ATTACHMENT J

LAB REPORTS

DREDGING ELUTRIATE PREPARATION AND COLUMN SETTLING TEST REPORT

SWAN ISLAND BASIN PROJECT AREA

CERCLA DOCKET NO. 10-2021-001

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EcoAnalysts Report ID:
PG1716.01

Submittal Date
February 27, 2023

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ACRONYMS AND ABBREVIATIONS

CST:	Column Settling Test
°C:	Degrees Celsius
DI:	Deionized
DRET:	Dredging Elutriate Test
mg/L:	Milligrams per liter
TSS:	Total Suspended Solids
NTU:	Nephelometric Turbidity Units

1. INTRODUCTION

EcoAnalysts performed the dredging elutriate test (DRET) preparation and column setting test (CST) in support of the project: Remedial Design Services - Swan Island Basin Project Area CERCLA Docket No. 10-2021-001 (HGL 2022). This report presents the results generated for the tasks performed.

2. METHODS

The Sediment testing methods are based on those presented in the United States Army Corps of Engineers guidance documents "Technical Guidelines for Environmental Dredging of Contaminated Sediments" (Palermo et al. 2008) and "Evaluation of Dredged Material Proposed for Disposal at Island, Nearshore, or Upland Confined Disposal Facilities — Testing Manual (USACE 2003). These methods are summarized in Table 2-1 below.

Table 2-1: Test Methods

Method	Document Title	Document Reference
Dredging Elutriate Test Procedure (DRET)	Technical Guidelines for Environmental Dredging of Contaminated Sediments	ERDC/EL TR-08-29
Column Settling Test (CST)	Evaluation of Dredged Material Proposed for Disposal at Island, Nearshore, or Upland Confined Disposal Facilities — Testing Manual	ERDC/EL TR-03-1

2.1 Samples

Sediment samples and site waters were collected September 5 - 6, 2022 and were received at the EcoAnalysts laboratory on September 7, 2022. Samples were stored in a walk-in cold room at 4 ± 2°C in the dark until processed. The samples provided for analyses are summarized in Table 2-2.

Table 2-2: Sample Details

Sample Name	Sample Type	Abbreviation
SIB-SED-C22-09052022	Sediment	C22
SIB-SED-C22-09062022	Site Water	
SIB-SED-D05-09052022	Sediment	D05
SIB-SED-D05-09062022	Site Water	
SIB-SED-F14-09052022	Sediment	F14
SIB-SED-F14-09062022	Site Water	

2.2 Dredging Elutriate Test Preparation

To prepare the DRET for each Project area, homogenized sediment was combined with its respective site water at a ratio of 1 g of sediment (dry weight) per liter of site water and 10 g of sediment per liter of site water. A total volume of 12 L was prepared to provide sufficient volume for the suite of chemical analyses identified. The sediment and site water were placed inside of a pre-cleaned 20 L glass carboy, mixed vigorously for 5 minutes with a rotating mechanical mixer, then aerated for 1 hour. Following mixing and aeration, the slurries were allowed to settle for 1 hour and the supernatant (elutriate) was siphoned into a separate glass carboy. The collected supernatant was homogenized and distributed amongst chemical analytical bottles provided by the destination laboratories. Collected elutriate

samples were then packaged in coolers with wet ice and shipped via FedEx overnight service. Samples were shipped to Analytical Resources, LLC (Tukwila, WA), ALS (Kelso, WA), and Cape Fear Analytical (Wilmington, NC). This report does not address the analytical chemistry results of the DRET preparations.

2.3 Column Settling Test

The CST was performed by loading a sediment slurry into a 7-foot-tall, 8-inch diameter column equipped with sample extraction ports (valves) located every 6 inches (from 0.5 ft to 6.5 ft). 75 L of slurry was prepared by mixing sediment and site water at a calculated ratio in a 100 L mixing chamber. When sufficient site water was not available to prepare the total volume, laboratory water of a similar type (freshwater) was used to augment the slurry volume. The slurry was mixed using an electric rotary mixer with a 4 ft auger bit. Immediately after mixing, the slurry was pumped into the column to a height above the top port (6.5 ft) without overflowing the column. The time of slurry transfer was considered the initiation of the experiment. Samples were collected every foot for initial measurements of total suspended solids (TSS) and turbidity. On the first day of settling, samples were collected at hours 1, 2, 4, 6, and 12. Samples thereafter were collected once per day at the same time as initiation. The water surface height (total height) and the height of the visible interface were recorded at all time points. Samples were collected by opening the port valves and allowing the samples to flow through a 5 cm collection tube into a labelled 50mL cup. The first 25 mL were discarded and the next 25-50 mL were retained for TSS and turbidity analysis.

Samples were collected according to the following:

- If no visible interface had formed in the column, collect samples from all ports available; or
- If a visible interface had formed between the settling sediment and overlying water, collect samples from all ports above the interface.

Note that as volume is extracted from the column for each sample event the total water volume will decrease. The upper ports will become unavailable for sampling during the testing process.

Samples were continued to be collected until:

- The TSS above the visible interface was below 1 g/L; or
- The change in TSS compared to the previous day showed no significant decrease.

2.4 Total Suspended Solids

Measurements of TSS followed the procedures described in Standard Methods 2540 D. A known volume of sample was passed through a glass fiber filter, dried, and the weight of solids retained on the filter were derived.

Filtration was performed with an aspirated filter flask attached to vacuum source. The filter apparatus was a magnetic clamp designed to hold flat, circular media of 47 mm in diameter, as well as reservoir to hold the liquid being processed above the filter. Filters consisted of glass fiber TSS filters that were rinsed with deionized (DI) water, dried, and weighed. Each filter was contained in a labelled aluminum boat. To process a sample, a pre-weighed filter was placed in the apparatus and the vacuum system engaged. The filter was wetted and rinsed by allowing 30 mL of DI water to be pulled through the media. The sample would then be applied to the filter. The volume of sample was adjusted depending on the amount of solids retained on the filter; generally between 1 - 40 mL. A final rinse of 10 mL of DI water was applied to the sides of the reservoir to ensure all solid material was collected on the filter. The filter was then removed with forceps, placed in its respective aluminum boat and dried in an oven at 104 ± 1°C for a minimum of 1 hour. The boats were then be removed from the oven and placed in a desiccator

to cool to room temperature. The final weight of the dried filter was measured and the dried weight as a function of the volume of liquid filtered was the resulting datum.

2.5 Turbidity

Measurements of turbidity followed the procedures described in Standard Methods 2130 D. This method compared the intensity of light scattered by the sample with the intensity of light scattered by a reference standard. Readings of turbidity were performed with an Oakton T-100 Turbidimeter. The output of the instrument was Nephelometric Turbidity Units or NTU. When sample values exceeded the measurement range of the instrument (4,000 NTU), a dilution of the sample was created with DI water and remeasured. The final measurable value was then corrected for the dilution factor.

3. RESULTS

The following section provides a summary of the test results. Laboratory data sheets are provided Appendix A.

3.1 Dredging Elutriate Test – Sediment Dry Weight

The dry weight of the sediment was evaluated in order to prepare sediment/water slurries as a function of solids present in the sediment (removing the contribution of water in the samples). Table 3-1 summarizes the dry weight analysis results.

Table 3-1: Sample Solids Data

Parameter	Sample		
	C22	D05	F14
Container #	14	17	18
Container Weight (g) W_C	14.34	14.50	14.33
Sample Volume (mL) V_S	15	15	15
Container + Wet Sample Weight (g) W_{CWS}	35.31	37.95	39.55
Sample Wet Weight (Raw) W_{ws}	20.97	23.45	25.22
Container + Dry Sample Weight (g) W_{CDS}	24.77	28.46	30.96
Weight of Water (g) $W_W=W_{CWS}-W_{CDS}$	10.54	9.49	8.59
Weight of Solids (g) $W_S=W_{CDS}-W_C$	10.43	13.96	16.63
Water Content $\%W=(W_W/W_{ws})x100$	50.3	40.5	34.1
Dry Weight $\% =(W_D/W_{ws})x100$	49.7	59.5	65.9
Sediment/Water Ratio (g/L) $W_S/(V_S*1,000)$	695.3	930.7	1108.7

W = Weight
V = Volume
S = Sample
CWS = Container with wet sample
WS = Wet Sample
CDS = Container with dry sample
W = Water

3.2 Column Settling Test

The results of the column settling test performed on the project samples are presented in this section. The results include a table summarizing the total slurry column height and the interface height over time. Figures are provided detailing plots of turbidity versus TSS, mean TSS at all measured ports at each timepoint, a profile of the TSS reduction through each timepoint compared to the initial slurry TSS (Time zero), and the interface height over time (when sufficient data was available).

3.2.1 Column Settling Test: Sample C22

Zone settling for Sample C22 was observed between initiation and the first observation at Hour 1. The interface height was 51 inches at Hour 1 and 15.75 inches at the final recording at Hour 48 (Table 3-2). The TSS above the falling interface was 0.18 g/L at Hour 48. Additional details on Sample C22 are provided in Figure 3-1 through Figure 3-4.

Table 3-2: Slurry Settling Sample C22

Settling Time (hours)	0	1	2	4	6	12	24	48
Total Height of Water (inches)	82	82	82	82	81	80.5	79	77
Interface Height (inches)	NA	51	44	30	23.5	19.5	18	15.75

NA = Not applicable at time of initiation

Figure 3-1: Turbidity vs. TSS: Sample C22

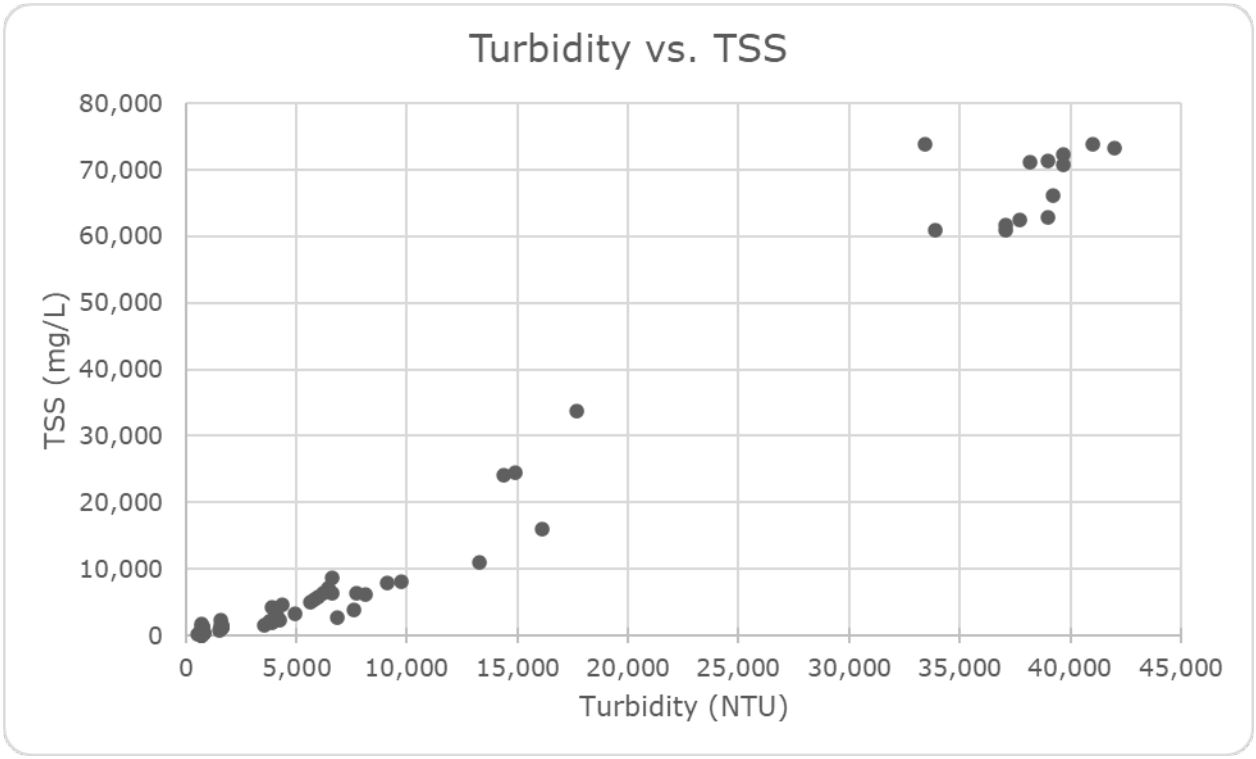


Figure 3-2: Time vs. Average TSS: Sample C22

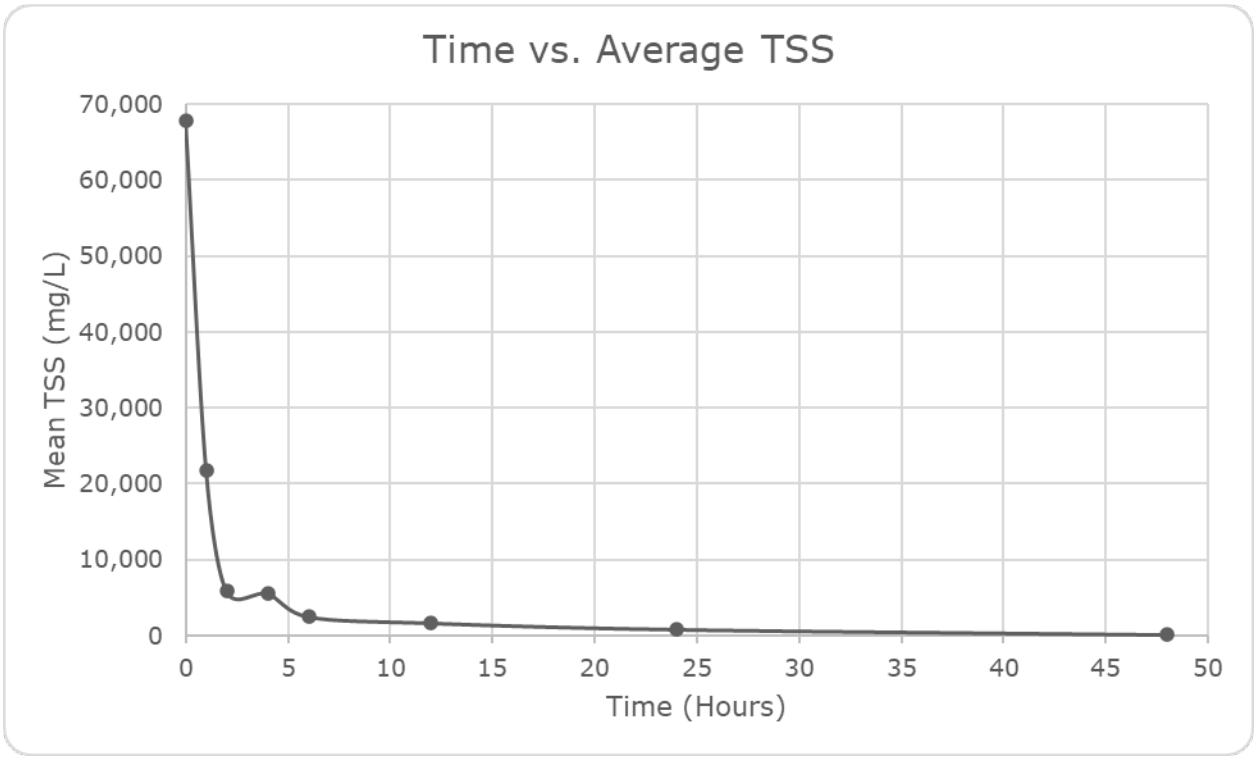


Figure 3-3: Concentration Profile: Sample C22

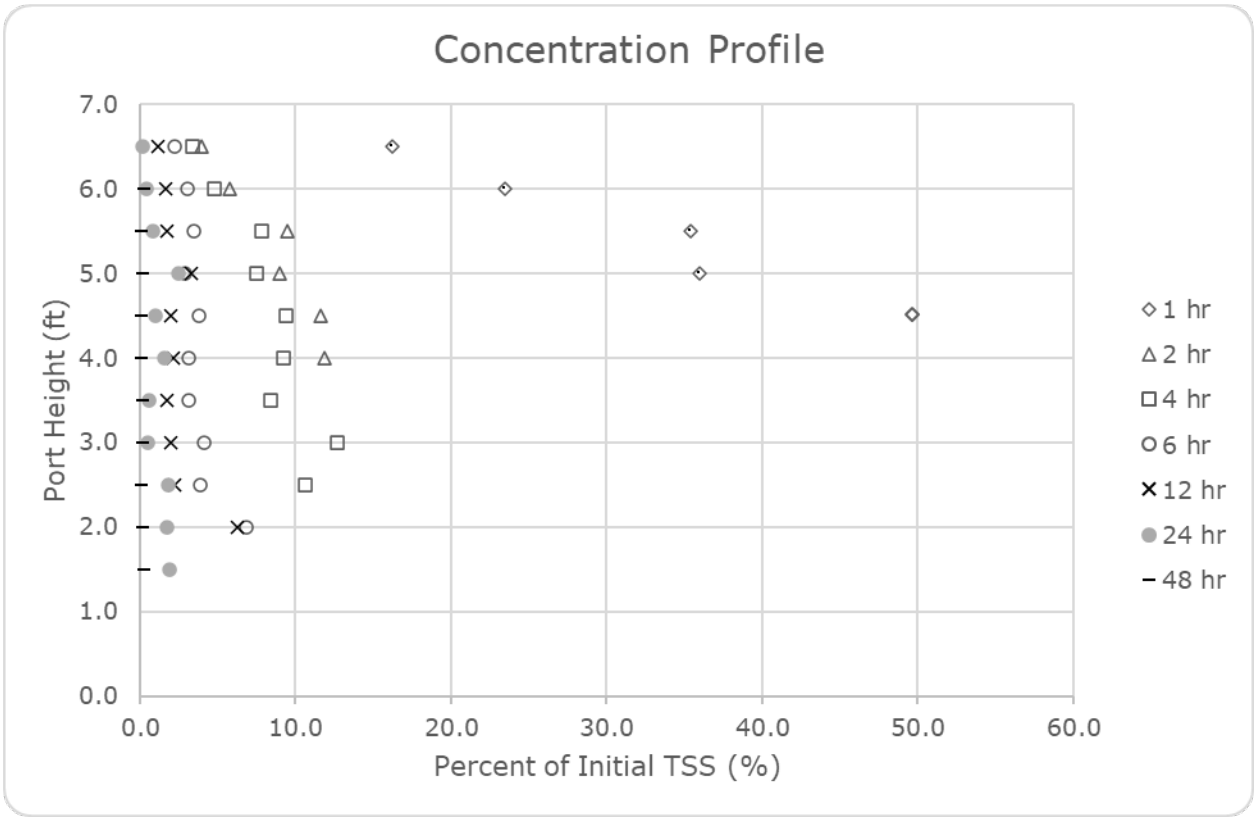
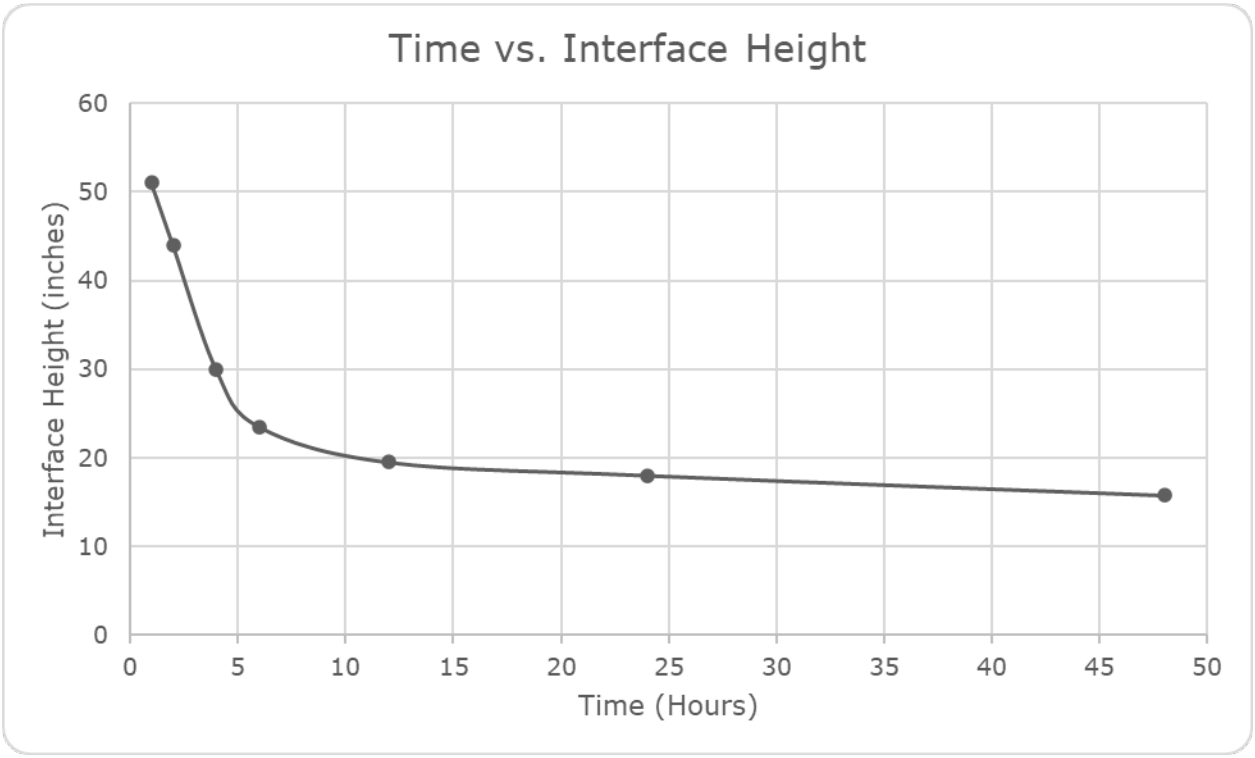


Figure 3-4: Time vs. Interface Height: Sample C22



3.2.2 Column Settling Test: Sample D05

The CST for Sample D05 exhibited flocculent settling during the course of the 144-hour observation, with no visible interface being observed (Table 3-3). Measurements of TSS and turbidity were similar between Days 5 and 6 (Hours 120 and 144, respectively). Additional details on Sample D05 are provided in Figure 3-5 through Figure 3-7.

Table 3-3: Slurry Settling Sample D05

Settling Time (hours)	0	1	2	4	6	12	24	48	72	96	120	144
Total Height of Water (inches)	82	82	81.5	80.75	80	79	78	77	76	75	74	73
Interface Height (inches)	NA	none	none	none	none	none	none	none	none	none	none	none

NA = Not applicable at time of initiation

Figure 3-5: Turbidity vs. TSS: Sample D05

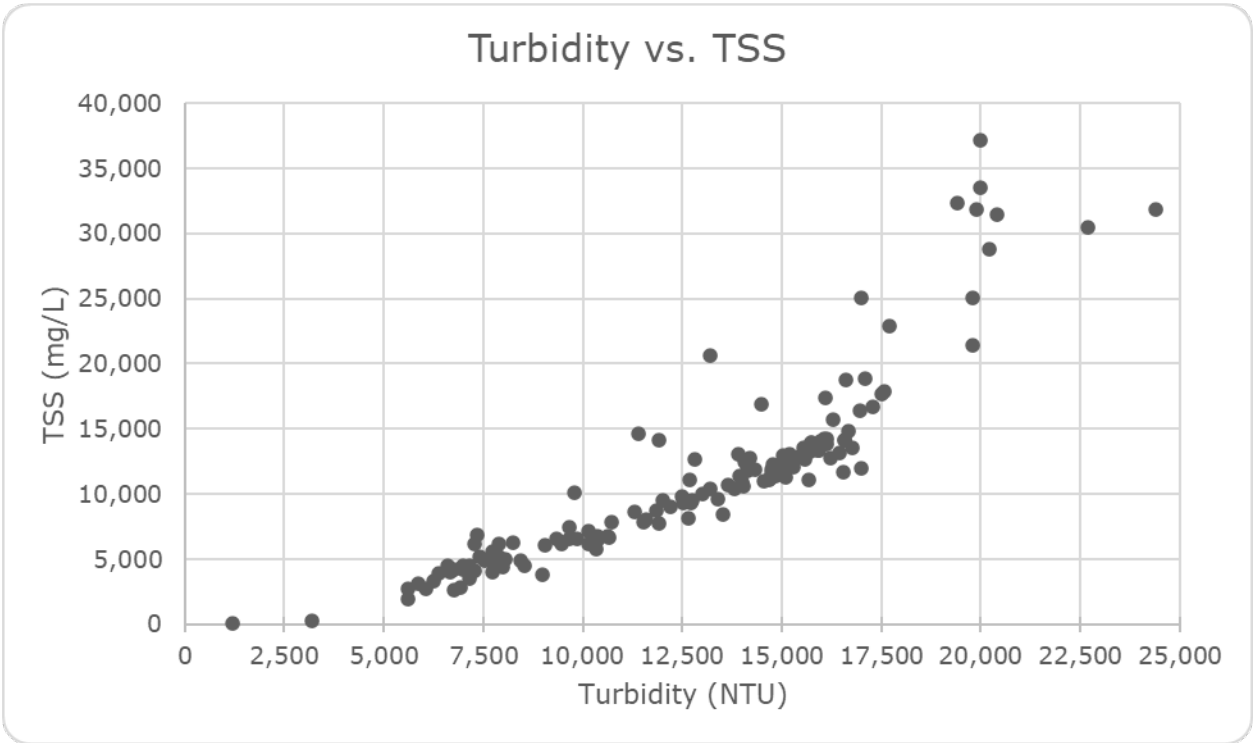


Figure 3-6: Time vs. Average TSS: Sample D05

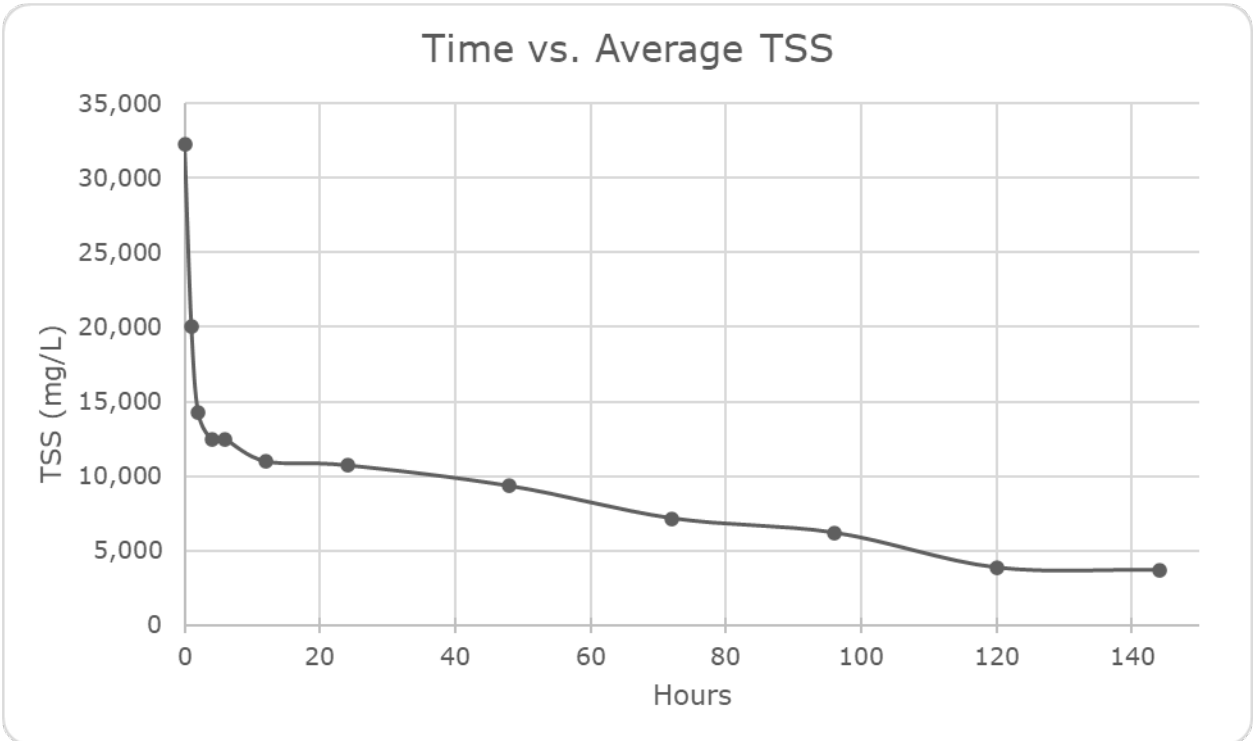
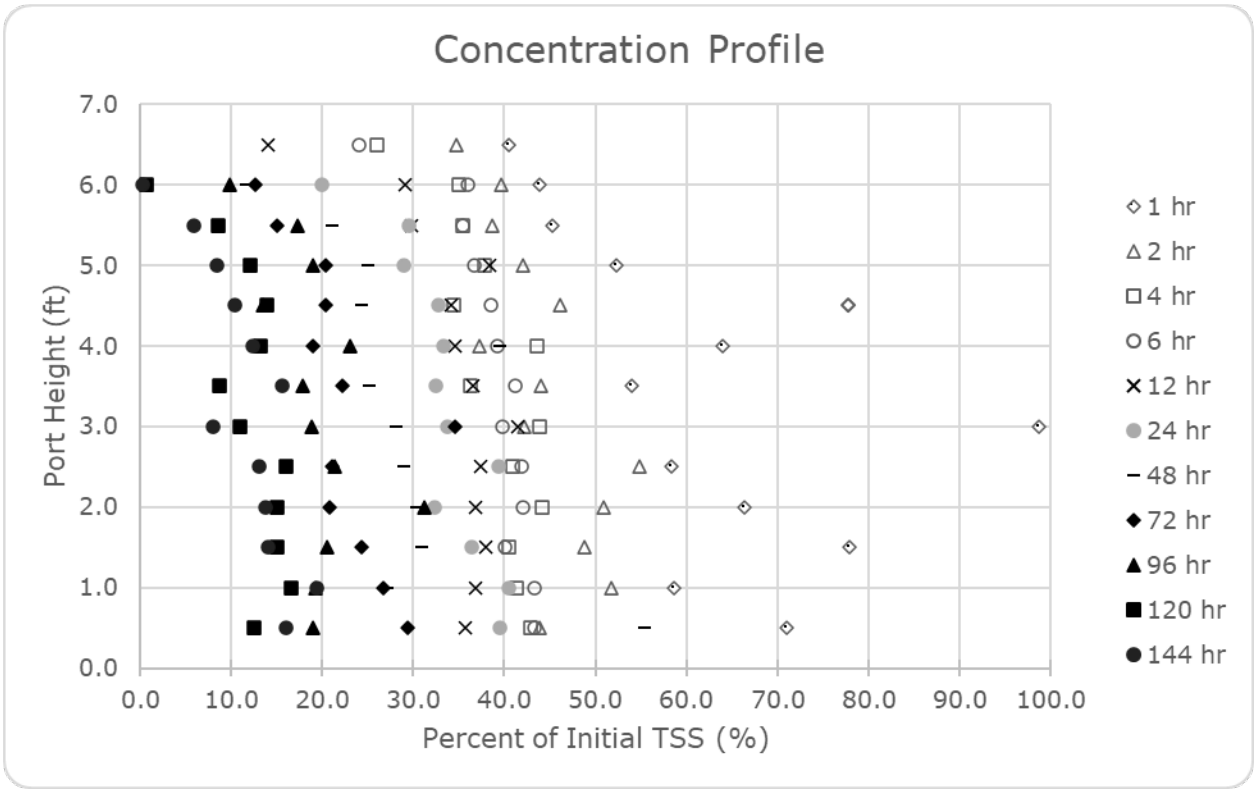


Figure 3-7: Concentration Profile: Sample D05



3.2.3 Column Settling Test: Sample F14

Zone settling for Sample F14 was observed between Days 2 and 3. The interface height was 6 inches on Day 3 and 9 inches at the final recording on Day 6 (Table 3-4). Measurements of TSS and turbidity were similar between Days 5 and 6 (Hours 120 and 144, respectively). Additional details on Sample F14 are provided in Figure 3-8 through Figure 3-11.

Table 3-4: Slurry Settling Sample F14

Settling Time (hours)	0	1	2	4	6	12	24	48	72	96	120	144
Total Height of Water (inches)	82	82	81.75	81	80	79.25	78.5	77.5	76.25	75.5	74.5	73.25
Interface Height (inches)	NA	none	none	none	none	none	none	none	6	6	8	9

NA = Not applicable at time of initiation

Figure 3-8: Turbidity vs. TSS: Sample F14

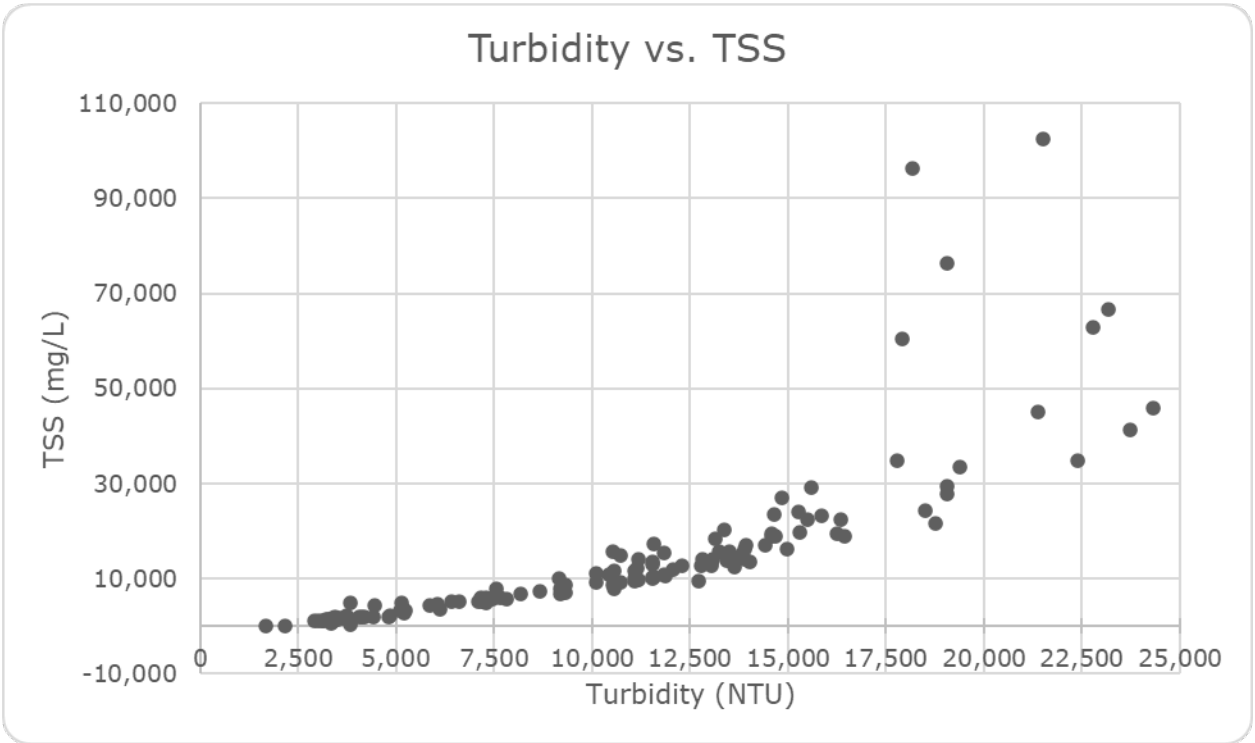


Figure 3-9: Time vs. Average TSS: Sample F14

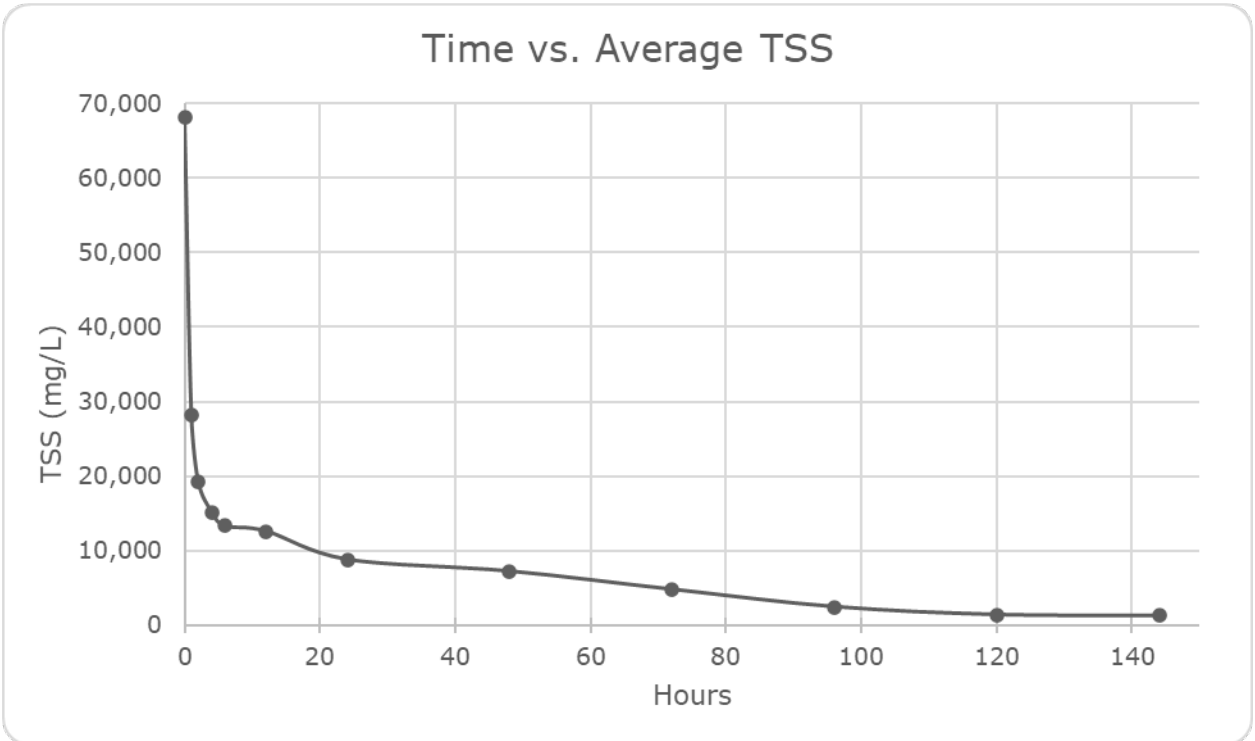


Figure 3-10: Concentration Profile: Sample F14

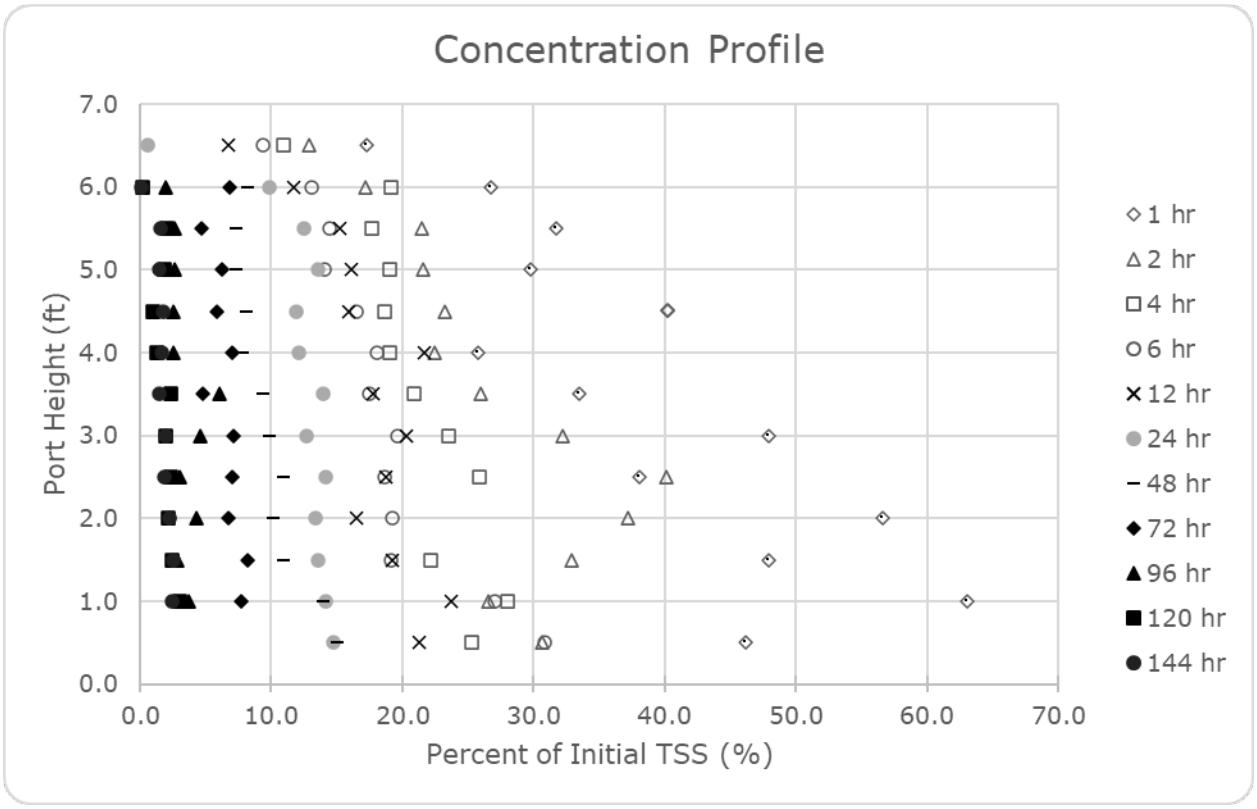
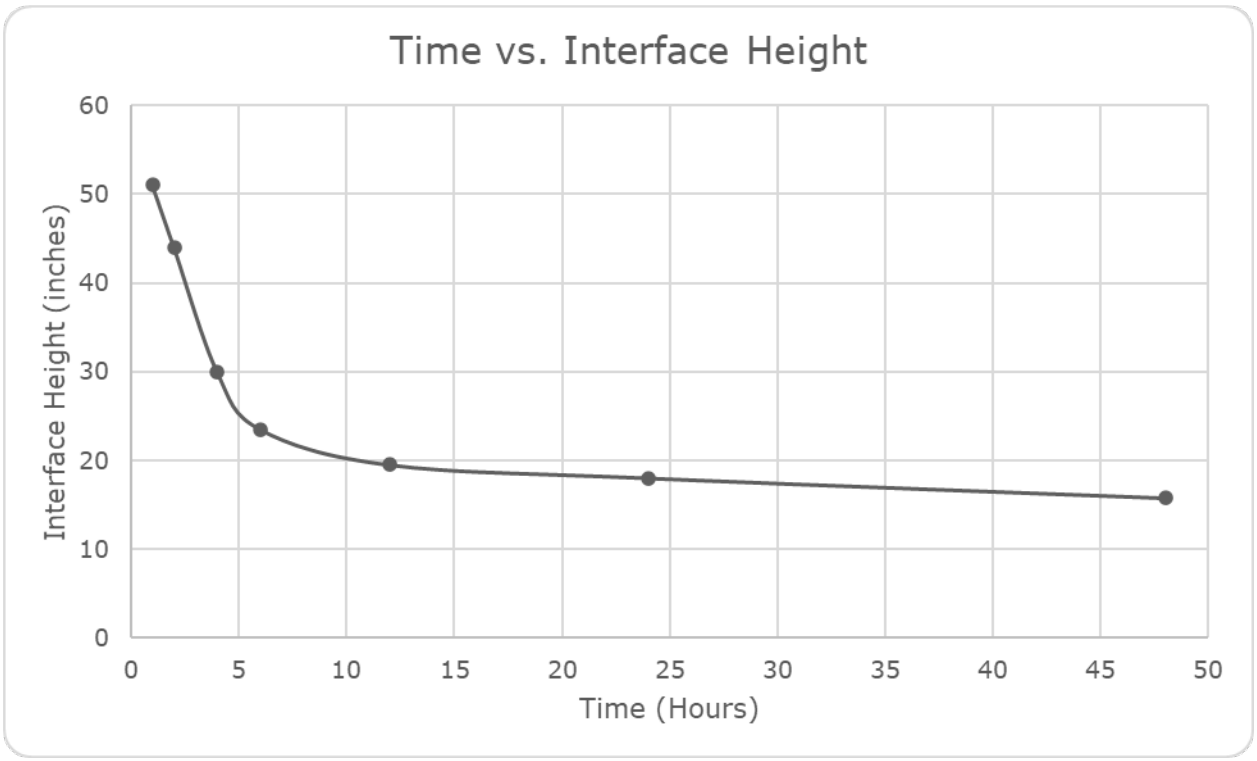


Figure 3-11: Time vs. Interface Height: Sample F14



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APPENDIX A

APPENDIX A.1

SEDIMENT SOLIDS RESULTS AND DRET PREPARATION

Sediment Solids and DRET Preparation Worksheet

Sample Number	1	2	3
Sample Name	C22	D05	F14
Container #	14	17	18
Container Weight (g) W_C	14.34	14.50	14.33
Sample Volume (mL) V_S	15	15	15
Container + Wet Sample Weight (g) W_{CWS}	35.31	37.95	39.55
Sample Wet Weight (Raw) W_{ws}	20.97	23.45	25.22
Date / Time in Oven	9/11/22 1344 BH	9/11/22 1344 BH	9/11/22 1344 BH
Oven Temp	101	101	101
Date / Time Out of Oven	9/12/22 10:21 BH	9/12/22 10:21 BH	9/12/22 10:21 BH
Oven Temp	103	103	103
Container + Dry Sample Weight (g) W_{CDS}	24.77	28.46	30.96
Weight of Water (g) $W_W=W_{CWS}-W_{CDS}$	10.54	9.49	8.59
Weight of Solids (g) $W_S=W_{CDS}-W_C$	10.43	13.96	16.63
Water Content %W=(W_W/W_{ws})x100	50.3	40.5	34.1
Dry Weight % =(WD/Wws)x100	49.7	59.5	65.9
Sediment/Water Ratio (g/L) $W_S/(V_S*1{,}000)$	695.3	930.7	1108.7
1 g/L - mass of sediment to add (g)	24.13	20.16	18.20
10 g/L - mass of sediment to add (g)	241.27	201.58	181.98
Site Water Volume	12 L	12L	12L

Sample	Conc.	Start mix	End mix/start aerate	End aerate	Collect
C22	1 g/L	9/12/22 14:49	14:54	15:54	16:54
C22	10 g/L	9/12/22 15:04	15:09	16:09	17:09
D05	1 g/L	9/12/22 17:14	17:19	18:19	19:19
D05	10 g/L	9/12/22 17:22	17:27	18:27	19:27
F14	1 g/L	9/12/22 19:54	19:59	20:59	21:59
F14	10 g/L	9/12/22 20:06	20:11	21:11	22:11

APPENDIX A.2

CST TEST DATA: SAMPLE C22

Sample: **C22**

Inteface Height

Days	**0**						**1**	**2**
Hours	**0**	**1**	**2**	**4**	**6**	**12**	**24**	**48**
Total Height of Water (inches)	82	82	82	82	81	80.5	79	77
Interface Heigth (inches)	NA	51	44	30	23.5	19.5	18	15.75

NA = Not applicable

Start Date	1/14/2023
Start Time	9:19
Amount of sediment (kg)	11.6
Amount of site water (L)	41
Amount of lab water (L)	18

Sample: **C22**

Turbidity (NTU)

	Time (hrs)							
Port Height (ft)	**0**	**1**	**2**	**4**	**6**	**12**	**24**	**48**
6.5	37,700	13,300	6,830	4,270	3,530	1,508	513	NA
6.0	37,100	16,100	7,590	4,940	3,940	1,660	804	713
5.0	39,000	14,400	7,740	5,790	3,930	1,574	796	712
5.5	37,100	14,900	8,140	5,640	3,890	1,598	693	718
4.5	33,900	17,700	9,120	6,230	4,020	1,628	791	714
4.0	39,200	BI	9,770	6,640	3,910	1,626	751	732
3.5	39,700	BI	BI	5,970	3,780	1,654	793	731
3.0	39,700	BI	BI	6,640	4,150	1,624	801	759
2.5	39,000	BI	BI	6,440	3,990	1,590	761	713
2.0	38,200	BI	BI	BI	4,370	3,880	752	754
1.5	42,000	BI	BI	BI	BI	BI	725	736
1.0	41,000	BI	BI	BI	BI	BI	BI	BI
0.5	33,400	BI	BI	BI	BI	BI	BI	BI
Mean	38,231							

Sample: **C22**
Total Suspended Solids

	Initial (0 Hr)				
Port Height (ft)	**Boat ID**	**Volume Filtered (mL)**	**Tare Wt. (g)**	**Final Dry Wt. (g)**	**TSS Calculation (g/L)**
6.5	1MaHH7T	1	0.1145	0.1769	62.4
6	1MaHH7S	1	0.1189	0.1806	61.7
5.5	1MaHH7R	1	0.1145	0.1774	62.9
5	1MaHH7Q	1	0.1182	0.1792	61
4.5	1MaHH7P	1	0.1148	0.1758	61
4	1MaHH7N	1	0.1151	0.1812	66.1
3.5	1MaHH7M	1	0.1187	0.191	72.3
3	1MaHH7L	1	0.1126	0.1834	70.8
2.5	1MaHH7K	1	0.1143	0.1856	71.3
2	1MaHH7J	1	0.1137	0.1848	71.1
1.5	1MaHH7I	1	0.1122	0.1855	73.3
1	1MaHH7H	1	0.115	0.1889	73.9
0.5	1MaHH7G	1	0.1148	0.1886	73.8

Sample: **C22**

Total Suspended Solids

	(1 Hr)				
Port Height (ft)	**Boat ID**	**Volume Filtered (mL)**	**Tare Wt. (g)**	**Final Dry Wt. (g)**	**TSS Calculation (g/L)**
6.5	1MaHH7F	1	0.1203	0.1313	11.0
6	Re27F	1	0.1232	0.1391	15.9
5.5	Re27G	1	0.1311	0.1551	24.0
5	Re27H	1	0.1298	0.1542	24.4
4.5	Re27I	1	0.1274	0.1611	33.7
4	Below Interface	--	--	--	--
3.5	Below Interface	--	--	--	--
3	Below Interface	--	--	--	--
2.5	Below Interface	--	--	--	--
2	Below Interface	--	--	--	--
1.5	Below Interface	--	--	--	--
1	Below Interface	--	--	--	--
0.5	Below Interface	--	--	--	--

Sample: **C22**
Total Suspended Solids

	(2 Hr)				
Port Height (ft)	**Boat ID**	**Volume Filtered (mL)**	**Tare Wt. (g)**	**Final Dry Wt. (g)**	**TSS Calculation (g/L)**
6.5	1MaHH7E	3	0.1146	0.1227	2.70
6	Re27A	2.5	0.1269	0.1367	3.92
5.5	Re27B	2	0.1301	0.1429	6.40
5	Re27C	2	0.1288	0.141	6.10
4.5	Re27D	2	0.1268	0.1426	7.90
4	Re27E	2	0.1297	0.1458	8.05
3.5	Below Interface	--	--	--	--
3	Below Interface	--	--	--	--
2.5	Below Interface	--	--	--	--
2	Below Interface	--	--	--	--
1.5	Below Interface	--	--	--	--
1	Below Interface	--	--	--	--
0.5	Below Interface	--	--	--	--

Sample: **C22**
Total Suspended Solids

	(4 Hr)				
Port Height (ft)	**Boat ID**	**Volume Filtered (mL)**	**Tare Wt. (g)**	**Final Dry Wt. (g)**	**TSS Calculation (g/L)**
6.5	1MaHH7D	5	0.1137	0.1252	2.30
6	1MaHH7C	5	0.1164	0.1326	3.24
5.5	1MaHH7B	5	0.1196	0.1461	5.30
5	1MaHH7A	5	0.1207	0.1461	5.08
4.5	1MaHH79	5	0.119	0.1508	6.36
4	1MaHH78	5	0.1189	0.1502	6.26
3.5	1MaHH77	4	0.1208	0.1435	5.68
3	1MaHH76	4	0.1197	0.1541	8.60
2.5	1MaHH75	4	0.1200	0.1487	7.18
2	Below Interface	--	--	--	--
1.5	Below Interface	--	--	--	--
1	Below Interface	--	--	--	--
0.5	Below Interface	--	--	--	--

Sample: **C22**
Total Suspended Solids

	(6 Hr)				
Port Height (ft)	**Boat ID**	**Volume Filtered (mL)**	**Tare Wt. (g)**	**Final Dry Wt. (g)**	**TSS Calculation (g/L)**
6.5	1MaHH74	5	0.1141	0.1216	1.5
6	1MaHH73	5	0.1204	0.1306	2.04
5.5	1MaHH72	5	0.1193	0.1311	2.36
5	1MaHH71	5	0.1183	0.128	1.94
4.5	1MaHH70	5	0.1142	0.127	2.56
4	1MaHH6Z	5	0.1142	0.1248	2.12
3.5	1MaHH6Y	5	0.1191	0.1298	2.14
3	1MaHH6X	5	0.1192	0.1332	2.8
2.5	1MaHH6W	5	0.1195	0.1327	2.64
2	1MaHH6V	5	0.1141	0.1374	4.66
1.5	Below Interface	--	--	--	--
1	Below Interface	--	--	--	--
0.5	Below Interface	--	--	--	--

Sample: **C22**
Total Suspended Solids

	(12 Hr)				
Port Height (ft)	**Boat ID**	**Volume Filtered (mL)**	**Tare Wt. (g)**	**Final Dry Wt. (g)**	**TSS Calculation (g/L)**
6.5	1MaHH6U	7	0.1194	0.1247	0.76
6	1MaHH6T	7	0.1134	0.1212	1.11
5.5	1MaHH6S	7	0.1137	0.1221	1.20
5	1MaHH6R	7	0.1139	0.1296	2.24
4.5	1MaHH6Q	7	0.1137	0.1231	1.34
4	1MaHH6P	7	0.1188	0.129	1.46
3.5	1MaHH6N	7	0.1181	0.1262	1.16
3	1MaHH6M	7	0.1132	0.1227	1.36
2.5	1MaHH6L	7	0.113	0.1234	1.49
2	1MaHH6K	7	0.1124	0.1423	4.27
1.5	Below Interface	--	--	--	--
1	Below Interface	--	--	--	--
0.5	Below Interface	--	--	--	--

Sample: **C22**
Total Suspended Solids

	(24 Hr)				
Port Height (ft)	**Boat ID**	**Volume Filtered (mL)**	**Tare Wt. (g)**	**Final Dry Wt. (g)**	**TSS Calculation (g/L)**
6.5	1MaHH6J	30	0.1137	0.1173	0.12
6	1MaHH6I	30	0.1139	0.1225	0.29
5.5	1MaHH6H	30	0.118	0.1352	0.57
5	1MaHH6G	20	0.12	0.1531	1.66
4.5	1MaHH6F	20	0.1141	0.127	0.65
4	1MaHH6E	20	0.1138	0.1355	1.09
3.5	1MaHH98	30	0.1131	0.1242	0.37
3	1MaHH97	30	0.1184	0.1287	0.34
2.5	1MaHH96	20	0.1143	0.1392	1.25
2	1MaHH95	20	0.1185	0.1417	1.16
1.5	1MaHH94	20	0.1142	0.1402	1.30
1	Below Interface	--	--	--	--
0.5	Below Interface	--	--	--	--

Sample: **C22**
Total Suspended Solids

	(48 Hr)				
Port Height (ft)	**Boat ID**	**Volume Filtered (mL)**	**Tare Wt. (g)**	**Final Dry Wt. (g)**	**TSS Calculation (g/L)**
6.5	port not available	--	--	--	--
6	1MaHH93	40	0.1192	0.125	0.15
5.5	1MaHH8J	35	0.1155	0.1182	0.08
5	1MaHH8K	35	0.1144	0.118	0.10
4.5	1MaHH8L	35	0.1138	0.1158	0.06
4	1MaHH8M	35	0.1135	0.1162	0.08
3.5	1MaHH8N	35	0.1172	0.1203	0.09
3	1MaHH8P	35	0.1136	0.1179	0.12
2.5	1MaHH8Q	35	0.1161	0.118	0.05
2	1MaHH8R	35	0.1147	0.1187	0.11
1.5	1MaHH8S	35	0.1182	0.1244	0.18
1	Below Interface	--	--	--	--
0.5	Below Interface	--	--	--	--

APPENDIX A.3

CST TEST DATA: SAMPLE D05

Sample: **D05**

Inteface Height

Days	**0**						**1**	**2**	**3**	**4**	**5**	**6**
Hours	**0**	**1**	**2**	**4**	**6**	**12**	**24**	**48**	**72**	**96**	**120**	**144**
Total Height of Water (inches)	82	82	81.5	80.75	80	79	78	77	76	75	74	73
Interface Heigth (inches)	NA	none	none	none	none	none	none	none	none	none	none	none

NA = Not applicable

Start Date	1/28/2023
Start Time	10:12
Amount of sediment (kg)	7.7
Amount of site water (L)	38
Amount of lab water (L)	25

Sample: **D05**

Turbidity (NTU)

	Time (hrs)											
Port Height (ft)	**0**	**1**	**2**	**4**	**6**	**12**	**24**	**48**	**72**	**96**	**120**	**144**
6.5	22,700	15,200	14,720	13,536	11,904	8,544	NA	NA	NA	NA	NA	NA
6.0		11,900	16,224	15,104	14,752	12,704	10,368	8,992	7,264	5,872	3,200	1,192
5.5	19,400	11,400	14,080	14,848	13,952	13,376	12,000	10,368	8,448	7,744	5,600	5,600
5.0		14,500	15,808	15,104	14,912	14,112	12,704	11,584	9,856	7,888	6,384	6,064
4.5	20,000	17,000	16,672	15,680	15,200	14,560	14,048	11,520	9,664	7,984	6,592	6,240
4.0		13,200	16,992	15,968	15,584	14,688	13,664	14,208	10,144	9,648	6,992	6,656
3.5	19,900	16,100	16,128	16,544	15,712	14,880	13,184	12,640	10,144	10,320	6,912	8,048
3.0		24,400	16,768	16,576	15,424	15,936	14,016	12,192	12,672	9,056	7,152	6,752
2.5	20,400	16,600	17,504	16,448	15,904	15,296	12,800	12,512	10,624	7,328	7,408	6,768
2.0		19,800	16,960	16,064	15,552	14,752	13,824	12,480	10,656	9,792	7,696	6,992
1.5	20,200	19,800	16,288	15,584	15,040	14,784	14,144	12,992	10,720	9,344	7,552	7,136
1.0		17,100	17,280	15,904	15,744	14,336	13,920	11,840	11,296	9,456	7,744	8,256
0.5	20,000	17,700	16,576	16,128	15,744	14,880	15,296	17,568	12,736	7,264	7,728	7,888
Mean	20,371											

Sample: **D05**

Total Suspended Solids

	Initial (0 Hr)				
Port Height (ft)	**Boat ID**	**Volume Filtered (mL)**	**Tare Wt. (g)**	**Final Dry Wt. (g)**	**TSS Calculation (g/L)**
6.5	1MaHH92	1	0.1143	0.1448	30.5
6					
5.5	1MaHH91	1	0.1146	0.1469	32.3
5					
4.5	1MaHH90	1	0.1141	0.1476	33.5
4					
3.5	1MaHH8Z	1	0.1154	0.1472	31.8
3					
2.5	1MaHH8Y	1	0.1136	0.1451	31.5
2					
1.5	1MaHH8X	1	0.1139	0.1427	28.8
1					
0.5	1MaHH8W	1	0.1175	0.1547	37.2
				Mean	32.2

Sample: **D05**

Total Suspended Solids

	(1 Hr)				
Port Height (ft)	**Boat ID**	**Volume Filtered (mL)**	**Tare Wt. (g)**	**Final Dry Wt. (g)**	**TSS Calculation (g/L)**
6.5	1MaHH8V	2	0.1161	0.1422	13.05
6	1MaHH8U	1.5	0.1154	0.1366	14.13
5.5	1MaHH8T	1.5	0.1143	0.1362	14.60
5	1MaHH8I	1.5	0.119	0.1443	16.87
4.5	1MaHH8H	1.5	0.1183	0.1559	25.07
4	1MaHH8G	1	0.1186	0.1392	20.60
3.5	1MaHH8F	1	0.119	0.1364	17.40
3	1MaHH8E	1	0.1135	0.1453	31.80
2.5	1MaHH8D	1	0.1158	0.1346	18.80
2	1MaHH8C	1	0.1187	0.1401	21.40
1.5	1MaHH8B	1	0.1133	0.1384	25.10
1	1MaHH8A	1	0.1185	0.1374	18.90
0.5	1MaHH8V	1	0.1182	0.1411	22.90

Sample: **D05**

Total Suspended Solids

	(2 Hr)				
Port Height (ft)	**Boat ID**	**Volume Filtered (mL)**	**Tare Wt. (g)**	**Final Dry Wt. (g)**	**TSS Calculation (g/L)**
6.5	1MaHH88	2	0.1139	0.1363	11.20
6	1MaHH87	2	0.1184	0.144	12.80
5.5	1MaHH86	2	0.1186	0.1435	12.45
5	1MaHH85	2	0.1152	0.1423	13.55
4.5	1MaHH84	2	0.119	0.1487	14.85
4	1MaHH83	2	0.113	0.137	12.00
3.5	1MaHH82	1.5	0.1143	0.1356	14.20
3	1MaHH81	1.5	0.112	0.1324	13.60
2.5	1MaHH80	1.5	0.1144	0.1409	17.67
2	1MaHH7Z	1.5	0.1146	0.1392	16.40
1.5	1MaHH7Y	1.5	0.119	0.1426	15.73
1	1MaHH7X	1.5	0.1169	0.1419	16.67
0.5	1MaHH7W	1.5	0.1186	0.1398	14.13

Sample: **D05**

Total Suspended Solids

	(4 Hr)				
Port Height (ft)	**Boat ID**	**Volume Filtered (mL)**	**Tare Wt. (g)**	**Final Dry Wt. (g)**	**TSS Calculation (g/L)**
6.5	1MaHH7V	3	0.1143	0.1395	8.40
6	1MaHH7U	3	0.1181	0.1519	11.27
5.5	KA3UK	2.7	0.1143	0.1451	11.41
5	KA3UJ	2.55	0.1138	0.1449	12.20
4.5	KA3UI	2.4	0.1136	0.1403	11.13
4	KA3UH	2.4	0.1118	0.1455	14.04
3.5	KA3UG	2.25	0.1132	0.1395	11.69
3	KA3UF	2.25	0.1136	0.1454	14.13
2.5	KA3UE	2.25	0.1165	0.1462	13.20
2	KA3UD	2.25	0.114	0.146	14.22
1.5	KA3UC	2.1	0.1134	0.1408	13.05
1	KA3UB	2.1	0.1134	0.1414	13.33
0.5	KA3UA	2.1	0.1181	0.1471	13.81

Sample: **D05**

Total Suspended Solids

	(6 Hr)				
Port Height (ft)	**Boat ID**	**Volume Filtered (mL)**	**Tare Wt. (g)**	**Final Dry Wt. (g)**	**TSS Calculation (g/L)**
6.5	KA3U9	3	0.1174	0.1407	7.77
6	KA3U8	3	0.1152	0.15	11.60
5.5	KA3U7	3	0.1185	0.1527	11.40
5	KA3U6	3	0.1178	0.1533	11.83
4.5	KA3U5	3	0.1151	0.1523	12.40
4	KA3U4	3	0.1183	0.1562	12.63
3.5	KA3U3	3	0.1175	0.1574	13.30
3	KA3U2	3	0.1127	0.1512	12.83
2.5	KA3U1	3	0.1137	0.1542	13.50
2	KA3U0	3	0.1176	0.1582	13.53
1.5	KA3UZ	3	0.118	0.1568	12.93
1	KA3UY	3	0.1208	0.1627	13.97
0.5	KA3UX	2	0.1146	0.1425	13.95

Sample: **D05**

Total Suspended Solids

	(12 Hr)				
Port Height (ft)	**Boat ID**	**Volume Filtered (mL)**	**Tare Wt. (g)**	**Final Dry Wt. (g)**	**TSS Calculation (g/L)**
6.5	KA3WC	5	0.1183	0.141	4.54
6	KA3WP	4	0.1134	0.151	9.40
5.5	KA3WN	3.5	0.1138	0.1475	9.63
5	KA3WM	3.5	0.114	0.1573	12.37
4.5	KA3WL	3	0.1143	0.1473	11.00
4	KA3WK	3	0.1136	0.147	11.13
3.5	KA3WJ	3	0.1132	0.1486	11.80
3	KA3WI	3	0.1128	0.1529	13.37
2.5	KA3WH	2.8	0.1134	0.1472	12.07
2	KA3WG	2.6	0.1134	0.1443	11.88
1.5	KA3WF	2.4	0.1132	0.1426	12.25
1	KA3WE	2.2	0.1149	0.141	11.86
0.5	KA3WD	2	0.1146	0.1376	11.50

Sample: **D05**
Total Suspended Solids

	(24 Hr)				
Port Height (ft)	**Boat ID**	**Volume Filtered (mL)**	**Tare Wt. (g)**	**Final Dry Wt. (g)**	**TSS Calculation (g/L)**
6.5	port not available	--	--	--	--
6	KA3WB	5	0.1141	0.1463	6.44
5.5	KA3WA	4.5	0.1157	0.1585	9.51
5	KA3W9	4.4	0.1182	0.1592	9.32
4.5	KA3W8	4.2	0.1161	0.1605	10.57
4	KA3W7	4.2	0.1144	0.1595	10.74
3.5	KA3W6	4	0.1182	0.16	10.45
3	KA3W5	3.8	0.1185	0.1598	10.87
2.5	KA3W4	3.6	0.1192	0.1649	12.69
2	KA3W3	3.4	0.1147	0.1501	10.41
1.5	KA3W2	3.2	0.1187	0.1563	11.75
1	KA3W1	3	0.1188	0.158	13.07
0.5	KA3RQ	3	0.1144	0.1526	12.73

Sample: **D05**
Total Suspended Solids

	(48 Hr)				
Port Height (ft)	**Boat ID**	**Volume Filtered (mL)**	**Tare Wt. (g)**	**Final Dry Wt. (g)**	**TSS Calculation (g/L)**
6.5	port not available	--	--	--	--
6	KA3RP	7	0.1144	0.1408	3.77
5.5	KA3RN	6.8	0.1176	0.1637	6.78
5	KA3RM	6.5	0.1137	0.1661	8.06
4.5	KA3RL	6.2	0.1142	0.1628	7.84
4	KA3RK	5.8	0.1186	0.1924	12.72
3.5	KA3RJ	5	0.1138	0.1544	8.12
3	KA3RI	4.4	0.1185	0.1583	9.05
2.5	KA3RH	4	0.1131	0.1505	9.35
2	KA3RG	3.5	0.1183	0.1525	9.77
1.5	KA3RF	3	0.1133	0.1432	9.97
1	KA3RE	2.5	0.115	0.1369	8.76
0.5	KA3RD	2	0.1183	0.154	17.85

Sample: **D05**
Total Suspended Solids

	(72 Hr)				
Port Height (ft)	**Boat ID**	**Volume Filtered (mL)**	**Tare Wt. (g)**	**Final Dry Wt. (g)**	**TSS Calculation (g/L)**
6.5	port not available	--	--	--	--
6	KA3RC	8	0.1178	0.1506	4.10
5.5	KA3RB	8	0.1186	0.1574	4.85
5	KA3RA	7.5	0.1188	0.1682	6.59
4.5	KA3R9	6	0.1164	0.1558	6.57
4	KA3R8	5.5	0.1187	0.1524	6.13
3.5	KA3R7	5	0.1148	0.1506	7.16
3	KA3TW	4.5	0.1208	0.1709	11.13
2.5	KA3R5	4	0.1134	0.1406	6.80
2	KA3R4	3.8	0.1184	0.1439	6.71
1.5	KA3R3	3.6	0.1136	0.1419	7.86
1	KA3R2	3	0.1142	0.14	8.60
0.5	KA3R1	2.5	0.1176	0.1413	9.48

Sample: **D05**
Total Suspended Solids

	(96Hr)				
Port Height (ft)	**Boat ID**	**Volume Filtered (mL)**	**Tare Wt. (g)**	**Final Dry Wt. (g)**	**TSS Calculation (g/L)**
6.5	port not available	--	--	--	--
6	KA3SF	10	0.1154	0.147	3.16
5.5	KA3SE	9.5	0.1152	0.168	5.56
5	KA3SD	8	0.1135	0.1626	6.14
4.5	KA3SC	7	0.1133	0.1439	4.37
4	KA3SB	6.5	0.1173	0.1656	7.43
3.5	KA3SA	6	0.1183	0.1528	5.75
3	KA3S9	5	0.1128	0.1431	6.06
2.5	KA3S8	4	0.1148	0.1423	6.88
2	KA3S7	3.8	0.1138	0.1521	10.08
1.5	KA3S6	3.5	0.1136	0.1367	6.60
1	KA3S5	3.2	0.114	0.1339	6.22
0.5	KA3S4	3	0.114	0.1324	6.13

Sample: **D05**
Total Suspended Solids

	(120Hr)				
Port Height (ft)	**Boat ID**	**Volume Filtered (mL)**	**Tare Wt. (g)**	**Final Dry Wt. (g)**	**TSS Calculation (g/L)**
6.5	port not available	--	--	--	--
6	KA3S3	20	0.114	0.1186	0.23
5.5	KA3S2	10	0.1157	0.1435	2.78
5	KA3S1	9	0.1125	0.1477	3.91
4.5	KA3S0	8	0.1118	0.1477	4.49
4	KA3RZ	7	0.1139	0.1437	4.26
3.5	KA3RY	6.5	0.1139	0.1322	2.82
3	KA3RX	6.5	0.114	0.1369	3.52
2.5	KA3RW	6.5	0.1191	0.1527	5.17
2	KA3RV	6	0.1129	0.1421	4.87
1.5	KA3RU	5.5	0.113	0.1398	4.87
1	KA3RT	5	0.1171	0.1438	5.34
0.5	KA3RS	4.5	0.1135	0.1316	4.02

Sample: **D05**
Total Suspended Solids

	(144Hr)				
Port Height (ft)	**Boat ID**	**Volume Filtered (mL)**	**Tare Wt. (g)**	**Final Dry Wt. (g)**	**TSS Calculation (g/L)**
6.5	port not available	--	--	--	--
6	KA3RR	30	0.1167	0.1199	0.11
5.5	HJND8	13	0.1208	0.1456	1.91
5	HJND7	12	0.1327	0.1655	2.73
4.5	HJND6	11	0.1203	0.157	3.34
4	HJND5	10	0.1209	0.161	4.01
3.5	HJND4	8	0.1198	0.1599	5.01
3	HJND3	7.5	0.1209	0.1403	2.59
2.5	HJND2	7.5	0.1209	0.1525	4.21
2	HJND1	7.2	0.1319	0.164	4.46
1.5	HJNCZ	7	0.1316	0.1634	4.54
1	HJNCY	6.8	0.1292	0.1717	6.25
0.5	HJNCX	6	0.1318	0.1627	5.15

APPENDIX A.4

CST TEST DATA: SAMPLE F15

Sample: **F14**

Inteface Height

Days	**0**						**1**	**2**	**3**	**4**	**5**	**6**
Hours	**0**	**1**	**2**	**4**	**6**	**12**	**24**	**48**	**72**	**96**	**120**	**144**
Total Height of Water (inches)	82	82	81.75	81	80	79.25	78.5	77.5	76.25	75.5	74.5	73.25
Interface Heigth (inches)	NA	none	none	none	none	none	none	none	6[1]	6[1]	8	9

NA = Not applicable

[1] TSS and turbidity suggest an interface formed between 0.5 and 1.0 ft on these days

Start Date	2/5/2023
Start Time	9:40
Amount of sediment (kg)	15.4
Amount of site water (L)	40
Amount of lab water (L)	25

Sample: **F14**

Turbidity (NTU)

	Time (hrs)											
Port Height (ft)	**0**	**1**	**2**	**4**	**6**	**12**	**24**	**48**	**72**	**96**	**120**	**144**
6.5	21,376	12,800	12,736	10,560	9,184	8,096	3,840	NA	NA	NA	NA	NA
6.0		16,256	13,632	13,088	11,072	11,040	9,312	7,168	5,152	3,872	2,168	1,672
5.5	19,072	15,872	13,248	13,056	11,872	12,160	10,112	7,200	5,248	4,192	3,208	2,904
5.0		18,752	13,504	13,440	11,136	12,448	11,072	7,328	6,048	4,064	3,376	3,016
4.5	17,920	19,072	13,920	14,016	12,064	13,344	10,560	7,648	5,856	4,128	3,360	3,336
4.0		16,448	14,976	13,536	13,056	13,696	10,528	7,808	6,400	4,416	3,368	3,128
3.5	18,176	18,496	14,592	13,824	12,288	13,376	11,552	8,192	6,112	4,448	3,432	3,136
3.0		22,400	14,656	14,432	13,536	13,760	10,720	9,216	6,624	5,120	3,512	3,232
2.5	22,784	19,072	15,584	14,688	13,024	13,632	11,552	7,552	7,104	4,832	3,512	3,272
2.0		23,744	14,848	ND	12,832	13,344	11,168	8,672	7,296	5,216	3,608	3,376
1.5	21,504	17,792	15,264	13,888	13,888	14,784	11,200	9,184	7,296	4,800	3,648	3,456
1.0		24,320	14,592	13,376	15,296	16,096	11,584	9,152	7,456	5,216	3,744	3,520
0.5	23,168	19,392	15,488	13,152	16,352	15,552	11,840	10,432	21,408	18,240	BI	BI
Mean	20,571											

NA = Port not available

BI = Below interface

Sample: **F14**

Total Suspended Solids

Initial (0 Hr)

Port Height (ft)	Boat ID	Volume Filtered (mL)	Tare Wt. (g)	Final Dry Wt. (g)	TSS Calculation (g/L)
6.5	hJNCW	1	0.1323	0.1773	45
6					
5.5	hJNCV	1	0.1203	0.1966	76.3
5					
4.5	hJNCU	1	0.1319	0.1922	60.3
4					
3.5	hJNCT	1	0.132	0.2282	96.2
3					
2.5	hJNCS	1	0.1207	0.1835	62.8
2					
1.5	hJNCR	1	0.1208	0.2233	102.5
1					
0.5	hJNCQ	1	0.1301	0.1968	66.7
				Mean	72.8

Sample: **F14**

Total Suspended Solids

	(1 Hr)				
Port Height (ft)	**Boat ID**	**Volume Filtered (mL)**	**Tare Wt. (g)**	**Final Dry Wt. (g)**	**TSS Calculation (g/L)**
6.5	hJNCP	1	0.1231	0.1357	12.60
6	hJNCN	1	0.1327	0.1522	19.50
5.5	hJNCM	1	0.1307	0.1538	23.10
5	hJNCL	1	0.1225	0.1442	21.70
4.5	hJNCK	1	0.1305	0.1598	29.30
4	hJNCJ	1	0.123	0.1418	18.80
3.5	hJNCI	1	0.1332	0.1576	24.40
3	hJNDY	1	0.1232	0.1581	34.90
2.5	hJNDX	1	0.1231	0.1508	27.70
2	hJNDW	1	0.124	0.1652	41.20
1.5	hJNDV	1	0.1302	0.1651	34.90
1	hJNDU	1	0.1243	0.1702	45.90
0.5	hJNDT	1	0.1195	0.1531	33.60

Sample: **F14**

Total Suspended Solids

	(2 Hr)				
Port Height (ft)	**Boat ID**	**Volume Filtered (mL)**	**Tare Wt. (g)**	**Final Dry Wt. (g)**	**TSS Calculation (g/L)**
6.5	hJNDS	1.5	0.1201	0.1342	9.40
6	hJNDR	1.5	0.1312	0.15	12.53
5.5	hJNDQ	1.5	0.1309	0.1544	15.67
5	hJNDP	1.5	0.1312	0.1548	15.73
4.5	hJNDN	1.5	0.1199	0.1453	16.93
4	hJNDM	1.5	0.1203	0.1448	16.33
3.5	hJNDL	1.5	0.1196	0.148	18.93
3	hJNDK	1.5	0.1314	0.1666	23.47
2.5	hJNDJ	1.5	0.1324	0.1762	29.20
2	hJNDI	1.5	0.1204	0.161	27.07
1.5	hJNDH	1.5	0.1319	0.1678	23.93
1	hJNDG	1.5	0.1346	0.1636	19.33
0.5	hJNDF	1.5	0.1199	0.1534	22.33

Sample: **F14**

Total Suspended Solids

	(4 Hr)				
Port Height (ft)	**Boat ID**	**Volume Filtered (mL)**	**Tare Wt. (g)**	**Final Dry Wt. (g)**	**TSS Calculation (g/L)**
6.5	hJNDE	3	0.1217	0.1455	7.93
6	hJNDD	2	0.1201	0.148	13.95
5.5	hJNDC	2	0.1327	0.1584	12.85
5	hJNDB	2	0.1325	0.1603	13.90
4.5	hJNDA	2	0.1304	0.1576	13.60
4	hJND9	2	0.12	0.1477	13.85
3.5	hJNBS	2	0.1286	0.1591	15.25
3	hJNBR	2	0.1252	0.1595	17.15
2.5	hJNBQ	2	0.1205	0.1582	18.85
2	Sample lost	--	--	--	--
1.5	hJNBP	2	0.1205	0.1528	16.15
1	hJNBN	2	0.1319	0.1727	20.40
0.5	hJNBM	2	0.1254	0.1622	18.40

Sample: **F14**

Total Suspended Solids

	(6 Hr)				
Port Height (ft)	**Boat ID**	**Volume Filtered (mL)**	**Tare Wt. (g)**	**Final Dry Wt. (g)**	**TSS Calculation (g/L)**
6.5	hJNBL	3	0.124	0.1444	6.80
6	hJNBK	3	0.1235	0.152	9.50
5.5	hJNBJ	2.8	0.1328	0.1622	10.50
5	hJNBI	2.7	0.1302	0.1579	10.26
4.5	hJNBH	2.6	0.1302	0.1615	12.04
4	hJNBG	2.5	0.1218	0.1547	13.16
3.5	hJNBF	2.5	0.13	0.1618	12.72
3	hJNBE	2.4	0.1199	0.1542	14.29
2.5	hJNBD	2.3	0.1216	0.1529	13.61
2	hJNBC	2.2	0.1325	0.1633	14.00
1.5	hJNBB	2.1	0.1315	0.1608	13.95
1	hJNBA	2	0.1297	0.1691	19.70
0.5	hJNB9	1	0.1237	0.1462	22.50

Sample: **F14**

Total Suspended Solids

	(12 Hr)				
Port Height (ft)	**Boat ID**	**Volume Filtered (mL)**	**Tare Wt. (g)**	**Final Dry Wt. (g)**	**TSS Calculation (g/L)**
6.5	hJNB8	4	0.1307	0.1504	4.93
6	hJNB7	3.5	0.1311	0.161	8.54
5.5	hJNB6	3.2	0.1236	0.1592	11.13
5	hJNB5	3	0.1302	0.1655	11.77
4.5	hJNB4	2.8	0.1227	0.1552	11.61
4	hJNB3	2.7	0.1287	0.1713	15.78
3.5	hJNCH	2.6	0.1238	0.1574	12.92
3	hJNCG	2.5	0.132	0.1689	14.76
2.5	hJNCF	2.3	0.1228	0.1542	13.65
2	hJNCE	2.2	0.1224	0.1489	12.05
1.5	hJNCD	2.1	0.1219	0.1513	14.00
1	hJNCC	2	0.1206	0.1552	17.30
0.5	hJNCB	1.5	0.1222	0.1455	15.53

Sample: **F14**

Total Suspended Solids

	(24 Hr)				
Port Height (ft)	**Boat ID**	**Volume Filtered (mL)**	**Tare Wt. (g)**	**Final Dry Wt. (g)**	**TSS Calculation (g/L)**
6.5	hJNCA	10	0.1249	0.129	0.41
6	hJNC9	5	0.1333	0.1692	7.18
5.5	hJNC8	4.5	0.126	0.1671	9.13
5	hJNC7	4.2	0.1253	0.1669	9.90
4.5	hJNC6	3.8	0.1316	0.1647	8.71
4	hJNC5	3.5	0.1306	0.1614	8.80
3.5	hJNC4	3.2	0.1296	0.1621	10.16
3	hJNC3	3	0.1303	0.1581	9.27
2.5	hJNC2	2.8	0.1303	0.1592	10.32
2	hJNC1	2.6	0.1225	0.1478	9.73
1.5	hJNC0	2.4	0.1225	0.1462	9.88
1	hJNBZ	2.2	0.1216	0.1443	10.32
0.5	hJNBY	2	0.1223	0.1438	10.75

Sample: **F14**
Total Suspended Solids

	(48 Hr)				
Port Height (ft)	**Boat ID**	**Volume Filtered (mL)**	**Tare Wt. (g)**	**Final Dry Wt. (g)**	**TSS Calculation (g/L)**
6.5	port not available	--	--	--	--
6	hJNBX	10	0.1306	0.1901	5.95
5.5	hJNBW	7	0.1307	0.1678	5.30
5	hJNBV	6	0.1307	0.1627	5.33
4.5	hJNBU	5.5	0.1288	0.1614	5.93
4	hJNBT	5	0.1292	0.1576	5.68
3.5	bH1A	4.5	0.1251	0.1559	6.84
3	bH1B	4.2	0.1266	0.1568	7.19
2.5	bH1C	3.7	0.129	0.1585	7.97
2	bH1D	3.5	0.1279	0.1538	7.40
1.5	bH1E	3.5	0.1318	0.1597	7.97
1	bH1F	3.2	0.1313	0.1638	10.16
0.5	bH1G	3	0.1252	0.158	10.93

Sample: **F14**
Total Suspended Solids

	(72 Hr)				
Port Height (ft)	**Boat ID**	**Volume Filtered (mL)**	**Tare Wt. (g)**	**Final Dry Wt. (g)**	**TSS Calculation (g/L)**
6.5	port not available	--	--	--	--
6	bH1Ga	10	0.1247	0.1742	4.95
5.5	bH1H	9	0.132	0.1626	3.40
5	bH1I	8	0.1273	0.1636	4.54
4.5	bH1J	7	0.1269	0.1569	4.29
4	bH1K	6.5	0.1277	0.1611	5.14
3.5	bH1L	6.2	0.125	0.1468	3.52
3	bH1M	6	0.1265	0.1578	5.22
2.5	bH1N	5.8	0.1294	0.159	5.10
2	bH1O	5.6	0.1257	0.153	4.88
1.5	bH1P	5	0.1275	0.1573	5.96
1	bH1Q	4.5	0.1283	0.1535	5.60
0.5	bH1R	4	0.1321	0.2698	34.43

Sample: **F14**
Total Suspended Solids

	(96Hr)				
Port Height (ft)	**Boat ID**	**Volume Filtered (mL)**	**Tare Wt. (g)**	**Final Dry Wt. (g)**	**TSS Calculation (g/L)**
6.5	port not available	--	--	--	--
6	bH1S	20	0.1276	0.1561	1.43
5.5	bH1T	15	0.1305	0.1591	1.91
5	bH1U	14	0.1321	0.1586	1.89
4.5	bH1V	13	0.1306	0.1549	1.87
4	bH1W	10	0.1307	0.1495	1.88
3.5	bH1X	10	0.1306	0.1748	4.42
3	bH1Y	9.5	0.1304	0.1621	3.34
2.5	bH1Z	9	0.1281	0.1482	2.23
2	bH11	8	0.1248	0.15	3.15
1.5	bH12	7	0.1231	0.1375	2.06
1	bH13	6.5	0.1278	0.1452	2.68
0.5	bH14	4	0.1271	0.3063	44.80

Sample: **F14**
Total Suspended Solids

	(120Hr)				
Port Height (ft)	**Boat ID**	**Volume Filtered (mL)**	**Tare Wt. (g)**	**Final Dry Wt. (g)**	**TSS Calculation (g/L)**
6.5	port not available	--	--	--	--
6	bH15	30	0.1273	0.1312	0.13
5.5	bH16	20	0.1306	0.1602	1.48
5	bH17	15	0.1274	0.1482	1.39
4.5	bH18	12	0.13	0.1384	0.70
4	bH19	12	0.1275	0.1389	0.95
3.5	bH20	12	0.1299	0.1507	1.73
3	bH2A	10	0.1298	0.1444	1.46
2.5	bH2B	10	0.1307	0.1478	1.71
2	bH2C	9.5	0.1252	0.1398	1.54
1.5	bH2D	9	0.1257	0.1419	1.80
1	bH2E	8	0.131	0.1488	2.23
0.5	below interface	--	--	--	--

Sample: **F14**
Total Suspended Solids

	(144Hr)				
Port Height (ft)	**Boat ID**	**Volume Filtered (mL)**	**Tare Wt. (g)**	**Final Dry Wt. (g)**	**TSS Calculation (g/L)**
6.5	port not available	--	--	--	--
6	2F	30	0.1263	0.128	0.06
5.5	2G	20	0.1312	0.1543	1.16
5	2H	10	0.1321	0.1428	1.07
4.5	2I	10	0.1276	0.1405	1.29
4	2J	10	0.1304	0.1423	1.19
3.5	2K	10	0.1275	0.1385	1.10
3	2L	10	0.1275	0.142	1.45
2.5	2M	10	0.13	0.1433	1.33
2	2N	10	0.1272	0.1439	1.67
1.5	2O	10	0.13	0.1485	1.85
1	2P	10	0.1312	0.1489	1.77
0.5	Below interface	--	--	--	--

APPENDIX A.5

CHAIN OF CUSTODY LOGS

orbislogic HGL

EcoAnalysts
Port Gamble, WA

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 1 **of** 1

COC Number: 20220907-SIB-SED

Company: HydroGeoLogic, Inc.	Report To: Andrea Fletcher	Requested Due Date:	Quote Reference:
Address: 6340 Glenwood, Blding 7, Ste. 200	Copy To: Jeff Gadt	*TAT: **Standard TAT**	Project Manager: Brian Hester
Overland Park, KS 66202	Invoice To: Jeff Gadt		Project #: DT2002.03.03.01.01
Phone: 913-488-0024 Fax: 913-317-8860	jgadt@hgl.com		Matrix: Sediment & Water
Email Address: afletcher@hgl.com	Project Name: HGL-SIB-PDI		Sampling Team Members: Orbislogic: 503-320-1796
	Project Number: DT2002.03.03.01.01	State Location: OR	

Valid Matrix Codes

Matrix	Code
Soil	SO
Sediment	SE
Surface Water	SW
Wastewater	WW
Groundwater	GW
Stormwater	ST

ITEM NUMBER	SAMPLE ID	MATRIX CODE	SAMPLE TYPE G = Grab C = Composite	DATE COLLECTED MM/DD/YYYY	TIME COLLECTED (Military time)	# Containers	Preservatives: Unpreserved	Deionized water	HNO3	HCl	NaOH	Na2S2O3	Methanol	Requested Analysis: Surface Water 2.5 gal cubitainer (Filtered Y/N)	Surface water 10 x 1L amber (Filtered Y/N)	DRET sediment slurry (Filtered Y/N)	REMARKS / Lab ID	Temp °C
														N	N	N		
1	SIB-SED-C22-09052022	SE	C	9/6/2022	10:00	2	X									X	P220907.03a-b	② a=7.0, b=9.
2	SIB-SED-C22-09062022	SW	G	9/5/2022	15:20	16	X							X	X		P220907.03a-p	②
3	SIB-SED-D05-09052022	SE	C	9/6/2022	13:00	2	X									X	P220907.04a-b	b=8.4 a=8.9
4	SIB-SED-D05-09062022	SW	G	9/6/2022	7:44	16	X							X	X		P220907.01a-p	①
5	SIB-SED-F14-09052022	SE	C	9/6/2022	14:30	2	X									X	P220907.06a-b	a=7.9, b=7.9
6	SIB-SED-F14-09062022	SW	G	9/6/2022	11:41	16	X							X	X		P220907.02a-p	③
7																		
8																		
9																		
10																		

SHIPMENT METHOD	AIRBILL NO.	SHIPPING DATE	NO. OF COOLERS	ITEM #	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
		9/7/2022			Joss Moore Orbislogic	9/7/2022	1100	Sarah Zbichle	9/7	1528

SAMPLE CONDITION:

Temp in C	
Received on Ice	Y / N
Sealed Cooler	Y / N
Sample Intact	Y / N

SAMPLE NOTES: SIB DRET/CST sediment composites and mid-water column surface water

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Joss Moore (Orbislogic)

SIGNATURE of SAMPLER

DATE Signed: 9/7/2022

Additional Comments:

① P220907.01 a-b — cooler # 1 — temp 3.0°C
P220907.01 c-d — 9 — 1.5°C
P220907.01 e-f — 13 — 4.8°C

② P220907.03a-b — cooler # 4 — temp 5.9
c-p — 2 — 6.0
e-f — 7 — 1.8
g-p — 8 — 0.3

③ P220907.02a-b — cooler # 8 11 — temp 4-8 5.5
P220907.02 c-d — 3 — 3.1
P220907.02 e-f — 5 — 4.8
g-p — 10 — 0.6

CHAIN OF CUSTODY

EcoAnalysts

EcoAnalysts, Inc.
4770 NE View Dr., Port Gamble, WA. 98364
Tel: (360) 297-6040

Destination: **ALS**	Sample Originator (Organization): **EcoAnalysts, Inc.**	Report Results To: **HydroGeoLogic**	Phone:
Destination Contact: **Kurt Clarkson**	PERSON WHO COLLECTED SAMPLE: **Brian Hester**	Contact Name:	Fax:
Date: **9/14/22**	Address:	Address:	Email:
Turn-Around-Time:			
Project Name: **HGL-SIB-PDI**	Phone:	Inoicing To: **HydroGeoLogic**	
	Fax:	Comments or Special Instructions: **PO Number 0018F008.25, Phase 7, Task 72**	
Contract/PO:	E-mail:		

No.	Sample ID	Secondary ID: Replicate, X of Y, etc.	Matrix	Volume/Mass	Date	Time	Analyses: 40mL VOA	1 L Amber	500mL Amber				Preservation	Sample Temp Upon Receipt	LAB ID
1	SIB-SED-C22-09052022	DRET 1 g/L	Elutriate	6620mL	09/12/22	1654	3	6	1				VOA(HCl); all others: none		
2	SIB-SED-C22-09052022	DRET 10 g/L	Elutriate	6620mL	09/12/22	1709	3	6	1				VOA(HCl); all others: none		
3	SIB-SED-D05-09052022	DRET 1 g/L	Elutriate	6620mL	09/12/22	1919	3	6	1				VOA(HCl); all others: none		
4	SIB-SED-D05-09052022	DRET 10 g/L	Elutriate	6620mL	09/12/22	1927	3	6	1				VOA(HCl); all others: none		
5	SIB-SED-F14-09052022	DRET 1 g/L	Elutriate	6620mL	09/12/22	2159	3	6	1				VOA(HCl); all others: none		
6	SIB-SED-F14-09052022	DRET 10 g/L	Elutriate	6620mL	09/12/22	2211	3	6	1				VOA(HCl); all others: none		
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18															
19															
20															

Relinquished by:	Received by:	Relinquished by:	Received by:	Matrix Codes
Print Name: Brian Heste	Print Name:	Print Name:	Print Name:	FW = Fresh Water
Signature:	Signature:	Signature:	Signature:	SB = Salt & Brackish Water
Affiliation: EcoAnalysts	Affiliation:	Affiliation:	Affiliation:	SS = Soil & Sediment
Date/Time: 9.14.22 0728	Date/Time:	Date/Time:	Date/Time:	TS = Tissue

CHAIN OF CUSTODY

EcoAnalysts

EcoAnalysts, Inc.
4770 NE View Dr., Port Gamble, WA. 98364
Tel: (360) 297-6040

Destination: **ARI**	Sample Originator (Organization): **EcoAnalysts, Inc.**	Report Results To: **HydroGeoLogic**	Phone:
Destination Contact: **Kelly Bottem**	PERSON WHO COLLECTED SAMPLE: **Brian Hester**	Contact Name:	Fax:
Date: **9/14/22**	Address:	Address:	Email:
Turn-Around-Time:			
Project Name: **HGL-SIB-PDI**	Phone:	Inoicing To: **HydroGeoLogic**	
	Fax:	Comments or Special Instructions:	
Contract/PO:	E-mail:		

No.	Sample ID	Secondary ID: Replicate, X of Y, etc.	Matrix	Volume/Mass	Date	Time	Analyses: PCB Arocolors	Analyses: Metals					Preservation	Sample Temp Upon Receipt	LAB ID
1	SIB-SED-C22-09052022	DRET 1 g/L	Elutriate	1500mL	09/12/22	1654	X	X					None		
2	SIB-SED-C22-09052022	DRET 10 g/L	Elutriate	1500mL	09/12/22	1709	X	X					None		
3	SIB-SED-D05-09052022	DRET 1 g/L	Elutriate	1500mL	09/12/22	1919	X	X					None		
4	SIB-SED-D05-09052022	DRET 10 g/L	Elutriate	1500mL	09/12/22	1927	X	X					None		
5	SIB-SED-F14-09052022	DRET 1 g/L	Elutriate	1500mL	09/12/22	2159	X	X					None		
6	SIB-SED-F14-09052022	DRET 10 g/L	Elutriate	1500mL	09/12/22	2211	X	X					None		
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18															
19															
20															

Relinquished by:	Received by:	Relinquished by:	Received by:	Matrix Codes
Print Name: Brian Hester	Print Name:	Print Name:	Print Name:	FW = Fresh Water
Signature:	Signature:	Signature:	Signature:	SB = Salt & Brackish Water
Affiliation: EcoAnalysts	Affiliation:	Affiliation:	Affiliation:	SS = Soil & Sediment
Date/Time: 9.14.22 0727	Date/Time:	Date/Time:	Date/Time:	TS = Tissue

CHAIN OF CUSTODY

EcoAnalysts

EcoAnalysts, Inc.
4770 NE View Dr., Port Gamble, WA. 98364
Tel: (360) 297-6040

Destination: **Cape Fear Analytical**	Sample Originator (Organization): **EcoAnalysts, Inc.**	Report Results To: **HydroGeoLogic**	Phone:
Destination Contact: **Cynde Larkins**	PERSON WHO COLLECTED SAMPLE: **Brian Hester**	Contact Name:	Fax:
Date: **9/13/22**	Address:	Address:	Email:
Turn-Around-Time:			
Project Name: **HGL-SIB-PDI**	Phone:	Analyses:	Inoicing To: **HydroGeoLogic**
	Fax:		Comments or Special Instructions:
Contract/PO:	E-mail:		

No.	Sample ID	Secondary ID: Replicate, X of Y, etc.	Matrix	Volume/Mass	Date	Time	PCB Congener	D/F					Preservation	Sample Temp Upon Receipt	LAB ID
1	SIB-SED-C22-09052022	DRET 1 g/L	Elutriate	2000mL	09/12/22	1654	X	X					None		
2	SIB-SED-C22-09052022	DRET 10 g/L	Elutriate	2000mL	09/12/22	1709	X	X					None		
3	SIB-SED-D05-09052022	DRET 1 g/L	Elutriate	2000mL	09/12/22	1919	X	X					None		
4	SIB-SED-D05-09052022	DRET 10 g/L	Elutriate	2000mL	09/12/22	1927	X	X					None		
5	SIB-SED-F14-09052022	DRET 1 g/L	Elutriate	2000mL	09/12/22	2159	X	X					None		
6	SIB-SED-F14-09052022	DRET 10 g/L	Elutriate	2000mL	09/12/22	2211	X	X					None		
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Relinquished by:	Received by:	Relinquished by:	Received by:	Matrix Codes
Print Name: Brian Hester	Print Name:	Print Name:	Print Name:	FW = Fresh Water
Signature:	Signature:	Signature:	Signature:	SB = Salt & Brackish Water
Affiliation: EcoAnalysts	Affiliation:	Affiliation:	Affiliation:	SS = Soil & Sediment
Date/Time: 9.13.22 0922	Date/Time:	Date/Time:	Date/Time:	TS = Tissue