

Weekly Summary Report

Project Name:	Gasco Sediments Site ISS Field Pilot Study		
Project No:	000029-02.85	Report Date:	October 3, 2023
Week of:	September 25, 2023	Report No:	3

Weekly Summary			
Item	Approximate Production This Week	Approximate Total Cumulative Production	Approximate Task Percent Completion
Mobilization activities	NA	NA	100%
Dolphin pile removal	0	0	100%
Debris removal	0	0	100%
ISS auguring	15 columns	16 columns	55%
Swell material removal	0	0	0%

Work Performed This Period
<p><u>Monday (09/25/2023)</u></p> <p>Performed in situ stabilization and solidification (ISS) auguring and ISS quality assurance/quality control (QA/QC) sample collection at columns 1-2, 1-3, and 1-5. The auger bit was advanced a short distance below mudline at column 1-4 and refusal was encountered, so this column was abandoned for the day.</p>
<p><u>Tuesday (09/26/2023)</u></p> <p>Conducted bathymetric progress survey. Removed debris (composed of timber and large boulders) from around column 1-4. Performed ISS auguring and ISS QA/QC sample collection at column 1-4.</p>
<p><u>Wednesday (09/27/2023)</u></p> <p>Performed ISS auguring and ISS QA/QC sample collection at columns 1-6, 1-7, and 1-9. Refusal was encountered at column 1-8, so this column was abandoned.</p>
<p><u>Thursday (09/28/2023)</u></p> <p>Performed debris removal activities near south area of column rows 2 and 3. Performed ISS auguring and ISS QA/QC sample collection at columns 2-1, 2-2, and 2-3.</p>

Friday (09/29/2023)

Performed ISS auguring at columns 2-6, 2-7, 3-0, 3-6, and 3-7 and ISS QA/QC sample collection at columns 2-6, 2-7, 3-0, and 3-6. A ISS QA/QC sample was not collected from column 3-7 due to sample material "setting up" before the sample crew could process the sample.

Saturday (09/30/2023)

No work was performed.

Water Quality Monitoring

Monday (09/25/2023)

Performed visual inspection of river outside the outer containment barriers during ISS auguring, and no turbidity plumes, sheens, or odors were observed. Two rounds of ebb tide and two rounds of flood tide water quality monitoring were performed during ISS auguring activities, with field and chemical parameters collected at background stations NWN-BG1N and NWN-BG1S and compliance stations NWN-CS1N and NWN-CS1S. Performed visual inspection of river inside the containment booms and identified sheen that was generated from a known ebullition area that is not associated with construction activities.

Tuesday (09/26/2023)

Performed visual inspection of river outside the outer containment barriers during ISS auguring, and no turbidity plumes, sheens, or odors were observed. One round of water quality monitoring was performed during ebb tide during debris removal activities, with field and chemical parameters collected at background station NWN-BG1S and compliance station NWN-CS2N. One round of water quality monitoring was performed during ebb tide during ISS auguring activities with field parameters collected. Performed visual inspection of river inside the containment booms and identified sheen that was generated from a known ebullition area that is not associated with construction activities.

Wednesday (09/27/2023)

Performed visual inspection of river outside the outer containment barriers during ISS auguring, and no turbidity plumes, sheens, or odors were observed. Two rounds of ebb tide and one round of flood tide water quality monitoring were performed during ISS auguring activities, with field and chemical parameters collected at background stations NWN-BG1N and NWN-BG1S and compliance stations NWN-CS1N, NWN-CS2N, and NWN-CS1S. Performed visual inspection of river inside the containment booms and identified sheen that was generated from a known ebullition area that is not associated with construction activities.

Thursday (09/28/2023)

Performed visual inspection of river outside the outer containment barriers during debris removal activities and ISS auguring, and no turbidity plumes, sheens, or odors were observed. One round of water quality monitoring was performed during ebb tide during debris removal activities, with field and chemical parameters collected at background station NWN-BG1S and compliance station NWN-CS2N. One round of water quality monitoring was performed during debris removal and ISS auguring activities (one ebb tide and one flood tide) with field parameters collected. Performed visual inspection of river inside the containment booms and identified sheen that was generated from a known ebullition area that is not associated with construction activities.

Friday (09/29/2023)

Performed visual inspection of river outside the outer containment barriers during ISS auguring, and no turbidity plumes, sheens, or odors were observed. Three rounds of ebb tide water quality monitoring were performed during ISS auguring activities, with field and chemical parameters collected at background stations NWN-BG1S and compliance stations NWN-CS1N and NWN-CS2N. Performed visual inspection of river inside the containment booms and identified sheen that was generated from a known ebullition area that is not associated with construction activities.

Saturday (09/30/2023)

No work was performed.

Findings:

There were no exceedances of the acute chemical criteria, but there was a single result at the compliance location that was slightly above the chronic chemical criterion for benzo(a)pyrene. This sample was collected during debris removal activities on Thursday, September 28, 2023. This sample was collected from the bottom depth, and no elevated results were identified in the middle and top sampling depths. Two other rounds of monitoring were performed on the same day, and the results were all well below the chronic criterion, so the duration of the elevated concentration was short. Because this is the first day a result has been above the chronic chemical criterion, the 4-day average is not above the chronic chemical criterion. A compilation of water quality daily field forms from the week (Attachments 1 through 4), tabulated field parameter data (Attachment 5), and received water quality chemical results during this weekly reporting period (Attachment 6) are attached.

For Informational Purposes Only

In accordance with the U.S. Environmental Protection Agency's (EPA's) comments on the EPA-approved *Final Revised In Situ Stabilization and Solidification Field Pilot Study Work Plan*,¹ for informational purposes only, pH and temperature samples were collected from the moon pool prior to initiation of ISS auguring and following completion of ISS auguring and prior to raising the moon pool curtain. These informational moon pool sampling results are included in Attachment 7.

Scheduled Construction Work This Week (Next Reporting Week)

Continue ISS auguring operations, ISS QA/QC sample collection, and swell material surveying, removal (if applicable), and tracking.

¹ Anchor QEA, LLC, 2023. *Final Revised In Situ Stabilization and Solidification Field Pilot Study Work Plan*. Gasco Sediments Project Area. Prepared for U.S. Environmental Protection Agency, Region 10. September 12, 2023.

Problems Encountered and Contingency Actions Implemented

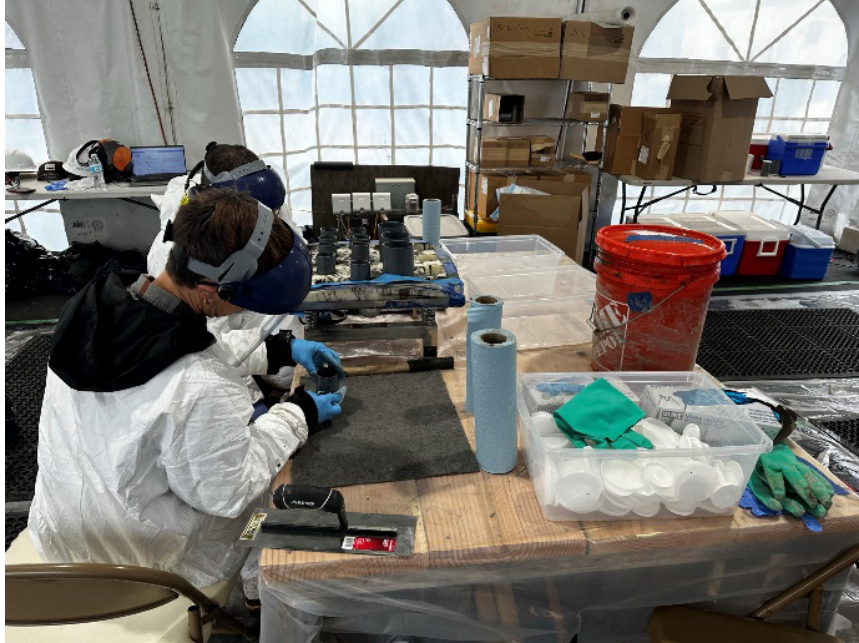
Due to the presence of encountered subsurface debris during auguring at column 1-4 following focused debris removal on Tuesday, September 26, 2023, ISS treatment was extended to 26.5 feet below mudline, 3.5 feet short of the target 30-foot depth of contamination (DOC). Subsurface debris was similarly encountered at columns 1-5 and 1-9, and ISS treatment was extended to 20 and 25.2 feet below mudline, respectively (10 and 9.8 feet short of the target 30-foot DOC, respectively). Due to the presence of this previously unidentified debris, coupled with lower than anticipated river elevations, NW Natural submitted Field Change Request Form (FCR) #1 on Thursday, September 28, 2023, to slightly reconfigure the field pilot study footprint, and EPA approved FCR #1 on Friday, September 29, 2023.

The ISS QA/QC sample set up prior to processing on Friday, September 29, 2023, so no strength or permeability testing can be performed on this column. This sample volume was stored in sample containers for a longer period than at other column locations due to the sampling sequencing. Based on this lesson learned, the sample collection sequencing will be modified to minimize the time between collection and processing.

Prepared by:	Kendra Skellenger	Contact Information:	503-752-4218 kskellenger@anchorqea.com														
cc:	Bob Wyatt, Patty Dost, Mike Crystal, Tim Donegan, Taylor Crystal, Gary Rose, Joe Burke, Rob Ede, Jen Mott, Ryan Barth, Tim Stone, Ben Uhl, Billie-Jo Gauley, Joe Smith, Ross Pickering, Louisa Orr, Elizabeth Greene																
Attachments:	<table border="0"> <tr> <td>Attachment 1</td> <td>Daily Monitoring Logs</td> </tr> <tr> <td>Attachment 2</td> <td>Water Quality Monitoring Calibration Log</td> </tr> <tr> <td>Attachment 3</td> <td>Water Quality Monitoring Forms – Field Parameters</td> </tr> <tr> <td>Attachment 4</td> <td>Water Quality Sampling Forms – Chemical Parameters</td> </tr> <tr> <td>Attachment 5</td> <td>Water Quality Field Parameter Measurements</td> </tr> <tr> <td>Attachment 6</td> <td>Water Quality Monitoring Chemical Results</td> </tr> <tr> <td>Attachment 7</td> <td>Moonpool Informational Measurements</td> </tr> </table>			Attachment 1	Daily Monitoring Logs	Attachment 2	Water Quality Monitoring Calibration Log	Attachment 3	Water Quality Monitoring Forms – Field Parameters	Attachment 4	Water Quality Sampling Forms – Chemical Parameters	Attachment 5	Water Quality Field Parameter Measurements	Attachment 6	Water Quality Monitoring Chemical Results	Attachment 7	Moonpool Informational Measurements
Attachment 1	Daily Monitoring Logs																
Attachment 2	Water Quality Monitoring Calibration Log																
Attachment 3	Water Quality Monitoring Forms – Field Parameters																
Attachment 4	Water Quality Sampling Forms – Chemical Parameters																
Attachment 5	Water Quality Field Parameter Measurements																
Attachment 6	Water Quality Monitoring Chemical Results																
Attachment 7	Moonpool Informational Measurements																

Photographs

Photograph 1



Performing ISS QA/QC sample processing (09/25/2023).

Photograph 2



Channelward oil absorbent boom installed and connected to the anchored downriver and upriver oil containment booms and swell removal barge. This additional boom results provides oil containment surrounding the entire perimeter of the larger work area and will be maintained for the remainder of the field pilot study (09/25/2023).

Photograph 3



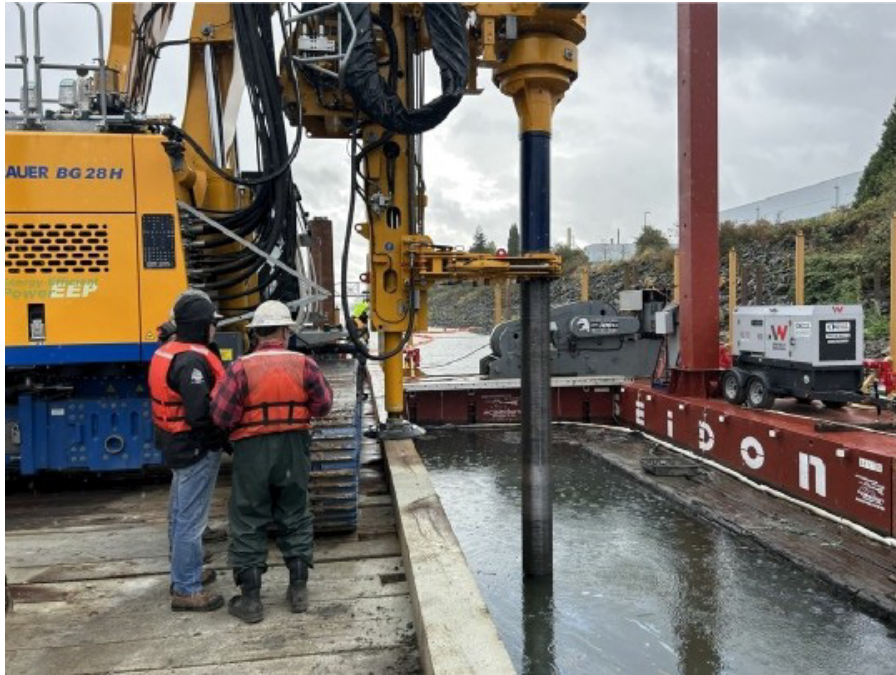
Performing debris removal at ISS column 1-4 (09/26/2023).

Photograph 4



View of ISS drill rig barge from water quality monitoring station EW-1S (09/27/2023).

Photograph 5



Performing ISS auguring operations at column 1-6 (09/27/2023).

Photograph 6



Swell material removal barge being relocated for debris removal (09/28/2023).

Attachment 1

Daily Monitoring Logs

Daily Monitoring Log

Gasco Sediment Site ISS Pilot Study



Anchor QEA, LLC
6720 S Macadam Ave., Suite 300
Portland, OR 97219

Phone 503.670.1108

DATE: 9-25-23
PERSONNEL: Simon Dudenhoefer

Wind from:	N	NE	E	SE	S	SW	W	NW	NONE	LIGHT	MEDIUM	HEAVY
	SUNNY	CLOUDY	RAIN									
	Temperature: °F . °C											
	[Circle appropriate units]											

TIME	COMMENTS
0605	Arrive @ Gasco trailer - Calibrate YSI probes
0641	To moon pool/dock to load WQM gear
0710	Start ISS drilling - next low tide @ 1051 (USGS)
0710	In ebb tide → Circuit 2 start @ BG-15
0745	On water → to BG-15
0757	@ BG-15, confirmed 300' boom dist w/ range finder, flow direction w/ velocimeter, YSI swing, and USGS Morrison River Gauge. Confirmed Garmin depth w/ lead line.
—	Start WQM circuit 1
0823	@ EW-1N, confirmed 100' boom dist. w/ range finder
0837	@ CS-1N, confirmed 150' boom " "
0854	@ CS-2N " "
0856	Decon. Van Dorn sampler
0910	Collected NWN-CS1N-2309250910 and field dup. NWN-CS101N-2309250910 @ CS-1N due to highest NTU @ deep depth.
0925	Decon Van Dorn sampler
0930	Collect NWN-BG15-2309250930 MS/MSD sample (x3 vol.)
1010	Begin WQM circuit 2 - Still Ebb tide → to BG-15
1015	@ BG-15, confirm 300' boom distance w/ range finder
1030	@ EW-1N, confirmed 100' " "
1042	@ CS-1N, confirmed 150' " "
1055	@ CS-2N " "
1105	Decon. van dorn
1115	Collected NWN-CS1N-2309251115 @ 38.8'
1120	Decon Van Dorn
1130	Collected NWN-BG15-2309251130 @ 33'
1140	Off water
1205	On water → start Circuit #3 (Flood tide)
—	→ flood, visible observations + USGS Morrison gauge, next high tide high tide @ 324 pm

Signature: _____

Daily Monitoring Log

Gasco Sediment Site ISS Pilot Study



Anchor QEA, LLC
6720 S Macadam Ave., Suite 300
Portland, OR 97219

Phone 503.670.1108

DATE: 9-25-23

PERSONNEL: Simon Duderhoefer

Wind from:

N	NE	E	SE	<input checked="" type="radio"/> S	SW	W	NW	NONE	LIGHT	<input checked="" type="radio"/> MEDIUM	HEAVY
SUNNY	<input checked="" type="radio"/> CLOUDY	<input checked="" type="radio"/> RAIN								Temperature: <input checked="" type="radio"/> 62 °C	

[Circle appropriate units]

TIME	COMMENTS
1218	@ BG-1N, confirmed boom dist. (300') w/ range finder
1236	@ EW-15, confirmed 100' boom dist w/ range finder
1252	@ CS-15 " " 150' "
1305	@ CS-25 "
1315	@ CS-15 to collect Chemistry sample. Decon. van Dorn
1320	Collect NWN-CS15-2309251320 @ 35.5'
1325	Decon Van Dorn
1335	Collected NWN-BGIN-2309251335 @ 39'
1350	off water
1400	On water → mobilize for circuit #4
1410	Start Circuit #4 - still flood tide → BG-1N
1425	@ BG-1N, confirmed 300' boom dist w/ range finder
1440	@ EW-15, " " 100' "
1452	@ CS-15, " " 150' "
1507	@ CS-25 "
1521	Decon Van Dorn, @ CS-15 for chem. sample (Deep had highest turbidity)
1525	collected NWN-CS15-2309251525 @ 40'
1535	Decon Van Dorn - @ BG-1N for chem sample
1540	Collected NWN-BGIN-2309251540 @ 42'
1545	Finish Circuit #4 → back to Dock
1550	off water

Signature:

Daily Monitoring Log

Gasco Sediment Site ISS Pilot Study



Anchor QEA, LLC
6720 S Macadam Ave., Suite 300
Portland, OR 97219

Phone 503.670.1108

DATE: 9-26-23

PERSONNEL: Simon Dudenhofer

Wind from:

N	NE	E	SE	<u>S</u>	SW	W	NW	NONE	LIGHT	<u>MEDIUM</u>	HEAVY
SUNNY	<u>CLOUDY</u>			RAIN							

 Temperature: 56 °C
[Circle appropriate units]

TIME	COMMENTS
0720	Arrive @ Gasco Trailer - Calibrate YSZ
0910	H/S meeting w/ Cody + Ben prior to WQM event #2
0935	Start sediment disturbance - Debris removal - start wqm @ 1015
—	On water - boat prep
1030	@ BG-15 - Ebb tide, confirmed visually, w/ velocimeter, and Will. River Morrison Gauge data (USGS), river flowing out.
—	Confirmed Garmin depth w/ lead line
—	Confirmed 300' Boom dist. w/ range finder
1035	Start WQM (Debris removal) circuit #1
1047	@ EW-1N, confirmed 100' boom dist. w/ range finder
1100	@ CS-1N " " 150' "
1104	Massive Cruise ship passed by going up river
1112	@ CS-2N, confirmed 150' boom dist. w/ range finder
1115	Decon. Van Dorn sampler - taking WS @ CS-2N
1130	Collect NWN-CS2N-2309261130 @ CS-2N @ 42.8'
1140	Decon van Dorn
1145	Collect NWN-BG15-2309261145 @ BG-15 @ 33.2'
1150	Complete circuit #1 - no exceedances reported
—	OFF WATER - Pull work to move barges
1426	@ Dock - prep for drilling 1-4. USGS Will. River Gauge indicates next tide is high @ 1600 - currently in flood tide - visually confirmed.
1500 1510	Start ISS Drilling - Boring 1-4 - Begin WQM C#2 @ 1600
1605	On WATER → To BG-15 (ebb tide)
1625	@ BG-15, confirmed 300' boom dist. w/ range finder
1638	@ EW-1N " " 100' "
1649	@ CS-1N " " 150' "
1701	@ CS-2N " " 150' "
1711	Finish WQM circuit #2 - no exceedances
1720	Off water

Signature: _____

Daily Monitoring Log

Gasco Sediment Site ISS Pilot Study



Anchor QEA, LLC Phone 503.670.1108
 6720 S Macadam Ave., Suite 300
 Portland, OR 97219

DATE: 9-27-23
 PERSONNEL: Simon Dudenhoefer

Wind from:

N	NE	E	SE	S	SW	W	NW	NONE	LIGHT	MEDIUM	HEAVY
SUNNY	CLOUDY	RAIN									

 Temperature: 57 °F 13 °C
(Circle appropriate units)

TIME	COMMENTS
0605	Arrive @ Gasco Trailer - print forms - YSI Calibration
0745	Start ISS Drilling Column 1-6 → start WQM C#1 @ 0845
—	Boat crew safety meeting: entering/exiting boat, sharp objects, wear PPEs, safety gear locations, emergency procedures
—	Next low tide @ 1208 (USGS) → WQM C#2 Ebb tide locations
0840	Confirmed Garmin depth reading w/ lead line, river flow direction visually + USGS Morrison Gauge data, and confirmed 300' boom dist. @ BG-15 w/ range finder
0847	Decontaminate Van Dorn sampler
0903	@ EW-1N, confirm 100' dist from boom w/ range finder
0916	@ CS-1N " "150'" "
0934	@ CS-2N " "150'" "
0955	Collect NWN-CSIN-2309270955 @ CS-1N @ 39.2'
0957	Decon Van Dorn Sampler
1010	Collect NWN-BG15-2309271010 @ BG-15 @ 35'
—	Finish WQM C#1 → start C#2 @ 1045 (still Ebb tide)
1020	OFF WATER
1040	ON WATER
1045	Start WQM C#2 @ BG-15 (dist. (300') confirmed w/ range finder)
1057	@ EW-1N, confirmed 100' boom dist w/ range finder
1113	@ CS-1N " "150'" "
1130	@ CS-2N " " "
1140	Decon Van Dorn
1145	Collected NWN-CSIN-2309271145 @ CS-1N @ 38.5'
1150	Decon van Dorn
1200	Collected NWN-BG15-2309271200 @ BG-15 @ 34'
—	FINISH WQM Circuit #2 → TO DOCK
1210	OFF WATER
1240	ON WATER → Start WQM Circuit #3 @ 1245

20830 on water

Signature:

Daily Monitoring Log

Gasco Sediment Site ISS Pilot Study



Anchor QEA, LLC
 6720 S Macadam Ave., Suite 300
 Portland, OR 97219

Phone 503.670.1108

DATE: 9-28-23
 PERSONNEL: Simon Dudenhoefer

Wind from:

N	NE	E	SE	S	<u>SW</u>	W	NW	NONE	<u>LIGHT</u>	MEDIUM	HEAVY
<u>SUNNY</u>	<u>CLOUDY</u>			RAIN							

 Temperature: 58 °C
[Circle appropriate units]

TIME	COMMENTS
0610	Arrive @ Gasco Trailer → Calibrate YSIS
	H/S meetings: entering/exiting boat + work area, PFDs, overhead hazards
0800	Start sediment disturbance - Debris removal
—	Start WQM circuit #2 @ 0900
0810	On water - river flowing downstream (Ebb tide) - confirmed
—	w/ USGS Willamette River Morrison Bridge Gauge + visually
0900	at @ BG-1S, start WQM circuit #1
—	confirmed Garmin depth reading w/ lead line and
—	300' boom distance w/ range finder
0931	@ EW-1N, confirmed 100' dist. from boom w/ range finder
0946	@ CS-1N " " 150' "
0955	@ CS-2N " " "
1010	Collect NWN-CS2N-2309281010 @ 42.4' @ CS-2N
1005	Recon VM Porn sampler
1015	Recon VM Porn sampler
1020	Collect NWN-BG1S-2309281020 @ 31' @ BG-1S
1025	Finish WQM #2, no exceedances
1030	OFF WATER → Start WQM C#2 (Drilling ISS Column 2-1)
1045	ON WATER → TO BG-1S
1100	@ BG-1S, confirm 300' boom dist. w/ range finder
1120	@ EW-1N " " 100' "
1137	@ CS-1N " " 150' "
1152	@ CS-2N " " "
1202	Finish WQM C#2 - no exceedances - start C#3 @ 1300
1210	OFF WATER
1250	ON WATER → TO BG-1N (next high tide @ 1713 - USGS)
—	↳ visually confirmed flow direction (upriver) - ISS drilling
1300	@ BG-1N - confirmed 300' boom dist. w/ range finder
1326	@ EW-1S - " " 100' "
1340	@ CS-1S - " " 150' "

Signature:

Daily Monitoring Log

Gasco Sediment Site ISS Pilot Study



Anchor QEA, LLC
 6720 S Macadam Ave., Suite 300
 Portland, OR 97219

Phone 503.670.1108

DATE: 9-28-23

PERSONNEL: Simon Dudenhofer

Wind from:

N	NE	E	SE	S	SW	W	NW	NONE	LIGHT	MEDIUM	HEAVY
SUNNY	CLOUDY	RAIN									

 Temperature: 63. °C
[Circle appropriate units]

TIME	COMMENTS
1358	@CS-2N - confirmed 150' boom dist. w/ range finder
1410	Finish WQM CH3 - no exceedances -> Start CH4 @ 1500
1415	OFFWATER - Finish WQM for today ->
—	no more sediment disturbance

Signature: _____

Daily Monitoring Log

Gasco Sediment Site ISS Pilot Study



Anchor QEA, LLC Phone 503.670.1108
 6720 S Macadam Ave., Suite 300
 Portland, OR 97219

DATE: 9-29-23
 PERSONNEL: Simon Dudenhoefter

Wind from:

<input checked="" type="radio"/> N	<input type="radio"/> NE	<input type="radio"/> E	<input type="radio"/> SE	<input type="radio"/> S	<input type="radio"/> SW	<input type="radio"/> W	<input type="radio"/> NW	<input type="radio"/> NONE
<input checked="" type="radio"/> SUNNY	<input checked="" type="radio"/> CLOUDY	<input type="radio"/> RAIN						

 Temperature: 52.0 °C
[Circle appropriate units]

TIME	COMMENTS
0735	Arrive @ Gasco trailer → calibrate YSI # 6970
0754	ISS Drilling start time → start WQM circuit # @ 0854
0800	H+S meeting: PFDs, safety collecting chemistry samples over the side of the boat, overhead hazards near work barges, slips, trips, falls on barges, entering + exiting boat, PPE while collecting samples + WQM
0830	ON WATER - next tide low @ 1312, (USGS), currently in ebb tide → confirmed visually + using velocimeter
0854	@ BG-1S, confirmed boom dist 300' w/ range finder Confirmed Garmin depth reading w/ lead line
0910	@ EW-1N, confirmed 100' boom distance w/ range finder
0928	@ CS-1N " " 150' "
—	VERY choppy today, hard to keep boat on location due to wind and waves moving up river
0940	@ CS-2N, confirmed 150' boom dist w/ range finder
0945	Decon Van Dorn sampler
0959	Collect NWN-CS2N-2309290959 @ CS-2N @ 42.5'
0955	Decon Van Dorn sampler
1005	Collect NWN-BG1S-2309291005 @ BG-1S @ 34.6'
1010	Completed WQM circuit #1 + collected chemistry samples → NA parameter exceedences → to dock → next WQM @ 1054
1015	OFF WATER
1045	ON WATER - to BG-1S (still Ebb) to start WQM C#2
1054	@ BG-1S, confirmed 300' boom distance w/ range finder
1108	@ EW-1N, " " 100' "
1120	@ CS-1N, " " 150' "
1132	@ CS-2N "
1140	Decon Van Dorn sampler
1145	Collect NWN-CS1N-2309291145 @ CS-1N @ 40.6'
1150	Decon Van Dorn sampler
1200	Collect NWN-BG1S-2309291200 @ BG-1S @ 39.2'

Signature:

Daily Monitoring Log

Gasco Sediment Site ISS Pilot Study



Anchor QEA, LLC
6720 S Macadam Ave., Suite 300
Portland, OR 97219

Phone 503.670.1108

DATE: Simon Dudgehoefter
PERSONNEL: 9-29-23

Wind from:

N	NE	E	SE	S	SW	W	NW	NONE	LIGHT	MEDIUM	HEAVY
SUNNY	CLOUDY		RAIN						Temperature: 62 °F . °C		

[Circle appropriate units]

TIME	COMMENTS
1205	Finish WQM circuit #2, collected chemistry samples →
—	no exceedances
1215	OFF WATER → next round of WQM @ 1254
1245	QM WATER → WQM C#3 still Ebb Tide
1254	@ BG-15, confirmed 300' boom dist w/ range finder
1308	@ EW-1N " " 100' "
1327	@ CS-1N " " 150' "
1338 1341	@ CS-2N "
1400	Recog Van Dorn
1415	Collect NWN-CS1N-2309291415 @ CS-1N @ 38.5'
1420	Recog Van Dorn
1425	Collect NWN-BG15-2309291425 @ BG-15 @ 31.5'
1430	Finish WQM C#3
—	OFF WATER

Signature: _____

Attachment 2

Water Quality Monitoring Calibration Log

Water Quality Monitoring - Calibration Log Form
Gasco Sediment Site ISS Pilot Study

Date: 9-25-23
Probe S/N: 21E103678

Calibrated By: Simon Dudenhofer
Meter(s) Model: YSI ProDSS # 5006

Parameter	Calibration Standard	Standard Lot No.	Expiration Date	Initial Calibration	Final Calibration	Temperature	Comments
pH 7.00 (Standard Units)	7.00	3660021	07/25	7.01	7.00	14.4	
pH 4.00 (Standard Units)	4.00	36F1085	06/25	4.01	4.00	14.5	
Dissolved Oxygen (DO) ¹	99.4	NA	NA	101.0	99.4	17.1	
Turbidity (NTU) ¹	0	NA	NA	0.08	0.00	14.9	DI WATER
Turbidity (NTU) ¹	124	23F24003426	06/24	125.12	124.00	14.9	

Date: _____
Probe S/N: _____

Calibrated By: _____
Meter(s) Model: _____

Parameter	Calibration Standard	Standard Lot No.	Expiration Date	Initial Calibration	Final Calibration	Temperature	Comments
pH 7.00 (Standard Units)	7.00	3660021	07/25	7.05	6.99	14.7	
pH 4.00 (Standard Units)	4.00	36A085	06/25	4.03	4.00	15.0	
Dissolved Oxygen (DO) ¹	99.4	NA	NA	99.1	99.4	17.0	
Turbidity (NTU) ¹	0	NA	NA	-0.04	0.00	14.9	DI WATER
Turbidity (NTU) ¹	124	23F24003426	06/24	122.38	123.84	14.9	

Notes:

1: Calibration standards are entered by hand depending on the monitoring instrument being used.

Water Quality Monitoring - Calibration Log Form
Gasco Sediment Site ISS Pilot Study

Date: 9-26-23
Probe S/N: 21E103678

Calibrated By: Simon Dudenhoefer
Meter(s) Model: YSI ProDSS #6970

Parameter	Calibration Standard	Standard Lot No.	Expiration Date	Initial Calibration	Final Calibration	Temperature	Comments
pH 7.00 (Standard Units)	7.00	3660021	07/25	7.00	7.00	12.9	
pH 4.00 (Standard Units)	4.00	36F1085	06/25	4.02	4.00	13.0	
Dissolved Oxygen (DO) ¹	100.0	NA	NA	99.6	100.0	16.9	
Turbidity (NTU) ¹	0	NA	NA	-0.02	0.00	13.4	DI WATER
Turbidity (NTU) ¹	124	23F24003426	06/24	116.85	123.86	13.4	

Date: 9-26-23
Probe S/N: 22G102376

Calibrated By: Simon Dudenhoefer
Meter(s) Model: YSI ProDSS #5006

Parameter	Calibration Standard	Standard Lot No.	Expiration Date	Initial Calibration	Final Calibration	Temperature	Comments
pH 7.00 (Standard Units)	7.00	3660021	07/25	6.97	7.00	13.3	
pH 4.00 (Standard Units)	4.00	36F1085	06/25	4.08	4.00	13.6	
Dissolved Oxygen (DO) ¹	100.1	NA	NA	100.3	100.1	15.9	
Turbidity (NTU) ¹	0	NA	NA	9.74	0.00	13.9	DI WATER
Turbidity (NTU) ¹	124	23F24003426	06/24	121.66	124.00	13.9	

Notes:

1: Calibration standards are entered by hand depending on the monitoring instrument being used.

Water Quality Monitoring - Calibration Log Form
Gasco Sediment Site ISS Pilot Study

Date: 9-27-23
Probe S/N: 21E103678

Calibrated By: Simon Dudenhofer
Meter(s) Model: YSI ProDSS #6970

Parameter	Calibration Standard	Standard Lot No.	Expiration Date	Initial Calibration	Final Calibration	Temperature	Comments
pH 7.00 (Standard Units)	7.00	3660021	07/25	7.03	7.00	14.0	
pH 4.00 (Standard Units)	4.00	36F1025	06/25	4.00	4.00	13.6	
Dissolved Oxygen (DO) ¹	99.8	NA	NA	100.2	99.8	18.9	
Turbidity (NTU) ¹	0	NA	NA	-0.02	0.00	13.5	DI WATER
Turbidity (NTU) ¹	12.4	23F24003426	06/24	130.11	123.91	13.5	

Date: _____
Probe S/N: _____

Calibrated By: _____
Meter(s) Model: _____

Parameter	Calibration Standard	Standard Lot No.	Expiration Date	Initial Calibration	Final Calibration	Temperature	Comments
pH 7.00 (Standard Units)	7.00						
pH 4.00 (Standard Units)	4.00						
Dissolved Oxygen (DO) ¹							
Turbidity (NTU) ¹							
Turbidity (NTU) ¹							

Notes:

1: Calibration standards are entered by hand depending on the monitoring instrument being used.

Water Quality Monitoring - Calibration Log Form
Gasco Sediment Site ISS Pilot Study

Date: 9-28-23
Probe S/N: 2E103678

Calibrated By: Simon Dudenhofer
Meter(s) Model: YSI ProDSS #6970

Parameter	Calibration Standard	Standard Lot No.	Expiration Date	Initial Calibration	Final Calibration	Temperature	Comments
pH 7.00 (Standard Units)	7.06	3660021	07/25	6.96	7.05	12.6	Δ standard for temp
pH 4.00 (Standard Units)	4.00	36F1085	06/25	4.00	4.00	12.7	
Dissolved Oxygen (DO) ¹	100.4	NA	NA	100.6	100.4	17.1	AIR
Turbidity (NTU) ¹	0	NA	NA	0.00	0.00	13.2	DI WATER
Turbidity (NTU) ¹	12.4	23F24003426	06/24	124.65	123.94	13.2	

Date: _____
Probe S/N: _____

Calibrated By: _____
Meter(s) Model: _____

Parameter	Calibration Standard	Standard Lot No.	Expiration Date	Initial Calibration	Final Calibration	Temperature	Comments	
pH 7.00 (Standard Units)	7.00							
pH 4.00 (Standard Units)	4.00							
Dissolved Oxygen (DO) ¹								
Turbidity (NTU) ¹		DID NOT USE BACKUP YSI						
Turbidity (NTU) ¹								

Notes:

1: Calibration standards are entered by hand depending on the monitoring instrument being used.

Water Quality Monitoring - Calibration Log Form
Gasco Sediments Site ISS Pilot Study

Date: 9-29-23
Probe S/N: 2E103678

Calibrated By: Simon Dudenhofer
Meter(s) Model: YSI ProDSS #6970

Parameter	Calibration Standard	Standard Lot No.	Expiration Date	Initial Calibration	Final Calibration	Temperature	Comments
pH 7.00 (Standard Units)	7.06	3660021	07/25	7.09	7.06	12.7	Δ standard for temp
pH 4.00 (Standard Units)	4.00	36F1085	06/25	3.95	4.00	12.7	
Dissolved Oxygen (DO) ¹	99.7	NA	NA	99.2	99.7	13.4	AIR
Turbidity (NTU) ¹	0	NA	NA	0.18	0.00	13.0	DI WATER
Turbidity (NTU) ¹	12.4	23F24003+26	06/24	125.01	124.00	13.0	

Date: _____
Probe S/N: _____

Calibrated By: _____
Meter(s) Model: _____

Parameter	Calibration Standard	Standard Lot No.	Expiration Date	Initial Calibration	Final Calibration	Temperature	Comments
pH 7.00 (Standard Units)	7.00						
pH 4.00 (Standard Units)	4.00						
Dissolved Oxygen (DO) ¹							
Turbidity (NTU) ¹		SECOND YSI NOT USED					
Turbidity (NTU) ¹							

Notes:

1: Calibration standards are entered by hand depending on the monitoring instrument being used.

Attachment 3

Water Quality Monitoring Forms – Field Parameters

YSI ProDSS #5006 Probe # 21E193678

Water Quality Monitoring Form - Field Parameters
Gasco Sediment Site ISS Pilot Study

Date: 9-25-23 Circuit Number: 1

Station: BG EW CS-1 CS-2 N S Time: 0810

Flood / Ebb Up River / Down River Avg. Velocity: 0.168

Lat/Northing: 45.57869 Long/Easting: 122.75404 Total Water Depth: 32.5

	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	2.19	7.10	8.82	19.1
Middle	16.25	2.51	7.19	8.79	19.1
Deep	29.5	3.18	7.17	8.77	19.1

Comments^[1]: No sheen, odors, discoloration, or suspended material observed

Construction Activity: ISS Drilling (1-2)

Station: BG EW CS-1 CS-2 N S Time: 0825

Flood / Ebb Up River / Down River Avg. Velocity: 0.145

Lat/Northing: 45.58005 Long/Easting: 122.75682 Total Water Depth: 42.5

	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	2.16	7.14	8.82	19.1
Middle	21.25	2.57	7.12	8.79	19.1
Deep	39.5	2.88	7.19	8.76	19.1

Comments^[1]: No sheen, odors, discoloration, or suspended materials observed

Construction Activity: ISS Drilling (1-2)

Recorded by: Simon Dudenhofer

[1] Include observations of floating/suspended material, sheens, discoloration, and odors.

YSI ProDSS #5006 Probe #21E103678

Water Quality Monitoring Form - Field Parameters					
Gasco Sediment Site ISS Pilot Study					
Date: 9-25-23			Circuit Number: 1		
Station: BG EW CS-1 CS-2 N S		Time: 0839			
Flood / Ebb		Up River / Down River		Avg. Velocity: 0.264	
Lat/Northing: 45.58032		Long/Easting: 122.75744		Total Water Depth: 42.2	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	2.48	7.14	8.81	19.1
Middle	21.1	2.53	7.15	8.79	19.1
Deep	39.2	4.35	7.27	8.74	19.1
Comments ^[1] : • No sheen, odors, discoloration, or suspended material observed • Collecting WS @ CS-1N deep depth (highest turbidity) ↳ Regular + duplicate sample					
Construction Activity: ISS Drilling (1-2)					
Station: BG EW CS-1 CS-2 N S		Time: 0855			
Flood / Ebb		Up River / Down River		Avg. Velocity: 0.331	
Lat/Northing: 45.58024		Long/Easting: 122.75674		Total Water Depth: 44.5	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	2.29	7.13	8.82	19.1
Middle	22.25	2.62	7.17	8.79	19.1
Deep	41.5	2.75	7.20	8.77	19.1
Comments ^[1] : • No sheen, odors, discoloration or suspended material observed					
Construction Activity: ISS Drilling (1-2)					
Recorded by: Simon Dudenhofer					

[1] Include observations of floating/suspended material, sheens, discoloration, and odors.

YSI ProDSS #5006 Probe # 21E103678

Water Quality Monitoring Form - Field Parameters					
Gasco Sediment Site ISS Pilot Study					
Date: 9-25-23			Circuit Number: 2		
Station: <input checked="" type="radio"/> BG <input type="radio"/> EW <input type="radio"/> CS-1 <input type="radio"/> CS-2 <input type="radio"/> N <input checked="" type="radio"/> S		Time: 1016			
Flood / <input checked="" type="radio"/> Ebb		Up River / <input checked="" type="radio"/> Down River		Avg. Velocity: 0.255	
Lat/Northing: 45.57871		Long/Easting: 122.75405		Total Water Depth: 33	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	2.49	7.16	8.85	19.1
Middle	16.5	2.72	7.17	8.80	19.1
Deep	30	2.86	7.20	8.78	19.1
Comments ^[1] : No sheen, odors, discoloration, or suspended material observed					
Construction Activity: ISS Drilling 1-3					
Station: BG <input checked="" type="radio"/> EW <input type="radio"/> CS-1 <input type="radio"/> CS-2 <input checked="" type="radio"/> N <input type="radio"/> S		Time: 1032			
Flood / <input checked="" type="radio"/> Ebb		Up River / <input checked="" type="radio"/> Down River		Avg. Velocity: 0.169	
Lat/Northing: 45.58011		Long/Easting: 122.75693		Total Water Depth: 42'	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	2.94	7.14	8.83	19.1
Middle	21	3.74	7.19	8.79	19.1
Deep	39	6.65	7.25	8.75	19.1
Comments ^[1] : No sheen, odors, discoloration, or suspended materials observed					
Construction Activity: ISS Drilling 1-3					
Recorded by: Simon Dudenhofer					

[1] Include observations of floating/suspended material, sheens, discoloration, and odors.

YSI ProDSS #5006 Probe #21E103678

Water Quality Monitoring Form - Field Parameters					
Gasco Sediment Site ISS Pilot Study					
Date: 9-25-23			Circuit Number: 2		
Station: BG EW <u>CS-1</u> CS-2 <u>N</u> S		Time: 1044			
Flood / <u>Ebb</u>		Up River / <u>Down River</u>		Avg. Velocity: 0.191	
Lat/Northing: 45.58032		Long/Easting: 122.73746		Total Water Depth: 41	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	2.49	7.13	8.85	19.1
Middle	20.5	2.78	7.16	8.80	19.1
Deep	38	5.20	7.27	8.74	19.1
Comments ^[1] : • No odors, sheens, discoloration, or suspended materials observed • Collecting w/s were @ 38' (highest turbidity)					
Construction Activity: ISS Drilling 1-3					
Station: BG EW CS-1 <u>CS-2</u> <u>N</u> S		Time: 1056			
Flood <u>Ebb</u>		Up River / <u>Down River</u>		Avg. Velocity: 0.175	
Lat/Northing: 45.58026		Long/Easting: 122.75674		Total Water Depth: 43.7	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	2.24	7.13	8.85	19.1
Middle	21.85	2.75	7.16	8.81	19.1
Deep	40.7	3.55	7.26	8.76	19.1
Comments ^[1] : • No sheen, odors, discoloration, or suspended material observed * 7.40					
Construction Activity: ISS Drilling 1-3					
Recorded by: Simon Dudenhofer					

[1] Include observations of floating/suspended material, sheens, discoloration, and odors.

YSI ProDSS #5006 Probe # 21E103678

Water Quality Monitoring Form - Field Parameters					
Gasco Sediment Site ISS Pilot Study					
Date: 9-25-23			Circuit Number: 3		
Station: BG EW CS-1 CS-2 N S		Time: 1220			
Floody Ebb		Up River / Down River		Avg. Velocity: 0.377	
Lat/Northing: 45.58037		Long/Easting: 122.75788		Total Water Depth: 40.6	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	2.28	7.18	8.84	19.1
Middle	20.3	3.21	7.22	8.77	19.1
Deep	37.6	5.79	7.25	8.70	19.1
Comments ^[1] : • No odors, sheen, discoloration, or suspended material observed					
Construction Activity: ISS Drilling (1-3 sampling)					
Station: BG EW CS-1 CS-2 N S		Time: 1238			
Flood / Ebb		Up River / Down River		Avg. Velocity: 0.663	
Lat/Northing: 45.57914		Long/Easting: 122.75500		Total Water Depth: 41	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	2.25	7.14	8.84	19.1
Middle	20.5	3.27	7.15	8.77	19.1
Deep	38	4.16	7.18	8.72	19.1
Comments ^[1] : • No odors, sheens, discoloration, or suspended materials observed					
Construction Activity: ISS Drilling (1-3 sampling)					
Recorded by: Simon Dudenhofer					

[1] Include observations of floating/suspended material, sheens, discoloration, and odors.

YSI #5006 Probe #21E103678

Water Quality Monitoring Form - Field Parameters					
Gasco Sediment Site ISS Pilot Study					
Date: 9-25-23			Circuit Number: 3		
Station: BG EW CS-1 <u>CS-2</u> N <u>S</u>		Time: 1305			
<u>Flood</u> / Ebb		<u>Up River</u> / Down River		Avg. Velocity: 0.951	
Lat/Northing: 45.57941		Long/Easting: 122.75504		Total Water Depth: 44	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	2.64	7.13	8.82	19.1
Middle	22	3.33	7.14	8.77	19.1
Deep	41	3.96	7.14	8.76	19.1
Comments ^[1] : • No sheens, odors, discoloration, suspended materials observed					
Construction Activity: ISS Drilling (1-3)					
Station: BG EW CS-1 <u>CS-2</u> N <u>S</u>		Time: 1253			
<u>Flood</u> / Ebb		<u>Up River</u> / Down River		Avg. Velocity: 0.666	
Lat/Northing: 45.57891		Long/Easting: 122.75456		Total Water Depth: 38	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	2.47	7.11	8.82	19.1
Middle	19	3.55	7.17	8.76	19.1
Deep	35	4.35	7.21	8.73	19.1
Comments ^[1] : • No sheen, odors, discoloration, or suspended material observed • Collecting WS @ deep (35') due to highest turbidity					
Construction Activity: ISS Drilling (1-3)					
Recorded by: Simon Dudenhaefer					

[1] Include observations of floating/suspended material, sheens, discoloration, and odors.

YSI ProDSS #5006 Probe #21E103678

Water Quality Monitoring Form - Field Parameters					
Gasco Sediment Site ISS Pilot Study					
Date: 9-25-23			Circuit Number: 4		
Station: <u>BG</u> EW CS-1 CS-2 <u>N</u> S		Time: 1425			
<u>Flood</u> / Ebb		<u>Up River</u> / Down River		Avg. Velocity: 0.593	
Lat/Northing: 45.58047		Long/Easting: 122.75806		Total Water Depth: 44.2	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	2.05	7.16	8.80	19.1
Middle	22.1	2.82	7.17	8.77	19.1
Deep	41.2	3.50	7.18	8.74	19.1
Comments ^[1] : • No sheens, odors, discolorations, or suspended material observed					
Construction Activity: ISS Drilling (1-4)					
Station: BG <u>EW</u> CS-1 CS-2 N <u>S</u>		Time: 1440			
<u>Flood</u> / Ebb		<u>Up River</u> / Down River		Avg. Velocity: 0.438	
Lat/Northing: 45.57925		Long/Easting: 122.75495		Total Water Depth: 45.5	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	3.24	7.15	8.83	19.1
Middle	22.75	2.41	7.14	8.77	19.1
Deep	42.5	3.91	7.16	8.75	19.1
Comments ^[1] : • No sheens, odors, discolorations, or suspended material observed					
Construction Activity: ISS Drilling (1-4)					
Recorded by: Simon Dudenhofer					

[1] Include observations of floating/suspended material, sheens, discoloration, and odors.

YSI ProDSS #5006 Probe #21E103678

Water Quality Monitoring Form - Field Parameters					
Gasco Sediment Site ISS Pilot Study					
Date: 9-25-23			Circuit Number: 4		
Station: BG EW CS-1 CS-2 N S		Time: 1455			
Flood / Ebb		Up River / Down River		Avg. Velocity: 0.145	
Lat/Northing: 45.57893		Long/Easting: 122.75465		Total Water Depth: 40	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	4.07	7.21	8.82	19.1
Middle	20	3.03	7.17	8.78	19.1
Deep	37	4.63	7.21	8.75	19.1
Comments ^[1] : <ul style="list-style-type: none"> • No sheens, odors, discoloration, or suspended material observed • Collecting chemistry sample here @ 37' (highest turbidity) 					
Construction Activity: ISS Drilling (1-4)					
Station: BG EW CS-1 CS-2 N S		Time: 1508			
Flood / Ebb		Up River / Down River		Avg. Velocity: 0.164	
Lat/Northing: 45.57947		Long/Easting: 122.75501		Total Water Depth: 46.4	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	2.03	7.16	8.83	19.1
Middle	23.2	3.10	7.20	8.76	19.1
Deep	43.4	4.01	7.23	8.73	19.1
Comments ^[1] : <ul style="list-style-type: none"> • No sheens, odors, discoloration, or suspended material observed 					
Construction Activity: ISS Drilling (1-4)					
Recorded by: Simon Dudenhaefer					

[1] Include observations of floating/suspended material, sheens, discoloration, and odors.

Probe # 21E103678 YSP Pro DSS # 6970

Water Quality Monitoring Form - Field Parameters Gasco Sediment Site ISS Pilot Study

Date: 9-26-23 Circuit Number: 1

Station: **BG** EW CS-1 CS-2 N **(S)** Time: 1035

Flood / **(Ebb)** Up River / **(Down River)** Avg. Velocity: 0.403

Lat/Northing: 45.57875 Long/Easting: 122.75404 Total Water Depth: 36.6

	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	2.04	7.11	8.94	18.7
Middle	18.3	2.86	7.17	8.85	18.7
Deep	33.6	4.08	7.13	8.84	18.7

Comments^[1]: • No sheen, odors, discoloration, or suspended material observed

Construction Activity: Debris removal

Station: **BG** **(EW)** CS-1 CS-2 **(N)** S Time: 1047

Flood / **(Ebb)** Up River / **(Down River)** Avg. Velocity: 0.237

Lat/Northing: 45.58015 Long/Easting: 122.75679 Total Water Depth: 44.8

	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	2.13	7.15	8.93	18.7
Middle	22.4	2.92	7.15	8.85	18.7
Deep	41.8	7.74	7.17	8.79	18.7

Comments^[1]: • No sheen, odors, discoloration, or suspended material observed related to construction activity

Construction Activity: Debris removal

Recorded by: Simon Dudenhofer

[1] Include observations of floating/suspended material, sheens, discoloration, and odors.

Probe #21E103678 YSI ProDS5 #6970

Water Quality Monitoring Form - Field Parameters					
Gasco Sediment Site ISS Pilot Study					
Date: 9-26-23			Circuit Number: 1		
Station: BG EW <u>CS-1</u> CS-2 <u>N</u> S		Time: 1100			
Flood / <u>Ebb</u>		Up River / <u>Down River</u>		Avg. Velocity: 0.122	
Lat/Northing: 45.58033		Long/Easting: 122.75755		Total Water Depth: 41.2	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	2.31	7.18	8.92	18.7
Middle	20.6	3.55	7.12	8.85	18.7
Deep	38.2	7.38	7.13	8.77	18.7
Comments ^[1] : No sheen, odors, discoloration, or suspended material observed					
Construction Activity: Debris Removal					
Station: BG EW CS-1 <u>CS-2</u> <u>N</u> S		Time: 1114			
Flood / <u>Ebb</u>		Up River / <u>Down River</u>		Avg. Velocity: 0.376	
Lat/Northing: 45.58027		Long/Easting: 122.75659		Total Water Depth: 45.8	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	2.01	7.16	8.93	18.7
Middle	22.9	2.26	7.19	8.87	18.7
Deep	42.8	7.56	7.20	8.83	18.7
Comments ^[1] : No sheen, odors, discoloration, or suspended material observed Collecting chemistry sample here @ 42.8' (highest NTU of CS's)					
Construction Activity: Debris removal					
Recorded by: Simon Dudenhofer					

[1] Include observations of floating/suspended material, sheens, discoloration, and odors.

Probe # 21E103678

YSI ProDS # 6970

Water Quality Monitoring Form - Field Parameters

Gasco Sediment Site ISS Pilot Study

 Date: 9-26-23 Circuit Number: 2

 Station: **BG** EW CS-1 CS-2 N **S** Time: 1625

 Flood / **Ebb** Up River / **Down River** Avg. Velocity: 0.049

 Lat/Northing: 45.57874 Long/Easting: 122.75399 Total Water Depth: 40.2

	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	2.02	7.28	8.93	18.8
Middle	20.1	2.85	7.29	8.85	18.8
Deep	37.2	3.33	7.32	8.78	18.8

 Comments^[1]: • No sheen, odors, discoloration, or suspended material observed

Construction Activity: Debris removal, ISS Drilling (1-4)

 Station: BG **EW** CS-1 CS-2 **N** S Time: 1638

 Flood / **Ebb** Up River / **Down River** Avg. Velocity: 0.092

 Lat/Northing: 45.58013 Long/Easting: 122.75693 Total Water Depth: 46.3

	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	2.35	7.32	8.94	18.8
Middle	23.15	2.68	7.29	8.88	18.8
Deep	43.3	4.31	7.32	8.84	18.8

 Comments^[1]: • No sheen, odors, discoloration, or suspended material observed related to construction activity

Construction Activity: Debris removal, ISS Drilling (1-4)

 Recorded by: Siman Dudenhofer

[1] Include observations of floating/suspended material, sheens, discoloration, and odors.

Probe #21E103678 YSI ProDSS #6970

Water Quality Monitoring Form - Field Parameters					
Gasco Sediment Site ISS Pilot Study					
Date: 9-26-23			Circuit Number: 2		
Station: BG EW <u>CS-1</u> CS-2 <u>N</u> S		Time: 1649			
Flood / <u>Ebb</u>		Up River / <u>Down River</u>		Avg. Velocity: 0.224	
Lat/Northing: 45.58033		Long/Easting: 122.75750		Total Water Depth: 45.7	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	2.14	7.28	8.98	18.8
Middle	22.85	2.51	7.26	8.91	18.8
Deep	42.7	3.26	7.32	8.84	18.8
Comments ^[1] : No sheen, odor, discoloration, or suspended material observed					
Construction activity: Debris removal, ISS Drilling (1-4)					
Station: BG EW CS-1 <u>CS-2</u> <u>N</u> S		Time: 1701			
Flood / <u>Ebb</u>		Up River / <u>Down River</u>		Avg. Velocity: 0.394	
Lat/Northing: 45.58024		Long/Easting: 122.75679		Total Water Depth: 47.4	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	1.95	7.25	9.02	18.8
Middle	23.7	2.02	7.23	8.93	18.8
Deep	44.4	6.17	7.47	8.77	18.8
Comments ^[1] : No sheen, odors, discoloration, or suspended material observed					
Construction activity: Debris removal, ISS Drilling (1-4)					
Recorded by: Simon Dudenhoefer					

[1] Include observations of floating/suspended material, sheens, discoloration, and odors.

Probe # 21E103678

YSI ProDSS #6970

Water Quality Monitoring Form - Field Parameters					
Gasco Sediment Site ISS Pilot Study					
Date: 9-27-23			Circuit Number: 1		
Station: BG EW CS-1 CS-2 N <u>S</u>				Time: 0845	
Flood / <u>Ebb</u>		Up River / <u>Down River</u>		Avg. Velocity: 0.244	
Lat/Northing: 45.57873		Long/Easting: 122.75405		Total Water Depth: 37.5	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	2.24	7.10	8.98	18.3
Middle	18.75	2.31	7.08	8.93	18.3
Deep	34.5	2.06	7.15	8.91	18.3
Comments ^[1] : • No odor, sheens, discoloration, or suspended material observed					
Construction Activity: ISS Drilling (1-6)					
Station: BG <u>EW</u> CS-1 CS-2 <u>N</u> S				Time: 0905	
Flood / <u>Ebb</u>		Up River / <u>Down River</u>		Avg. Velocity: 0.345	
Lat/Northing: 45.58008		Long/Easting: 122.75692		Total Water Depth: 44	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	2.06	7.15	8.97	18.3
Middle	22	2.42	7.17	8.91	18.4
Deep	41	3.63	8.29	8.83	18.3
Comments ^[1] : • No sheen, odor, or discoloration, or suspended material observed					
Construction Activity: ISS Drilling (1-6)					
Recorded by: Simon Dudenhoefer					

[1] Include observations of floating/suspended material, sheens, discoloration, and odors.

Probe # 2IE103678

YSI ProDSS #6970

Water Quality Monitoring Form - Field Parameters					
Gasco Sediment Site ISS Pilot Study					
Date: 9-27-23			Circuit Number: 1		
Station: BG EW <u>CS-1</u> CS-2 <u>N</u> S		Time: 0920			
Flood <u>(Ebb)</u>		Up River <u>(Down River)</u>		Avg. Velocity: 0.382	
Lat/Northing: 45.50030		Long/Easting: 122.75751		Total Water Depth: 42.5	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	1.94	7.12	8.99	18.3
Middle	21.25	2.13	7.09	8.92	18.3
Deep	39.5	2.75	7.28	8.90	18.3
Comments ^[1] : • No sheen, odor, or discoloration, suspended material observed • Collecting chemistry sample here @ 39.5' (highest turbidity)					
Construction Activity: ISS Drilling (1-6)					
Station: BG EW CS-1 <u>CS-2</u> <u>N</u> S		Time: 0935			
Flood <u>(Ebb)</u>		Up River <u>(Down River)</u>		Avg. Velocity:	
Lat/Northing: 45.58020		Long/Easting: 122.75676		Total Water Depth: 44.5	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	1.86	7.08	9.02	18.3
Middle	22.25	2.07	7.15	8.94	18.3
Deep	41.5	2.36	7.20	8.89	18.3
Comments ^[1] : • No sheen, odor, discoloration, or suspended material observed					
Construction Activity: ISS Drilling (1-6)					
Recorded by: Simon Dudenhofer					

[1] Include observations of floating/suspended material, sheens, discoloration, and odors.

Probe #21E103678

YSI ProDSS #6970

Water Quality Monitoring Form - Field Parameters					
Gasco Sediment Site ISS Pilot Study					
Date: 9-27-23			Circuit Number: 2		
Station: <u>BG</u> EW CS-1 CS-2 N <u>S</u>		Time: 1045			
Flood <u>(Ebb)</u>		Up River / <u>(Down River)</u>		Avg. Velocity: 0.175	
Lat/Northing: 45.57875		Long/Easting: 122.75405		Total Water Depth: 41.5	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	1.61	7.16	9.07	18.3
Middle	20.75	2.06	7.20	8.97	18.3
Deep	38.5	2.24	7.17	8.93	18.2
Comments ^[1] : • No sheen, odors, discoloration, or suspended materials observed					
Construction Activity: ISS Drilling (1-7)					
Station: BG <u>(EW)</u> CS-1 CS-2 <u>(N)</u> S		Time: 1100			
Flood <u>(Ebb)</u>		Up River / <u>(Down River)</u>		Avg. Velocity: 0.139	
Lat/Northing: 45.58013		Long/Easting: 122.75890		Total Water Depth: 43.5	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	1.90	7.14	9.02	18.3
Middle	21.75	2.01	7.14	8.96	18.3
Deep	40.5	2.24	7.43	8.90	18.3
Comments ^[1] : * 5.61 • No sheen, odor, discoloration, or suspended materials observed					
Construction Activity: ISS Drilling (1-7)					
Recorded by: Simon Dudenhofer					

[1] Include observations of floating/suspended material, sheens, discoloration, and odors.

Probe #21E103678 YSI ProDSS #6970

Water Quality Monitoring Form - Field Parameters					
Gasco Sediment Site ISS Pilot Study					
Date: 9-27-23			Circuit Number: 2		
Station: BG EW <u>CS-1</u> CS-2 <u>N</u> S		Time: 1115			
Flood <u>Ebb</u>		Up River <u>Down River</u>		Avg. Velocity: 0.248	
Lat/Northing: 45.58030		Long/Easting: 122.75758		Total Water Depth: 41.8	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	1.83	7.12	9.04	18.3
Middle	20.9	2.34	7.21	8.98	18.3
Deep	38.8	3.93	7.96	8.90	18.3
Comments ^[1] : <ul style="list-style-type: none"> • No sheen, odor, discoloration, or suspended material observed • Barge + tug boat passed location ~1117, collecting chem sample here @ 38.8' (highest tide) 					
Construction Activity: ISS Drilling (1-7)					
Station: BG EW CS-1 <u>CS-2</u> <u>N</u> S		Time: 1130			
Flood <u>Ebb</u>		Up River <u>Down River</u>		Avg. Velocity: 0.408	
Lat/Northing: 45.58032		Long/Easting: 122.75685		Total Water Depth: 45.5	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	1.62	7.09	9.08	18.3
Middle	22.75	2.24	7.11	8.98	18.3
Deep	42.5	2.57	7.12	8.93	18.3
Comments ^[1] : <ul style="list-style-type: none"> • Boat passing during WQM • No sheen, odor, discoloration, or suspended material observed 					
Construction Activity: ISS Drilling (1-7)					
Recorded by: Simon Pudenhofer					

[1] Include observations of floating/suspended material, sheens, discoloration, and odors.

Probe #21E103678

YSI ProDSS #6970

Water Quality Monitoring Form - Field Parameters
Gasco Sediment Site ISS Pilot Study

Date: 9-27-23 Circuit Number: 3

Station: **BG** EW CS-1 CS-2 **(N)** S Time: 1300

(Flood) / Ebb **(Up River)** / Down River Avg. Velocity: 0.013

Lat/Northing: 45.58053 Long/Easting: 122.75821 Total Water Depth: 43

	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	1.87	7.28	9.14	18.3
Middle	21.5	2.17	7.23	9.02	18.3
Deep	40	3.16	7.22	9.00	18.2

Comments^[1]: • No sheen, odor, discoloration, or suspended material observed

Construction Activity: ISS Drilling (1-9)

Station: BG **(EW)** CS-1 CS-2 N **(S)** Time: 1315

(Flood) / Ebb **(Up River)** / Down River Avg. Velocity: 0.034

Lat/Northing: 45.57917 Long/Easting: 122.75505 Total Water Depth: 42

	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	1.58	7.22	9.18	18.3
Middle	21	2.44	7.15	9.02	18.2
Deep	39	3.03	7.20	8.98	18.2

Comments^[1]: • No sheen, odor, discoloration, or suspended material observed

Construction Activity: ISS Drilling (1-9)

Recorded by: Simon Dudenhofer

[1] Include observations of floating/suspended material, sheens, discoloration, and odors.

Probe # 21E103678

YSI ProDSS # 6970

Water Quality Monitoring Form - Field Parameters					
Gasco Sediment Site ISS Pilot Study					
Date: 9-27-23			Circuit Number: 3		
Station: BG EW CS-1 CS-2 N S		Time: 1325			
Flood / Ebb		Up River / Down River		Avg. Velocity: 0.036	
Lat/Northing: 45.57896		Long/Easting: 122.75467		Total Water Depth: 39	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	1.61	7.19	9.14	18.3
Middle	19.5	1.91	7.20	9.03	18.2
Deep	36	2.68	7.20	8.98	18.2
Comments ^[1] : • No sheen, odor, discoloration, or suspended material observed • Collecting chemistry sample here @ 36' (highest NTU)					
Construction Activity: ISS Drilling (1-a)					
Station: BG EW CS-1 CS-2 N S		Time: 1335			
Flood / Ebb		Up River / Down River		Avg. Velocity: 0.070	
Lat/Northing: 45.57956		Long/Easting: 122.75489		Total Water Depth: 46.6	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	1.44	7.22	9.18	18.3
Middle	23.3	2.04	7.21	9.02	18.2
Deep	43.3	2.45	7.20	8.99	18.2
Comments ^[1] : • No sheen, odor, discoloration, or suspended material observed					
Construction Activity: ISS Drilling (1-a)					
Recorded by: Simon Dudenhofer					

[1] Include observations of floating/suspended material, sheens, discoloration, and odors.

Probe #21E103678

YSI ProDSS #6970

Water Quality Monitoring Form - Field Parameters					
Gasco Sediment Site ISS Pilot Study					
Date: 9-28-23			Circuit Number: 1		
Station: BG EW CS-1 CS-2 N S		Time: 0900			
Flood / Ebb		Up River / Down River		Avg. Velocity: 0.193	
Lat/Northing: 45.57874		Long/Easting: 122.75406		Total Water Depth: 34 25	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	1.69	7.28	9.10	17.9
Middle	17 ^{SD} 17	1.91	7.24	9.03	17.9
Deep	31	2.60	7.21	9.06	17.7
Comments ^[1] : • No sheen, odors, discoloration, or suspended material observed					
Construction Activity: Debris removal					
Station: BG EW CS-1 CS-2 N S		Time: 0931			
Flood Ebb		Up River Down River		Avg. Velocity: 0.168	
Lat/Northing: 45.58015		Long/Easting: 122.75682		Total Water Depth: 47	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	2.16	7.25	9.12	17.9
Middle	23.5	2.61	7.26	9.09	17.9
Deep	44	5.83	7.21	9.03	17.9
Comments ^[1] : • No sheen, odors, discoloration, or suspended material observed					
Construction Activity: Debris removal					
Recorded by: Simon Dudenhofer					

[1] Include observations of floating/suspended material, sheens, discoloration, and odors.

Probe #21E103678 YSI ProDSS #6970

Water Quality Monitoring Form - Field Parameters					
Gasco Sediment Site ISS Pilot Study					
Date: 9-28-23			Circuit Number: 1		
Station: BG EW CS-1 CS-2 N S		Time: 0946			
Flood Ebb		Up River Down River		Avg. Velocity: 0.253	
Lat/Northing: 45.58031		Long/Easting: 122.75752		Total Water Depth: 43.6	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	2.35	7.22	9.11	17.9
Middle	21.8	2.52	7.24	9.06	17.9
Deep	40.6	2.77	7.24	9.03	17.9
Comments ^[1] : • No sheen, odor, or discoloration, or suspended material observed					
Construction Activity: Debris removal					
Station: BG EW CS-1 CS-2 N S		Time: 0955			
Flood Ebb		Up River Down River		Avg. Velocity: 0.328	
Lat/Northing: 45.58021		Long/Easting: 122.75676		Total Water Depth: 45.4	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	1.98	7.26	9.12	17.9
Middle	22.7	2.24	7.24	9.07	17.9
Deep	42.4	3.33	7.22	9.07	17.9
Comments ^[1] : • Large boat passing @ 1000 (did not affect NTU) • No sheen, odor, discoloration, or suspended material observed • Collecting chemistry sample here @ 42.4' (highest CS NTU)					
Construction Activity: Debris removal					
Recorded by: Simon Dudenhofer					

[1] Include observations of floating/suspended material, sheens, discoloration, and odors.

Water Quality Monitoring Form - Field Parameters					
Gasco Sediments Site ISS Pilot Study					
Date: 9-28-23			Circuit Number: 2		
Station: <input checked="" type="radio"/> BG <input checked="" type="radio"/> EW <input type="radio"/> CS-1 <input type="radio"/> CS-2 <input type="radio"/> N <input checked="" type="radio"/> S				Time: 1100	
Flood / <input checked="" type="radio"/> Ebb		Up River / <input checked="" type="radio"/> Down River		Avg. Velocity: 0.484	
Lat/Northing: 45.57875		Long/Easting: 122.75405		Total Water Depth: 37.7	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	1.32	7.30	9.28	18.0
Middle	18.85	2.03	7.27	9.13	17.8
Deep	34.7	2.45	7.27	9.11	17.8
Comments ^[1] : • No sheen, odor, discoloration, or suspended material observed					
Construction Activity: Debris removal, ISS Drilling (2-1)					
Station: <input type="radio"/> BG <input checked="" type="radio"/> EW <input type="radio"/> CS-1 <input type="radio"/> CS-2 <input checked="" type="radio"/> N <input type="radio"/> S				Time: 1120	
Flood / <input checked="" type="radio"/> Ebb		Up River / <input checked="" type="radio"/> Down River		Avg. Velocity: 0.545	
Lat/Northing: 45.58020		Long/Easting: 122.75692		Total Water Depth: 45.8	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	1.21	7.30	9.26	18.0
Middle	22.9	1.75	7.23	9.14	17.9
Deep	42.8	3.31	7.25	9.08	17.8
Comments ^[1] : • No sheen, odor, discoloration, or suspended material observed					
Construction Activity: Debris removal, ISS Drilling (2-1)					
Recorded by: Simon Dudenhofer					

[1] Include observations of floating/suspended material, sheens, discoloration, and odors.

Water Quality Monitoring Form - Field Parameters					
Gasco Sediments Site ISS Pilot Study					
Date: 9-28-23			Circuit Number: 2		
Station: BG EW <u>CS-1</u> CS-2 <u>N</u> S					Time: 1137
Flood / <u>Ebb</u>		Up River / <u>Down River</u>		Avg. Velocity: 0.385	
Lat/Northing: 45.58030		Long/Easting: 122.75748		Total Water Depth: 42.9	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	1.47	7.30	9.22	17.9
Middle	21.45	2.11	7.22	9.12	17.8
Deep	39.9	3.15	7.29	9.10	17.8
Comments ^[1] : • No sheen, odor, discoloration, or suspended material observed					
Construction Activity: Debris removal, ISS Drilling (2-1)					
Station: BG EW CS-1 <u>CS-2</u> <u>N</u> S					Time: 1154
Flood / <u>Ebb</u>		Up River / <u>Down River</u>		Avg. Velocity: 0.639	
Lat/Northing: 45.		Long/Easting: 122.		Total Water Depth: 46.4	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	1.39	7.27	9.26	18.0
Middle	23.2	2.15	7.18	9.11	17.8
Deep	43.4	2.59	7.18	9.11	17.7
Comments ^[1] : • No sheen, odor, discoloration, or suspended material observed					
Construction Activity: Debris removal, ISS Drilling (2-1)					
Recorded by: Simon Dudenhofer					

[1] Include observations of floating/suspended material, sheens, discoloration, and odors.

Probe # 21E103678

YSI ProDSS #6970

Water Quality Monitoring Form - Field Parameters					
Gasco Sediments Site ISS Pilot Study					
Date: 9-28-23			Circuit Number: 3		
Station: <u>BG</u> EW CS-1 CS-2 <u>N</u> S				Time: 1300	
<u>Flood</u> / Ebb		<u>Up River</u> / Down River		Avg. Velocity: 0.013	
Lat/Northing: 45.58035		Long/Easting: 122.75803		Total Water Depth: 41.2	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	1.60	7.35	9.29	18.0
Middle	20.6	1.76	7.27	9.16	17.8
Deep	38.2	2.84	7.27	9.13	17.6
Comments ^[1] : No sheen, odors, discoloration, or suspended material observed					
Construction Activity: Debris removal, ISS drilling					
Station: BG <u>EW</u> CS-1 CS-2 N <u>S</u>				Time: 1328	
<u>Flood</u> / Ebb		<u>Up River</u> / Down River		Avg. Velocity: 0.061	
Lat/Northing: 45.57917		Long/Easting: 122.75495		Total Water Depth: 42.2	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	1.35	7.38	9.41	18.2
Middle	21.1	2.09	7.29	9.20	17.6
Deep	39.2	2.67	7.26	9.15	17.6
Comments ^[1] : No sheen, odors, discoloration, or suspended material observed					
Construction Activity: Debris removal, ISS drilling					
Recorded by: Simon Dudenhoefer					

[1] Include observations of floating/suspended material, sheens, discoloration, and odors.

Probe # 21E103678 YSI ProDSS # 6970

Water Quality Monitoring Form - Field Parameters					
Gasco Sediments Site ISS Pilot Study					
Date: 9-28-23			Circuit Number: 3		
Station: BG EW <u>CS-1</u> CS-2 N <u>S</u>		Time: 1340			
<u>Flood</u> / Ebb		<u>Up River</u> / Down River		Avg. Velocity: 0.010	
Lat/Northing: 45.57895		Long/Easting: 122.75477		Total Water Depth: 33.5	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	1.51	7.38	9.42	18.1
Middle	16.75	1.75	7.31	9.17	17.8
Deep	30.5	2.41	7.29	9.15	17.6
Comments ^[1] : • No sheen, odors, discoloration, or suspended material observed					
Construction Activity: Debris removal, ISS Drilling					
Station: BG EW <u>CS-1</u> <u>CS-2</u> N <u>S</u>		Time: 1402			
<u>Flood</u> / Ebb		<u>Up River</u> / Down River		Avg. Velocity: 0.099	
Lat/Northing: 45.57948		Long/Easting: 122.75515		Total Water Depth: 43.4	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	1.16	7.41	9.62	18.3
Middle	21.7	1.71	7.32	9.18	17.7
Deep	40.4	2.15	7.26	9.14	17.6
Comments ^[1] : • No sheen, odors, discoloration, or suspended material observed					
Construction Activity: Debris removal, ISS Drilling					
Recorded by: Simon Dudenhofer					

[1] Include observations of floating/suspended material, sheens, discoloration, and odors.

Water Quality Monitoring Form - Field Parameters					
Gasco Sediments Site ISS Pilot Study					
Date: 9-29-23			Circuit Number: 1		
Station: (BG) EW CS-1 CS-2 N (S)					Time: 0854
Flood (Ebb)		Up River / (Down River)		Avg. Velocity: 0.384	
Lat/Northing: 45.57875		Long/Easting: 122.75389		Total Water Depth: 42.2	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	2.01	7.17	9.32	17.4
Middle	21.1	2.27	7.22	9.27	17.4
Deep	39.2	2.18	7.20	9.24	17.4
Comments ^[1] : • No sheen, odor, discoloration, or suspended material observed					
Construction Activity: ISS Drilling					
Station: BG (EW) CS-1 CS-2 (N) S					Time: 0915
Flood (Ebb)		Up River / (Down River)		Avg. Velocity: 0.203	
Lat/Northing: 45.58003		Long/Easting: 122.75695		Total Water Depth: 43.8	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	1.75	7.23	9.30	17.4
Middle	21.9	1.98	7.28	9.26	17.5
Deep	40.8	2.03	7.30	9.23	17.5
Comments ^[1] : • No sheen, odor, discoloration, or suspended material observed					
Construction Activity: ISS Drilling					
Recorded by: Simon Dudenhoefer					

[1] Include observations of floating/suspended material, sheens, discoloration, and odors.

Water Quality Monitoring Form - Field Parameters					
Gasco Sediments Site ISS Pilot Study					
Date: 9-29-23			Circuit Number: 1		
Station: BG EW <u>CS-1</u> CS-2 <u>N</u> S		Time: 0928			
Flood / <u>Ebb</u>		Up River / <u>Down River</u>		Avg. Velocity: 0.278	
Lat/Northing: 45.58014		Long/Easting: 122.75740		Total Water Depth: 42.2	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	1.85	7.28	9.31	17.5
Middle	21.2	1.90	7.29	9.27	17.5
Deep	39.2	1.94	7.30	9.23	17.5
Comments ^[1] : • No sheen, odors, discoloration, or suspended material observed					
Construction Activity: ISS Drilling					
Station: BG EW CS-1 <u>CS-2</u> <u>N</u> S		Time: 0940			
Flood / <u>Ebb</u>		Up River / <u>Down River</u>		Avg. Velocity:	
Lat/Northing: 45.58013		Long/Easting: 122.75695		Total Water Depth: 45.5	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	1.93	7.24	9.34	17.4
Middle	22.75	2.03	7.27	9.28	17.5
Deep	42.5	4.38	7.58	9.23	17.4
Comments ^[1] : • No sheen, odor, discoloration, or suspended material observed • Collecting chem. sample here @ 42.5' (highest CS NTU)					
Construction Activity: ISS Drilling					
Recorded by: Simon Dudenhofer					

[1] Include observations of floating/suspended material, sheens, discoloration, and odors.

Probe # 2IE103678

YSI ProDSS # 6970

Water Quality Monitoring Form - Field Parameters					
Gasco Sediments Site ISS Pilot Study					
Date: 9-29-23			Circuit Number: 2		
Station: <input checked="" type="radio"/> BG <input type="radio"/> EW <input type="radio"/> CS-1 <input type="radio"/> CS-2 <input type="radio"/> N <input checked="" type="radio"/> S				Time: 1054	
Flood / <input checked="" type="radio"/> Ebb		Up River / <input checked="" type="radio"/> Down River		Avg. Velocity: 0.267	
Lat/Northing: 45.57866		Long/Easting: 122.75393		Total Water Depth: 37	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	1.82	7.30	9.40	17.4
Middle	18.5	2.14	7.29	9.32	17.4
Deep	34	3.40	7.23	9.28	17.3
Comments ^[1] : No sheen, odor, discoloration, or suspended material observed					
Construction Activity: ISS Drilling					
Station: BG <input type="radio"/> EW <input checked="" type="radio"/> CS-1 <input type="radio"/> CS-2 <input checked="" type="radio"/> N <input type="radio"/> S				Time: 1110	
Flood / <input checked="" type="radio"/> Ebb		Up River / <input checked="" type="radio"/> Down River		Avg. Velocity: 0.224	
Lat/Northing: 45.57998		Long/Easting: 122.75712		Total Water Depth: 41	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	2.54	7.29	9.36	17.4
Middle	20.5	2.36	7.27	9.33	17.4
Deep	38	5.26	7.86	9.28	17.3
Comments ^[1] : Large barge passed during parameter collection No odor, sheen, discoloration, or suspended material observed					
Construction Activity: ISS Drilling					
Recorded by: Simon Dudenhoefer					

[1] Include observations of floating/suspended material, sheens, discoloration, and odors.

Probe # 21E103678

YSI ProDSS # 6970

Water Quality Monitoring Form - Field Parameters					
Gasco Sediments Site ISS Pilot Study					
Date: 9-29-23			Circuit Number: 2		
Station: BG EW <u>CS-1</u> CS-2 <u>N</u> S		Time: 1120			
Flood / <u>Ebb</u>		Up River / <u>Down River</u>		Avg. Velocity: 0.230	
Lat/Northing: 45.58011		Long/Easting: 122.75750		Total Water Depth: 40	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	2.09	7.27	9.38	17.4
Middle	20	2.37	7.26	9.32	17.4
Deep	37	5.00	7.52	9.27	17.3
Comments ^[1] : <ul style="list-style-type: none"> ◦ No sheen, odor, discoloration, or suspended material observed ◦ Collecting chemistry sample here @ 37' (highest CS NTU) 					
Construction Activity: ISS Drilling					
Station: BG EW CS-1 <u>CS-2</u> <u>N</u> S		Time: 1135			
Flood / <u>Ebb</u>		Up River / <u>Down River</u>		Avg. Velocity:	
Lat/Northing: 45.58012		Long/Easting: 122.75699		Total Water Depth: 44	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	1.94	7.28	9.43	17.4
Middle	22	2.57	7.20	9.32	17.3
Deep	41	3.22	7.17	9.29	17.3
Comments ^[1] : <ul style="list-style-type: none"> ◦ No sheen, odor, discoloration, or suspended material observed 					
Construction Activity: ISS Drilling					
Recorded by: Simon Dudenhoefer					

[1] Include observations of floating/suspended material, sheens, discoloration, and odors.

Probe #21E103678

YSI ProDSS #6970

Water Quality Monitoring Form - Field Parameters					
Gasco Sediments Site ISS Pilot Study					
Date: 9-29-23			Circuit Number: 3		
Station: BG EW CS-1 CS-2 N S			Time: 1254		
Flood / Ebb		Up River / Down River		Avg. Velocity: 0.430	
Lat/Northing: 45.57863		Long/Easting: 122.75705		Total Water Depth: 35	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	1.39	7.36	9.67	17.5
Middle	17.5	2.15	7.26	9.36	17.3
Deep	32	2.25	7.27	9.34	17.3
Comments ^[1] : • No sheen, odor, discoloration, or suspended material observed					
Construction Activity: ISS Drilling					
Station: BG EW CS-1 CS-2 N S			Time: 1308		
Flood / Ebb		Up River / Down River		Avg. Velocity: 0.134	
Lat/Northing: 45.57994		Long/Easting: 122.75695		Total Water Depth: 42	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	1.54	7.30	9.60	17.5
Middle	21	1.94	7.23	9.40	17.3
Deep	39	5.98	7.62	9.29	17.3
Comments ^[1] : • No sheen, odor, discoloration, or suspended material observed					
Construction Activity: ISS Drilling					
Recorded by: Simon Dudenhofer					

[1] Include observations of floating/suspended material, sheens, discoloration, and odors.

Probe #21E103678 YSI ProDSS #6970

Water Quality Monitoring Form - Field Parameters					
Gasco Sediments Site ISS Pilot Study					
Date: 9-29-23			Circuit Number: 3		
Station: BG EW <u>CS-1</u> CS-2 <u>N</u> S		Time: 1327			
Flood <u>Ebb</u>		Up River / <u>Down River</u>		Avg. Velocity: 0.164	
Lat/Northing: 45.58013		Long/Easting: 122.75750		Total Water Depth: 40	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	1.55	7.30	9.60	17.5
Middle	20	1.87	7.27	9.47	17.4
Deep	37	2.97	7.65	9.34	17.3
Comments ^[1] : <ul style="list-style-type: none"> • No sheen, odor, discoloration, or suspended material observed • Collecting chem. sample here @ 40' (highest CS NTU) 					
Construction Activity: ISS Drilling					
Station: BG EW CS-1 <u>CS-2</u> <u>N</u> S		Time: 1335 1341			
Flood <u>Ebb</u>		Up River / <u>Down River</u>		Avg. Velocity:	
Lat/Northing: 45.58024		Long/Easting: 122.75669		Total Water Depth: 46	
	Water Depth [feet]	Turbidity [NTU]	pH [-]	D.O. [mg/L]	Temp. [deg-C]
Surface	1	1.39	7.27	9.63	17.5
Middle	23	1.71	7.24	9.41	17.3
Deep	43	2.38	7.31	9.35	17.1
Comments ^[1] : <ul style="list-style-type: none"> • No sheen, odor, discoloration, or suspended material observed 					
Construction Activity: ISS Drilling					
Recorded by: Simon Duderhoefer					

[1] Include observations of floating/suspended material, sheens, discoloration, and odors.

Attachment 4

Water Quality Sampling Forms – Chemical Parameters

Circuit #1

Water Quality Sampling Form - Chemical Parameters Gasco Sediment Site ISS Pilot Study			
Background Station ID: BG-15			
Lat/Northing: 45.58031 ^{SP} 45.57866		Long/Easting: 122. 75747 ^{SD} 122.75403	
Total Water Depth: 41.5 ^{SP} 30.5		Sample Depth: 38.5 27.5	
Sample ID: NWN-BG15-2309250930		Date: 9-25-23	Time: 0930
Comments ^[1] : <ul style="list-style-type: none"> • Collected using Van Dorn sampler • Collected x3 volume for MSMSD sample <ul style="list-style-type: none"> ↳ x6 125 ml glass ambers ↳ x3 125 ml poly ambers • No sheen, odors, discoloration, or suspended material observed 			
Compliance Station ID: CS-1N			
Lat/Northing: 45.58031		Long/Easting: 122.75742	
Total Water Depth: 41.5'		Sample Depth: 38.5'	
Sample ID: NWN-CS1N-2309250910		Date: 9-25-23	Time: 0910
Comments ^[1] : <ul style="list-style-type: none"> • Collected using Van Dorn sampler • Collected Field dup. + regular sample @ this location <ul style="list-style-type: none"> ↳ each sample x2 125 ml poly amber + x2 125ml glass amber • Field dup ID: NWN-CS101N-2309250910 • No sheen, odors, discoloration, or suspended materials observed 			
Analytical Suite			
Analyte	Bottle	Method	Preservative
Free Cyanide	125-mL Amber Poly	ASTM D4282	NaOH
	125-mL Amber Poly		None
PAHs	2X 125-mL Amber Glass	EPA 8270D SIM	None

[1] Observations of floating/suspended material, sheens, discoloration, and/or odors will be recorded in the comments

Circuit #2

Water Quality Sampling Form - Chemical Parameters Gasco Sediment Site ISS Pilot Study

Background Station ID: **BG-1S**

Lat/Northing: **45.57876**

Long/Easting: **122.75407**

Total Water Depth: **36**

Sample Depth: **33**

Sample ID: **NWN-BG1S-2309251130**

Date: **9-25-23**

Time: **1130**

Comments^[1]:

- Collected using Van Dorn sampler
- Collected x2 125ml amber glass + x2 125ml amber poly
- No sheen, odor, discoloration or suspended material observed

Compliance Station ID: **CS-1N**

Lat/Northing: **45.58036**

Long/Easting: **122.75745**

Total Water Depth: **41.8**

Sample Depth: **38.8**

Sample ID: **NWN-CS1N-2309251115**

Date: **9-25-23**

Time: **1115**

Comments^[1]:

- Collected using Van Dorn sampler
- Collected x2 125ml amber glass + x2 125ml poly ambers
- No sheen, odor, discoloration, or suspended materials observed

Analytical Suite

Analyte	Bottle	Method	Preservative
Free Cyanide	125-mL Amber Poly	ASTM D4282	NaOH
	125-mL Amber Poly		None
PAHs	2 X 125-mL Amber Glass	EPA 8270D SIM	None

[1] Observations of floating/suspended material, sheens, discoloration, and/or odors will be recorded in the comments

Circuit #3

Water Quality Sampling Form - Chemical Parameters

Gasco Sediment Site ISS Pilot Study

 Background Station ID: **BG-1N**

 Lat/Northing: **45.58031**

 Long/Easting: **122.75778**

 Total Water Depth: **42**

 Sample Depth: **39**

 Sample ID: **NWN-BGIN-2309251335**

 Date: **9-25-23** Time: **1335**

 Comments^[1]:

- Collected using Van Dorn sampler
- Collected x2 125 ml amber glass + x2 125 ml amber polys
- No sheens, odors, discoloration, or suspended materials observed

 Compliance Station ID: **CS-1S**

 Lat/Northing: **45.57890**

 Long/Easting: **122.75459**

 Total Water Depth: **38.5**

 Sample Depth: **35.5**

 Sample ID: **NWN-CS1S-2309251320**

 Date: **9-25-23** Time: **1320**

 Comments^[1]:

- Collected with Van Dorn sampler
- Collected x2 125 ml amber glass + x2 125 ml amber polys
- No sheens, odors, discoloration or suspended materials observed

Analytical Suite

Analyte	Bottle	Method	Preservative
Free Cyanide	125-mL Amber Poly	ASTM D4282	NaOH
	125-mL Amber Poly		None
PAHs	2 X 125-mL Amber Glass	EPA 8270D SIM	None

[1] Observations of floating/suspended material, sheens, discoloration, and /or odors will be recorded in the comments

Circuit #4

Water Quality Sampling Form - Chemical Parameters Gasco Sediment Site ISS Pilot Study

Background Station ID: BG-IN

Lat/Northing: 45.58050	Long/Easting: 122.75812
Total Water Depth: 45'	Sample Depth: 42'
Sample ID: NWN-BGIN-2309251540	Date: 9-25-23
Time: 1540	

Comments^[1]:

- Collected using Van Dorn sampler
- Collected x2 125 ml amber glass + x2 125ml amber polys
- No sheens, odors, discoloration, or suspended material observed

Compliance Station ID: CS-15

Lat/Northing: 45.57897	Long/Easting: 122.75451
Total Water Depth: 43'	Sample Depth: 40'
Sample ID: NWN-CS15-2309251525	Date: 9-25-23
Time: 1525	

Comments^[1]:

- Collected using Van Dorn sampler
- Collected x2 125 ml amber glass and x2 125ml amber polys
- No sheens, odors, discoloration, or suspended materials observed

Analytical Suite

Analyte	Bottle	Method	Preservative
Free Cyanide	125-mL Amber Poly	ASTM D4282	NaOH
	125-mL Amber Poly		None
PAHs	2 X 125-mL Amber Glass	EPA 8270D SIM	None

[1] Observations of floating/suspended material, sheens, discoloration, and /or odors will be recorded in the comments

Circuit #1 - Debris Removal

Water Quality Sampling Form - Chemical Parameters
Gasco Sediment Site ISS Pilot Study

Background Station ID: BG-15

Lat/Northing: 45.57874

Long/Easting: 122.75398

Total Water Depth: 36.2

Sample Depth: 33.2

Sample ID: NWN-BG15-2309261145

Date: 9-26-23

Time: 1145

 Comments^[1]:

- Collected using Van Dorn sampler
- Collected x2 125ml amber glass containers + x2 125ml amber poly containers
- No sheen, odors, discoloration, or suspended material observed

Compliance Station ID: CS-2N

Lat/Northing: 45.58027

Long/Easting: 122.75659

Total Water Depth: 45.8

Sample Depth: 42.8

Sample ID: NWN-CS2N-2309261130

Date: 9-26-23

Time: 1130

 Comments^[1]:

- Collected w/ Van Dorn sampler
- Collected x2 125ml amber glass bottles + x2 125ml amber poly containers
- No sheen, odor, discoloration, or suspended material observed

Analytical Suite

Analyte	Bottle	Method	Preservative
Free Cyanide	125-mL Amber Poly	ASTM D4282	NaOH
	125-mL Amber Poly		None
PAHs	2 X 125-mL Amber Glass	EPA 8270D SIM	None

[1] Observations of floating/suspended material, sheens, discoloration, and/or odors will be recorded in the comments

Circuit #1 - Ebb Tide - ISS Drilling (1-6)

Water Quality Sampling Form - Chemical Parameters Gasco Sediment Site ISS Pilot Study

Background Station ID: BG-15

Lat/Northing: 45.57874

Long/Easting: 122.75404

Total Water Depth: 38

Sample Depth: 35

Sample ID: NWN-BG15-2309271010

Date: 9-27-23

Time: 1010

Comments^[1]:

- Collected using Van Dorn sampler
- Collected x2 125 ml amber glass jars, + x2 125ml amber poly containers
- No sheen, odors, discoloration, or suspended material observed

Compliance Station ID: CS-1N

Lat/Northing: 45.58030

Long/Easting: 122.75753

Total Water Depth: ~~39.2~~ 42.2

Sample Depth: ~~42.2~~ ^{SD} 39.2

Sample ID: NWN-CS1N-2309270955

Date: 9-27-23

Time: 0955

Comments^[1]:

- Collected using Van Dorn sampler
- Collected x2 125 ml amber glass containers + x2 125ml amber poly containers
- No sheen, odor, discoloration, or suspended material observed

Analytical Suite

Analyte	Bottle	Method	Preservative
Free Cyanide	125-mL Amber Poly	ASTM D4282	NaOH
	125-mL Amber Poly		None
PAHs	2x 125-mL Amber Glass	EPA 8270D SIM	None

[1] Observations of floating/suspended material, sheens, discoloration, and /or odors will be recorded in the comments

Circuit #2 - Ebb Tide - ISS Drilling (1-7)

Water Quality Sampling Form - Chemical Parameters Gasco Sediment Site ISS Pilot Study

Background Station ID: BG-15

Lat/Northing: 45.57875

Long/Easting: 122.75405

Total Water Depth: 37

Sample Depth: 34

Sample ID: NWN-BG15-2309271200

Date: 9-27-23

Time: 1200

Comments^[1]:
 • Collected using Van Dorn sampler
 • Collected x2 125 ml amber glass and x2 125ml amber poly containers
 • No sheen, odor, discoloration, or suspended material observed

Compliance Station ID: CS-1N

Lat/Northing: 45.58032

Long/Easting: 122.75756

Total Water Depth: 41.5

Sample Depth: 38.5

Sample ID: NWN-CS1N-2309271145

Date: 9-27-23

Time: 1145

Comments^[1]:
 • Collected using Van Dorn sampler
 • Collected x2 125 ml amber glass and x2 125ml amber poly containers
 • No sheen, odor, discoloration, or suspended material observed

Analytical Suite

Analyte	Bottle	Method	Preservative
Free Cyanide	125-mL Amber Poly	ASTM D4282	NaOH
	125-mL Amber Poly		None
PAHs	2 X 125-mL Amber Glass	EPA 8270D SIM	None

[1] Observations of floating/suspended material, sheens, discoloration, and /or odors will be recorded in the comments

Circuit #3 - Flood Tilt - ISS Drilling (1-9)

Water Quality Sampling Form - Chemical Parameters
Gasco Sediment Site ISS Pilot Study

Background Station ID: **BG-1N**

Lat/Northing: **45.58052**

Long/Easting: **122.75815**

Total Water Depth: **44**

Sample Depth: **41**

Sample ID: **NWN-BGIN-2309271420**

Date: **9-27-23**

Time: **1420**

Comments^[1]:
 • Collected w/ Van Dorn sampler
 • Collected field duplicate sample here: **NWN-BG101N-2309271420**
 ↳ x2 125 ml amber glass + x2 ~~125~~ 125 ml amber poly containers for each sample
 • No sheen, odor, discoloration, or suspended material observed

Compliance Station ID: **CS-15**

Lat/Northing: **45.57900**

Long/Easting: **122.75459**

Total Water Depth: **40**

Sample Depth: ~~39~~^{SD} **37**

Sample ID: **NWN-CS15-2309271355**

Date: **9-27-23**

Time: **1355**

Comments^[1]:
 • Collected w/ Van Dorn sampler
 • Collecting x3 volume for MS/MSD sample
 ↳ x6 125 ml glass ambers + x6 125 ml amber poly s
 • No sheen, odor, discoloration, or suspended materials observed

Analytical Suite

Analyte	Bottle	Method	Preservative
Free Cyanide	125-mL Amber Poly	ASTM D4282	NaOH
	125-mL Amber Poly		None
PAHs	2 X 125-mL Amber Glass	EPA 8270D SIM	None

[1] Observations of floating/suspended material, sheens, discoloration, and /or odors will be recorded in the comments

Circuit # 1 - ISS Debris Removal - Ebb Tide

Water Quality Sampling Form - Chemical Parameters
Gasco Sediment Site ISS Pilot Study

Background Station ID: BG-15

Lat/Northing: 45.57875	Long/Easting: 122.75405	
Total Water Depth: 34	Sample Depth: 31	
Sample ID: NWN-BG15-2309281020	Date: 9-28-23	Time: 1020

Comments^[1]:

- Collected using Van Dorn sampler
- Collected x2 125 ml amber glass and x2 125 ml amber poly containers
- No swan, odor, discoloration, or suspended material observed

Compliance Station ID: CS-2N

Lat/Northing: 45.58021	Long/Easting: 122.75676	
Total Water Depth: 45.4	Sample Depth: 42.4	
Sample ID: NWN-CSN-2309281010	Date: 9-28-22	Time: 1010

Comments^[1]:

- Collected using Van Dorn Sampler
- Collected x 2 125ml amber glass and x2 125ml amber poly containers
- No swan, odor, discoloration, or suspended material observed

Analytical Suite

Analyte	Bottle	Method	Preservative
Free Cyanide	125-mL Amber Poly	ASTM D4282	NaOH
	125-mL Amber Poly		None
PAHs	2 X 125-mL Amber Glass	EPA 8270D SIM	None

[1] Observations of floating/suspended material, sheens, discoloration, and /or odors will be recorded in the comments

Circuit #1 - Ebb Tide - ISS Drilling

**Water Quality Sampling Form - Chemical Parameters
Gasco Sediment Site ISS Pilot Study**

Background Station ID: BG-1S

Lat/Northing: 45.57863

Long/Easting: 122.75394

Total Water Depth: 37.6'

Sample Depth: 34.6'

Sample ID: NWN-BG1S-2309291005

Date: 9-29-23

Time: 1005

Comments^[1]:
 • Collected using Van Dorn sampler
 • Collected x2 125 ml amber glass and x2 125 ml amber poly containers
 • No sheen, odor, discoloration, or suspended material observed

Compliance Station ID: CS-2N

Lat/Northing: 45.58013

Long/Easting: 122.75695

Total Water Depth: 49.9

Sample Depth: 42.5

Sample ID: NWN-CS2N-2309290950

Date: 9-29-23

Time: 0950

Comments^[1]:
 • Collected using Van Dorn sampler
 • Collected x2 125 ml amber glass and x2 125 ml amber poly containers
 • No sheen, odor, discoloration, or suspended material observed

Analytical Suite

Analyte	Bottle	Method	Preservative
Free Cyanide	125-mL Amber Poly	ASTM D4282	NaOH
	125-mL Amber Poly		None
PAHs	2 X 125-mL Amber Glass	EPA 8270D SIM	None

[1] Observations of floating/suspended material, sheens, discoloration, and/or odors will be recorded in the comments

Circuit # 2 - Ebb Tide - ISS Drilling

Water Quality Sampling Form - Chemical Parameters
Gasco Sediment Site ISS Pilot Study

Background Station ID: BG-15

Lat/Northing: 45.57873

Long/Easting: 122.75405

Total Water Depth: 42.2

Sample Depth: 39.2

Sample ID: NWN-BG15-2309291200

Date: 9-29-23

Time: 1200

Comments^[1]:
 • Collected using Van Dorn sampler
 • Collected x2 125 ml amber glass and x2 125 ml amber poly containers
 • No sheen, odor, discoloration, or suspended material observed

Compliance Station ID: CS-1N

Lat/Northing: 45.58028

Long/Easting: 122.75746

Total Water Depth: 43.6

Sample Depth: 40.6

Sample ID: NWN-CS1N-2309291145

Date: 9-29-23

Time: 1145

Comments^[1]:
 • Collected using van Dorn sampler
 • Collected x2 125 ml amber glass and x2 125 ml amber poly containers
 • No sheen, odor, discoloration, or suspended material observed

Analytical Suite

Analyte	Bottle	Method	Preservative
Free Cyanide	125-mL Amber Poly	ASTM D4282	NaOH
	125-mL Amber Poly		None
PAHs	2 X 125-mL Amber Glass	EPA 8270D SIM	None

[1] Observations of floating/suspended material, sheens, discoloration, and /or odors will be recorded in the comments

Circuit #3 - Ebb Tide - ISS Drilling

Water Quality Sampling Form - Chemical Parameters
Gasco Sediment Site ISS Pilot Study

Background Station ID: BG-15

Lat/Northing: 45.57865

Long/Easting: 122.75405

Total Water Depth: 34.5

Sample Depth: 31.5

Sample ID: NWN-BG15-2309291425

Date: 9-29-23

Time: 1425

Comments^[1]:
 • Collected using Van Dorn sampler
 • Collected x2 125 ml amber glass and x2 125 ml amber poly containers
 • No sheen, odor, discoloration, or suspended material observed

Compliance Station ID: CS-1N

Lat/Northing: 45.58019

Long/Easting: 122.75752

Total Water Depth: 41.5

Sample Depth: ~~41.5~~^{SD} 38.5

Sample ID: NWN-CS1N-2309291415

Date: 9-29-23

Time: 1415

Comments^[1]:
 • Collected using Van Dorn sampler
 • Collected x2 125 ml amber glass and x2 125 ml amber poly containers
 • No sheen, odor, discoloration, or suspended material observed

Analytical Suite

Analyte	Bottle	Method	Preservative
Free Cyanide	125-mL Amber Poly	ASTM D4282	NaOH
	125-mL Amber Poly		None
PAHs	2 X 125-mL Amber Glass	EPA 8270D SIM	None

[1] Observations of floating/suspended material, sheens, discoloration, and /or odors will be recorded in the comments

Attachment 5

Water Quality Field Parameter Measurements

Water Quality Field Parameter Measurements
Gasco Sediments Site ISS Field Pilot Study

Circuit No.	Monitoring Date	Time	Flow Direction (Upriver/Downriver)	Station	North/South	Total Water Depth (feet)	Monitoring Depth (feet)	Depth Zone	Measured Turbidity (NTU)	Background Corrected Turbidity (NTU) ¹	pH	DO (mg/L)	Temperature (C°)	Chemistry Sample
1	9/25/2023	8:10	Downriver	BG	South	32.5	1	Surface	2.19	--	7.10	8.82	19.1	
							16.25	Middle	2.51	--	7.19	8.79	19.1	
							29.5	Deep	3.18	--	7.17	8.77	19.1	X
		8:25		EW	North	42.5	1	Surface	2.16	-0.03	7.14	8.82	19.1	
							21.25	Middle	2.57	0.06	7.12	8.79	19.1	
							39.5	Deep	2.88	-0.3	7.19	8.76	19.1	
		8:39		CS-1	North	42.2	1	Surface	2.48	0.29	7.14	8.81	19.1	
							21.1	Middle	2.53	0.02	7.15	8.79	19.1	
							39.2	Deep	4.35	1.17	7.27	8.74	19.1	X
		8:55		CS-2	North	44.5	1	Surface	2.29	0.1	7.13	8.82	19.1	
							22.25	Middle	2.62	0.11	7.17	8.79	19.1	
							41.5	Deep	2.75	-0.43	7.20	8.77	19.1	
2	9/25/2023	10:16	Downriver	BG	South	33.0	1	Surface	2.49	--	7.16	8.85	19.1	
							16.5	Middle	2.72	--	7.17	8.80	19.1	
							30.0	Deep	2.86	--	7.20	8.78	19.1	X
		10:32		EW	North	42.0	1	Surface	2.94	0.45	7.14	8.83	19.1	
							21	Middle	3.74	1.02	7.19	8.79	19.1	
							39	Deep	6.65	3.79	7.25	8.75	19.1	
		10:44		CS-1	North	41.0	1	Surface	2.49	0	7.13	8.85	19.1	
							20.5	Middle	2.78	-0.96	7.16	8.8	19.1	
							38	Deep	5.20	2.34	7.27	8.74	19.1	X
		10:56		CS-2	North	43.7	1	Surface	2.24	-0.25	7.13	8.85	19.1	
							21.9	Middle	2.75	0.03	7.16	8.81	19.1	
							40.7	Deep	3.55	0.69	7.4	8.76	19.1	

Water Quality Field Parameter Measurements
Gasco Sediments Site ISS Field Pilot Study

Circuit No.	Monitoring Date	Time	Flow Direction (Upriver/Downriver)	Station	North/South	Total Water Depth (feet)	Monitoring Depth (feet)	Depth Zone	Measured Turbidity (NTU)	Background Corrected Turbidity (NTU) ¹	pH	DO (mg/L)	Temperature (C°)	Chemistry Sample
3	9/25/2023	12:20	Upriver	BG	North	40.6	1	Surface	2.28	--	7.18	8.84	19.1	
							20.3	Middle	3.21	--	7.22	8.77	19.1	
							37.6	Deep	5.79	--	7.25	8.70	19.1	X
		12:38		EW	South	41.0	1	Surface	2.25	-0.03	7.14	8.84	19.1	
							20.5	Middle	3.27	0.06	7.15	8.77	19.1	
							38.0	Deep	4.16	-1.63	7.18	8.72	19.1	
		12:53		CS-1	South	38.0	1	Surface	2.47	0.19	7.11	8.82	19.1	
							19.0	Middle	3.55	0.34	7.17	8.76	19.1	
							35.0	Deep	4.35	-1.44	7.21	8.73	19.1	X
		13:05		CS-2	South	44.0	1	Surface	2.64	0.36	7.13	8.82	19.1	
							22	Middle	3.33	0.12	7.14	8.77	19.1	
							41	Deep	3.96	-1.83	7.14	8.76	19.1	
4	9/25/2023	14:25	Upriver	BG	North	44.2	1	Surface	2.05	--	7.16	8.80	19.1	
							22.1	Middle	2.82	--	7.17	8.77	19.1	
							41.2	Deep	3.50	--	7.18	8.74	19.1	X
		14:40		EW	South	45.5	1	Surface	3.24	1.19	7.15	8.83	19.1	
							22.75	Middle	2.41	-0.41	7.14	8.77	19.1	
							42.5	Deep	3.91	0.41	7.16	8.75	19.1	
		14:55		CS-1	South	40.0	1	Surface	4.07	2.02	7.21	8.82	19.1	
							20	Middle	3.03	0.21	7.17	8.78	19.1	
							37	Deep	4.63	1.13	7.21	8.75	19.1	X
		15:08		CS-2	South	46.4	1	Surface	2.03	-0.02	7.16	8.83	19.1	
							23.2	Middle	3.10	0.28	7.20	8.76	19.1	
							43.4	Deep	4.01	0.51	7.23	8.73	19.1	

Water Quality Field Parameter Measurements
Gasco Sediments Site ISS Field Pilot Study

Circuit No.	Monitoring Date	Time	Flow Direction (Upriver/Downriver)	Station	North/South	Total Water Depth (feet)	Monitoring Depth (feet)	Depth Zone	Measured Turbidity (NTU)	Background Corrected Turbidity (NTU) ¹	pH	DO (mg/L)	Temperature (C°)	Chemistry Sample
1	9/26/2023	10:35	Downriver	BG	South	36.6	1	Surface	2.04	--	7.11	8.94	18.7	
							18.3	Middle	2.86	--	7.17	8.85	18.7	
							33.6	Deep	4.08	--	7.13	8.84	18.7	X
		10:47		EW	North	44.8	1	Surface	2.13	0.09	7.15	8.93	18.7	
							22.4	Middle	2.92	0.06	7.15	8.85	18.7	
							41.8	Deep	7.74	3.66	7.17	8.79	18.7	
		11:00		CS-1	North	41.2	1	Surface	2.31	0.27	7.18	8.92	18.7	
							20.6	Middle	3.55	0.69	7.12	8.85	18.7	
							38.2	Deep	7.38	3.30	7.13	8.77	18.7	
		11:14		CS-2	North	45.8	1	Surface	2.01	-0.03	7.16	8.93	18.7	
							22.9	Middle	2.26	-0.60	7.19	8.87	18.7	
							42.8	Deep	7.56	3.48	7.20	8.83	18.7	X
2	9/26/2023	16:25	Downriver	BG	South	40.2	1	Surface	2.02	--	7.28	8.93	18.8	
							20.1	Middle	2.85	--	7.29	8.85	18.8	
							37.2	Deep	3.33	--	7.32	8.78	18.8	X
		16:38		EW	North	46.3	1	Surface	2.35	0.33	7.32	8.94	18.8	
							23.15	Middle	2.68	-0.17	7.29	8.88	18.8	
							43.3	Deep	4.31	0.98	7.32	8.84	18.8	
		16:49		CS-1	North	45.7	1	Surface	2.14	0.12	7.28	8.98	18.8	
							22.85	Middle	2.51	-0.34	7.26	8.91	18.8	
							42.7	Deep	3.26	-0.07	7.32	8.84	18.8	
		17:01		CS-2	North	47.4	1	Surface	1.95	-0.07	7.25	9.02	18.8	
							23.7	Middle	2.02	-0.83	7.23	8.93	18.8	
							44.4	Deep	6.17	2.84	7.47	8.77	18.8	X

Water Quality Field Parameter Measurements
Gasco Sediments Site ISS Field Pilot Study

Circuit No.	Monitoring Date	Time	Flow Direction (Upriver/Downriver)	Station	North/South	Total Water Depth (feet)	Monitoring Depth (feet)	Depth Zone	Measured Turbidity (NTU)	Background Corrected Turbidity (NTU) ¹	pH	DO (mg/L)	Temperature (C°)	Chemistry Sample
1	9/27/2023	8:45	Downriver	BG	South	37.5	1	Surface	2.24	--	7.10	8.98	18.3	
							18.75	Middle	2.31	--	7.08	8.93	18.3	
							34.5	Deep	2.06	--	7.15	8.91	18.3	X
		9:05		EW	North	44	1	Surface	2.06	-0.13	7.15	8.97	18.3	
							22.0	Middle	2.42	-0.09	7.17	8.91	18.4	
							41.0	Deep	3.63	0.45	8.29	8.87	18.3	
		9:20		CS-1	North	42.5	1	Surface	1.94	-0.25	7.12	8.99	18.3	
							21.25	Middle	2.13	-0.38	7.09	8.92	18.3	
							39.5	Deep	2.75	-0.43	7.28	8.90	18.3	X
		9:35		CS-2	North	44.5	1	Surface	1.86	-0.33	7.08	9.02	18.3	
							22.25	Middle	2.07	-0.44	7.15	8.94	18.3	
							41.5	Deep	2.36	-0.82	7.20	8.89	18.3	
2	9/27/2023	10:45	Downriver	BG	South	41.5	1	Surface	1.61	--	7.16	9.07	18.3	
							20.75	Middle	2.06	--	7.2	8.97	18.3	
							38.5	Deep	2.24	--	7.17	8.93	18.2	X
		11:00		EW	North	43.5	1	Surface	1.90	-0.59	7.14	9.02	18.3	
							21.75	Middle	2.01	-0.05	7.14	8.96	18.3	
							40.5	Deep	5.61	2.75	7.43	8.90	18.3	
		11:15		CS-1	North	41.8	1	Surface	1.83	-0.66	7.12	9.04	18.3	
							20.9	Middle	2.34	0.33	7.21	8.98	18.3	
							38.8	Deep	3.93	1.07	7.96	8.90	18.3	X
		11:30		CS-2	North	45.5	1	Surface	1.62	-0.87	7.09	9.08	18.3	
							22.8	Middle	2.24	0.18	7.11	8.98	18.3	
							42.5	Deep	2.57	-0.29	7.12	8.93	18.3	

Water Quality Field Parameter Measurements
Gasco Sediments Site ISS Field Pilot Study

Circuit No.	Monitoring Date	Time	Flow Direction (Upriver/Downriver)	Station	North/South	Total Water Depth (feet)	Monitoring Depth (feet)	Depth Zone	Measured Turbidity (NTU)	Background Corrected Turbidity (NTU) ¹	pH	DO (mg/L)	Temperature (C°)	Chemistry Sample
3	9/27/2023	13:00	Upriver	BG	North	43.0	1	Surface	1.87	--	7.28	9.14	18.3	
							21.5	Middle	2.17	--	7.23	9.02	18.3	
							40.0	Deep	3.16	--	7.22	9.00	18.2	X
		13:15		EW	South	42.0	1	Surface	1.58	-0.29	7.22	9.18	18.3	
							21.0	Middle	2.44	0.27	7.15	9.02	18.2	
							39.0	Deep	3.03	-0.13	7.20	8.98	18.2	
		13:25		CS-1	South	39.0	1	Surface	1.61	-0.26	7.19	9.14	18.3	
							19.5	Middle	1.91	-0.26	7.20	9.03	18.2	
							36.0	Deep	2.68	-0.48	7.20	8.98	18.2	X
		13:35		CS-2	South	46.6	1	Surface	1.44	-0.43	7.22	9.18	18.3	
							23.3	Middle	2.04	-0.13	7.21	9.02	18.2	
							43.3	Deep	2.45	-0.71	7.20	8.99	18.2	
1	9/28/2023	9:00	Downriver	BG	South	34.0	1	Surface	1.69	--	7.28	9.10	17.9	
							17.0	Middle	1.91	--	7.24	9.03	17.9	
							31.0	Deep	2.60	--	7.21	9.06	17.9	X
		9:31		EW	North	47.0	1	Surface	2.16	0.47	7.25	9.12	17.9	
							23.5	Middle	2.61	0.7	7.26	9.09	17.9	
							44.0	Deep	5.83	3.23	7.21	9.03	17.9	
		9:46		CS-1	North	43.6	1	Surface	2.35	0.66	7.22	9.11	17.9	
							21.8	Middle	2.52	0.61	7.24	9.06	17.9	
							40.6	Deep	2.77	0.17	7.24	9.03	17.9	
		9:55		CS-2	North	45.4	1	Surface	1.98	0.29	7.26	9.12	17.9	
							22.70	Middle	2.24	0.33	7.24	9.07	17.9	
							42.4	Deep	3.33	0.73	7.22	9.07	17.9	X

Water Quality Field Parameter Measurements
Gasco Sediments Site ISS Field Pilot Study

Circuit No.	Monitoring Date	Time	Flow Direction (Upriver/Downriver)	Station	North/South	Total Water Depth (feet)	Monitoring Depth (feet)	Depth Zone	Measured Turbidity (NTU)	Background Corrected Turbidity (NTU) ¹	pH	DO (mg/L)	Temperature (C°)	Chemistry Sample
2	9/28/2023	11:00	Downriver	BG	South	37.7	1	Surface	1.32	--	7.30	9.28	18.0	
							18.85	Middle	2.03	--	7.27	9.13	17.8	
							34.7	Deep	2.45	--	7.27	9.11	17.8	
		11:20		EW	North	45.8	1	Surface	1.21	-0.11	7.30	9.26	18.0	
							22.9	Middle	1.75	-0.28	7.23	9.14	17.9	
							42.8	Deep	3.31	0.86	7.25	9.08	17.8	
		11:37		CS-1	North	42.9	1	Surface	1.47	0.15	7.30	9.22	17.9	
							21.45	Middle	2.11	0.08	7.22	9.12	17.8	
							39.9	Deep	3.15	0.70	7.29	9.10	17.8	
		11:54		CS-2	North	46.4	1	Surface	1.39	0.07	7.27	9.26	18.0	
							23.2	Middle	2.15	0.12	7.18	9.11	17.8	
							43.4	Deep	2.59	0.14	7.18	9.11	17.7	
3	9/28/2023	13:00	Upriver	BG	North	41.2	1	Surface	1.60	--	7.35	9.29	18.0	
							20.6	Middle	1.76	--	7.27	9.16	17.8	
							38.2	Deep	2.84	--	7.27	9.13	17.6	
		13:28		EW	South	42.2	1	Surface	1.35	-0.25	7.38	9.41	18.2	
							21.1	Middle	2.09	0.33	7.29	9.2	17.6	
							39.2	Deep	2.67	-0.17	7.26	9.15	17.6	
		13:40		CS-1	South	33.5	1	Surface	1.51	-0.09	7.38	9.42	18.1	
							16.8	Middle	1.75	-0.01	7.31	9.17	17.8	
							30.5	Deep	2.41	-0.43	7.29	9.15	17.6	
		14:02		CS-2	South	43.4	1	Surface	1.16	-0.44	7.41	9.62	18.3	
							21.7	Middle	1.71	-0.05	7.32	9.18	17.2	
							40.4	Deep	2.15	-0.69	7.26	9.14	17.6	

Water Quality Field Parameter Measurements
Gasco Sediments Site ISS Field Pilot Study

Circuit No.	Monitoring Date	Time	Flow Direction (Upriver/Downriver)	Station	North/South	Total Water Depth (feet)	Monitoring Depth (feet)	Depth Zone	Measured Turbidity (NTU)	Background Corrected Turbidity (NTU) ¹	pH	DO (mg/L)	Temperature (C°)	Chemistry Sample
1	9/29/2023	8:54	Downriver	BG	South	42.2	1	Surface	2.01	--	7.17	9.32	17.4	
							21.1	Middle	2.27	--	7.22	9.27	17.4	
							39.2	Deep	2.18	--	7.2	9.24	17.4	X
		9:15		EW	North	43.8	1	Surface	1.75	-0.26	7.23	9.3	17.4	
							21.9	Middle	1.98	-0.29	7.28	9.26	17.5	
							40.8	Deep	2.03	-0.15	7.30	9.23	17.5	
		9:28		CS-1	North	42.2	1	Surface	1.85	-0.16	7.28	9.31	17.5	
							21.2	Middle	1.90	-0.37	7.29	9.27	17.5	
							39.2	Deep	1.94	-0.24	7.30	9.23	17.5	
		9:40		CS-2	North	45.5	1	Surface	1.93	-0.08	7.24	9.34	17.4	
							22.75	Middle	2.03	-0.24	7.27	9.28	17.5	
							42.5	Deep	4.38	2.20	7.58	9.23	17.4	X
2	9/29/2023	10:54	Downriver	BG	South	37.0	1	Surface	1.82	--	7.30	9.40	17.4	
							18.5	Middle	2.14	--	7.29	9.32	17.4	
							34.0	Deep	3.40	--	7.23	9.28	17.3	X
		11:10		EW	North	41.0	1	Surface	2.54	0.72	7.29	9.36	17.4	
							20.5	Middle	2.36	0.22	7.27	9.33	17.4	
							38.0	Deep	5.26	1.86	7.86	9.28	17.3	
		11:20		CS-1	North	40.0	1	Surface	2.09	0.27	7.27	9.38	17.4	
							20.0	Middle	2.37	0.23	7.26	9.32	17.4	
							37.0	Deep	5.00	1.60	7.52	9.27	17.3	X
		11:35		CS-2	North	44.0	1	Surface	1.94	0.12	7.28	9.43	17.4	
							22.0	Middle	2.57	0.43	7.20	9.32	17.3	
							41.0	Deep	3.22	-0.18	7.17	9.29	17.3	

Water Quality Field Parameter Measurements
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Circuit No.	Monitoring Date	Time	Flow Direction (Upriver/Downriver)	Station	North/South	Total Water Depth (feet)	Monitoring Depth (feet)	Depth Zone	Measured Turbidity (NTU)	Background Corrected Turbidity (NTU) ¹	pH	DO (mg/L)	Temperature (C°)	Chemistry Sample
3	9/29/2023	13:54	Downriver	BG	South	35.0	1	Surface	1.39	--	7.36	9.67	17.5	
							17.5	Middle	2.15	--	7.26	9.36	17.3	
							32.0	Deep	2.25	--	7.27	9.34	17.3	X
		13:08		EW	North	42.0	1	Surface	1.54	0.15	7.3	9.60	17.5	
							21.0	Middle	1.94	-0.21	7.23	9.40	17.3	
							39.0	Deep	5.98	3.73	7.62	9.29	17.3	
		13:27		CS-1	North	40.0	1	Surface	1.55	0.16	7.30	9.60	17.5	
							20.0	Middle	1.87	-0.28	7.27	9.47	17.4	
							37.0	Deep	2.97	0.72	7.65	9.34	17.3	X
		13:41		CS-2	North	46.0	1	Surface	1.39	0	7.27	9.63	17.5	
							23.0	Middle	1.71	-0.44	7.24	9.41	17.3	
							43.0	Deep	2.38	0.13	7.31	9.35	17.1	

Notes:

--: not applicable

1. The background corrected turbidity is calculated by subtracting the measured turbidity at each of the non-background stations (i.e., EW, CS-1, and CS-2) from the background station.

BG: background

DO: dissolved oxygen

CS: compliance station

EW: early warning

mg/L: milligram per liter

NTU: nephelometric turbidity unit

Attachment 6

Water Quality Monitoring Chemical Results

Water Quality Monitoring Chemical Results
Gasco Sediments Site ISS Field Pilot Study

			ISS Mixing							Debris Removal			
			9/25/2023	9/25/2023	9/25/2023	9/25/2023	9/25/2023	9/25/2023	9/25/2023	9/25/2023	9/26/2023	9/26/2023	
Sample Date			9/25/2023	9/25/2023	9/25/2023	9/25/2023	9/25/2023	9/25/2023	9/25/2023	9/25/2023	9/26/2023	9/26/2023	
Time			9:30	9:10	11:30	11:15	13:35	13:20	15:40	15:25	11:45	11:30	
Location ID			BG-1S	CS-1N	BG-1S	CS-1N	BG-1N	CS-1S	BG-1N	CS-1S	BG-1S	CS-2N	
Depth (feet)			27.5	38.5	33.0	38.8	39.0	35.5	42.0	40.0	33.2	42.8	
Analyte	Chronic WQC ^{1,2}	Acute WQC ^{1,2}											
Polycyclic Aromatic Hydrocarbons (µg/L)													
Benzo(a)anthracene	2.2	9.2	0.016 U	0.156	0.017 U	0.126	0.051	0.479	0.017 U	0.292	0.018 U	0.495	
Benzo(a)pyrene	0.96	4	0.016 U	0.207	0.017 U	0.166	0.059	0.571	0.017 U	0.404	0.018 U	0.237	

Water Quality Monitoring Chemical Results
Gasco Sediments Site ISS Field Pilot Study

			ISS Mixing													
			9/27/2023	9/27/2023	9/27/2023	9/27/2023	9/27/2023	9/27/2023	9/27/2023	9/28/2023	9/28/2023	9/29/2023	9/29/2023	9/29/2023	9/29/2023	9/29/2023
Sample Date			9/27/2023	9/27/2023	9/27/2023	9/27/2023	9/27/2023	9/27/2023	9/27/2023	9/28/2023	9/28/2023	9/29/2023	9/29/2023	9/29/2023	9/29/2023	9/29/2023
Time			10:10	9:55	12:00	11:45	14:20	13:55	10:20	10:10	10:05	9:50	12:00	11:45	14:25	14:15
Location ID			BG-1S	CS-1N	BG-1S	CS-1N	BG-1N	CS-1S	BG-1S	CS-2N	BG-1S	CS-2N	BG-1S	CS-1N	BG-1S	CS-1N
Depth (feet)			35.0	39.2	34.0	38.5	41.0	37.0	31.0	42.4	34.6	42.5	39.2	40.6	31.5	38.5
Analyte	Chronic WQC ^{1,2}	Acute WQC ^{1,2}														
Polycyclic Aromatic Hydrocarbons (µg/L)																
Benzo(a)anthracene	2.2	9.2	0.016 U	0.018 J	0.020 U	0.154	0.032 J	0.087	0.019 U	0.022 U	0.016 U	0.840	0.018 U	0.017 U	0.016 U	0.351
Benzo(a)pyrene	0.96	4	0.016 U	0.019 J	0.020 U	0.205	0.027 J	0.074	0.019 U	0.022 U	0.016 U	1.08	0.018 U	0.017 J	0.016 U	0.454

Water Quality Monitoring Chemical Results Gasco Sediments Site ISS Field Pilot Study

Notes:

1. Acute criteria will be the compliance criteria for water quality monitoring during all Pilot Study activities because such activities are intermittent and ephemeral in nature. Chronic criteria will be used to evaluate the effectiveness of construction BMPs and the potential need for additional or enhanced BMPs but will not be used for compliance purposes.
2. Acute and chronic PAH criteria are from *Procedures for Derivation of Equilibrium Partitioning Sediment Benchmarks (ESBs) for the Protection of Benthic Organisms: PAH Mixtures* (EPA 2003).

■ Detected concentration is greater than the chronic water quality criteria

Bold: Detected result

J: Estimated value

U: Compound analyzed but not detected above detection limit

µg/L: micrograms per liter

BMP: best management practice

ISS: in situ stabilization and solidification

WQC: water quality criteria

Reference:

EPA (U.S. Environmental Protection Agency), 2003. *Procedures for the Derivation of Equilibrium Partitioning Sediment Benchmarks (ESBs) for the Protection of Benthic Organisms: PAH Mixtures*. Office of Research and Development. EPA 600-R-02-013. November 2003.
Available at: <https://clu-in.org/conf/tio/porewater1/resources/EPA-ESB-Procedures-PAH-mixtures.pdf>.

Attachment 7

Moonpool Informational Measurements

Moonpool Informational Measurements Gasco Sediments Site ISS Field Pilot Study

ISS Column Location	Date	Time	Pre-/Post-Measurement	Water Column Thickness (feet)	Measurement Depth (feet below surface)	pH	Temperature (°C)
* 1-1	9-23-23	7:34	PRE	13.6	9.6	7.25	19.5
1-2	9-25-23	7:15	PRE	12.	1	7.14	19.1
1-2	↓	7:17	↓	↓	6	7.10	19.1
1-2	↓	7:19	↓	↓	8	7.10	19.1
1-2	↓	9:45	POST	12	1	6.93	19.3
1-2	↓	9:47	↓	↓	6	7.23	19.3
1-2	↓	9:49	↓	↓	8	7.73	19.2
1-4	9-26-23	14:50	PRE	13	1	7.12	18.8
1-4	↓	14:52	↓	↓	6	7.31	18.4
1-4	↓	14:55	↓	↓	10	7.30	18.4
1-4	↓	18:30	POST	13	1	7.16	18.3
1-4	↓	18:32	↓	↓	5	7.54	18.3
1-4	↓	18:35	↓	↓	10	7.50	18.2
1-6	9-27-23	06:51	PRE	14	1	7.12	16.9
1-6	↓	06:53	↓	↓	7	7.23	16.2
1-6	↓	06:55	↓	↓	11	7.44	16.5
1-6	9-27-23	09:38	POST	Ⓢ 13	1	7.11	17.8
1-6	↓	09:40	↓	↓	7	7.24	17.5
1-6	↓	09:42	↓	↓	10	7.25	16.6
2-1	9-28-23	10:38	PRE	13	1	6.95	20.8
2-1	↓	10:41	↓	↓	6	7.16	21.

Notes:

* = Parameters collect @ beginning of mixing.



Moonpool Informational Measurements Gasco Sediments Site ISS Field Pilot Study

6720 South Macadam Avenue, Suite 300
Portland, OR 97219

ISS Column Location	Date	Time	Pre-/Post-Measurement	Water Column Thickness (feet)	Measurement Depth (feet below surface)	pH	Temperature (°C)
2-1	9-28-23	10:43	PRE	13	10	7.37	21.
2-1	9-28-23	12:00	POST	13	1	7.04	19.8
2-1	↓	12:03	↓	↓	6	7.16	19.9
2-1	↓	12:06	↓	↓	10	7.51	19.5
2-6	9-29-23	07:45	PRE	14	1	7.03	17.
2-6	↓	07:47	↓	↓	7	7.36	16.2
2-6	↓	07:49	↓	↓	11	7.78	16.1
2-6	9-29-23	09:12	POST	14	1	7.20	16.7
2-6	↓	09:20	↓	↓	7	7.56	17.
2-6	↓	09:25	↓	↓	11	7.65	17.

Notes:
