOE
2,4,6-Trichlorophenol	DoD-ELAP,NELAP,WADOE
2,4,5-Trichlorophenol	DoD-ELAP,NELAP,WADOE
2-Chloronaphthalene	DoD-ELAP,NELAP,WADOE
2-Nitroaniline	DoD-ELAP,NELAP,WADOE
Acenaphthylene	DoD-ELAP,NELAP,WADOE,ADEC
Dimethylphthalate	DoD-ELAP,NELAP,WADOE
2,6-Dinitrotoluene	DoD-ELAP,NELAP,WADOE
Acenaphthene	DoD-ELAP,NELAP,WADOE,ADEC
3-Nitroaniline	DoD-ELAP,NELAP,WADOE
2,4-Dinitrophenol	DoD-ELAP,NELAP,WADOE



Shannon & Wilson, Inc

5430 Fairbanks Street, Suite 3

Anchorage AK, 99518

Project: PAMP Sediments

Project Number: 113733

Project Manager: Dan McMahon

Reported:

18-Sep-2024 17:06

Dibenzofuran	DoD-ELAP,NELAP,WADOE,ADEC
4-Nitrophenol	DoD-ELAP,NELAP,WADOE
2,4-Dinitrotoluene	DoD-ELAP,NELAP,WADOE
Fluorene	DoD-ELAP,NELAP,WADOE,ADEC
4-Chlorophenylphenyl ether	DoD-ELAP,NELAP
Diethyl phthalate	DoD-ELAP,NELAP,WADOE
4-Nitroaniline	DoD-ELAP,NELAP,WADOE
4,6-Dinitro-2-methylphenol	DoD-ELAP,NELAP,WADOE
N-Nitrosodiphenylamine	DoD-ELAP,NELAP,WADOE
4-Bromophenyl phenyl ether	DoD-ELAP,NELAP,WADOE
Hexachlorobenzene	DoD-ELAP,NELAP,WADOE
Pentachlorophenol	DoD-ELAP,NELAP,WADOE
Phenanthrene	DoD-ELAP,NELAP,WADOE,ADEC
Anthracene	DoD-ELAP,NELAP,WADOE,ADEC
Carbazole	DoD-ELAP,NELAP,WADOE,ADEC
Di-n-Butylphthalate	DoD-ELAP,NELAP,WADOE
Fluoranthene	DoD-ELAP,NELAP,WADOE,ADEC
Pyrene	DoD-ELAP,NELAP,WADOE,ADEC
Butylbenzylphthalate	DoD-ELAP,NELAP,WADOE
Benzo(a)anthracene	DoD-ELAP,NELAP,WADOE,ADEC
3,3'-Dichlorobenzidine	DoD-ELAP,NELAP,WADOE
Chrysene	DoD-ELAP,NELAP,WADOE,ADEC
bis(2-Ethylhexyl)phthalate	DoD-ELAP,NELAP,WADOE
Di-n-Octylphthalate	DoD-ELAP,NELAP,WADOE
Benzofluoranthenes, Total	WADOE,ADEC
Benzo(a)pyrene	DoD-ELAP,NELAP,WADOE,ADEC
Indeno(1,2,3-cd)pyrene	DoD-ELAP,NELAP,WADOE,ADEC
Dibenzo(a,h)anthracene	DoD-ELAP,NELAP,WADOE,ADEC
Benzo(g,h,i)perylene	DoD-ELAP,NELAP,WADOE,ADEC
1-Methylnaphthalene	DoD-ELAP,NELAP,WADOE,ADEC

EPA 8270E-SIM in Solid

Tributyltin Ion	NELAP,WADOE,DoD-ELAP
Phenol	NELAP,WADOE



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Project: PAMP Sediments
Project Number: 113733
Project Manager: Dan McMahon

Reported:
18-Sep-2024 17:06

1,3-Dichlorobenzene	NELAP,WADOE
1,4-Dichlorobenzene	NELAP,WADOE
1,2-Dichlorobenzene	NELAP,WADOE
Benzyl Alcohol	NELAP,WADOE
2-Methylphenol	NELAP,WADOE
N-Nitroso-di-n-Propylamine	NELAP,WADOE
4-Methylphenol	NELAP,WADOE
2,4-Dimethylphenol	NELAP,WADOE
1,2,4-Trichlorobenzene	NELAP,WADOE
Hexachlorobutadiene	NELAP,WADOE
N-Nitrosodimethylamine	NELAP,WADOE
Dimethylphthalate	NELAP,WADOE
Diethyl phthalate	NELAP,WADOE
N-Nitrosodiphenylamine	NELAP,WADOE
Hexachlorobenzene	NELAP,WADOE
Pentachlorophenol	NELAP,WADOE
Butylbenzylphthalate	NELAP,WADOE
Dibenzo(a,h)anthracene	NELAP,WADOE

EPA 9060A m in Solid

Total Organic Carbon	NELAP,WADOE

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2025
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program, PJLA Testing	66169	02/28/2025
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2025
WADOE	WA Dept of Ecology	C558	06/30/2025
WA-DW	Ecology - Drinking Water	C558	06/30/2025



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Reported:

18-Sep-2024 17:06

Notes and Definitions

*	Flagged value is not within established control limits.
D	The reported value is from a dilution
D1	Surrogate was not detected due to sample extract dilution
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
F	Samples were frozen prior to analysis to extend hold time.
J	Estimated concentration value detected below the reporting limit.
L	Analyte concentration is ≤ 5 times the reporting limit and the replicate control limit defaults to $\pm$ RL instead of 20% RPD
P1	The reported value is greater than 40% difference between the concentrations determined on two GC columns where applicable.
Q	Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria ($< 20\%$ RSD, $< 20\%$ drift or minimum RRF)
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.

ADEC Contaminated Sites Program Laboratory Data Review Checklist

Completed By:	Ashley Jaramillo	CS Site Name:	NA	Lab Name:	Analytical Resources, LLC.
Title:	Senior Chemist	ADEC File No.:	NA	Lab Report No.:	24G0181
Consulting Firm:	Shannon & Wilson, Inc.	Hazard ID No.:	NA	Lab Report Date:	9/18/24

Note: Any N/A or No box checked must have an explanation in the comments box.

1. Laboratory

- a. Did an ADEC Contaminated Sites Laboratory Approval Program (CS-LAP) approved laboratory receive and perform all of the submitted sample analyses?

Yes ☐ No ☒ N/A ☐

Comments: Project samples were sent to Analytical Resources, LLC (ARI) Tukwila, Washington for the analysis of Grain Size by PSEP-PS, total solids by SM 2540, total volatile solids by PSEP 1986, SVOCs by 8270E, SVOC-SIM by 8270E-SIM, tributyltin (TBT) by 8270E-SIM, pesticide by 8081B, PCBs by 8082A, TOC by 9060A, metals by 6020B, and mercury by 7471. ARI is certified under DEC approval 17-015 dated 4/13/2023, expiring 3/28/2025. Grain Size by PSEP-PS was subcontracted to AMTEST Laboratories (AMTEST) in Tukwila, Washinton. The DEC CS project does not certify for this analysis.

- b. If the samples were transferred to another “network” laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses CS-LAP approved?

Yes ☐ No ☒ N/A ☐

Comments: Grain Size by PSEP-PS was subcontracted to AMTEST in Tukwila, Washinton. The DEC CS project does not certify for this analysis.

2. Chain of Custody (CoC)

- a. Is the CoC information completed, signed, and dated (including released/received by)?

Yes ☒ No ☐ N/A ☐

Comments:

CS Site Name: NA

Lab Report No.: 24G0181

b. Were the correct analyses requested?

Yes ☒ No ☐ N/A ☐

Analyses requested: No methods were listed on the CoC for Grain size, total solids, total volatile solids, SVOCs, SVOC-SIM, TBT, pesticides, PDBs, TOC, metals, and mercury. The laboratories analyzed Grain Size by PSEP-PS, total solids by SM 2540, total volatile solids by PSEP 1986, SVOCs by 8270E, SVOC-SIM by 8270E-SIM, TBT by 8270E-SIM, pesticide by 8081B, PCBs by 8082A, TOC by 9060A, metals by 6020B, and mercury by 7471.

Comments: These are the correct methods for this project. Data quality and/or usability not affected.

3. Laboratory Sample Receipt Documentation

a. Is the sample/cooler temperature documented and within range at receipt (0° to 6° C)?

Yes ☒ No ☐ N/A ☐

Cooler temperature(s): Cooler temperatures were not reported, rather a temperature blank was included with the samples in the cooler and is used to access temperature preservation. The temperature blank was 3.8°C at sample login at ARI. The temperature blank was 1.2°C at sample login at AMTEST.

Sample temperature(s): Sample temperatures were not reported.

Comments: The temperature blank was within the acceptable temperature range.

b. Is the sample preservation acceptable – acidified waters, methanol preserved soil (GRO, BTEX, VOCs, etc.)?

Yes ☐ No ☐ N/A ☒

Comments: Sample preservation not required.

c. Is the sample condition documented – broken, leaking, zero headspace (VOA vials); canister vacuum/pressure checked and no open valves, etc.?

Yes ☒ No ☐ N/A ☐

Comments: Samples were noted to be in good condition.

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, canister not holding a vacuum, etc.?

Yes ☐ No ☐ N/A ☒

Comments: No discrepancies were noted by the laboratory at sample login.

e. Is the data quality or usability affected?

Yes ☐ No ☒ N/A ☐

Comments: No laboratory sample receipt documentation discrepancies were noted at sample login.

4. Case Narrative

- a. Is the case narrative present and understandable?

Yes ☒ No ☐ N/A ☐

Comments: Click or tap here to enter text.

- b. Are there discrepancies, errors, or QC failures identified by the lab?

Yes ☒ No ☐ N/A ☐

Comments:

The samples were submitted to AMTEST Laboratories for grainsize analysis. The AMTEST report is included with the ARI laboratory report in its entirety. Data quality and/or usability not affected.

Initial and continuing SVOC calibrations were within method requirements, with accepted excursions outside the 20% window. Associated positive results have been "Q"-flagged. Response for hexachlorobutadiene was high of control limits. Response for hexachlorocyclopentadiene, 2,4-dinitrophenol and 3,3'-dichlorobenzidine were low. Evaluation of ICV or CCV is outside of the scope of a stage 2a data review and the laboratory didn't indicate an effect on project data due to the discrepancy, therefore sample results are not considered affected.

The SVOC surrogate recoveries outside of control limits are flagged on the summary sheets. See section 6.d. for details regarding impacts to data quality and/or usability, as applicable.

The SVOC blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent differences (RPD) outside of control limits are flagged on the summary sheet. See section 6.b. for details regarding impacts to data quality and/or usability, as applicable.

SVOC batch BMG0256 matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent differences (RPD) outside advisory control limits are flagged on the summary sheet, reported under work order 24G0170. As this data is reported in another work order, we do not discuss this case narrative entry further.

Initial and continuing SVOC-SIM calibrations were within method requirements, with accepted excursions outside the 20% window. Associated positive results have been "Q"-flagged. Response for benzoic acid, pentachlorophenol and dibenzo(a,h)anthracene were high of control limits. Evaluation of ICV or CCV is outside of the scope of a stage 2a data review and the laboratory didn't indicate an effect on project data due to the discrepancy, therefore sample results are not considered affected.

SVOC-SIM batch BMG0256 matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent differences (RPD) were within advisory

CS Site Name: NA
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control limits, reported under work order 24G0170. As this data is reported in another work order, we do not discuss this case narrative entry further.

Initial and continuing pesticide calibrations were within method requirements with exceptions. Response was high on the STX- CLP column in several standards for 2,4.-DDD, 2,4.-DDE, 2,4.-DDT, 4,4.-DDD, 4,4.-DDT, cis-Nonachlor, Endosulfan II, Endosulfan Sulfate, Endrin, Endrin Aldehyde, Endrin Ketone, Heptachlor, Methoxychlor, Mirex, Oxychlorane, and trans-Nonachlor. Response was low for hexachlorobutadiene in SMG0367-ICV1. Response was high of limits on the CLP2 column in some standards for 2,4'DDD and 2,4'-DDT, and low of limits for decachlorobiphenyl (DCPB) and dieldrin. Evaluation of ICV or CCV is outside of the scope of a stage 2a data review and the laboratory didn't indicate an effect on project data due to the discrepancy, therefore sample results are not considered affected.

The pesticide internal standard areas for hexabromobiphenyl (HBB) were low of limits on the STX-CLP column in 113733-SB2S7, 113733-SB2S8, 113733-SB2S9, 113733-SB2S10, 113733-SB2S13, SMG0367-CCV4, SMG0367-CCV6, and SMG0367-PEM3. Evaluation of the internal standard is outside the scope of a stage 2a data review and the laboratory didn't indicate an effect on project data due to this discrepancy, therefore samples results are not considered affected.

Pesticide blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent differences (RPD) outside of control limits are flagged on the summary sheet.

Pesticide batch BMG0254 matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD) were within advisory control limits, reported under work order 24G0171. As this data is reported in another work order, we do not discuss this case narrative entry further.

Pesticide Results that have been "P1"-flagged indicate a greater than 40% difference between the results on the two analytical columns. The P1 flag was applied to 4,4'DDD 113733-SB2S8, and 113733-SB2S13. Consequently, the result of this analyte in the noted sample is considered an estimate, however, this analyte in the noted sample has been previously flagged due to a LCS/CLSD recovery failure, see 6.b.iii, below. No additional flags were added due to this discrepancy.

The PCB batch BMG0250 matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD) were within advisory control limits, reported under work order 24G0170. As this data is reported in another work order, we do not discuss this case narrative entry further.

The metals batch BMG0273 duplicate (DUP) relative percent differences (RPD) were within advisory control limits, reported under work order 24G0171. As this

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data is reported in another work order, we do not discuss this case narrative entry further.

Metals batch BMG0273 matrix spike (MS) percent recoveries outside advisory control limits are flagged on the summary sheet, reported under work order 24G0171. A post spike had an acceptable recovery. As this data is reported in another work order, we do not discuss this case narrative entry further.

The batch BMG0336 matrix spike (MS) percent recoveries and the duplicate (DUP) relative percent difference (RPD) were within advisory control limits, reported under work order 24G0171. As this data is reported in another work order, we do not discuss this case narrative entry further.

The solids replicates (DUP1, DUP2) relative percent difference (RPD) were outside advisory control limits and flagged on the summary sheet. See section 6.b. for details regarding impacts to data quality and/or usability, as applicable.

The TOC batch BMH0093 matrix spike (MS) percent recoveries and the replicates (DUP1, DUP2) relative percent differences (RPD) were within advisory control limits, reported under work order 24G0168. As this data is reported in another work order, we do not discuss this case narrative entry further.

AMTEST

No CoC was included with the AMTEST lab report. No data quality control discrepancies were noted in the laboratory report, data quality and/or usability not affected.

- c. Were all the corrective actions documented?

Yes ☐ No ☐ N/A ☒

Comments: Corrective actions not required.

- d. What is the effect on data quality/usability according to the case narrative?

Comments: Effect on data quality and/or usability due to discrepancies, errors, or QC failures identified by the lab in the case narrative are either discussed above in Section 4.b. or elsewhere in this checklist.

5. Sample Results

- a. Are the correct analyses performed/reported as requested on CoC?

Yes ☒ No ☐ N/A ☐

Comments: No methods were listed on the CoC for Grain size, total solids, total volatile solids, SVOCs, SVOC-SIM, TBT, pesticides, PDBs, TOC, metals, and mercury. The laboratories analyzed Grain Size by PSEP-PS, total solids by SM 2540, total volatile solids by PSEP 1986, SVOCs by 8270E, SVOC-SIM by 8270E-SIM, TBT by 8270E-SIM, pesticide by 8081B, PCBs by 8082A, TOC by

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9060A, metals by 6020B, and mercury by 7471. These are the correct methods for this project. Data quality and/or usability not affected.

- b. Are all applicable holding times met?

Yes ☒ No ☐ N/A ☐

Comments: Click or tap here to enter text.

- c. Are all soils reported on a dry weight basis?

Yes ☒ No ☐ N/A ☐

Comments: Click or tap here to enter text.

- d. Are the reported limits of quantitation (LoQ) or limits of detections (LOD), or reporting limits (RL) less than the Cleanup Level or the action level for the project?

Yes ☐ No ☒ N/A ☐

Comments: Analytical sensitivity was evaluated to verify that LODs met applicable DEC migration to groundwater cleanup levels for non-detect results, as appropriate. Analytes with LODs that do not meet applicable cleanup levels are bolded in the analytical results table. Data quality and/or usability may be affected as these analytes cannot be detected, if present, at their respective cleanup level.

- e. Is the data quality or usability affected?

Yes ☒ No ☐ N/A ☐

Comments: See 5.d. above.

6. QC Samples

- a. Method Blank

- i. Was one method blank reported per matrix, analysis, and 20 samples?

Yes ☒ No ☐ N/A ☐

Comments: Click or tap here to enter text.

- ii. Are all method blank results less than LOQ (or RL)?

Yes ☒ No ☐

Comments: However, SVOC-SIM analytes benzyl alcohol was detected in the method blank sample for batch BMG0256 at concentrations below the LOQ. Benzyl alcohol was not detected in associated project samples. Data quality and/or usability not affected.

- iii. If above LoQ or RL, what samples are affected?

Comments: Not applicable, see 6.a.ii, above.

CS Site Name: NA

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- iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes ☐ No ☒ N/A ☐

Comments: See 6.a.ii, above.

- v. Data quality or usability affected?

Yes ☐ No ☒ N/A ☐

Comments: See 6.a.ii, above.

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

- i. Organics – Are one LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

Yes ☐ No ☒ N/A ☐

Comments: LCS/LCSDs were reported for SVOC, SVOC-SIM, TBT, pesticides, and PCB analyses.

- ii. Metals/Inorganics – Are one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes ☐ No ☐ N/A ☐

Comments:

A LCS was reported for metals, mercury, and TOC analyses.

A laboratory duplicate sample was reported for volatile solids and total solids.

- iii. Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes ☐ No ☒ N/A ☐

Comments: The LCS/LCSD %R for SVOC analyte isophorone was above laboratory limits in batch BMF0256. This analyte was not detected in associated project samples. Data quality and/or usability not affected.

The LCSD %Rs for pesticide analytes endrin, 4,4'-DDD, 4,4'-DDT, endosulfan sulfate, and endrin ketone were above laboratory limits in batch BMG0254. 4,4'-DDD was detected in associated project samples 113733-SB2S7, 113733-SB2S8, and 113733-SB2S13, consequently, the 4,4'-DDD results in the noted samples are considered an estimate, biased high, and is flagged 'JH*' in the analytical table. Data quality is considered affected; however, data is considered usable with applied flags. Endrin, 4,4'-DDT, endosulfan sulfate, and endrin ketone were not detected in associated project samples. Data quality and/or usability not affected.

CS Site Name: NA

Lab Report No.: 24G0181

- iv. Precision – Are all relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? Was the RPD reported from LCS/LCSD, and or sample/sample duplicate? (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes ☐ No ☒ N/A ☐

Comments: The volatile solids laboratory duplicate RPD was outside of laboratory limits in sample 113733-SB2S7. Volatile solids was detected in this sample, consequently, the volatile solid result the noted sample is considered an estimate, no direction of bias, and is flagged 'J*' in the analytical table. Data is considered affected as noted, however, data is considered usable with applied flags.

- v. If %R or RPD is outside of acceptable limits, what samples are affected?
Comments: See 6.b.iii and 6.b.iv, above.

- vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes ☒ No ☐ N/A ☐

Comments: See 6.b.iii and 6.b.iv, above.

- vii. Is the data quality or usability affected?

Yes ☒ No ☐ N/A ☐

Comments: See 6.b.iii and 6.b.iv, above.

c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

- i. Organics – Are one MS/MSD reported per matrix, analysis and 20 samples?

Yes ☐ No ☒ N/A ☐

Comments: MS/MSD samples were reported for TBT analysis.

- ii. Metals/Inorganics – Are one MS/MSD reported per matrix, analysis and 20 samples?

Yes ☐ No ☒ N/A ☐

Comments: Click or tap here to enter text.

- iii. Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable?

Yes ☒ No ☐ N/A ☐

Comments: Click or tap here to enter text.

CS Site Name: NA

Lab Report No.: 24G0181

- iv. Precision – Are all relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from MS/MSD, and or sample/sample duplicate.

Yes ☒ No ☐ N/A ☐

Comments:

- v. If %R or RPD is outside of acceptable limits, what samples are affected?
Comments: Not applicable, %Rs and RPDs were within limits.

- vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes ☐ No ☐ N/A ☒

Comments: %Rs and RPDs were within limits.

- vii. Is the data quality or usability affected?

Yes ☐ No ☒ N/A ☐

Comments: %Rs and RPDs were within limits.

- d. Surrogates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only

- i. Are surrogate/IDA recoveries reported for organic analyses – field, QC, and laboratory samples?

Yes ☒ No ☐ N/A ☐

Comments: Click or tap here to enter text.

- ii. Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods 50-150 %R for field samples and 60-120 %R for QC samples; all other analyses see the laboratory report pages)

Yes ☐ No ☒ N/A ☐

Comments: The SVOC surrogate p-Terphenyl-d14 was recovered above the laboratory limits in sample 113733-SB2S10. p-Terphenyl-d14 controls the following analytes: 3,3-Dichlorobenzidine, Benzo(a)Anthracene, Benzo[a]pyrene, Benzofluoranthenes, Total, Benzo[g,h,i]perylene, bis(2-Ethylhexyl)phthalate, Butylbenzylphthalate, Chrysene, Dibenzo[a,h]anthracene, di-n-Octylphthalate, Indeno[1,2,3-c,d]pyrene, and Pyrene. These analytes were not detected in the noted project sample. Data quality and/or usability not affected.

- iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined?

Yes ☐ No ☐ N/A ☒

Comments: See 6.d.ii above.

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iv. Is the data quality or usability affected?

Yes ☐ No ☒ N/A ☐

Comments: See 6.d.ii above.

e. Trip Blanks

i. Is one trip blank reported per matrix, analysis, and for each cooler containing volatile samples? Yes ☐ No ☐ N/A ☒

Comments: Volatile analyses were not included with this work order. No trip blank required.

ii. Are all results less than LoQ or RL?

Yes ☐ No ☐ N/A ☒

Comments: Volatile analyses were not included with this work order. No trip blank required.

iii. If above LoQ or RL, what samples are affected?

Comments: Not applicable. Volatile analyses were not included with this work order. No trip blank required.

iv. Is the data quality or usability affected?

Yes ☐ No ☒ N/A ☐

Comments: Volatile analyses were not included with this work order. No trip blank required.

f. Field Duplicate

i. Are one field duplicate submitted per matrix, analysis, and 10 project samples?

Yes ☒ No ☐ N/A ☐

Comments: 113733-SB2S13 is the field duplicate of 113733-SB2S3. 113733-SB2S3 was reported under work order 24G0170.

ii. Was the duplicate submitted blind to lab?

Yes ☒ No ☐ N/A ☐

Comments: Click or tap here to enter text.

- iii. Precision – All relative percent differences (RPD) less than specified project objectives? (Recommended: 30% water or air, 50% soil)

$$RPD (\%) = \left| \frac{R_1 - R_2}{\left(\frac{R_1 + R_2}{2}\right)} \right| \times 100$$

Where R_1 = Sample Concentration

R_2 = Field Duplicate Concentration

Is the data quality or usability affected? (Explain)

Yes ☐ No ☒ N/A ☐

Comments: Where calculable, analytical results met the comparison criterion ($\leq 50\%$ for water) for the field duplicate pair 113733-SB2S13/113733-SB2S3 with the following exception: SVOC analyte 2-methylnaphthalene, aroclor-1260, cadmium, copper and lead. Consequently, the results of this analyte in the aforementioned field duplicate pair are considered estimated, with no direction of bias, and have been flagged 'J*' in the analytical table. Data is considered affected; however, data is considered usable with applied flags. In addition, SVOC-SIM analytes, 2-methylphenol, N-nitrosodiphenylamine and phenol, SVOC analytes anthracene, carbazole, dibenzofuran, fluoranthene, fluorene, phenanthrene, phenol, pyrene, aroclor 1248, and aroclor 1254 were detected in the field duplicate and/or project sample above the LOQ but not detected in the field duplicate and/or project sample above the detection limit. While an RPD cannot be calculated for these analytes, these results are considered a precision failure. Consequently, the results of the noted analytes in the field duplicate pair are considered estimates, no direction of bias, and are flagged 'J*' in the analytical table. Data is considered affected; however, data is considered usable with applied flags.

- iv. Is the data quality or usability affected? (Explain)

Yes ☒ No ☐ N/A ☐

Comments: See 6.f.iii, above.

g. Decontamination or Equipment Blanks

- i. Were decontamination or equipment blanks collected?

Yes ☐ No ☐ N/A ☒

Comments: Samples were not collected with reusable equipment; equipment blank not required.

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- ii. Are all results less than LoQ or RL?

Yes ☐ No ☐ N/A ☒

Comments: Samples were not collected with reusable equipment; equipment blank not required.

- iii. If above LoQ or RL, specify what samples are affected.

Comments: Not applicable. Samples were not collected with reusable equipment; equipment blank not required.

- iv. Are data quality or usability affected?

Yes ☐ No ☒ N/A ☐

Comments: Samples were not collected with reusable equipment; equipment blank not required.

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

- a. Are they defined and appropriate?

Yes ☒ No ☐ N/A ☐

Comments: Some analytes were run at a dilution. These analytes are flagged with a 'D' in the analytical report; however, these flags do not appear in the analytical table.

Samples for the analysis of TOC were frozen prior to analysis to extend holding time are flagged 'F' by the lab. These flags appear in the laboratory report, but do not appear in the analytical table. The results are not affected.

See 4.b. above for other flags.

Appendix D

Important Information

About Your Geotechnical/ Environmental Report

IMPORTANT INFORMATION

ENVIRONMENTAL SITE ASSESSMENTS/EVALUATIONS ARE PERFORMED FOR SPECIFIC PURPOSES AND FOR SPECIFIC CLIENTS.

This report was prepared to meet the needs you specified with respect to your specific site and your risk management preferences. Unless indicated otherwise, we prepared your report expressly for you and for the purposes you indicated. No one other than you should use this report for any purpose without first conferring with us. No one is authorized to use this report for any purpose other than that originally contemplated without our prior written consent.

The findings and conclusions documented in this site assessment/evaluation have been prepared for specific application to this project and have been developed in a manner consistent with that level of care and skill normally exercised by members of the environmental science profession currently practicing under similar conditions in this area. The conclusions presented are based on interpretation of information currently available to us and are made within the operational scope, budget, and schedule constraints of this project. No warranty, express or implied, is made.

OUR REPORT IS BASED ON PROJECT-SPECIFIC FACTORS.

Our environmental site assessment is based on several factors and may include (but not be limited to) reviewing public documents to chronicle site ownership for the past 30, 40, or more years; investigating the site's regulatory history to learn about permits granted or citations issued; determining prior uses of the site and those adjacent to it; reviewing available topographic and real estate maps, historical aerial photos, geologic information, and hydrologic data; reviewing readily available published information about surface and subsurface conditions; reviewing federal and state lists of known and potentially contaminated sites; evaluating the potential for naturally occurring hazards; and interviewing public officials, owners/operators, and/or adjacent owners with respect to local concerns and environmental conditions.

Except as noted within the text of the report, no sampling or quantitative laboratory testing was performed by us as part of this site assessment. Where such analyses were conducted by an outside laboratory, Shannon & Wilson relied upon the data provided and did not conduct an independent evaluation regarding the reliability of the data.

CONDITIONS CAN CHANGE.

Site conditions, both surface and subsurface, may be affected as a result of natural processes or human influence. An environmental site assessment/evaluation is based on conditions that existed at the time of the evaluation. Because so many aspects of a historical review rely on third-party information, most consultants will refuse to certify (warrant) that a site is free of contaminants, as it is impossible to know with absolute certainty if such a condition exists. Contaminants may be present in areas that were not surveyed or sampled or may migrate to areas that showed no signs of contamination at the time they were studied.

Unless your consultant indicates otherwise, your report should not be construed to represent geotechnical subsurface conditions at or adjacent to the site and does not provide sufficient information for construction-related activities. Your report also should not be used following floods, earthquakes, or other acts of nature; if the size or configuration of the site is altered; if the location of the site is modified; or if there is a change of ownership and/or use of the property.

INCIDENTAL DAMAGE MAY OCCUR DURING SAMPLING ACTIVITIES.

Incidental damage to a facility may occur during sampling activities. Asbestos and lead-based paint sampling often require destructive sampling of pipe insulation, floor tile, walls, doors, ceiling tile, roofing, and other building materials. Shannon & Wilson does not provide for paint repair. Limited repair of asbestos sample locations is provided. However, Shannon & Wilson neither warrants repairs made by our field personnel, nor are we held liable for injuries or damages as a result of those repairs. If you desire a specific form of repair, such as those provided by a licensed roofing contractor, you need to request the specific repair at the time of the proposal. The owner is responsible for repair methods that are not specified in the proposal.

READ RESPONSIBILITY CLAUSES CAREFULLY.

Environmental site assessments/evaluations are less exact than other design disciplines because they are based extensively on judgment and opinion and there may not have been any (or very limited) investigation of actual subsurface conditions. Wholly unwarranted claims have been lodged against consultants. To limit this exposure, consultants have developed a number of clauses for use in their contracts, reports, and other documents. These responsibility clauses are not exculpatory clauses designed to transfer the consultant's liabilities to other parties; rather, they are definitive clauses that identify where responsibilities begin and end. Their use helps all parties involved recognize their individual responsibilities and take appropriate action. Some of these definitive clauses may appear in this report, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to your questions.

Consultants cannot accept responsibility for problems that may develop if they are not consulted after factors considered in their reports have changed or conditions at the site have changed. Therefore, it is incumbent upon you to notify your consultant of any factors that may have changed prior to submission of the final assessment/evaluation.

An assessment/evaluation of a site helps reduce your risk but does not eliminate it. Even the most rigorous professional assessment may fail to identify all existing conditions.

ONE OF THE OBLIGATIONS OF YOUR CONSULTANT IS TO PROTECT THE SAFETY, HEALTH, PROPERTY, AND WELFARE OF THE PUBLIC.

If our environmental site assessment/evaluation discloses the existence of conditions that may endanger the safety, health, property, or welfare of the public, we may be obligated under rules of professional conduct, statutory law, or common law to notify you and others of these conditions.

The preceding paragraphs are based on information provided by the ASFE/Association of Engineering Firms Practicing in the Geosciences, Silver Spring, Maryland