

Oakland Harbor Turning Basins Widening

Sediment Sampling Memo



May 2024



M E M O R A N D U M

TO: Justin Phalen, Slate Geotechnical Consultants, Inc.
Bernard R. Wair, United States Army Corps of Engineers

FROM: Erin Dunbar, Geosyntec Consultants, Inc.
Howard Cumberland, Geosyntec Consultants, Inc.
Keith Kroeger, Geosyntec Consultants, Inc.

DATE: 5 February 2024

SUBJECT: Oakland Harbor Inner Turning Basin – November 2023 Environmental Sampling

This technical memorandum has been prepared to provide Slate Geotechnical Consultants, Inc. (Slate) and the United States Army Corps of Engineers (USACE) with the laboratory results of environmental sampling completed in November 2023 at the Oakland Harbor Inner Turning Basin (Site) in Oakland, California. The Environmental Sediment Sampling was completed as part of the Oakland Turning Basin Widening Study (Project). The sediment sampling was completed in accordance with the October 2023 Environmental Sediment Sampling Work Plan (Work Plan) prepared by Geosyntec Consultants (Geosyntec). The Work Plan was developed for the USACE as part of the Statement of Work (SOW) for Contract W192P7-23-D-0002, Task Order (TO) W912P7-23-F-0033.

The Oakland Harbor is located within Alameda County of California (Figure 1). The Oakland Harbor consists of an Outer and Inner Harbor. The objective of the Oakland Turning Basin Widening Study is to evaluate the feasibility of widening and deepen the existing Oakland Inner Harbor turning basin to accommodate larger, deep draft vessels. Sediment from north of the existing Inner Harbor Turning Basin is planned for removal during the widening study requiring sediment characterization. This memorandum provides a sample collection summary and the laboratory analytical data to support the sediment characterization of the Site.

ENVIRONMENTAL SAMPLING

Geosyntec completed the subsurface sediment core sampling event from November 7 to 9, 2023. Sample locations are shown on Figures 2 and 3, and daily field reports are included as Attachment A. A summary of sediment coring is presented in Table 1. Sample collection was conducted as described in Geosyntec's October 27, 2023, Work Plan, which was approved by USACE on October 30, 2023, with the following exceptions.

- Three sampling attempts were made at location OITB-2023-05 to collect a sediment core per the requirements in the Work Plan. However, each attempt encountered refusal before reaching the target depth and sediment recoveries were poor. Sediment from this location was archived, but not analyzed. USACE approved attempting one alternate location where better recovery was possible. The new location was named OITB-2023-05A.
- Target depth of -35 feet Mean Lower-Low Water (MLLW) was not obtained at three locations (OITB-2023-05A, OITB-2023-07, OITB-2023-08) due to refusal. As a result, sample composite for sediment lying below -35 feet MLLW did not include sediment from these locations. The sediment compositing scheme per location is presented as Table 2.

Sediment Geology

In general, the sediment lithology encountered was gray to dark gray clay with occasional organics (e.g., wood fragments, mussels or clam shells) and ranged from sandy clay to clay. A hard, yellowish-brown, silty fine sand was encountered at several locations, either in the core sample (OITB-2023-05 and OITB-2023-06) or as a thin layer plug in the core sampling shoe when refusal was met (OITB-2023-05A, OITB-2023-07, and OITB-2023-08). Geosyntec assumes that the sand is the Merritt Sand. Boring logs are included as Attachment B. Photographs of sediment cores are included as Attachment C.

Analytical Data

In accordance with the Work Plan, composite sediment samples were submitted to SGS North America, Inc. of Orlando, Florida. Laboratory reports are included as Attachment D. Available electronic data deliverables (EDDs) will be sent via email.

Prepared and reviewed by:



Erin Dunbar
Senior Geologist



Keith Kroeger
Senior Project Scientist

Oakland Harbor Inner Turning Basin – October 2023 Environmental Sampling

5 February 2024

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Attachments:

Figure 1 – Site Location Map

Figure 2 – Sample Locations

Figure 3 – Locations with Bathymetric Data

Table 1 – Sediment Core Collection Data

Table 2 – Sediment Sample Collection Data

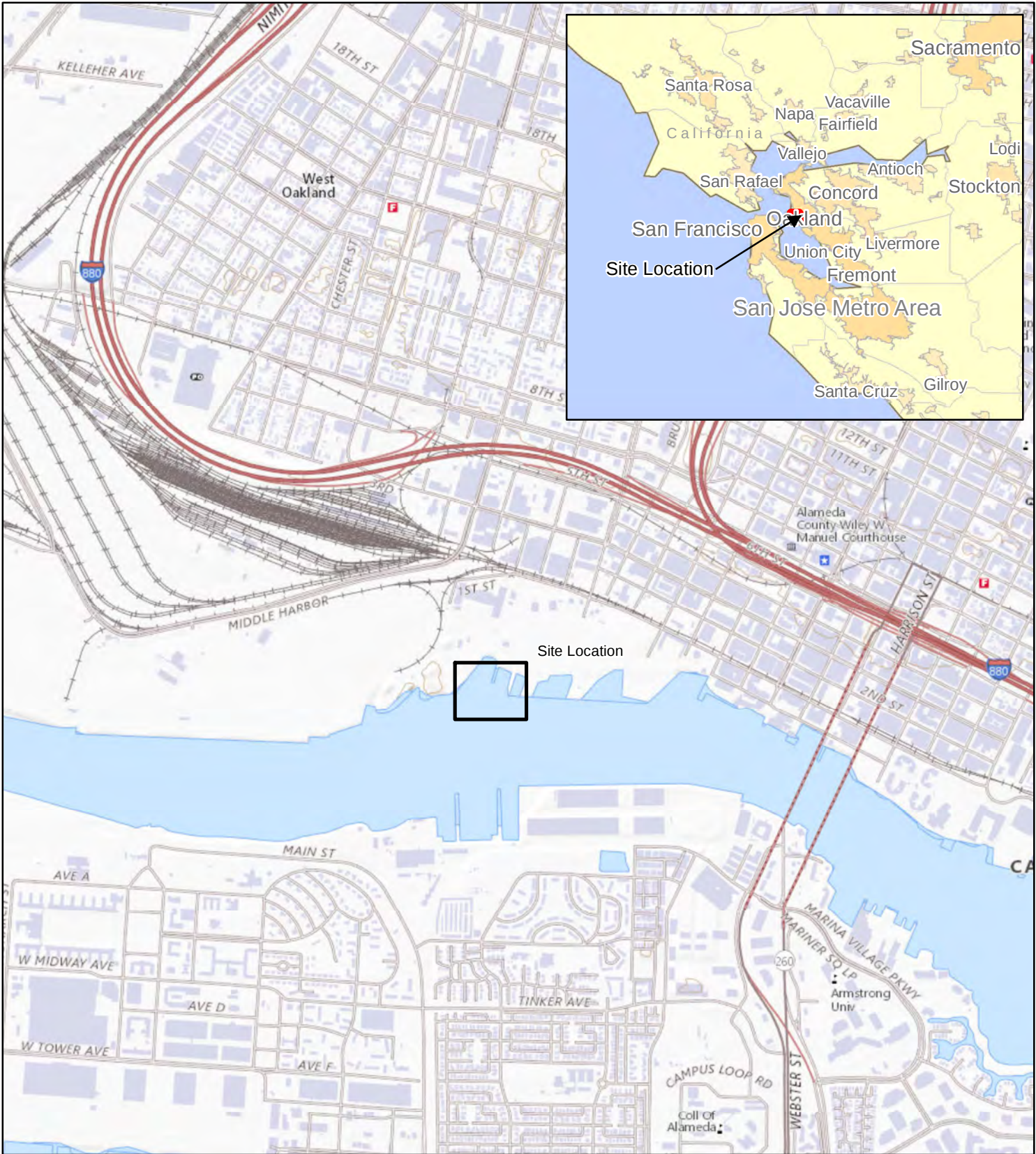
Attachment A – Daily Field Reports

Attachment B – Boring Logs

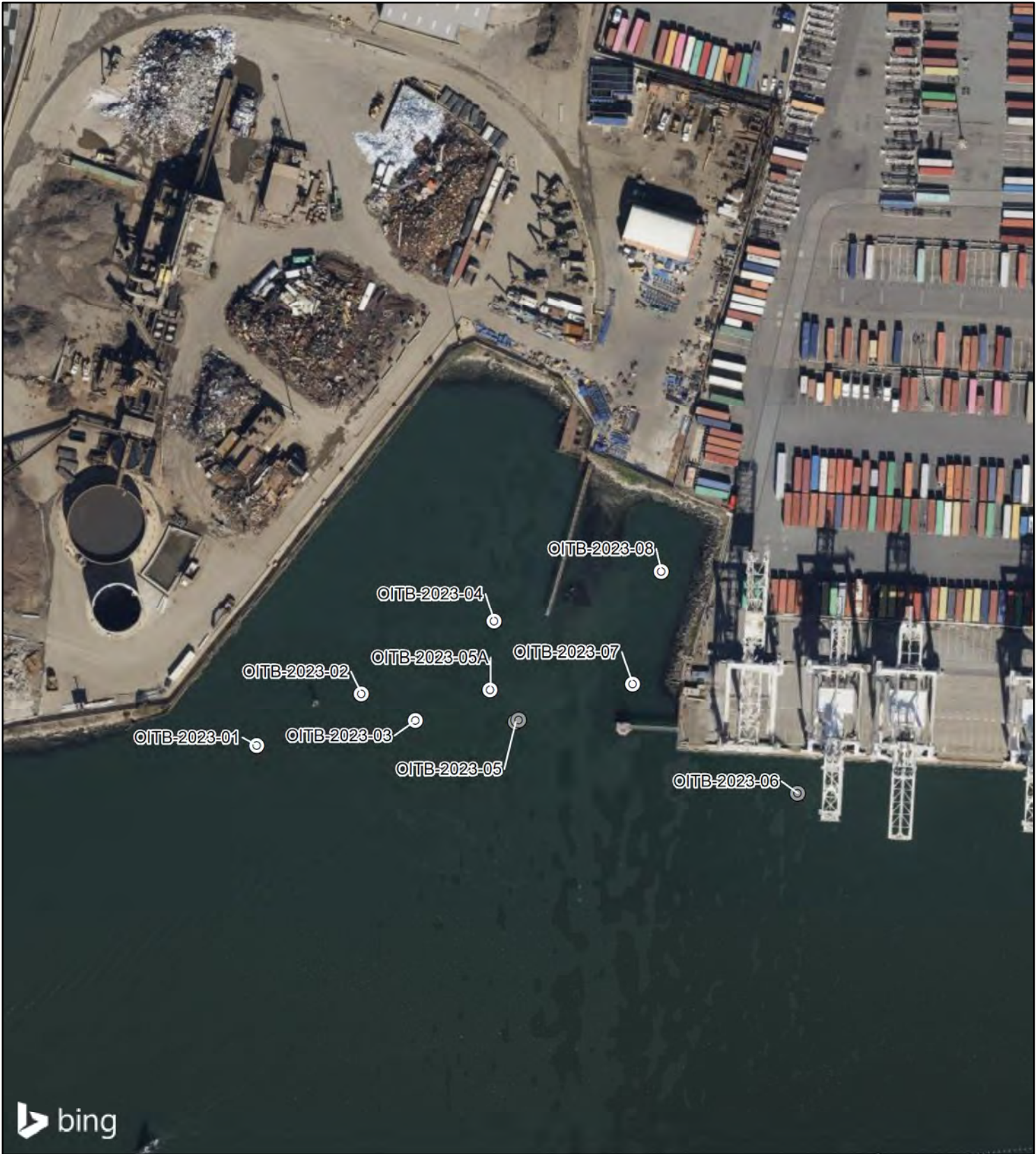
Attachment C – Core Photographs

Attachment D – Laboratory Reports

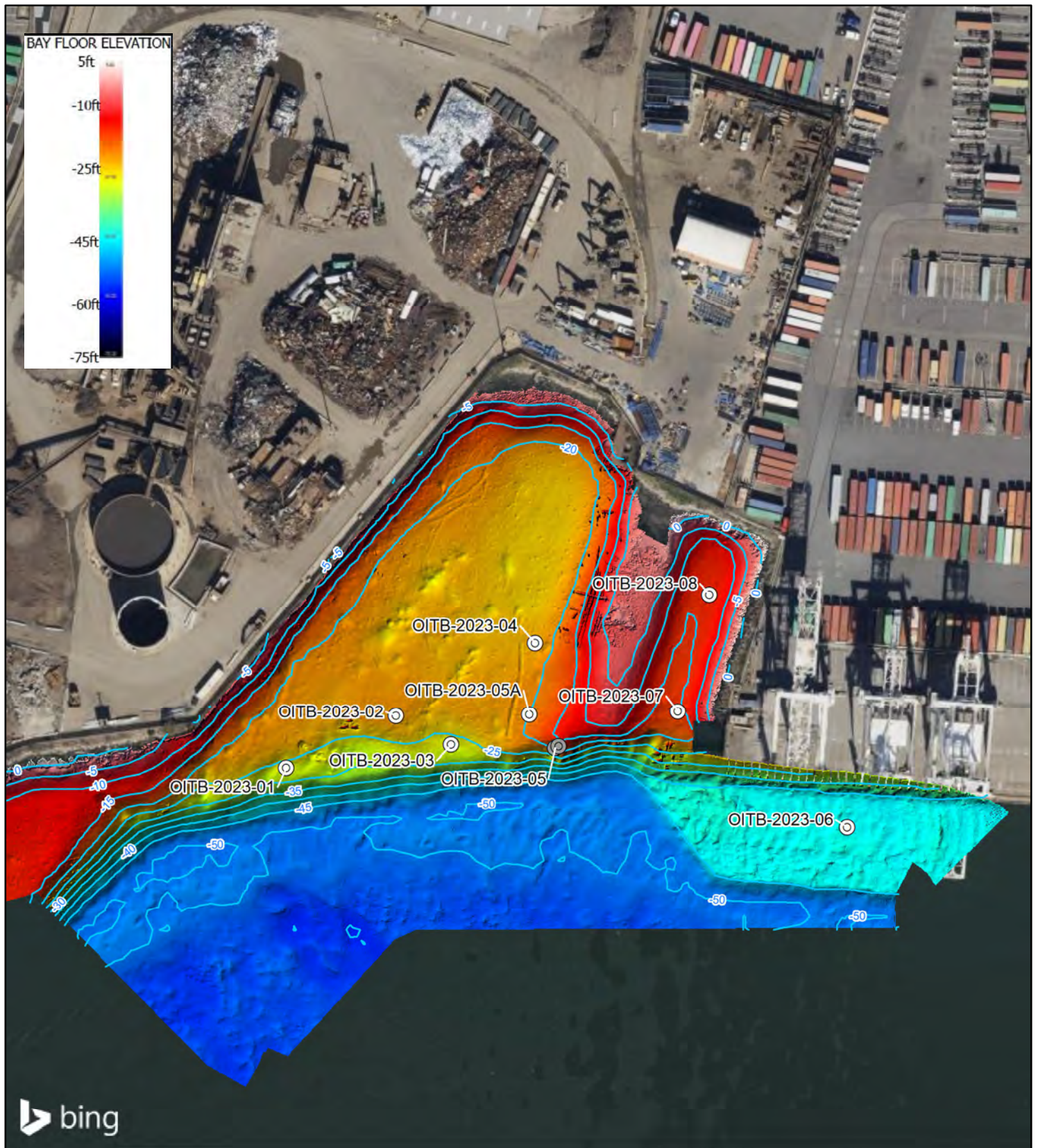
FIGURES



Legend  Site Location USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS	Site Location Map Oakland Inner Harbor; Oakland Turning Basin Widening Study; Oakland, California		Figure 1
	Geosyntec consultants		



Legend ○ Accepted Sample Location ● Not Accepted Sample Location		Sample Locations Oakland Inner Harbor; Oakland Turning Basin Widening Study; Oakland, California	
© 2024 Microsoft Corporation © 2023 Maxar © CNES (2023) Distribution Airbus DS © 2023 TomTom		Geosyntec consultants	
PNG1060		February 2024	
		Figure 2	



Legend ⊙ Accepted Sample Location ⊙ Not Accepted Sample — Contour (5 ft MLLW) © 2024 Microsoft Corporation © 2023 Maxar ©CNES (2023) Distribution Airbus DS © 2023 TomTom	Locations with Bathymetry Data Oakland Inner Harbor; Oakland Turning Basin Widening Study; Oakland, California		
Geosyntec consultants	PNG1060	Figure 3	
	February 2024		

TABLES

Table 1
Sediment Core Collection Data

OITB-2023-01		Date Collected: 11/07/2023	
Proposed Coordinates		Actual Coordinates	
Latitude	Longitude	Latitude	Longitude
37.794966	-122.289669	37.794980	-122.289667
Water Depth (feet)	Sediment Surface Elevation (per bathymetry)		
-30.4	-26.1 ft MLLW		
Target Drive Depth	Number of attempts	Final Drive Depth	Recovery
10 feet	1	10 feet	8.1 feet (81%)

OITB-2023-02		Date Collected: 11/07/2023	
Proposed Coordinates		Actual Coordinates	
Latitude	Longitude	Latitude	Longitude
37.795147	-122.289213	37.795148	-122.289238
Water Depth (feet)	Sediment Surface Elevation (per bathymetry)		
-24.7	-21.1 ft MLLW		
Target Drive Depth	Number of attempts	Final Drive Depth	Recovery
16 feet	3	16 feet	11.5 feet (72%)

OITB-2023-03		Date Collected: 11/07/2023	
Proposed Coordinates		Actual Coordinates	
Latitude	Longitude	Latitude	Longitude
37.795042	-122.289020	37.795062	-122.289018
Water Depth (feet)	Sediment Surface Elevation (per bathymetry)		
-27.5	-26.5 ft MLLW		
Target Drive Depth	Number of attempts	Final Drive Depth	Recovery
10 feet	1	10 feet	7.5 feet (75%)

OITB-2023-04		Date Collected: 11/08/2023	
Proposed Coordinates		Actual Coordinates	
Latitude	Longitude	Latitude	Longitude
37.795363	-122.288721	37.795383	-122.288695
Water Depth (feet)	Sediment Surface Elevation (per bathymetry)		
-26.7	-21.9 ft MLLW		
Target Drive Depth	Number of attempts	Final Drive Depth	Recovery
15 feet	3	15 feet	9.6 feet (64%)

Notes:

Horizontal Datum: WGS84

Vertical Datum: MLLW

MLLW: Mean Lower Low Water

Table 1
Sediment Core Collection Data

OITB-2023-05		Date Collected: 11/08/2023	
Proposed Coordinates		Actual Coordinates	
Latitude	Longitude	Latitude	Longitude
37.795085	-122.288482	37.795057	-122.288608
Water Depth (feet)	Sediment Surface Elevation (per bathymetry)		
-20.3	-18.2 ft MLLW		
Target Drive Depth	Number of attempts	Final Drive Depth	Recovery
20 feet	3	3 feet	1 feet (33%)

OITB-2023-05A		Date Collected: 11/09/2023	
Proposed Coordinates		Actual Coordinates	
Latitude	Longitude	Latitude	Longitude
n/a	n/a	37.795162	-122.288712
Water Depth (feet)	Sediment Surface Elevation (per bathymetry)		
-22.4	-19.9 ft MLLW		
Target Drive Depth	Number of attempts	Final Drive Depth	Recovery
20 feet	3	11 feet	7.9 feet (72%)

OITB-2023-06		Date Collected: 11/09/2023	
Proposed Coordinates		Actual Coordinates	
Latitude	Longitude	Latitude	Longitude
37.794855	-122.287447	37.794827	-122.287452
Water Depth (feet)	Sediment Surface Elevation (per bathymetry)		
-43.5	-42.3 ft MLLW		
Target Drive Depth	Number of attempts	Final Drive Depth	Recovery
5 feet	3	3.5 feet	2.5 feet (71%)

OITB-2023-07		Date Collected: 11/08/2023	
Proposed Coordinates		Actual Coordinates	
Latitude	Longitude	Latitude	Longitude
37.795121	-122.288067	37.795180	-122.288128
Water Depth (feet)	Sediment Surface Elevation (per bathymetry)		
-17.5	-16.0 ft MLLW		
Target Drive Depth	Number of attempts	Final Drive Depth	Recovery
20 feet	3	9 feet	6.5 feet (72%)

Notes:

Horizontal Datum: WGS84

Vertical Datum: MLLW

MLLW: Mean Lower Low Water

Table 1**Sediment Core Collection Data**

OITB-2023-08		Date Collected: 11/09/2023	
Proposed Coordinates		Actual Coordinates	
Latitude	Longitude	Latitude	Longitude
37.795542	-122.288023	37.795547	-122.288012
Water Depth (feet)	Sediment Surface Elevation (per bathymetry)		
-19.7	-14.6 ft MLLW		
Target Drive Depth	Number of attempts	Final Drive Depth	Recovery
22 feet	3	10 feet	7.8 feet (78%)

Notes:

Horizontal Datum: WGS84

Vertical Datum: MLLW

MLLW: Mean Lower Low Water

Table 2
Sediment Sample Collection Data

Sample Type		Composite Sediment Above - 35 feet MLLW	Composite Sediment Below -35 feet MLLW	Composite Full Interval of Recovered Core	Archive
Composite Sample ID		OITB-Surface to -35 MLLW	OITB-Below -35 MLLW	OITB-Terminal	Not Applicable
Location Name	OITB-2023-01	X	X		X
	OITB-2023-02	X	X		X
	OITB-2023-03	X	X		X
	OITB-2023-04	X	X		X
	OITB-2023-05				X
	OITB-2023-05A	X	*		X
	OITB-2023-06			X	X
	OITB-2023-07	X	*		X
	OITB-2023-08	X	*		X

Notes:

*refusal before reaching -35 ft MMLW, not included in composite sample

MLLW: Mean Lower Low Water

X: Subsample Collected

Station OITB-2023-05 did not meet recovery targets and was replaced with OITB-2023-05A.

ATTACHMENT A

DAILY FIELD REPORTS

Project Name: Oakland Turning Basin Project Number: PNG1060 Page 1 of 1

Date: 11/7/23 Location: Richmond, CA Logged By: MO

Weather Conditions: 57-66°F sunny + windy

Tailgate Safety Meeting Time: 0756 Contractor: TEG Oceanographic Services

Personnel: Name	Company	Time In	Time Out
Megan Ogburn (MO)	Geosyntec	0730	1600
Erin Dunbar (ED)	Geosyntec	0720	1600
Sean Rotbal (SR)	TEG O.S.	0630	1600
Erick Johnson (EJ)	TEG O.S.	0630	1600
Mark Menez (MM)	TEG O.S.	0630	1600

Time	Activities
0720	ED onsite with SR/EJ/MM already at dock
0730	MO onsite
0756	Tailgate #88
0810	NOAA stations appear to be offline
0852	Boat at Turning Basin site
0858	On station at OIB-2023-01
0905	Anchors set
0942	Begin coring
1050	collecting subsamples 01 > 35 and 01 < 35
1115	Boat at OIB-2023-02
1115	Anchors set
1134	Begin coring
1402	Collecting subsamples 02 > 35 and 02 < 35
1410	from push #2
1410	Boat at OIB-2023-03
1418	Begin coring
1456	Collecting subsamples 03 > 35 and 03 < 35
1541	Back to dock
1600	All offsite

Copy to: Erin Dunbar Total Hrs. (MO) 8.5 Signature: [Signature]

Project Name: Oakland Turning Basin Project Number: PN91060 Page 1 of 1

Date: 11/8/23 Location: Alameda Logged By: MO

Weather Conditions: 54-72° sunny

Tailgate Safety Meeting Time: 0742 Contractor: TEG Oceanographic Services

Personnel: Name	Company	Time In	Time Out
Megan Ogburn (MO)	Geosyntec	0730	1645
Erin Dunbar (ED)	Geosyntec	0730	↑
Sean Rothbal (SR)	TEG O.S.	0700	↑
Erick Johnson (EJ)	↓	0700	↓
Mark Menez (MM)		0700	1645

Time	Activities
0700	TEG O.S. onsite
0730	MO/ED onsite
0742	Tailgate
0755	Mob from dock
0825	On OITB-2023-04
0832	Anchored in
0910	Pause to fix generator
0850	First core at 04
1105	Sampling at 04
1130	Mob back to dock
1203	Mob from dock to site
1244	On OITB-2023-05
1251	Anchored in
1330	Coring at 05
1445	Collected composited samples of #12 and #3 → called it 05
1455	On OITB-2023-07
1500	Anchored in
1505	Coring at 07
1540	After push #1 we moved away by about 10 ft NW; then again after #2
1602	Sampled from OITB-2023-07 → only the shallower than 35 ft sample
1640	Back at the dock
1645	All offsite

Copy to: Erin Dunbar Total Hrs.: 9.25 Signature: [Signature]

Project Name: Oakland Turning Basin Project Number: PNG1860 Page 1 of 2

Date: 11/9/23 Location: Alameda, CA Logged By: MO

Weather Conditions: 52-64°F sunny

Tailgate Safety Meeting Time: 0757 Contractor: TEG O.S.

Personnel: Name	Company	Time In	Time Out
Megan Ogburn (MO)	Geosyntec	0730	1652
Erin Dunbar (ED)	Geosyntec	0730	↑
Sean Roybal (SR)	TEG O.S.	0700	↓
Erick Johnson (EJ)	↓	0700	↓
Mark Menez (MM)	↓	0700	1652

Time	Activities
0730	All on-site. TEG O.S. crew already here.
0757	Health & Safety
0759	Mob from dock
0832	At OITB-2023-08
0847	Anchored in
0900	coring at 08
1014	Mob to dock
1021	collecting 08 sample - shallow only
1116	Mob back to site
1144	At a new OITB-2023-05A location approximately 75 ft NW of OITB-2023-05 (actual = 20 meters)
1148	Anchored in
1155	coring at 05A
1322	Sampled 05A shallow only
1340	pulled anchors at 05A
1401	Anchored at OITB-2023-06
1408	Coring at OITB-2023-06
1513	Sampling at 06 aka "OITB-Terminal"
1530	
1520	Back at dock
1530	Composited, homogenized, jarred "OITB-Below-35MLLW" We only had enough to composite, but not archive each below 35 sample.

Copy to: Erin Dunbar

Total Hrs.: ~10

Signature: [Signature]

Project Name: <u>Oakland Turning Basin</u>		Project Number: <u>SC007072-0 PNG1860</u>		Page 2 of 2
Date: <u>11/9/23</u>	Location: <u>Alameda</u>	Logged By: <u>MO</u>		

Time	Activities
1552	Jarred Archive-Ø2
1556	Jarred Archive-Ø3
1559	Jarred archive-Ø4
1606	Jarred archive-Ø1
1609	Jarred archive-Ø8
1611	Jarred archive-Ø5A
1618	Jarred archive-Ø7
1622	Jarred archive-Ø5
1625	Jarred after compositing and homogenizing sample "OITB - Surface to -35 MLLW"
1652	All offsite

(MD) 11/9/23

ATTACHMENT B

BORING LOGS

GS FORM:
BORE 1/99

SEDIMENT CORE

PORTLAND - SEDIMENT LOG (OAKLAND HARBOR) PNG1060 OAKLAND HARBOR.GPJ PNW DEFAULT GINT LIBRARY.GLB 1/30/24

IN-SITU DEPTH (ft)	IN-SITU ELEVATION (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	CORE LENGTH (FT)	SAMPLES			COMMENTS
					TYPE	RECOVERY	SAMPLE NAME	
0.5	-27	Sandy CLAY (CL): Dark gray, very soft at surface to soft, wet, with 20% sand (decreasing with depth) and trace organics. No sheen or odor.		0		81% 8.1/10 ft	OITB-Surface to -35 MLLW	Added to sample composite
1.0	-27			1				
1.5	-28			2				
2.0	-28			3				
2.5	-29			4				
3.0	-29	- 5% sand		5				
3.5	-30	CLAY (CL): Dark gray with black nodules that streak on sediment, soft, wet, with trace sand. No sheen or odor.		6				
4.0	-30			7				
4.5	-31			8				
5.0	-31			9				
5.5	-32			10				
6.0	-32			11				
6.5	-33			12				
7.0	-33			13				
7.5	-34	- becomes very dark gray to black		14				
8.0	-34			15				
8.5	-35			16				
9.0	-35			17			OITB- below -35 MLLW	Added to sample composite
9.5	-36			18				
10.0	-36	End of core; reached target depth of 10 feet		19				

CONTRACTOR TEG Oceanographic **NORTHING** -122.290
EQUIPMENT **EASTING** 37.795
DRILL MTHD Vibracore **ANGLE** Vertical
DIAMETER 4-inch **BEARING** -----
LOGGER M. Ogburn **REVIEWER** E. Dunbar

REMARKS: Elevations presented as feet mean lower low water (MLLW)
Target depth: 10 feet

COORDINATE SYSTEM:
SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM:
BORE 1/99

SEDIMENT CORE

PORTLAND - SEDIMENT LOG (OAKLAND HARBOR) PNG1060 OAKLAND HARBOR.GPJ PNW DEFAULT GINT LIBRARY.GLB 1/30/24

IN-SITU DEPTH (ft)	IN-SITU ELEVATION (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	CORE LENGTH (FT)	SAMPLES			COMMENTS
					TYPE	RECOVERY	SAMPLE NAME	
0.5	-22	Sandy CLAY (CL): Dark gray, soft, wet, with 20% sand. No sheen or odor.				72% 11.5/16 ft	OITB-Surface to -35 MLLW	Added to sample composite
1.0	-23			1				
1.5	-23							
2.0	-23							
2.5	-24	- 0.5-in clam shell		2				
3.0	-24							
3.5	-25			2.6				
4.0	-25	CLAY (CL): Dark gray with black nodules that streak on sediment, soft, wet, with trace sand. No sheen or odor.		3				
4.5	-26							
5.0	-26			4				
5.5	-27							
6.0	-27							
6.5	-28			5				
7.0	-28							
7.5	-29							
8.0	-29	- becomes very dark gray to black		6				
8.5	-30							
9.0	-30	- 0.4-ft sand lens with mussel shells		7				
9.5	-31							
10.0	-31			8				
10.5	-32							
11.0	-32							
11.5	-33			9				
12.0	-33							
12.5	-34							
13.0	-34			10				
13.5	-35							
14.0	-35							
14.5	-36			11			OITB- below -35 MLLW	Added to sample composite
15.0	-36							
15.5	-37							
16.0	-37	End of core; reached target depth of 16 feet		11.5				

CONTRACTOR TEG Oceanographic **NORTHING** -122.289
EQUIPMENT **EASTING** 37.795
DRILL MTHD Vibracore **ANGLE** Vertical
DIAMETER 4-inch **BEARING** -----
LOGGER M. Ogburn **REVIEWER** E. Dunbar

REMARKS: Elevations presented as feet mean lower low water (MLLW)
 Target depth: 16 feet

COORDINATE SYSTEM:
 SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM:
BORE 1/99

SEDIMENT CORE

IN-SITU DEPTH (ft)	IN-SITU ELEVATION (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	CORE LENGTH (FT)	SAMPLES			COMMENTS
					TYPE	RECOVERY	SAMPLE NAME	
0.5	-27	CLAY (CL): Dark gray, soft, wet, with 5% sand. No sheen or odor.				75% 7.5/10 ft	OITB-Surface to -35 MLLW	Added to sample composite
1.0				1				
1.5	-28							
2.0				2				
2.5	-29							
3.0				3				
3.5	-30	- becomes sandy clay; increased sand to 30%						
4.0				4				
4.5	-31	- 1/4-in lenses of sand and silt; interbedded						
5.0				5				
5.5	-32							
6.0				6				
6.5	-33							
7.0		- becomes very dark gray, decreased sand to 15%		6.4			OITB- below -35 MLLW	Added to sample composite
7.5	-34			7				
8.0								
8.5	-35			7.5				
9.0								
9.5	-36							
10.0		End of core; reached target depth of 10 feet						

CONTRACTOR TEG Oceanographic **NORTHING** -122.289
EQUIPMENT **EASTING** 37.795
DRILL MTHD Vibracore **ANGLE** Vertical
DIAMETER 4-inch **BEARING** -----
LOGGER M. Ogburn **REVIEWER** E. Dunbar

REMARKS: Elevations presented as feet mean lower low water (MLLW)
Target depth: 10 feet

COORDINATE SYSTEM:
SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM:
BORE 1/99

SEDIMENT CORE

PORTLAND - SEDIMENT LOG (OAKLAND HARBOR) PNG1060 OAKLAND HARBOR.GPJ PNW DEFAULT GINT LIBRARY.GLB 1/31/24

IN-SITU DEPTH (ft)	IN-SITU ELEVATION (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	CORE LENGTH (FT)	SAMPLES			COMMENTS
					TYPE	RECOVERY	SAMPLE NAME	
-22		CLAY (CL): Dark gray, soft, wet, with trace fine sand. No sheen or odor.				64%	OITB-Surface to	Added to sample composite
0.5						9.6/15 ft	-35 MLLW	
1.0	-23			1				
1.5								
2.0	-24			2				
2.5								
3.0	-25			3				
3.5								
4.0	-26			3.3				
4.5		- becomes very dark gray with black nodules and streaks						
5.0	-27			4				
5.5		- sharp angular shell fragments						
6.0	-28			5				
6.5								
7.0	-29			6				
7.5								
8.0	-30			7				
8.5		- mussel shells						
9.0	-31			7.7				
9.5		- becomes black		8				
10.0	-32							
10.5				8.4				
11.0	-33			9				
11.5								
12.0	-34							
12.5								
13.0	-35						OITB- below	Added to sample composite
13.5							-35 MLLW	
14.0	-36							
14.5								
15.0		End of boring; reached target depth of 15 feet		9.6				

CONTRACTOR TEG Oceanographic **NORTHING** -122.289
EQUIPMENT **EASTING** 37.795
DRILL MTHD Vibracore **ANGLE** Vertical
DIAMETER 4-inch **BEARING** -----
LOGGER M. Ogburn **REVIEWER** E. Dunbar

REMARKS: Elevations presented as feet mean lower low water (MLLW)
 Target depth: 15 feet
 Target recovery of 75% not met for all three attempts. The best recovery of 64% was logged and sampled.

COORDINATE SYSTEM:
 SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

920 SW Sixth Avenue, Suite 600
Portland, Oregon 97204
Phone: 503.222.9518

BORING **OITB-2023-05**

SHEET 1 OF 1

START DATE 11/8/2023

ELEVATION -18.2

FINISH DATE 11/8/2023**PROJECT** Oakland Harbor Inner Turning Basin

LOCATION Oakland, California

PROJECT NUMBER PNG1060

GS FORM:
BORE 1/99

SEDIMENT CORE

IN-SITU DEPTH (ft)	IN-SITU ELEVATION (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	CORE LENGTH (FT)	SAMPLES			COMMENTS
					TYPE	RECOVERY	SAMPLE NAME	
0.5	-19	Silty SAND (SM): Yellowish-brown, hard, wet, Merritt Sand				33% 1/3 ft		no subsample collected for composite; relocated to OITB-2023-05A
1.0	-20							
1.5	-21							
2.0	-22							
2.5	-23	End of boring; refusal at 3 feet						
3.0	-24							
3.5	-25							
4.0	-26							

CONTRACTOR	TEG Oceanographic	NORTHING	-122.289
EQUIPMENT		EASTING	37.795
DRILL MTHD	Vibracore	ANGLE	Vertical
DIAMETER	4-inch	BEARING	-----
LOGGER M. Ogburn	REVIEWER E. Dunbar		

REMARKS: Elevations presented as feet mean lower low water (MLLW)
Target depth: 20 feet
Target recovery of 75% not met for all three attempts. The best recovery was logged.

COORDINATE SYSTEM:
SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM:
BORE 1/99

SEDIMENT CORE

PORTLAND - SEDIMENT LOG (OAKLAND HARBOR) PNG1060 OAKLAND HARBOR.GPJ PNW DEFAULT GINT LIBRARY.GLB 1/30/24

IN-SITU DEPTH (ft)	IN-SITU ELEVATION (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	CORE LENGTH (FT)	SAMPLES			COMMENTS
					TYPE	RECOVERY	SAMPLE NAME	
-20		CLAY (CL): Very dark gray with black nodules and streaks, soft, wet, with trace organics. No sheen or odor.				72%	OITB-Surface to	Added to sample composite
0.5						7.9/11 ft	-35 MLLW	
1.0	-21			1				
1.5								
2.0	-22			2				
2.5								
3.0	-23							
3.5								
4.0	-24	- mussel shell		3				
4.5								
5.0	-25	- 1/4-in sand lens						
5.5		-4-in black, wood fragment		4				
6.0	-26							
6.5								
7.0	-27	- increase in black nodules and streaks		5				
7.5								
8.0	-28			6				
8.5								
9.0	-29	- mussel shell		7				
9.5								
10.0	-30							
10.5		- 3-in black, wood fragment						
11.0		End of boring; refusal at 11 feet		7.9				-35 feet MLLW not reached; no subsample for this depth interval

CONTRACTOR TEG Oceanographic

NORTHING -122.289

EQUIPMENT

EASTING 37.795

DRILL MTHD Vibracore

ANGLE Vertical

DIAMETER 4-inch

BEARING -----

LOGGER M. Ogburn **REVIEWER** E. Dunbar

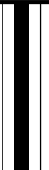
REMARKS: Elevations presented as feet mean lower low water (MLLW)
Target depth: 20 feet

COORDINATE SYSTEM:

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM:
BORE 1/99

SEDIMENT CORE

IN-SITU DEPTH (ft)	IN-SITU ELEVATION (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	CORE LENGTH (FT)	SAMPLES			COMMENTS
					TYPE	RECOVERY	SAMPLE NAME	
0.5	-43	CLAY (CL): Very dark gray with black nodules and streaks, wet, soft. No sheen or odor.		1		71% 2.5/3.5 ft	OITB-Terminal	
1.0	-44							
1.5	-44							
2.0	-45	Silty SAND (SM): Yellowish-brown, hard, wet, fine sand. Merritt Sand		2 3				
2.5	-45							
3.0	-45							
3.5	-45	End of boring; refusal at 3.5 feet		2.5				

CONTRACTOR TEG Oceanographic
EQUIPMENT
DRILL MTHD Vibracore
DIAMETER 4-inch
LOGGER M. Ogburn
REVIEWER E. Dunbar

NORTHING -122.287
EASTING 37.795
ANGLE Vertical
BEARING -----

REMARKS: Elevations presented as feet mean lower low water (MLLW)
Target depth: 5 feet

COORDINATE SYSTEM:
SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM:
BORE 1/99

SEDIMENT CORE

IN-SITU DEPTH (ft)	IN-SITU ELEVATION (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	CORE LENGTH (FT)	SAMPLES			COMMENTS
					TYPE	RECOVERY	SAMPLE NAME	
0.5		CLAY (CL): Dark gray, soft, wet, with trace fine sand. No sheen or odor.				72% 6.5/9.0 ft	OITB-Surface to -35 MLLW	Added to sample composite
1.0	-17			1				
1.5								
2.0	-18			2				
2.5								
3.0	-19	- becomes soft		3				
3.5								
4.0	-20			4				
4.5								
5.0	-21			5				
5.5		- trace clam shells		6				
6.0	-22							
6.5								
7.0	-23			6				
7.5								
8.0	-24			6.5				-35 feet MLLW not reached; no subsample for this depth interval
8.5								
9.0	-25	End of core; refusal at 9 feet						

CONTRACTOR TEG Oceanographic **NORTHING** -122.288
EQUIPMENT **EASTING** 37.795
DRILL MTHD Vibracore **ANGLE** Vertical
DIAMETER 4-inch **BEARING** -----
LOGGER M. Ogburn **REVIEWER** E. Dunbar

REMARKS: Elevations presented as feet mean lower low water (MLLW)
Target depth: 20 feet

COORDINATE SYSTEM:
SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM:
BORE 1/99

SEDIMENT CORE

IN-SITU DEPTH (ft)	IN-SITU ELEVATION (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	CORE LENGTH (FT)	SAMPLES			COMMENTS
					TYPE	RECOVERY	SAMPLE NAME	
0.5	-15	CLAY (CL): Very dark gray with black nodules and streaks, soft, wet, with trace organics. No sheen or odor.				78% 7.8/10 ft	OITB-Surface to -35 MLLW	Added to sample composite
1.0	-16			1				
1.5	-17			2				
2.0	-18			3				
2.5	-19			4				
3.0	-20			5				
3.5	-21			6				
4.0	-22			7				
4.5	-23	- 3-in wood fragment		7.8				
5.0	-24							
5.5								
6.0								
6.5								
7.0								
7.5								
8.0								
8.5								
9.0								
9.5								
10.0		End of boring; refusal at 10 feet						-35 feet MLLW not reached; no subsample for this depth interval

CONTRACTOR TEG Oceanographic
EQUIPMENT
DRILL MTHD Vibracore
DIAMETER 4-inch
LOGGER M. Ogburn
REVIEWER E. Dunbar

NORTHING -122.288
EASTING 37.796
ANGLE Vertical
BEARING -----

REMARKS: Elevations presented as feet mean lower low water (MLLW)
Target depth: 22 feet

COORDINATE SYSTEM:
SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

ATTACHMENT C

CORE PHOTOGRAPHS

ATTACHMENT C: GEOSYNTEC CONSULTANTS

SEDIMENT CORE PHOTO LOG

Client: U.S. Army Corps of Engineers

Site Name: Oakland Turning Basin Widening Study

Project Number: PNG1060

Site Location: Oakland, California



OITB-2023-01 (0 TO 2.5 FEET)

Top of core to approximately 2.5 feet below mudline. Collected via vibracore.



OITB-2023-01 (0.5 TO 3.8 FEET)

Photo depth to approximately 3.8 feet below mudline. Collected via vibracore.



OITB-2023-01 (3.5 TO 6.4 FEET)

Photo depth to approximately 6.4 feet below mudline. Collected via vibracore.



OITB-2023-01 (6 TO 8 FEET)

Photo depth to approximately 8 feet below mudline. Collected via vibracore.



OITB-2023-02 (0 TO 1.8 FEET)

Top of core to approximately 1.8 feet below mudline (approximate bottom of core). Collected via vibracore.



OITB-2023-02 (1 TO 2.9 FEET)

Photo depth to approximately 2.9 feet below mudline. Collected via vibracore.



OITB-2023-02 (2 TO 4 FEET)

Photo depth to approximately 2.9 feet below mudline. Collected via vibracore.



OITB-2023-02 (3.2 TO 5.4 FEET)

Photo depth to approximately 5.4 feet below mudline. Collected via vibracore.



OITB-2023-02 (4.6 TO 7 FEET)

Photo depth to approximately 7 feet below mudline. Collected via vibracore.

ATTACHMENT C: GEOSYNTEC CONSULTANTS

SEDIMENT CORE PHOTO LOG

Client: U.S. Army Corps of Engineers

Site Name: Oakland Turning Basin Widening Study

Project Number: PNG1060

Site Location: Oakland, California



OITB-2023-02 (7 TO 9.9 FEET)

Photo depth to approximately 9.9 feet below mudline. Collected via vibracore.



OITB-2023-02 (8.5 TO 11.1 FEET)

Photo depth to approximately 11.1 feet below mudline (approximate bottom of core). Collected via vibracore.



OITB-2023-03 (0 TO 2.2 FEET)

Top of core to approximately 2.2 feet below mudline. Collected via vibracore.



OITB-2023-03 (1.5 TO 3.9 FEET)

Photo depth to approximately 3.9 feet below mudline. Collected via vibracore.



OITB-2023-03 (3 TO 5.3 FEET)

Top of core to approximately 5.3 feet below mudline. Collected via vibracore.



OITB-2023-03 (4.3 TO 6.8 FEET)

Photo depth to approximately 6.8 feet below mudline. Collected via vibracore.



OITB-2023-03 (5.5 TO 7.3 FEET)

Photo depth to approximately 7.3 feet below mudline. Collected via vibracore.



OITB-2023-04 (0 TO 2.2 FEET)

Top of core to approximately 2.2 feet below mudline. Collected via vibracore.



OITB-2023-04 (1.3 TO 3.5 FEET)

Photo depth to approximately 3.5 feet below mudline. Collected via vibracore.

ATTACHMENT C: GEOSYNTec CONSULTANTS
SEDIMENT CORE PHOTO LOG

Client: U.S. Army Corps of Engineers
Site Name: Oakland Turning Basin Widening Study

Project Number: PNG1060
Site Location: Oakland, California



OITB-2023-04 (2.9 TO 5.1 FEET)
Top of core to approximately 5.1 feet below mudline. Collected via vibracore.



OITB-2023-04 (4.4 TO 6.8 FEET)
Photo depth to approximately 6.7 feet below mudline. Collected via vibracore.



OITB-2023-04 (6.8 TO 9.4 FEET)
Photo depth to approximately 9.4 feet below mudline (approximate bottom of core). Collected via vibracore.



OITB-2023-05 (0 TO 0.5 FEET)
Photo depth to approximately 0.5 feet below mudline for attempt #2 (left) and attempt #3 (right). Collected via vibracore.



OITB-2023-05A (0 TO 2.1 FEET)
Top of core to approximately 2.1 feet below mudline. Collected via vibracore.



OITB-2023-05A (1.2 TO 3.4 FEET)
Photo depth to approximately 3.4 feet below mudline. Collected via vibracore.



OITB-2023-05A (2.5 TO 4.7 FEET)
Photo depth to approximately 4.7 feet below mudline. Collected via vibracore.



OITB-2023-05A (3.8 TO 6.1 FEET)
Photo depth to approximately 6.1 feet below mudline. Collected via vibracore.



OITB-2023-05A (5.8 TO 8 FEET)
Photo depth to approximately 8 feet below mudline (approximate bottom of core). Collected via vibracore.

ATTACHMENT C: GEOSYNTEC CONSULTANTS

SEDIMENT CORE PHOTO LOG

Client: U.S. Army Corps of Engineers

Site Name: Oakland Turning Basin Widening Study

Project Number: PNG1060

Site Location: Oakland, California



OITB-2023-06 (0 TO 2 FEET)

Top of core to approximately 2.0 feet below mudline (approximate bottom of core). Collected via vibracore.



OITB-2023-07 (0 TO 2.1 FEET)

Top of core to approximately 2.1 feet below mudline. Collected via vibracore.



OITB-2023-07 (1 TO 3.5 FEET)

Photo depth to approximately 3.5 feet below mudline. Collected via vibracore.



OITB-2023-07 (3.1 TO 5.5 FEET)

Photo depth to approximately 5.5 feet below mudline. Collected via vibracore.



OITB-2023-07 (4.4 TO 6.4 FEET)

Photo depth to approximately 6.4 feet below mudline (approximate bottom of core). Collected via vibracore.



OITB-2023-08 (0 TO 2.2 FEET)

Top of core to approximately 2.2 feet below mudline. Collected via vibracore.



OITB-2023-08 (1.1 TO 3.7 FEET)

Photo depth to approximately 3.7 feet below mudline. Collected via vibracore.



OITB-2023-08 (2.5 TO 5.1 FEET)

Photo depth to approximately 5.1 feet below mudline. Collected via vibracore.



OITB-2023-08 (5.1 TO 7.5 FEET)

Photo depth to approximately 7.5 feet below mudline (approximate bottom of core). Collected via vibracore.

ATTACHMENT D

ANALYTICAL LABORATORY REPORTS

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

Geosyntec Consultants - Portland, OR

Oakland Harbor

PNG1060

SGS Job Number: FC11168

Sampling Date: 11/09/23



Report to:

Geosyntec Consultants - Portland, OR
920 SW 6th Ave Suite 600
Portland, OR 97204
edunbar@geosyntec.com

ATTN: Erin Dunbar

Total number of pages in report: 78



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable unless noted in the narrative, comments or footnotes.

Norm Farmer
Technical Director

Client Service contact: Elvin Kumar 407-425-6700

Certifications: FL(E83510), LA(03051), KS(E-10327), NC(573), NJ(FL002), NY(12022), SC(96038001)

DoD ELAP(ANAB L2229), AZ(AZ0806), CA(2937), TX(T104704404), PA(68-03573), VA(460177),

AL, AK, AR, CT, IA, KY, MA, MI, MS, ND, NH, NV, OK, OR, IL, UT, VT, WA, WI, WV

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Test results relate only to samples analyzed.



January 11, 2024

Erin Dunbar
Geosyntec Consultants
920 SW 6th Ave
Suite 600
Portland, OR 97204

RE: SGS North America Inc. - Orlando job FC11168 Reissue

Dear Erin,

The report was revised to include 1,1'-Biphenyl (SW846 8270E).
The changes are incorporated in the revised report for Sample Delivery Group FC11168

SGS North America Inc. - Orlando apologizes for any inconvenience this may have caused.
Please feel free to contact us if we can be of further assistance.

Sincerely,

SGS North America, Inc. - Orlando

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Sample Summary

Geosyntec Consultants - Portland, OR

Job No: FC11168

Oakland Harbor
Project No: PNG1060

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
FC11168-1	11/09/23	15:13	ED	11/11/23	SO Sediment	01TB-TERMINAL
FC11168-1A	11/09/23	15:13	ED	11/11/23	SO Sediment	01TB-TERMINAL
FC11168-2	11/09/23	15:30	ED	11/11/23	SO Sediment	01TB-BELOW-35 MLLW
FC11168-2A	11/09/23	15:30	ED	11/11/23	SO Sediment	01TB-BELOW-35 MLLW
FC11168-11	11/09/23	16:25	ED	11/11/23	SO Sediment	01TB-SURFACE TO-35 MLLW
FC11168-11A	11/09/23	16:25	ED	11/11/23	SO Sediment	01TB-SURFACE TO-35 MLLW

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

SAMPLE DELIVERY GROUP CASE NARRATIVE

2

Client: Geosyntec Consultants - Portland, OR

Job No: FC11168

Site: Oakland Harbor

Report Revised Date: 01/11/2024 2:49:59 PM

On 11/11/2023, 3 Sample(s), 0 Trip Blank(s), 0 Equip. Blank(s) and 0 Field Blank(s) were received at SGS North America Inc - Orlando. at a maximum corrected temperature of 5 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. - Orlando Job Number of FC11168 was assigned to the project.

Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section. Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

MS Semi-volatiles By Method SW846 8270E

Matrix: SO

Batch ID: OP458

Sample(s) FC11659-1MS, FC11659-1MSD were used as the QC samples indicated.

FC11168-1A: Sample extracted beyond hold time.

FC11168-2A: Sample extracted beyond hold time.

FC11168-11A: Sample extracted beyond hold time.

MS Semi-volatiles By Method SW846 8270E BY SIM

Matrix: SO

Batch ID: OP182

Sample(s) FC11135-10MS, FC11135-10MSD were used as the QC samples indicated.

Matrix Spike Recovery(s) for Benzo(a)anthracene are outside control limits. Probable cause is due to matrix interference.

Matrix Spike Duplicate Recovery(s) for Benzo(a)anthracene are outside control limits. Probable cause is due to matrix interference.

GC/LC Semi-volatiles By Method SW846 8081B

Matrix: SO

Batch ID: OP185

Sample(s) FC11168-1MS, FC11168-1MSD were used as the QC samples indicated.

Matrix Spike Duplicate Recovery(s) for Endrin are outside control limits. Probable cause is due to matrix interference.

FC11168-1 for 4,4'-DDT: Associated CCV outside of control limits high, sample was ND.

FC11168-1 for Methoxychlor: Associated CCV outside of control limits high, sample was ND.

FC11168-2 for 4,4'-DDT: Associated CCV outside of control limits high, sample was ND.

FC11168-2 for Methoxychlor: Associated CCV outside of control limits high, sample was ND.

FC11168-11 for 4,4'-DDT: Associated CCV outside of control limits high, sample was ND.

FC11168-11 for Methoxychlor: Associated CCV outside of control limits high, sample was ND.

Metals Analysis By Method SW846 6020B

Matrix: SO

Batch ID: MP43153

Sample(s) FC11232-1DUP, FC11232-1MS, FC11232-1MSD, FC11232-1SDL, FC11232-1PS were used as the QC samples.

Matrix Spike Recovery(s) for Copper, Zinc are outside control limits. Spike amount low relative to the sample amount and/or possible matrix interference. Refer to lab control or spike blank for recovery information.

Matrix Spike Duplicate Recovery(s) for Chromium, Copper, Nickel, Zinc are outside control limits. Spike amount low relative to the sample amount and/or possible matrix interference. Refer to lab control or spike blank for recovery information.

RPD(s) for Duplicate for Copper, Lead, Silver are outside control limits for sample MP43153-D1. High RPD due to possible sample non-homogeneity.

RPD(s) for Serial Dilution for Copper, Nickel are outside control limits for sample MP43153-SD1. Probable cause is due to sample non-homogeneity.

MP43153-SD1 for Nickel: Serial dilution indicates possible matrix interference.

MP43153-SD1 for Copper: Serial dilution indicates possible matrix interference.

Metals Analysis By Method SW846 6020B

Matrix: SO

Batch ID: MP43153

MP43153-PS1 for Chromium: Spike recovery indicates matrix interference and/or outside control limits due to high level in sample relative to spike amount.

MP43153-PS1 for Nickel: Spike recovery indicates matrix interference and/or outside control limits due to high level in sample relative to spike amount.

Metals Analysis By Method SW846 7471B

Matrix: SO

Batch ID: MP43202

Sample(s) FC11125-1ADUP, FC11125-1AMS, FC11125-1AMSD, FC11125-1ASDL were used as the QC samples for metals. Matrix Spike Duplicate Recovery(s) for Mercury are outside control limits. Probable cause is due to matrix interference.

RPD(s) for Serial Dilution for Mercury are outside control limits for sample MP43202-SD1. Probable cause is due to sample non-homogeneity.

Matrix: SO

Batch ID: MP43203

Sample(s) FC11168-11DUP, FC11168-11MS, FC11168-11MSD, FC11168-11SDL were used as the QC samples for metals.

RPD(s) for Serial Dilution for Mercury are outside control limits for sample MP43203-SD1. Probable cause is due to sample non-homogeneity.

General Chemistry By Method ASTM D422-63

Matrix: SO

Batch ID: N:GP50682

FC11168-1 for % Gravel: Analysis performed at SGS Dayton, NJ.

FC11168-1 for % Sand: Analysis performed at SGS Dayton, NJ.

FC11168-1 for % Silt, Clay, Colloids: Analysis performed at SGS Dayton, NJ.

FC11168-1 for 0.0015 mm (Hydrometer): Analysis performed at SGS Dayton, NJ.

FC11168-1 for 0.005 mm (Hydrometer): Analysis performed at SGS Dayton, NJ.

FC11168-1 for 0.030 mm (Hydrometer): Analysis performed at SGS Dayton, NJ.

FC11168-1 for 0.375 Inch Sieve: Analysis performed at SGS Dayton, NJ.

FC11168-1 for 0.75 Inch Sieve: Analysis performed at SGS Dayton, NJ.

FC11168-1 for 1.5 Inch Sieve: Analysis performed at SGS Dayton, NJ.

FC11168-1 for 3 Inch Sieve: Analysis performed at SGS Dayton, NJ.

FC11168-1 for No.10 Sieve (2.00 mm): Analysis performed at SGS Dayton, NJ.

FC11168-1 for No.100 Sieve (0.15 mm): Analysis performed at SGS Dayton, NJ.

FC11168-1 for No.16 Sieve (1.18 mm): Analysis performed at SGS Dayton, NJ.

FC11168-1 for No.200 Sieve (0.075 mm): Analysis performed at SGS Dayton, NJ.

FC11168-1 for No.30 Sieve (0.60 mm): Analysis performed at SGS Dayton, NJ.

FC11168-1 for No.4 Sieve (4.75 mm): Analysis performed at SGS Dayton, NJ.

FC11168-1 for No.50 Sieve (0.30 mm): Analysis performed at SGS Dayton, NJ.

FC11168-1 for No.8 Sieve (2.36 mm): Analysis performed at SGS Dayton, NJ.

FC11168-11 for % Gravel: Analysis performed at SGS Dayton, NJ.

FC11168-11 for % Sand: Analysis performed at SGS Dayton, NJ.

FC11168-11 for % Silt, Clay, Colloids: Analysis performed at SGS Dayton, NJ.

FC11168-11 for 0.0015 mm (Hydrometer): Analysis performed at SGS Dayton, NJ.

FC11168-11 for 0.005 mm (Hydrometer): Analysis performed at SGS Dayton, NJ.

FC11168-11 for 0.030 mm (Hydrometer): Analysis performed at SGS Dayton, NJ.

FC11168-11 for 0.375 Inch Sieve: Analysis performed at SGS Dayton, NJ.

FC11168-11 for 0.75 Inch Sieve: Analysis performed at SGS Dayton, NJ.

FC11168-11 for 1.5 Inch Sieve: Analysis performed at SGS Dayton, NJ.

FC11168-11 for 3 Inch Sieve: Analysis performed at SGS Dayton, NJ.

FC11168-11 for No.10 Sieve (2.00 mm): Analysis performed at SGS Dayton, NJ.

FC11168-11 for No.100 Sieve (0.15 mm): Analysis performed at SGS Dayton, NJ.

FC11168-11 for No.16 Sieve (1.18 mm): Analysis performed at SGS Dayton, NJ.

FC11168-11 for No.200 Sieve (0.075 mm): Analysis performed at SGS Dayton, NJ.

FC11168-11 for No.30 Sieve (0.60 mm): Analysis performed at SGS Dayton, NJ.

FC11168-11 for No.4 Sieve (4.75 mm): Analysis performed at SGS Dayton, NJ.

FC11168-11 for No.50 Sieve (0.30 mm): Analysis performed at SGS Dayton, NJ.

FC11168-11 for No.8 Sieve (2.36 mm): Analysis performed at SGS Dayton, NJ.

FC11168-2 for % Gravel: Analysis performed at SGS Dayton, NJ.

FC11168-2 for % Sand: Analysis performed at SGS Dayton, NJ.

FC11168-2 for % Silt, Clay, Colloids: Analysis performed at SGS Dayton, NJ.

FC11168-2 for 0.0015 mm (Hydrometer): Analysis performed at SGS Dayton, NJ.

FC11168-2 for 0.005 mm (Hydrometer): Analysis performed at SGS Dayton, NJ.

FC11168-2 for 0.030 mm (Hydrometer): Analysis performed at SGS Dayton, NJ.

General Chemistry By Method ASTM D422-63

Matrix: SO

Batch ID: N:GP50682

FC11168-2 for 0.375 Inch Sieve: Analysis performed at SGS Dayton, NJ.
FC11168-2 for 0.75 Inch Sieve: Analysis performed at SGS Dayton, NJ.
FC11168-2 for 1.5 Inch Sieve: Analysis performed at SGS Dayton, NJ.
FC11168-2 for 3 Inch Sieve: Analysis performed at SGS Dayton, NJ.
FC11168-2 for No.10 Sieve (2.00 mm): Analysis performed at SGS Dayton, NJ.
FC11168-2 for No.100 Sieve (0.15 mm): Analysis performed at SGS Dayton, NJ.
FC11168-2 for No.16 Sieve (1.18 mm): Analysis performed at SGS Dayton, NJ.
FC11168-2 for No.200 Sieve (0.075 mm): Analysis performed at SGS Dayton, NJ.
FC11168-2 for No.30 Sieve (0.60 mm): Analysis performed at SGS Dayton, NJ.
FC11168-2 for No.4 Sieve (4.75 mm): Analysis performed at SGS Dayton, NJ.
FC11168-2 for No.50 Sieve (0.30 mm): Analysis performed at SGS Dayton, NJ.
FC11168-2 for No.8 Sieve (2.36 mm): Analysis performed at SGS Dayton, NJ.

General Chemistry By Method SW846 9060A

Matrix: SO

Batch ID: N:GP50606

FC11168-1 for Total Organic Carbon: Analysis performed at SGS Dayton, NJ.
FC11168-2 for Total Organic Carbon: Analysis performed at SGS Dayton, NJ.
FC11168-11 for Total Organic Carbon: Analysis performed at SGS Dayton, NJ.

SGS North America Inc. - Orlando certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting the Quality System precision, accuracy and completeness objectives except as noted. Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria. SGS North America Inc.- Orlando is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety.

Narrative prepared by:

Kim Benham, Client Services (*Signature on File*)

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: SGS Orlando, FL

Job No: FC11168

Site: GEOSORP: Oakland Harbor

Report Date 12/4/2023 6:11:45 AM

On 11/11/2023, 3 sample(s), 0 Trip Blank(s), 0 Equip. Blank(s) and 0 Field Blank(s) were received at SGS North America Inc. (SGS) at a temperature of 4.8 °C. The samples were intact and properly preserved, unless noted below. An SGS Job Number of FC11168 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

General Chemistry By Method ASTM D422-63

Matrix: SO

Batch ID: GP50682

- Sample(s) JD77372-1DUP were used as the QC samples for the % Gravel, % Sand, % Silt, Clay, Colloids, 0.0015 mm (Hydrometer), 0.005 mm (Hydrometer), 0.030 mm (Hydrometer), 0.375 Inch Sieve, 0.75 inch sieve, 1.5 Inch Sieve, 3 inch sieve, No.10 Sieve (2.00 mm), No.100 Sieve (0.15 mm), No.16 Sieve (1.18 mm), No.200 Sieve (0.075 mm), No.30 Sieve (0.60 mm), No.4 Sieve (4.75 mm), No.50 Sieve (0.30 mm), No.8 Sieve (2.36 mm) analysis.

General Chemistry By Method SW846 9060A

Matrix: SO

Batch ID: GP50606

- All samples were prepared within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) FC11080-1MSD, FC11080-1MS were used as the QC samples for the Total Organic Carbon analysis.
- FC11168-11 for Total Organic Carbon: TOC Replicate Range: 7410 - 8960 mg/kg
- FC11168-2 for Total Organic Carbon: TOC Replicate Range: 9290 - 10700 mg/kg
- FC11168-1 for Total Organic Carbon: TOC Replicate Range: 3710 - 4500 mg/kg

SGS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting SGS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

SGS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by SGS indicated via signature on the report cover.

Summary of Hits

Page 1 of 4

Job Number: FC11168
Account: Geosyntec Consultants - Portland, OR
Project: Oakland Harbor
Collected: 11/09/23



Lab Sample ID	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
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FC11168-1 01TB-TERMINAL

Benzo(a)anthracene	6.4 J	21	10	ug/kg	SW846 8270E BY SIM
Benzo(a)pyrene	8.0 J	21	10	ug/kg	SW846 8270E BY SIM
Benzo(b)fluoranthene	10.4 J	21	10	ug/kg	SW846 8270E BY SIM
Benzo(g,h,i)perylene	5.5 J	21	10	ug/kg	SW846 8270E BY SIM
Indeno(1,2,3-cd)pyrene	5.8 J	21	10	ug/kg	SW846 8270E BY SIM
Pyrene	28.4 J	100	52	ug/kg	SW846 8270E BY SIM
Arsenic	6.3	0.33	0.13	mg/kg	SW846 6020B
Cadmium	0.14 J	0.33	0.13	mg/kg	SW846 6020B
Chromium	62.0	0.33	0.13	mg/kg	SW846 6020B
Copper	30.3	1.7	0.66	mg/kg	SW846 6020B
Lead	15.2	0.33	0.13	mg/kg	SW846 6020B
Mercury	0.14	0.059	0.024	mg/kg	SW846 7471B
Nickel	55.3	0.66	0.26	mg/kg	SW846 6020B
Selenium	1.1	0.33	0.13	mg/kg	SW846 6020B
Silver	0.13 J	0.33	0.13	mg/kg	SW846 6020B
Zinc	73.6	6.6	2.6	mg/kg	SW846 6020B
3 Inch Sieve ^a	100		b	%	ASTM D422-63
1.5 Inch Sieve ^a	100		b	%	ASTM D422-63
0.75 Inch Sieve ^a	100		b	%	ASTM D422-63
0.375 Inch Sieve ^a	100		b	%	ASTM D422-63
No.4 Sieve (4.75 mm) ^a	100		b	%	ASTM D422-63
No.8 Sieve (2.36 mm) ^a	100		b	%	ASTM D422-63
No.10 Sieve (2.00 mm) ^a	100		b	%	ASTM D422-63
No.16 Sieve (1.18 mm) ^a	100		b	%	ASTM D422-63
No.30 Sieve (0.60 mm) ^a	99.7		b	%	ASTM D422-63
No.50 Sieve (0.30 mm) ^a	94.8		b	%	ASTM D422-63
No.100 Sieve (0.15 mm) ^a	64.0		b	%	ASTM D422-63
No.200 Sieve (0.075 mm) ^a	54.9		b	%	ASTM D422-63
0.030 mm (Hydrometer) ^a	41		b	%	ASTM D422-63
0.005 mm (Hydrometer) ^a	31		b	%	ASTM D422-63
0.0015 mm (Hydrometer) ^a	18		b	%	ASTM D422-63
% Sand ^a	45.1		b	%	ASTM D422-63
% Silt, Clay, Colloids ^a	54.9		b	%	ASTM D422-63
Total Organic Carbon ^c	3940	1500	1400	mg/kg	SW846 9060A

FC11168-1A 01TB-TERMINAL

No hits reported in this sample.

FC11168-2 01TB-BELOW-35 MLLW

Anthracene	68.7 J	130	63	ug/kg	SW846 8270E BY SIM
Benzo(a)anthracene	102	25	13	ug/kg	SW846 8270E BY SIM

Summary of Hits

Job Number: FC11168
Account: Geosyntec Consultants - Portland, OR
Project: Oakland Harbor
Collected: 11/09/23

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
Benzo(a)pyrene		220	25	13	ug/kg	SW846 8270E BY SIM
Benzo(b)fluoranthene		267	25	13	ug/kg	SW846 8270E BY SIM
Benzo(g,h,i)perylene		121	25	13	ug/kg	SW846 8270E BY SIM
Benzo(k)fluoranthene		79.4	25	13	ug/kg	SW846 8270E BY SIM
Chrysene		148	25	13	ug/kg	SW846 8270E BY SIM
Dibenzo(a,h)anthracene		15.7 J	25	13	ug/kg	SW846 8270E BY SIM
Fluoranthene		250	130	63	ug/kg	SW846 8270E BY SIM
Indeno(1,2,3-cd)pyrene		137	25	13	ug/kg	SW846 8270E BY SIM
Naphthalene		105 J	130	63	ug/kg	SW846 8270E BY SIM
Phenanthrene		155	130	63	ug/kg	SW846 8270E BY SIM
Pyrene		720	130	63	ug/kg	SW846 8270E BY SIM
Arsenic		10.2	0.46	0.18	mg/kg	SW846 6020B
Cadmium		0.60	0.46	0.18	mg/kg	SW846 6020B
Chromium		93.7	1.8	0.73	mg/kg	SW846 6020B
Copper		72.1	2.3	0.92	mg/kg	SW846 6020B
Lead		67.9	0.46	0.18	mg/kg	SW846 6020B
Mercury		0.49	0.079	0.032	mg/kg	SW846 7471B
Nickel		84.4	0.92	0.37	mg/kg	SW846 6020B
Selenium		1.1	0.46	0.18	mg/kg	SW846 6020B
Silver		0.50	0.46	0.18	mg/kg	SW846 6020B
Zinc		203	9.2	3.7	mg/kg	SW846 6020B
3 Inch Sieve ^a		100		b	%	ASTM D422-63
1.5 Inch Sieve ^a		100		b	%	ASTM D422-63
0.75 Inch Sieve ^a		100		b	%	ASTM D422-63
0.375 Inch Sieve ^a		100		b	%	ASTM D422-63
No.4 Sieve (4.75 mm) ^a		100		b	%	ASTM D422-63
No.8 Sieve (2.36 mm) ^a		100		b	%	ASTM D422-63
No.10 Sieve (2.00 mm) ^a		100		b	%	ASTM D422-63
No.16 Sieve (1.18 mm) ^a		100		b	%	ASTM D422-63
No.30 Sieve (0.60 mm) ^a		99.7		b	%	ASTM D422-63
No.50 Sieve (0.30 mm) ^a		96.3		b	%	ASTM D422-63
No.100 Sieve (0.15 mm) ^a		80.6		b	%	ASTM D422-63
No.200 Sieve (0.075 mm) ^a		78.0		b	%	ASTM D422-63
0.030 mm (Hydrometer) ^a		52		b	%	ASTM D422-63
0.005 mm (Hydrometer) ^a		37		b	%	ASTM D422-63
0.0015 mm (Hydrometer) ^a		19		b	%	ASTM D422-63
% Sand ^a		22.0		b	%	ASTM D422-63
% Silt, Clay, Colloids ^a		78.0		b	%	ASTM D422-63
Total Organic Carbon ^d		9830	1900	1700	mg/kg	SW846 9060A

FC11168-2A 01TB-BELOW-35 MLLW

No hits reported in this sample.

Summary of Hits

Job Number: FC11168
Account: Geosyntec Consultants - Portland, OR
Project: Oakland Harbor
Collected: 11/09/23



Lab Sample ID Analyte	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
FC11168-11 01TB-SURFACE TO-35 MLLW						
Benzo(a)anthracene		51.8	24	12	ug/kg	SW846 8270E BY SIM
Benzo(a)pyrene		113	24	12	ug/kg	SW846 8270E BY SIM
Benzo(b)fluoranthene		133	24	12	ug/kg	SW846 8270E BY SIM
Benzo(g,h,i)perylene		65.3	24	12	ug/kg	SW846 8270E BY SIM
Benzo(k)fluoranthene		36.0	24	12	ug/kg	SW846 8270E BY SIM
Chrysene		59.0	24	12	ug/kg	SW846 8270E BY SIM
Dibenzo(a,h)anthracene		8.0 J	24	12	ug/kg	SW846 8270E BY SIM
Fluoranthene		88.1 J	120	60	ug/kg	SW846 8270E BY SIM
Indeno(1,2,3-cd)pyrene		73.4	24	12	ug/kg	SW846 8270E BY SIM
Naphthalene		73.7 J	120	60	ug/kg	SW846 8270E BY SIM
Phenanthrene		78.3 J	120	60	ug/kg	SW846 8270E BY SIM
Pyrene		257	120	60	ug/kg	SW846 8270E BY SIM
Arsenic		7.3	0.32	0.13	mg/kg	SW846 6020B
Cadmium		0.27 J	0.32	0.13	mg/kg	SW846 6020B
Chromium		81.7	1.3	0.51	mg/kg	SW846 6020B
Copper		50.8	1.6	0.64	mg/kg	SW846 6020B
Lead		34.0	0.32	0.13	mg/kg	SW846 6020B
Mercury		0.33	0.068	0.027	mg/kg	SW846 7471B
Nickel		75.1	2.6	1.0	mg/kg	SW846 6020B
Selenium		0.99	0.32	0.13	mg/kg	SW846 6020B
Silver		0.26 J	0.32	0.13	mg/kg	SW846 6020B
Zinc		136	6.4	2.6	mg/kg	SW846 6020B
3 Inch Sieve ^a		100		b	%	ASTM D422-63
1.5 Inch Sieve ^a		100		b	%	ASTM D422-63
0.75 Inch Sieve ^a		100		b	%	ASTM D422-63
0.375 Inch Sieve ^a		100		b	%	ASTM D422-63
No.4 Sieve (4.75 mm) ^a		100		b	%	ASTM D422-63
No.8 Sieve (2.36 mm) ^a		100		b	%	ASTM D422-63
No.10 Sieve (2.00 mm) ^a		100		b	%	ASTM D422-63
No.16 Sieve (1.18 mm) ^a		99.9		b	%	ASTM D422-63
No.30 Sieve (0.60 mm) ^a		99.7		b	%	ASTM D422-63
No.50 Sieve (0.30 mm) ^a		91.7		b	%	ASTM D422-63
No.100 Sieve (0.15 mm) ^a		70.1		b	%	ASTM D422-63
No.200 Sieve (0.075 mm) ^a		66.7		b	%	ASTM D422-63
0.030 mm (Hydrometer) ^a		48		b	%	ASTM D422-63
0.005 mm (Hydrometer) ^a		34		b	%	ASTM D422-63
0.0015 mm (Hydrometer) ^a		19		b	%	ASTM D422-63
% Sand ^a		33.3		b	%	ASTM D422-63
% Silt, Clay, Colloids ^a		66.7		b	%	ASTM D422-63
Total Organic Carbon ^e		7900	1800	1600	mg/kg	SW846 9060A

Summary of Hits

Job Number: FC11168
Account: Geosyntec Consultants - Portland, OR
Project: Oakland Harbor
Collected: 11/09/23



Lab Sample ID	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
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FC11168-11A 01TB-SURFACE TO-35 MLLW

No hits reported in this sample.

- (a) Analysis performed at SGS Dayton, NJ.
- (b) Value reported is laboratory DL (MDL).
- (c) TOC Replicate Range: 3710 - 4500 mg/kg Analysis performed at SGS Dayton, NJ.
- (d) TOC Replicate Range: 9290 - 10700 mg/kg Analysis performed at SGS Dayton, NJ.
- (e) TOC Replicate Range: 7410 - 8960 mg/kg Analysis performed at SGS Dayton, NJ.



Orlando, FL

Section 4

4

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	01TB-TERMINAL				
Lab Sample ID:	FC11168-1			Date Sampled:	11/09/23
Matrix:	SO - Sediment			Date Received:	11/11/23
Method:	SW846 8270E BY SIM SW846 3546			Percent Solids:	64.7
Project:	Oakland Harbor				

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7G29157.D	1	12/04/23 14:39	MF	11/19/23 07:00	OP182	S7G1145
Run #2							

	Initial Weight	Final Volume
Run #1	14.9 g	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
83-32-9	Acenaphthene	52 U	100	52	41	ug/kg	
208-96-8	Acenaphthylene	52 U	100	52	41	ug/kg	
120-12-7	Anthracene	52 U	100	52	26	ug/kg	
56-55-3	Benzo(a)anthracene	6.4	21	10	5.2	ug/kg	J
50-32-8	Benzo(a)pyrene	8.0	21	10	5.2	ug/kg	J
205-99-2	Benzo(b)fluoranthene	10.4	21	10	5.2	ug/kg	J
191-24-2	Benzo(g,h,i)perylene	5.5	21	10	5.2	ug/kg	J
207-08-9	Benzo(k)fluoranthene	10 U	21	10	5.2	ug/kg	
218-01-9	Chrysene	10 U	21	10	5.2	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	10 U	21	10	5.2	ug/kg	
206-44-0	Fluoranthene	52 U	100	52	26	ug/kg	
86-73-7	Fluorene	52 U	100	52	41	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	5.8	21	10	5.2	ug/kg	J
90-12-0	1-Methylnaphthalene	52 U	100	52	41	ug/kg	
91-57-6	2-Methylnaphthalene	52 U	100	52	41	ug/kg	
91-20-3	Naphthalene	52 U	100	52	41	ug/kg	
85-01-8	Phenanthrene	52 U	100	52	26	ug/kg	
129-00-0	Pyrene	28.4	100	52	26	ug/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
7297-45-2	2-Methylnaphthalene-d10	112%		50-150%
93951-69-0	Fluoranthene-d10	123%		50-150%

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Page 1 of 1

Client Sample ID:	01TB-TERMINAL	Date Sampled:	11/09/23
Lab Sample ID:	FC11168-1	Date Received:	11/11/23
Matrix:	SO - Sediment	Percent Solids:	64.7
Method:	SW846 8081B SW846 3546		
Project:	Oakland Harbor		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	ST171399.D	1	11/20/23 13:52	WH	11/19/23 07:00	OP185	GST4184
Run #2							

	Initial Weight	Final Volume
Run #1	15.4 g	5.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
309-00-2	Aldrin	1.3 U	2.5	1.3	0.79	ug/kg	
319-84-6	alpha-BHC	1.3 U	2.5	1.3	0.79	ug/kg	
319-85-7	beta-BHC	1.3 U	2.5	1.3	0.74	ug/kg	
319-86-8	delta-BHC	1.3 U	2.5	1.3	0.71	ug/kg	
58-89-9	gamma-BHC (Lindane)	1.3 U	2.5	1.3	0.75	ug/kg	
5103-71-9	alpha-Chlordane	1.3 U	2.5	1.3	0.78	ug/kg	
5103-74-2	gamma-Chlordane	1.3 U	2.5	1.3	0.72	ug/kg	
60-57-1	Dieldrin	1.3 U	2.5	1.3	0.70	ug/kg	
72-54-8	4,4'-DDD	1.3 U	5.0	1.3	0.69	ug/kg	
72-55-9	4,4'-DDE	1.3 U	5.0	1.3	0.91	ug/kg	
50-29-3	4,4'-DDT ^a	1.3 U	5.0	1.3	0.77	ug/kg	
72-20-8	Endrin	2.5 U	5.0	2.5	1.3	ug/kg	
1031-07-8	Endosulfan sulfate	1.3 U	5.0	1.3	0.66	ug/kg	
7421-93-4	Endrin aldehyde	1.3 U	5.0	1.3	0.58	ug/kg	
53494-70-5	Endrin ketone	1.3 U	5.0	1.3	0.79	ug/kg	
959-98-8	Endosulfan-I	1.3 U	2.5	1.3	0.58	ug/kg	
33213-65-9	Endosulfan-II	1.3 U	2.5	1.3	0.59	ug/kg	
76-44-8	Heptachlor	1.3 U	2.5	1.3	0.74	ug/kg	
1024-57-3	Heptachlor epoxide	1.3 U	2.5	1.3	0.74	ug/kg	
72-43-5	Methoxychlor ^a	2.5 U	5.0	2.5	1.0	ug/kg	
8001-35-2	Toxaphene	63 U	130	63	38	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	88%		50-122%
2051-24-3	Decachlorobiphenyl	85%		50-133%

(a) Associated CCV outside of control limits high, sample was ND.

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	01TB-TERMINAL	Date Sampled:	11/09/23
Lab Sample ID:	FC11168-1	Date Received:	11/11/23
Matrix:	SO - Sediment	Percent Solids:	64.7
Project:	Oakland Harbor		

Metals Analysis

Analyte	Result	LOQ	LOD	DL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	6.3	0.33	0.13	0.033	mg/kg	5	11/15/23	11/16/23 JC	SW846 6020B ¹	SW846 3050B ³
Cadmium	0.14 J	0.33	0.13	0.033	mg/kg	5	11/15/23	11/16/23 JC	SW846 6020B ¹	SW846 3050B ³
Chromium	62.0	0.33	0.13	0.033	mg/kg	5	11/15/23	11/16/23 JC	SW846 6020B ¹	SW846 3050B ³
Copper	30.3	1.7	0.66	0.17	mg/kg	5	11/15/23	11/16/23 JC	SW846 6020B ¹	SW846 3050B ³
Lead	15.2	0.33	0.13	0.033	mg/kg	5	11/15/23	11/16/23 JC	SW846 6020B ¹	SW846 3050B ³
Mercury	0.14	0.059	0.024	0.0059	mg/kg	1	11/28/23	11/28/23 ST	SW846 7471B ²	SW846 7471B ⁴
Nickel	55.3	0.66	0.26	0.066	mg/kg	5	11/15/23	11/16/23 JC	SW846 6020B ¹	SW846 3050B ³
Selenium	1.1	0.33	0.13	0.059	mg/kg	5	11/15/23	11/16/23 JC	SW846 6020B ¹	SW846 3050B ³
Silver	0.13 J	0.33	0.13	0.033	mg/kg	5	11/15/23	11/16/23 JC	SW846 6020B ¹	SW846 3050B ³
Zinc	73.6	6.6	2.6	0.66	mg/kg	20	11/15/23	11/16/23 JC	SW846 6020B ¹	SW846 3050B ³

- (1) Instrument QC Batch: MA19842
- (2) Instrument QC Batch: MA19863
- (3) Prep QC Batch: MP43153
- (4) Prep QC Batch: MP43202

LOQ = Limit of Quantitation DL = Detection Limit U = Indicates a result < LOD
LOD = Limit of Detection B = Analyte found in associated blank J = Indicates a result > = DL (MDL) but < LOQ

Report of Analysis

Page 1 of 1

Client Sample ID: 01TB-TERMINAL

Lab Sample ID: FC11168-1

Matrix: SO - Sediment

Project: Oakland Harbor

Date Sampled: 11/09/23

Date Received: 11/11/23

Percent Solids: 64.7

General Chemistry

Analyte	Result	LOQ	LOD	DL	Units	DF	Analyzed	By Method
Particle Size Analysis (Sieve and Hydrometer Testing)								
3 Inch Sieve ^a	100				%	1	12/01/23 00:33	ANJASTM D422-63
1.5 Inch Sieve ^a	100				%	1	12/01/23 00:33	ANJASTM D422-63
0.75 Inch Sieve ^a	100				%	1	12/01/23 00:33	ANJASTM D422-63
0.375 Inch Sieve ^a	100				%	1	12/01/23 00:33	ANJASTM D422-63
No.4 Sieve (4.75 mm) ^a	100				%	1	12/01/23 00:33	ANJASTM D422-63
No.8 Sieve (2.36 mm) ^a	100				%	1	12/01/23 00:33	ANJASTM D422-63
No.10 Sieve (2.00 mm) ^a	100				%	1	12/01/23 00:33	ANJASTM D422-63
No.16 Sieve (1.18 mm) ^a	100				%	1	12/01/23 00:33	ANJASTM D422-63
No.30 Sieve (0.60 mm) ^a	99.7				%	1	12/01/23 00:33	ANJASTM D422-63
No.50 Sieve (0.30 mm) ^a	94.8				%	1	12/01/23 00:33	ANJASTM D422-63
No.100 Sieve (0.15 mm) ^a	64.0				%	1	12/01/23 00:33	ANJASTM D422-63
No.200 Sieve (0.075 mm) ^a	54.9				%	1	12/01/23 00:33	ANJASTM D422-63
0.030 mm (Hydrometer) ^a	41				%	1	12/01/23 00:33	ANJASTM D422-63
0.005 mm (Hydrometer) ^a	31				%	1	12/01/23 00:33	ANJASTM D422-63
0.0015 mm (Hydrometer) ^a	18				%	1	12/01/23 00:33	ANJASTM D422-63
% Gravel ^a	0.0				%	1	12/01/23 00:33	ANJASTM D422-63
% Sand ^a	45.1				%	1	12/01/23 00:33	ANJASTM D422-63
% Silt, Clay, Colloids ^a	54.9				%	1	12/01/23 00:33	ANJASTM D422-63
Moisture, Percent	35.3				%	1	11/17/23 15:46	JC SM19 2540G
Total Organic Carbon ^b	3940	1500	1400	1300	mg/kg	1	11/21/23 16:45	ANJSW846 9060A

(a) Analysis performed at SGS Dayton, NJ.

(b) TOC Replicate Range: 3710 - 4500 mg/kg Analysis performed at SGS Dayton, NJ.

LOQ = Limit of Quantitation DL = Detection Limit U = Indicates a result < LOD

LOD = Limit of Detection B = Analyte found in associated blank J = Indicates a result > = DL (MDL) but < LOQ

Report of Analysis

Client Sample ID:	01TB-TERMINAL			Date Sampled:	11/09/23
Lab Sample ID:	FC11168-1A			Date Received:	11/11/23
Matrix:	SO - Sediment			Percent Solids:	64.7
Method:	SW846 8270E SW846 3550C				
Project:	Oakland Harbor				

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	X091645.D	1	12/07/23 13:04	KA	12/06/23 11:34	OP458	SX3629
Run #2							

	Initial Weight	Final Volume
Run #1	30.4 g	1.0 ml
Run #2		

ABN Full List

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
92-52-4	1,1'-Biphenyl	51 U	250	51	25	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	72%		40-102%
4165-62-2	Phenol-d5	79%		41-100%
118-79-6	2,4,6-Tribromophenol	55%		42-108%
4165-60-0	Nitrobenzene-d5	68%		40-105%
321-60-8	2-Fluorobiphenyl	69%		43-107%
1718-51-0	Terphenyl-d14	82%		45-119%

(a) Sample extracted beyond hold time.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

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Client Sample ID:	01TB-BELOW-35 MLLW			Date Sampled:	11/09/23
Lab Sample ID:	FC11168-2			Date Received:	11/11/23
Matrix:	SO - Sediment			Percent Solids:	52.9
Method:	SW846 8270E BY SIM SW846 3546				
Project:	Oakland Harbor				

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7G29158.D	1	12/04/23 15:08	MF	11/19/23 07:00	OP182	S7G1145
Run #2							

	Initial Weight	Final Volume
Run #1	15.0 g	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
83-32-9	Acenaphthene	63 U	130	63	50	ug/kg	
208-96-8	Acenaphthylene	63 U	130	63	50	ug/kg	
120-12-7	Anthracene	68.7	130	63	32	ug/kg	J
56-55-3	Benzo(a)anthracene	102	25	13	6.3	ug/kg	
50-32-8	Benzo(a)pyrene	220	25	13	6.3	ug/kg	
205-99-2	Benzo(b)fluoranthene	267	25	13	6.3	ug/kg	
191-24-2	Benzo(g,h,i)perylene	121	25	13	6.3	ug/kg	
207-08-9	Benzo(k)fluoranthene	79.4	25	13	6.3	ug/kg	
218-01-9	Chrysene	148	25	13	6.3	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	15.7	25	13	6.3	ug/kg	J
206-44-0	Fluoranthene	250	130	63	32	ug/kg	
86-73-7	Fluorene	63 U	130	63	50	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	137	25	13	6.3	ug/kg	
90-12-0	1-Methylnaphthalene	63 U	130	63	50	ug/kg	
91-57-6	2-Methylnaphthalene	63 U	130	63	50	ug/kg	
91-20-3	Naphthalene	105	130	63	50	ug/kg	J
85-01-8	Phenanthrene	155	130	63	32	ug/kg	
129-00-0	Pyrene	720	130	63	32	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
7297-45-2	2-Methylnaphthalene-d10	117%		50-150%
93951-69-0	Fluoranthene-d10	102%		50-150%

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
 LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Page 1 of 1

Client Sample ID:	01TB-BELOW-35 MLLW	Date Sampled:	11/09/23
Lab Sample ID:	FC11168-2	Date Received:	11/11/23
Matrix:	SO - Sediment	Percent Solids:	52.9
Method:	SW846 8081B SW846 3546		
Project:	Oakland Harbor		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	ST171400.D	1	11/20/23 14:06	WH	11/19/23 07:00	OP185	GST4184
Run #2							

	Initial Weight	Final Volume
Run #1	15.0 g	5.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
309-00-2	Aldrin	1.6 U	3.2	1.6	1.0	ug/kg	
319-84-6	alpha-BHC	1.6 U	3.2	1.6	1.0	ug/kg	
319-85-7	beta-BHC	1.6 U	3.2	1.6	0.93	ug/kg	
319-86-8	delta-BHC	1.6 U	3.2	1.6	0.89	ug/kg	
58-89-9	gamma-BHC (Lindane)	1.6 U	3.2	1.6	0.95	ug/kg	
5103-71-9	alpha-Chlordane	1.6 U	3.2	1.6	0.98	ug/kg	
5103-74-2	gamma-Chlordane	1.6 U	3.2	1.6	0.91	ug/kg	
60-57-1	Dieldrin	1.6 U	3.2	1.6	0.88	ug/kg	
72-54-8	4,4'-DDD	1.6 U	6.3	1.6	0.87	ug/kg	
72-55-9	4,4'-DDE	1.6 U	6.3	1.6	1.1	ug/kg	
50-29-3	4,4'-DDT ^a	1.6 U	6.3	1.6	0.96	ug/kg	
72-20-8	Endrin	3.2 U	6.3	3.2	1.6	ug/kg	
1031-07-8	Endosulfan sulfate	1.6 U	6.3	1.6	0.83	ug/kg	
7421-93-4	Endrin aldehyde	1.6 U	6.3	1.6	0.73	ug/kg	
53494-70-5	Endrin ketone	1.6 U	6.3	1.6	0.99	ug/kg	
959-98-8	Endosulfan-I	1.6 U	3.2	1.6	0.72	ug/kg	
33213-65-9	Endosulfan-II	1.6 U	3.2	1.6	0.74	ug/kg	
76-44-8	Heptachlor	1.6 U	3.2	1.6	0.93	ug/kg	
1024-57-3	Heptachlor epoxide	1.6 U	3.2	1.6	0.93	ug/kg	
72-43-5	Methoxychlor ^a	3.2 U	6.3	3.2	1.3	ug/kg	
8001-35-2	Toxaphene	79 U	160	79	47	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	82%		50-122%
2051-24-3	Decachlorobiphenyl	77%		50-133%

(a) Associated CCV outside of control limits high, sample was ND.

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	01TB-BELOW-35 MLLW	Date Sampled:	11/09/23
Lab Sample ID:	FC11168-2	Date Received:	11/11/23
Matrix:	SO - Sediment	Percent Solids:	52.9
Project:	Oakland Harbor		

Metals Analysis

Analyte	Result	LOQ	LOD	DL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	10.2	0.46	0.18	0.046	mg/kg	5	11/15/23	11/16/23 JC	SW846 6020B ¹	SW846 3050B ³
Cadmium	0.60	0.46	0.18	0.046	mg/kg	5	11/15/23	11/16/23 JC	SW846 6020B ¹	SW846 3050B ³
Chromium	93.7	1.8	0.73	0.18	mg/kg	20	11/15/23	11/16/23 JC	SW846 6020B ¹	SW846 3050B ³
Copper	72.1	2.3	0.92	0.23	mg/kg	5	11/15/23	11/16/23 JC	SW846 6020B ¹	SW846 3050B ³
Lead	67.9	0.46	0.18	0.046	mg/kg	5	11/15/23	11/16/23 JC	SW846 6020B ¹	SW846 3050B ³
Mercury	0.49	0.079	0.032	0.0079	mg/kg	1	11/28/23	11/28/23 ST	SW846 7471B ²	SW846 7471B ⁴
Nickel	84.4	0.92	0.37	0.092	mg/kg	5	11/15/23	11/16/23 JC	SW846 6020B ¹	SW846 3050B ³
Selenium	1.1	0.46	0.18	0.083	mg/kg	5	11/15/23	11/16/23 JC	SW846 6020B ¹	SW846 3050B ³
Silver	0.50	0.46	0.18	0.046	mg/kg	5	11/15/23	11/16/23 JC	SW846 6020B ¹	SW846 3050B ³
Zinc	203	9.2	3.7	0.92	mg/kg	20	11/15/23	11/16/23 JC	SW846 6020B ¹	SW846 3050B ³

- (1) Instrument QC Batch: MA19842
- (2) Instrument QC Batch: MA19863
- (3) Prep QC Batch: MP43153
- (4) Prep QC Batch: MP43202

LOQ = Limit of Quantitation DL = Detection Limit U = Indicates a result < LOD
LOD = Limit of Detection B = Analyte found in associated blank J = Indicates a result > = DL (MDL) but < LOQ

Report of Analysis

Page 1 of 1

Client Sample ID:	01TB-BELOW-35 MLLW	Date Sampled:	11/09/23
Lab Sample ID:	FC11168-2	Date Received:	11/11/23
Matrix:	SO - Sediment	Percent Solids:	52.9
Project:	Oakland Harbor		

General Chemistry

Analyte	Result	LOQ	LOD	DL	Units	DF	Analyzed	By Method
Particle Size Analysis (Sieve and Hydrometer Testing)								
3 Inch Sieve ^a	100				%	1	12/01/23 00:33	ANJASTM D422-63
1.5 Inch Sieve ^a	100				%	1	12/01/23 00:33	ANJASTM D422-63
0.75 Inch Sieve ^a	100				%	1	12/01/23 00:33	ANJASTM D422-63
0.375 Inch Sieve ^a	100				%	1	12/01/23 00:33	ANJASTM D422-63
No.4 Sieve (4.75 mm) ^a	100				%	1	12/01/23 00:33	ANJASTM D422-63
No.8 Sieve (2.36 mm) ^a	100				%	1	12/01/23 00:33	ANJASTM D422-63
No.10 Sieve (2.00 mm) ^a	100				%	1	12/01/23 00:33	ANJASTM D422-63
No.16 Sieve (1.18 mm) ^a	100				%	1	12/01/23 00:33	ANJASTM D422-63
No.30 Sieve (0.60 mm) ^a	99.7				%	1	12/01/23 00:33	ANJASTM D422-63
No.50 Sieve (0.30 mm) ^a	96.3				%	1	12/01/23 00:33	ANJASTM D422-63
No.100 Sieve (0.15 mm) ^a	80.6				%	1	12/01/23 00:33	ANJASTM D422-63
No.200 Sieve (0.075 mm) ^a	78.0				%	1	12/01/23 00:33	ANJASTM D422-63
0.030 mm (Hydrometer) ^a	52				%	1	12/01/23 00:33	ANJASTM D422-63
0.005 mm (Hydrometer) ^a	37				%	1	12/01/23 00:33	ANJASTM D422-63
0.0015 mm (Hydrometer) ^a	19				%	1	12/01/23 00:33	ANJASTM D422-63
% Gravel ^a	0.0				%	1	12/01/23 00:33	ANJASTM D422-63
% Sand ^a	22.0				%	1	12/01/23 00:33	ANJASTM D422-63
% Silt, Clay, Colloids ^a	78.0				%	1	12/01/23 00:33	ANJASTM D422-63
Moisture, Percent	47.1				%	1	11/17/23 15:46	JC SM19 2540G
Total Organic Carbon ^b	9830	1900	1700	1600	mg/kg	1	11/21/23 17:03	ANJSW846 9060A

(a) Analysis performed at SGS Dayton, NJ.

(b) TOC Replicate Range: 9290 - 10700 mg/kg Analysis performed at SGS Dayton, NJ.

LOQ = Limit of Quantitation DL = Detection Limit U = Indicates a result < LOD
LOD = Limit of Detection B = Analyte found in associated blank J = Indicates a result > = DL (MDL) but < LOQ

Report of Analysis

Client Sample ID: 01TB-BELOW-35 MLLW		Date Sampled: 11/09/23	
Lab Sample ID: FC11168-2A		Date Received: 11/11/23	
Matrix: SO - Sediment		Percent Solids: 52.9	
Method: SW846 8270E SW846 3550C			
Project: Oakland Harbor			

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	X091646.D	1	12/07/23 13:31	KA	12/06/23 11:34	OP458	SX3629
Run #2							

	Initial Weight	Final Volume
Run #1	29.8 g	1.0 ml
Run #2		

ABN Full List

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
92-52-4	1,1'-Biphenyl	63 U	320	63	32	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	67%		40-102%
4165-62-2	Phenol-d5	75%		41-100%
118-79-6	2,4,6-Tribromophenol	57%		42-108%
4165-60-0	Nitrobenzene-d5	64%		40-105%
321-60-8	2-Fluorobiphenyl	63%		43-107%
1718-51-0	Terphenyl-d14	74%		45-119%

(a) Sample extracted beyond hold time.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	01TB-SURFACE TO-35 MLLW			Date Sampled:	11/09/23
Lab Sample ID:	FC11168-11			Date Received:	11/11/23
Matrix:	SO - Sediment			Percent Solids:	54.7
Method:	SW846 8270E BY SIM SW846 3546				
Project:	Oakland Harbor				

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7G29159.D	1	12/04/23 15:36	MF	11/19/23 07:00	OP182	S7G1145
Run #2							

	Initial Weight	Final Volume
Run #1	15.3 g	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
83-32-9	Acenaphthene	60 U	120	60	48	ug/kg	
208-96-8	Acenaphthylene	60 U	120	60	48	ug/kg	
120-12-7	Anthracene	60 U	120	60	30	ug/kg	
56-55-3	Benzo(a)anthracene	51.8	24	12	6.0	ug/kg	
50-32-8	Benzo(a)pyrene	113	24	12	6.0	ug/kg	
205-99-2	Benzo(b)fluoranthene	133	24	12	6.0	ug/kg	
191-24-2	Benzo(g,h,i)perylene	65.3	24	12	6.0	ug/kg	
207-08-9	Benzo(k)fluoranthene	36.0	24	12	6.0	ug/kg	
218-01-9	Chrysene	59.0	24	12	6.0	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	8.0	24	12	6.0	ug/kg	J
206-44-0	Fluoranthene	88.1	120	60	30	ug/kg	J
86-73-7	Fluorene	60 U	120	60	48	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	73.4	24	12	6.0	ug/kg	
90-12-0	1-Methylnaphthalene	60 U	120	60	48	ug/kg	
91-57-6	2-Methylnaphthalene	60 U	120	60	48	ug/kg	
91-20-3	Naphthalene	73.7	120	60	48	ug/kg	J
85-01-8	Phenanthrene	78.3	120	60	30	ug/kg	J
129-00-0	Pyrene	257	120	60	30	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
7297-45-2	2-Methylnaphthalene-d10	111%		50-150%
93951-69-0	Fluoranthene-d10	95%		50-150%

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

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Client Sample ID:	01TB-SURFACE TO-35 MLLW			Date Sampled:	11/09/23
Lab Sample ID:	FC11168-11			Date Received:	11/11/23
Matrix:	SO - Sediment			Percent Solids:	54.7
Method:	SW846 8081B SW846 3546				
Project:	Oakland Harbor				

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	ST171401.D	1	11/20/23 14:21	WH	11/19/23 07:00	OP185	GST4184
Run #2							

	Initial Weight	Final Volume
Run #1	15.3 g	5.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
309-00-2	Aldrin	1.5 U	3.0	1.5	0.94	ug/kg	
319-84-6	alpha-BHC	1.5 U	3.0	1.5	0.94	ug/kg	
319-85-7	beta-BHC	1.5 U	3.0	1.5	0.88	ug/kg	
319-86-8	delta-BHC	1.5 U	3.0	1.5	0.85	ug/kg	
58-89-9	gamma-BHC (Lindane)	1.5 U	3.0	1.5	0.90	ug/kg	
5103-71-9	alpha-Chlordane	1.5 U	3.0	1.5	0.93	ug/kg	
5103-74-2	gamma-Chlordane	1.5 U	3.0	1.5	0.86	ug/kg	
60-57-1	Dieldrin	1.5 U	3.0	1.5	0.84	ug/kg	
72-54-8	4,4'-DDD	1.5 U	6.0	1.5	0.82	ug/kg	
72-55-9	4,4'-DDE	1.5 U	6.0	1.5	1.1	ug/kg	
50-29-3	4,4'-DDT ^a	1.5 U	6.0	1.5	0.91	ug/kg	
72-20-8	Endrin	3.0 U	6.0	3.0	1.5	ug/kg	
1031-07-8	Endosulfan sulfate	1.5 U	6.0	1.5	0.79	ug/kg	
7421-93-4	Endrin aldehyde	1.5 U	6.0	1.5	0.69	ug/kg	
53494-70-5	Endrin ketone	1.5 U	6.0	1.5	0.94	ug/kg	
959-98-8	Endosulfan-I	1.5 U	3.0	1.5	0.69	ug/kg	
33213-65-9	Endosulfan-II	1.5 U	3.0	1.5	0.70	ug/kg	
76-44-8	Heptachlor	1.5 U	3.0	1.5	0.88	ug/kg	
1024-57-3	Heptachlor epoxide	1.5 U	3.0	1.5	0.88	ug/kg	
72-43-5	Methoxychlor ^a	3.0 U	6.0	3.0	1.2	ug/kg	
8001-35-2	Toxaphene	75 U	150	75	45	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	81%		50-122%
2051-24-3	Decachlorobiphenyl	77%		50-133%

(a) Associated CCV outside of control limits high, sample was ND.

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Page 1 of 1

Client Sample ID:	01TB-SURFACE TO-35 MLLW	Date Sampled:	11/09/23
Lab Sample ID:	FC11168-11	Date Received:	11/11/23
Matrix:	SO - Sediment	Percent Solids:	54.7
Project:	Oakland Harbor		

Metals Analysis

Analyte	Result	LOQ	LOD	DL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	7.3	0.32	0.13	0.032	mg/kg	5	11/15/23	11/16/23 JC	SW846 6020B ¹	SW846 3050B ³
Cadmium	0.27 J	0.32	0.13	0.032	mg/kg	5	11/15/23	11/16/23 JC	SW846 6020B ¹	SW846 3050B ³
Chromium	81.7	1.3	0.51	0.13	mg/kg	20	11/15/23	11/16/23 JC	SW846 6020B ¹	SW846 3050B ³
Copper	50.8	1.6	0.64	0.16	mg/kg	5	11/15/23	11/16/23 JC	SW846 6020B ¹	SW846 3050B ³
Lead	34.0	0.32	0.13	0.032	mg/kg	5	11/15/23	11/16/23 JC	SW846 6020B ¹	SW846 3050B ³
Mercury	0.33	0.068	0.027	0.0068	mg/kg	1	11/28/23	11/28/23 ST	SW846 7471B ²	SW846 7471B ⁴
Nickel	75.1	2.6	1.0	0.26	mg/kg	20	11/15/23	11/16/23 JC	SW846 6020B ¹	SW846 3050B ³
Selenium	0.99	0.32	0.13	0.058	mg/kg	5	11/15/23	11/16/23 JC	SW846 6020B ¹	SW846 3050B ³
Silver	0.26 J	0.32	0.13	0.032	mg/kg	5	11/15/23	11/16/23 JC	SW846 6020B ¹	SW846 3050B ³
Zinc	136	6.4	2.6	0.64	mg/kg	20	11/15/23	11/16/23 JC	SW846 6020B ¹	SW846 3050B ³

- (1) Instrument QC Batch: MA19842
- (2) Instrument QC Batch: MA19863
- (3) Prep QC Batch: MP43153
- (4) Prep QC Batch: MP43203

LOQ = Limit of Quantitation DL = Detection Limit U = Indicates a result < LOD
LOD = Limit of Detection B = Analyte found in associated blank J = Indicates a result > = DL (MDL) but < LOQ

4.5
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Report of Analysis

Page 1 of 1

Client Sample ID: 01TB-SURFACE TO-35 MLLW

Lab Sample ID: FC11168-11

Matrix: SO - Sediment

Project: Oakland Harbor

Date Sampled: 11/09/23

Date Received: 11/11/23

Percent Solids: 54.7

General Chemistry

Analyte	Result	LOQ	LOD	DL	Units	DF	Analyzed	By Method
Particle Size Analysis (Sieve and Hydrometer Testing)								
3 Inch Sieve ^a	100				%	1	12/01/23 00:33	ANJASTM D422-63
1.5 Inch Sieve ^a	100				%	1	12/01/23 00:33	ANJASTM D422-63
0.75 Inch Sieve ^a	100				%	1	12/01/23 00:33	ANJASTM D422-63
0.375 Inch Sieve ^a	100				%	1	12/01/23 00:33	ANJASTM D422-63
No.4 Sieve (4.75 mm) ^a	100				%	1	12/01/23 00:33	ANJASTM D422-63
No.8 Sieve (2.36 mm) ^a	100				%	1	12/01/23 00:33	ANJASTM D422-63
No.10 Sieve (2.00 mm) ^a	100				%	1	12/01/23 00:33	ANJASTM D422-63
No.16 Sieve (1.18 mm) ^a	99.9				%	1	12/01/23 00:33	ANJASTM D422-63
No.30 Sieve (0.60 mm) ^a	99.7				%	1	12/01/23 00:33	ANJASTM D422-63
No.50 Sieve (0.30 mm) ^a	91.7				%	1	12/01/23 00:33	ANJASTM D422-63
No.100 Sieve (0.15 mm) ^a	70.1				%	1	12/01/23 00:33	ANJASTM D422-63
No.200 Sieve (0.075 mm) ^a	66.7				%	1	12/01/23 00:33	ANJASTM D422-63
0.030 mm (Hydrometer) ^a	48				%	1	12/01/23 00:33	ANJASTM D422-63
0.005 mm (Hydrometer) ^a	34				%	1	12/01/23 00:33	ANJASTM D422-63
0.0015 mm (Hydrometer) ^a	19				%	1	12/01/23 00:33	ANJASTM D422-63
% Gravel ^a	0.0				%	1	12/01/23 00:33	ANJASTM D422-63
% Sand ^a	33.3				%	1	12/01/23 00:33	ANJASTM D422-63
% Silt, Clay, Colloids ^a	66.7				%	1	12/01/23 00:33	ANJASTM D422-63
Moisture, Percent	45.3				%	1	11/17/23 15:46	JC SM19 2540G
Total Organic Carbon ^b	7900	1800	1600	1600	mg/kg	1	11/21/23 17:20	ANJSW846 9060A

(a) Analysis performed at SGS Dayton, NJ.

(b) TOC Replicate Range: 7410 - 8960 mg/kg Analysis performed at SGS Dayton, NJ.

LOQ = Limit of Quantitation DL = Detection Limit U = Indicates a result < LOD

LOD = Limit of Detection B = Analyte found in associated blank J = Indicates a result > = DL (MDL) but < LOQ

Report of Analysis

Client Sample ID:	01TB-SURFACE TO-35 MLLW			Date Sampled:	11/09/23
Lab Sample ID:	FC11168-11A			Date Received:	11/11/23
Matrix:	SO - Sediment			Percent Solids:	54.7
Method:	SW846 8270E SW846 3550C				
Project:	Oakland Harbor				

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	X091647.D	1	12/07/23 13:58	KA	12/06/23 11:34	OP458	SX3629
Run #2							

	Initial Weight	Final Volume
Run #1	30.0 g	1.0 ml
Run #2		

ABN Full List

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
92-52-4	1,1'-Biphenyl	61 U	300	61	30	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	77%		40-102%
4165-62-2	Phenol-d5	87%		41-100%
118-79-6	2,4,6-Tribromophenol	64%		42-108%
4165-60-0	Nitrobenzene-d5	76%		40-105%
321-60-8	2-Fluorobiphenyl	71%		43-107%
1718-51-0	Terphenyl-d14	83%		45-119%

(a) Sample extracted beyond hold time.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound



Misc. Forms

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Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- QC Evaluation: DOD QSM5.x Limits



SGS North America Inc - Orlando

Chain of Custody

4405 Vineland Road, Suite C-15 Orlando, FL 32811
TEL: 407-425-6700 FAX: 407-425-0707
www.sgs.com

FC11168

SGS - ORLANDO JOB #:

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Client / Reporting Information				Project Information												Analytical Information												Matrix Codes
Company Name: Geosyntec Consultants				Project Name: Oakland Harbor																								DW - Drinking Water
Address: 920 SW 16th Ave, Suite 600				Street																								GW - Ground Water
City: Portland State: OR Zip: 97204				City: Oakland CA State																								WW - Water
Project Contact: Erin Dunbar Email: edunbare@geosyntec.com				Project # PNG1060																								SW - Surface Water
Phone #: 971-271-5916				Fax #																								SO - Soil
Sampler(s) Name(s) (Printed): Erin Dunbar				Client Purchase Order # 1000539162																								SL - Sludge
Sampler 2: Megan Ogburn																												OI - Oil
COLLECTION				CONTAINER INFORMATION																								LIQ - Other Liquid
SGS Orlando Sample #	Field ID / Point of Collection	DATE	TIME	SAMPLED BY:	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	HCl	NOH	HNO3	H2SO4	NaOH/NaM	DI WATER	MEQ	PAHs 8270	Pesticides 8081	PCBs Congeners 8082/1060	TOC 9060	Dioxin/Furan 1613	Bathtubins Kore 1989	Grain Size 0422	Metals 6020/7471	Solids 2540	Archive	LAB USE ONLY		
1	01TB - Terminal	11/9/23	1513	ED	SOL	6		X									X	X	X	X	X	X	X	X				
2	01TB - Below -35 MLW	11/9/23	1530	ED	SOL	6		X									X	X	X	X	X	X	X	X				
3	Archive-02	11/9/23	1552	ED	SOL	1		X																	X			
4	Archive-03	11/9/23	1556	ED	SOL	1		X																	X			
5	Archive-04	11/9/23	1559	ED	SOL	1		X																	X			
6	Archive-01	11/9/23	1606	ED	SOL	1		X																	X			
7	Archive-08	11/9/23	1609	ED	SOL	1		X																	X			
8	Archive-05A	11/9/23	1611	ED	SOL	1		X																	X			
9	Archive-07	11/9/23	1618	ED	SOL	1		X																	X			
10	Archive-05	11/9/23	1622	ED	SOL	1		X																	X			
11	01TB - Surface to -35 MLW	11/9/23	1625	ED	SOL	6		X									X	X	X	X	X	X	X	X				
Turnaround Time (Business days)				Data Deliverable Information												Comments / Remarks												
10 Day (Business)				Approved By: / Date:												Metals include: As, Cr, Cd, Cu, Pb, Ni												
7 Day																Se, Ag, Zn, Hg												
5 Day																												
3 Day RUSH																												
2 Day RUSH																												
1 Day RUSH																												
Other																												
Rush T/A Data Available VIA Email or Lablink				Sample Custody must be documented below each time samples change possession, including courier delivery.																								
Relinquished by Sampler/Affiliation				Date Time:				Received By/Affiliation				Date Time:				Received By/Affiliation				Date Time:				Received By/Affiliation				
1 Erin Dunbar Geosyntec				11/10/23				2 to FedEx								3				4 381 1000				11/11/23				
Relinquished by/Affiliation				Date Time:				Received By/Affiliation				Date Time:				Received By/Affiliation				Date Time:				Received By/Affiliation				
5								6								7								8				
Lab Use Only: Cooler Temperature (s) Celsius (corrected): 4.621																												

ORLD-SMT-0001-03-FORM-COC (4).xls Rev 031318

<http://www.sgs.com/en/terms-and-conditions>

FC11168: Chain of Custody

Page 1 of 2



SGS Sample Receipt Summary

Job Number: fc11168 **Client:** Geosyntec Consultants **Project:** Oakland Harbor
Date / Time Received: 11/11/2023 10:00:00 AM **Delivery Method:** FedEx **Airbill #s:** 786219631416

Cooler Temps (Raw Measured) °C: Cooler 1: (4.6);

Cooler Temps (Corrected) °C: Cooler 1: (5.0);

<u>Cooler Informatio</u>	<u>Y</u>	<u>or</u>	<u>N</u>
1. Custody Seals Present:	☒		☐
2. Custody Seals Intact:	☒		☐
3. Temp criteria achieved:	☒		☐
4. Cooler temp verification:			IR Gun
5. Cooler media:			Ice (Bag)

<u>Trip Blank Information</u>	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Trip Blank present / cooler:	☐		☐	☒
2. Trip Blank listed on COC:	☐		☐	☒

<u>W</u>	<u>or</u>	<u>S</u>	<u>N/A</u>
3. Type of TB Received		☐	☒

<u>Sample Information</u>	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Sample labels present on bottles:	☒		☐	
2. Samples presented properly	☒		☐	
3. Suffient volume/containers recv'd for analysi	☒		☐	
4. Condition of sample:				Intact
5. Sample recv'd within HT	☒		☐	
6. Dates/Times/IDs on COC match sample labe	☒		☐	
7. VOCs have headspace	☐		☐	☒
8. Bottles received for unspecified tests	☐		☒	
9. Compositing instructions clear	☐		☐	☒
10. Voa Soil Kits/Jars received past 48hrs?	☐		☐	☒
11. % Solids Jar Received?	☒		☐	☐
12. Residual Chlorine Present?	☐		☐	☒

<u>Misc Information</u>			
Number of Encores: 25 Gram	5 Gram	Number of Lab Filtered Metals	
Test Strip Lot #s: pH 0-3: <u>226422</u>	pH 10-12: _____	Other: (Specify) pH 1.0 - 12.0	<u>222221</u>
Residual Chlorine Test Strip Lot _____			

SM001 Technician: DONM Date: 11/11/2023 3:46:04 PM Reviewer: ZD Date: 11/11/2023
 Rev. Date 05/04/17

FC11168: Chain of Custody

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QC Evaluation: DOD QSM5.x Limits

Page 1 of 7

Job Number: FC11168
Account: Geosyntec Consultants - Portland, OR
Project: Oakland Harbor
Collected: 11/09/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
OP182	SW846 8270E BY SIM						
OP182-BS	83-32-9	Acenaphthene	BSP	REC	81	%	44-111
OP182-BS	208-96-8	Acenaphthylene	BSP	REC	72	%	39-116
OP182-BS	120-12-7	Anthracene	BSP	REC	100	%	50-114
OP182-BS	56-55-3	Benzo(a)anthracene	BSP	REC	95	%	54-122
OP182-BS	50-32-8	Benzo(a)pyrene	BSP	REC	96	%	50-125
OP182-BS	205-99-2	Benzo(b)fluoranthene	BSP	REC	90	%	53-128
OP182-BS	191-24-2	Benzo(g,h,i)perylene	BSP	REC	86	%	49-127
OP182-BS	207-08-9	Benzo(k)fluoranthene	BSP	REC	86	%	56-123
OP182-BS	218-01-9	Chrysene	BSP	REC	85	%	57-118
OP182-BS	53-70-3	Dibenzo(a,h)anthracene	BSP	REC	85	%	50-129
OP182-BS	206-44-0	Fluoranthene	BSP	REC	88	%	55-119
OP182-BS	86-73-7	Fluorene	BSP	REC	87	%	47-114
OP182-BS	193-39-5	Indeno(1,2,3-cd)pyrene	BSP	REC	90	%	49-130
OP182-BS	90-12-0	1-Methylnaphthalene	BSP	REC	91	%	43-111
OP182-BS	91-57-6	2-Methylnaphthalene	BSP	REC	81	%	39-114
OP182-BS	91-20-3	Naphthalene	BSP	REC	80	%	38-111
OP182-BS	85-01-8	Phenanthrene	BSP	REC	86	%	49-113
OP182-BS	129-00-0	Pyrene	BSP	REC	86	%	55-117
OP182-BS	7297-45-2	2-Methylnaphthalene-d10	BSP	SURR	113	%	50-150
OP182-BS	93951-69-0	Fluoranthene-d10	BSP	SURR	123	%	50-150
OP182-MS*	83-32-9	Acenaphthene	MS	REC	79	%	44-111
OP182-MS*	208-96-8	Acenaphthylene	MS	REC	74	%	39-116
OP182-MS*	120-12-7	Anthracene	MS	REC	99	%	50-114
OP182-MS*	56-55-3	Benzo(a)anthracene	MS	REC	107	%	54-122
OP182-MS*	50-32-8	Benzo(a)pyrene	MS	REC	94	%	50-125
OP182-MS*	205-99-2	Benzo(b)fluoranthene	MS	REC	97	%	53-128
OP182-MS*	191-24-2	Benzo(g,h,i)perylene	MS	REC	75	%	49-127
OP182-MS*	207-08-9	Benzo(k)fluoranthene	MS	REC	86	%	56-123
OP182-MS*	218-01-9	Chrysene	MS	REC	81	%	57-118
OP182-MS*	53-70-3	Dibenzo(a,h)anthracene	MS	REC	78	%	50-129
OP182-MS*	206-44-0	Fluoranthene	MS	REC	83	%	55-119
OP182-MS*	86-73-7	Fluorene	MS	REC	83	%	47-114
OP182-MS*	193-39-5	Indeno(1,2,3-cd)pyrene	MS	REC	89	%	49-130
OP182-MS*	90-12-0	1-Methylnaphthalene	MS	REC	87	%	43-111
OP182-MS*	91-57-6	2-Methylnaphthalene	MS	REC	80	%	39-114
OP182-MS*	91-20-3	Naphthalene	MS	REC	79	%	38-111
OP182-MS*	85-01-8	Phenanthrene	MS	REC	90	%	49-113
OP182-MS*	129-00-0	Pyrene	MS	REC	95	%	55-117
OP182-MS*	7297-45-2	2-Methylnaphthalene-d10	MS	SURR	107	%	50-150
OP182-MS*	93951-69-0	Fluoranthene-d10	MS	SURR	112	%	50-150
OP182-MSD*	83-32-9	Acenaphthene	MSD	REC	81	%	44-111
OP182-MSD*	83-32-9	Acenaphthene	MSD	RPD	3	%	20

* Sample used for QC is not from job FC11168

QC Evaluation: DOD QSM5.x Limits

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Job Number: FC11168
Account: Geosyntec Consultants - Portland, OR
Project: Oakland Harbor
Collected: 11/09/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
OP182-MSD*	208-96-8	Acenaphthylene	MSD	REC	76	%	39-116
OP182-MSD*	208-96-8	Acenaphthylene	MSD	RPD	2	%	20
OP182-MSD*	120-12-7	Anthracene	MSD	REC	100	%	50-114
OP182-MSD*	120-12-7	Anthracene	MSD	RPD	1	%	20
OP182-MSD*	56-55-3	Benzo(a)anthracene	MSD	REC	107	%	54-122
OP182-MSD*	56-55-3	Benzo(a)anthracene	MSD	RPD	0	%	20
OP182-MSD*	50-32-8	Benzo(a)pyrene	MSD	REC	95	%	50-125
OP182-MSD*	50-32-8	Benzo(a)pyrene	MSD	RPD	1	%	20
OP182-MSD*	205-99-2	Benzo(b)fluoranthene	MSD	REC	96	%	53-128
OP182-MSD*	205-99-2	Benzo(b)fluoranthene	MSD	RPD	2	%	20
OP182-MSD*	191-24-2	Benzo(g,h,i)perylene	MSD	REC	79	%	49-127
OP182-MSD*	191-24-2	Benzo(g,h,i)perylene	MSD	RPD	5	%	20
OP182-MSD*	207-08-9	Benzo(k)fluoranthene	MSD	REC	84	%	56-123
OP182-MSD*	207-08-9	Benzo(k)fluoranthene	MSD	RPD	2	%	20
OP182-MSD*	218-01-9	Chrysene	MSD	REC	82	%	57-118
OP182-MSD*	218-01-9	Chrysene	MSD	RPD	2	%	20
OP182-MSD*	53-70-3	Dibenzo(a,h)anthracene	MSD	REC	83	%	50-129
OP182-MSD*	53-70-3	Dibenzo(a,h)anthracene	MSD	RPD	6	%	20
OP182-MSD*	206-44-0	Fluoranthene	MSD	REC	82	%	55-119
OP182-MSD*	206-44-0	Fluoranthene	MSD	RPD	1	%	20
OP182-MSD*	86-73-7	Fluorene	MSD	REC	88	%	47-114
OP182-MSD*	86-73-7	Fluorene	MSD	RPD	5	%	20
OP182-MSD*	193-39-5	Indeno(1,2,3-cd)pyrene	MSD	REC	93	%	49-130
OP182-MSD*	193-39-5	Indeno(1,2,3-cd)pyrene	MSD	RPD	5	%	20
OP182-MSD*	90-12-0	1-Methylnaphthalene	MSD	REC	89	%	43-111
OP182-MSD*	90-12-0	1-Methylnaphthalene	MSD	RPD	2	%	20
OP182-MSD*	91-57-6	2-Methylnaphthalene	MSD	REC	81	%	39-114
OP182-MSD*	91-57-6	2-Methylnaphthalene	MSD	RPD	1	%	20
OP182-MSD*	91-20-3	Naphthalene	MSD	REC	79	%	38-111
OP182-MSD*	91-20-3	Naphthalene	MSD	RPD	0	%	20
OP182-MSD*	85-01-8	Phenanthrene	MSD	REC	88	%	49-113
OP182-MSD*	85-01-8	Phenanthrene	MSD	RPD	3	%	20
OP182-MSD*	129-00-0	Pyrene	MSD	REC	90	%	55-117
OP182-MSD*	129-00-0	Pyrene	MSD	RPD	5	%	20
OP182-MSD*	7297-45-2	2-Methylnaphthalene-d10	MSD	SURR	108	%	50-150
OP182-MSD*	93951-69-0	Fluoranthene-d10	MSD	SURR	110	%	50-150
OP182-MB	7297-45-2	2-Methylnaphthalene-d10	MB	SURR	107	%	50-150
OP182-MB	93951-69-0	Fluoranthene-d10	MB	SURR	122	%	50-150
FC11168-1	7297-45-2	2-Methylnaphthalene-d10	SAMP	SURR	112	%	50-150
FC11168-1	93951-69-0	Fluoranthene-d10	SAMP	SURR	123	%	50-150
FC11168-2	7297-45-2	2-Methylnaphthalene-d10	SAMP	SURR	117	%	50-150
FC11168-2	93951-69-0	Fluoranthene-d10	SAMP	SURR	102	%	50-150
FC11168-11	7297-45-2	2-Methylnaphthalene-d10	SAMP	SURR	111	%	50-150
FC11168-11	93951-69-0	Fluoranthene-d10	SAMP	SURR	95	%	50-150

* Sample used for QC is not from job FC11168

QC Evaluation: DOD QSM5.x Limits

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Job Number: FC11168
Account: Geosyntec Consultants - Portland, OR
Project: Oakland Harbor
Collected: 11/09/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
OP458	SW846 8270E						
OP458-BS	92-52-4	1,1'-Biphenyl	BSP	REC	75	%	40-117
OP458-BS	92-52-4	1,1'-Biphenyl	BSP	REC	71	%	40-117
OP458-BS	367-12-4	2-Fluorophenol	BSP	SURR	69	%	35-115
OP458-BS	367-12-4	2-Fluorophenol	BSP	SURR	73	%	35-115
OP458-BS	4165-62-2	Phenol-d5	BSP	SURR	83	%	33-122
OP458-BS	4165-62-2	Phenol-d5	BSP	SURR	78	%	33-122
OP458-BS	118-79-6	2,4,6-Tribromophenol	BSP	SURR	70	%	39-132
OP458-BS	118-79-6	2,4,6-Tribromophenol	BSP	SURR	68	%	39-132
OP458-BS	4165-60-0	Nitrobenzene-d5	BSP	SURR	71	%	37-122
OP458-BS	4165-60-0	Nitrobenzene-d5	BSP	SURR	78	%	37-122
OP458-BS	321-60-8	2-Fluorobiphenyl	BSP	SURR	70	%	44-115
OP458-BS	321-60-8	2-Fluorobiphenyl	BSP	SURR	73	%	44-115
OP458-BS	1718-51-0	Terphenyl-d14	BSP	SURR	77	%	54-127
OP458-BS	1718-51-0	Terphenyl-d14	BSP	SURR	75	%	54-127
OP458-MS*	92-52-4	1,1'-Biphenyl	MS	REC	65	%	40-117
OP458-MS*	367-12-4	2-Fluorophenol	MS	SURR	64	%	35-115
OP458-MS*	4165-62-2	Phenol-d5	MS	SURR	74	%	33-122
OP458-MS*	118-79-6	2,4,6-Tribromophenol	MS	SURR	58	%	39-132
OP458-MS*	4165-60-0	Nitrobenzene-d5	MS	SURR	68	%	37-122
OP458-MS*	321-60-8	2-Fluorobiphenyl	MS	SURR	63	%	44-115
OP458-MS*	1718-51-0	Terphenyl-d14	MS	SURR	68	%	54-127
OP458-MSD*	92-52-4	1,1'-Biphenyl	MSD	REC	70	%	40-117
OP458-MSD*	92-52-4	1,1'-Biphenyl	MSD	RPD	5	%	20
OP458-MSD*	367-12-4	2-Fluorophenol	MSD	SURR	66	%	35-115
OP458-MSD*	4165-62-2	Phenol-d5	MSD	SURR	77	%	33-122
OP458-MSD*	118-79-6	2,4,6-Tribromophenol	MSD	SURR	65	%	39-132
OP458-MSD*	4165-60-0	Nitrobenzene-d5	MSD	SURR	70	%	37-122
OP458-MSD*	321-60-8	2-Fluorobiphenyl	MSD	SURR	67	%	44-115
OP458-MSD*	1718-51-0	Terphenyl-d14	MSD	SURR	73	%	54-127
OP458-MB	367-12-4	2-Fluorophenol	MB	SURR	87	%	35-115
OP458-MB	367-12-4	2-Fluorophenol	MB	SURR	84	%	35-115
OP458-MB	4165-62-2	Phenol-d5	MB	SURR	94	%	33-122
OP458-MB	4165-62-2	Phenol-d5	MB	SURR	99	%	33-122
OP458-MB	118-79-6	2,4,6-Tribromophenol	MB	SURR	64	%	39-132
OP458-MB	118-79-6	2,4,6-Tribromophenol	MB	SURR	67	%	39-132
OP458-MB	4165-60-0	Nitrobenzene-d5	MB	SURR	84	%	37-122
OP458-MB	4165-60-0	Nitrobenzene-d5	MB	SURR	78	%	37-122
OP458-MB	321-60-8	2-Fluorobiphenyl	MB	SURR	78	%	44-115
OP458-MB	321-60-8	2-Fluorobiphenyl	MB	SURR	79	%	44-115
OP458-MB	1718-51-0	Terphenyl-d14	MB	SURR	87	%	54-127
OP458-MB	1718-51-0	Terphenyl-d14	MB	SURR	88	%	54-127
FC11168-1A	367-12-4	2-Fluorophenol	SAMP	SURR	72	%	35-115

* Sample used for QC is not from job FC11168

QC Evaluation: DOD QSM5.x Limits

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Job Number: FC11168
Account: Geosyntec Consultants - Portland, OR
Project: Oakland Harbor
Collected: 11/09/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
FC11168-1A	4165-62-2	Phenol-d5	SAMP	SURR	79	%	33-122
FC11168-1A	118-79-6	2,4,6-Tribromophenol	SAMP	SURR	55	%	39-132
FC11168-1A	4165-60-0	Nitrobenzene-d5	SAMP	SURR	68	%	37-122
FC11168-1A	321-60-8	2-Fluorobiphenyl	SAMP	SURR	69	%	44-115
FC11168-1A	1718-51-0	Terphenyl-d14	SAMP	SURR	82	%	54-127
FC11168-2A	367-12-4	2-Fluorophenol	SAMP	SURR	67	%	35-115
FC11168-2A	4165-62-2	Phenol-d5	SAMP	SURR	75	%	33-122
FC11168-2A	118-79-6	2,4,6-Tribromophenol	SAMP	SURR	57	%	39-132
FC11168-2A	4165-60-0	Nitrobenzene-d5	SAMP	SURR	64	%	37-122
FC11168-2A	321-60-8	2-Fluorobiphenyl	SAMP	SURR	63	%	44-115
FC11168-2A	1718-51-0	Terphenyl-d14	SAMP	SURR	74	%	54-127
FC11168-11A	367-12-4	2-Fluorophenol	SAMP	SURR	77	%	35-115
FC11168-11A	4165-62-2	Phenol-d5	SAMP	SURR	87	%	33-122
FC11168-11A	118-79-6	2,4,6-Tribromophenol	SAMP	SURR	64	%	39-132
FC11168-11A	4165-60-0	Nitrobenzene-d5	SAMP	SURR	76	%	37-122
FC11168-11A	321-60-8	2-Fluorobiphenyl	SAMP	SURR	71	%	44-115
FC11168-11A	1718-51-0	Terphenyl-d14	SAMP	SURR	83	%	54-127
OP185	SW846 8081B						
OP185-BS	309-00-2	Aldrin	BSP	REC	89	%	45-136
OP185-BS	319-84-6	alpha-BHC	BSP	REC	97	%	45-137
OP185-BS	319-85-7	beta-BHC	BSP	REC	103	%	50-136
OP185-BS	319-86-8	delta-BHC	BSP	REC	95	%	47-139
OP185-BS	58-89-9	gamma-BHC (Lindane)	BSP	REC	100	%	49-135
OP185-BS	5103-71-9	alpha-Chlordane	BSP	REC	93	%	54-133
OP185-BS	5103-74-2	gamma-Chlordane	BSP	REC	95	%	53-135
OP185-BS	60-57-1	Dieldrin	BSP	REC	85	%	56-136
OP185-BS	72-54-8	4,4'-DDD	BSP	REC	90	%	56-139
OP185-BS	72-55-9	4,4'-DDE	BSP	REC	87	%	56-134
OP185-BS	50-29-3	4,4'-DDT	BSP	REC	101	%	50-141
OP185-BS	72-20-8	Endrin	BSP	REC	86	%	57-140
OP185-BS	1031-07-8	Endosulfan sulfate	BSP	REC	86	%	55-136
OP185-BS	7421-93-4	Endrin aldehyde	BSP	REC	69	%	35-137
OP185-BS	53494-70-5	Endrin ketone	BSP	REC	93	%	55-136
OP185-BS	959-98-8	Endosulfan-I	BSP	REC	92	%	53-132
OP185-BS	33213-65-9	Endosulfan-II	BSP	REC	83	%	53-134
OP185-BS	76-44-8	Heptachlor	BSP	REC	93	%	47-136
OP185-BS	1024-57-3	Heptachlor epoxide	BSP	REC	85	%	52-136
OP185-BS	72-43-5	Methoxychlor	BSP	REC	109	%	52-143
OP185-BS	877-09-8	Tetrachloro-m-xylene (sig#1)	BSP	SURR	96	%	42-129
OP185-BS2	8001-35-2	Toxaphene	BSP	REC	134	%	33-141
OP185-BS2	877-09-8	Tetrachloro-m-xylene (sig#1)	BSP	SURR	87	%	42-129
OP185-MS	309-00-2	Aldrin	MS	REC	75	%	45-136
OP185-MS	319-84-6	alpha-BHC	MS	REC	79	%	45-137

* Sample used for QC is not from job FC11168

QC Evaluation: DOD QSM5.x Limits

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Job Number: FC11168
Account: Geosyntec Consultants - Portland, OR
Project: Oakland Harbor
Collected: 11/09/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
OP185-MS	319-85-7	beta-BHC	MS	REC	83	%	50-136
OP185-MS	319-86-8	delta-BHC	MS	REC	81	%	47-139
OP185-MS	58-89-9	gamma-BHC (Lindane)	MS	REC	81	%	49-135
OP185-MS	5103-71-9	alpha-Chlordane	MS	REC	76	%	54-133
OP185-MS	5103-74-2	gamma-Chlordane	MS	REC	78	%	53-135
OP185-MS	60-57-1	Dieldrin	MS	REC	70	%	56-136
OP185-MS	72-54-8	4,4'-DDD	MS	REC	74	%	56-139
OP185-MS	72-55-9	4,4'-DDE	MS	REC	75	%	56-134
OP185-MS	50-29-3	4,4'-DDT	MS	REC	82	%	50-141
OP185-MS	72-20-8	Endrin	MS	REC	69	%	57-140
OP185-MS	1031-07-8	Endosulfan sulfate	MS	REC	71	%	55-136
OP185-MS	7421-93-4	Endrin aldehyde	MS	REC	62	%	35-137
OP185-MS	53494-70-5	Endrin ketone	MS	REC	76	%	55-136
OP185-MS	959-98-8	Endosulfan-I	MS	REC	75	%	53-132
OP185-MS	33213-65-9	Endosulfan-II	MS	REC	70	%	53-134
OP185-MS	76-44-8	Heptachlor	MS	REC	71	%	47-136
OP185-MS	1024-57-3	Heptachlor epoxide	MS	REC	71	%	52-136
OP185-MS	72-43-5	Methoxychlor	MS	REC	82	%	52-143
OP185-MS	877-09-8	Tetrachloro-m-xylene (sig#1)	MS	SURR	86	%	42-129
OP185-MSD	309-00-2	Aldrin	MSD	REC	73	%	45-136
OP185-MSD	309-00-2	Aldrin	MSD	RPD	3	%	30
OP185-MSD	319-84-6	alpha-BHC	MSD	REC	78	%	45-137
OP185-MSD	319-84-6	alpha-BHC	MSD	RPD	1	%	30
OP185-MSD	319-85-7	beta-BHC	MSD	REC	84	%	50-136
OP185-MSD	319-85-7	beta-BHC	MSD	RPD	1	%	30
OP185-MSD	319-86-8	delta-BHC	MSD	REC	90	%	47-139
OP185-MSD	319-86-8	delta-BHC	MSD	RPD	11	%	30
OP185-MSD	58-89-9	gamma-BHC (Lindane)	MSD	REC	78	%	49-135
OP185-MSD	58-89-9	gamma-BHC (Lindane)	MSD	RPD	3	%	30
OP185-MSD	5103-71-9	alpha-Chlordane	MSD	REC	71	%	54-133
OP185-MSD	5103-71-9	alpha-Chlordane	MSD	RPD	7	%	30
OP185-MSD	5103-74-2	gamma-Chlordane	MSD	REC	74	%	53-135
OP185-MSD	5103-74-2	gamma-Chlordane	MSD	RPD	6	%	30
OP185-MSD	60-57-1	Dieldrin	MSD	REC	70	%	56-136
OP185-MSD	60-57-1	Dieldrin	MSD	RPD	1	%	30
OP185-MSD	72-54-8	4,4'-DDD	MSD	REC	72	%	56-139
OP185-MSD	72-54-8	4,4'-DDD	MSD	RPD	3	%	30
OP185-MSD	72-55-9	4,4'-DDE	MSD	REC	74	%	56-134
OP185-MSD	72-55-9	4,4'-DDE	MSD	RPD	2	%	30
OP185-MSD	50-29-3	4,4'-DDT	MSD	REC	80	%	50-141
OP185-MSD	50-29-3	4,4'-DDT	MSD	RPD	2	%	30
OP185-MSD	72-20-8	Endrin	MSD	REC	66	%	57-140
OP185-MSD	72-20-8	Endrin	MSD	RPD	3	%	30
OP185-MSD	1031-07-8	Endosulfan sulfate	MSD	REC	75	%	55-136
OP185-MSD	1031-07-8	Endosulfan sulfate	MSD	RPD	5	%	30

* Sample used for QC is not from job FC11168

QC Evaluation: DOD QSM5.x Limits

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Job Number: FC11168
Account: Geosyntec Consultants - Portland, OR
Project: Oakland Harbor
Collected: 11/09/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
OP185-MSD	7421-93-4	Endrin aldehyde	MSD	REC	70	%	35-137
OP185-MSD	7421-93-4	Endrin aldehyde	MSD	RPD	12	%	30
OP185-MSD	53494-70-5	Endrin ketone	MSD	REC	77	%	55-136
OP185-MSD	53494-70-5	Endrin ketone	MSD	RPD	1	%	30
OP185-MSD	959-98-8	Endosulfan-I	MSD	REC	72	%	53-132
OP185-MSD	959-98-8	Endosulfan-I	MSD	RPD	4	%	30
OP185-MSD	33213-65-9	Endosulfan-II	MSD	REC	71	%	53-134
OP185-MSD	33213-65-9	Endosulfan-II	MSD	RPD	1	%	30
OP185-MSD	76-44-8	Heptachlor	MSD	REC	71	%	47-136
OP185-MSD	76-44-8	Heptachlor	MSD	RPD	0	%	30
OP185-MSD	1024-57-3	Heptachlor epoxide	MSD	REC	70	%	52-136
OP185-MSD	1024-57-3	Heptachlor epoxide	MSD	RPD	1	%	30
OP185-MSD	72-43-5	Methoxychlor	MSD	REC	82	%	52-143
OP185-MSD	72-43-5	Methoxychlor	MSD	RPD	0	%	30
OP185-MSD	877-09-8	Tetrachloro-m-xylene (sig#1)	MSD	SURR	81	%	42-129
OP185-MB	877-09-8	Tetrachloro-m-xylene (sig#1)	MB	SURR	90	%	42-129
FC11168-1	877-09-8	Tetrachloro-m-xylene (sig#1)	SAMP	SURR	88	%	42-129
FC11168-2	877-09-8	Tetrachloro-m-xylene (sig#1)	SAMP	SURR	82	%	42-129
FC11168-11	877-09-8	Tetrachloro-m-xylene (sig#1)	SAMP	SURR	81	%	42-129

MP43153	SW846 6020B						
MP43153-B1	7440-38-2	Arsenic	BSP	REC	98.4	%	82-118
MP43153-B1	7440-43-9	Cadmium	BSP	REC	103.2	%	84-116
MP43153-B1	7440-47-3	Chromium	BSP	REC	100	%	83-119
MP43153-B1	7440-50-8	Copper	BSP	REC	100.8	%	84-119
MP43153-B1	7439-92-1	Lead	BSP	REC	99.6	%	84-118
MP43153-B1	7440-02-0	Nickel	BSP	REC	98.8	%	84-119
MP43153-B1	7782-49-2	Selenium	BSP	REC	92.8	%	80-119
MP43153-B1	7440-22-4	Silver	BSP	REC	94.4	%	83-118
MP43153-B1	7440-66-6	Zinc	BSP	REC	97.6	%	82-119
MP43153-S1*	7440-38-2	Arsenic	MS	REC	90.8	%	82-118
MP43153-S1*	7440-43-9	Cadmium	MS	REC	101.1	%	84-116
MP43153-S1*	7440-47-3	Chromium	MS	REC	110.9	%	83-119
MP43153-S1*	7440-50-8	Copper	MS	REC	238.3 ^a	%	84-119
MP43153-S1*	7439-92-1	Lead	MS	REC	99	%	84-118
MP43153-S1*	7440-02-0	Nickel	MS	REC	113.8	%	84-119
MP43153-S1*	7782-49-2	Selenium	MS	REC	88.7	%	80-119
MP43153-S1*	7440-22-4	Silver	MS	REC	89.6	%	83-118
MP43153-S1*	7440-66-6	Zinc	MS	REC	147.9 ^a	%	82-119
MP43153-S2*	7440-38-2	Arsenic	MSD	REC	94.8	%	82-118
MP43153-S2*	7440-38-2	Arsenic	MSD	RPD	13.1	%	20
MP43153-S2*	7440-43-9	Cadmium	MSD	REC	97	%	84-116
MP43153-S2*	7440-43-9	Cadmium	MSD	RPD	10.5	%	20
MP43153-S2*	7440-47-3	Chromium	MSD	REC	121.5 ^b	%	83-119

* Sample used for QC is not from job FC11168

QC Evaluation: DOD QSM5.x Limits

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Job Number: FC11168
Account: Geosyntec Consultants - Portland, OR
Project: Oakland Harbor
Collected: 11/09/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
MP43153-S2*	7440-47-3	Chromium	MSD	RPD	2.4	%	20
MP43153-S2*	7440-50-8	Copper	MSD	REC	279 ^a	%	84-119
MP43153-S2*	7440-50-8	Copper	MSD	RPD	3.5	%	20
MP43153-S2*	7439-92-1	Lead	MSD	REC	109	%	84-118
MP43153-S2*	7439-92-1	Lead	MSD	RPD	2.4	%	20
MP43153-S2*	7440-02-0	Nickel	MSD	REC	129.6 ^b	%	84-119
MP43153-S2*	7440-02-0	Nickel	MSD	RPD	3.7	%	20
MP43153-S2*	7782-49-2	Selenium	MSD	REC	88.8	%	80-119
MP43153-S2*	7782-49-2	Selenium	MSD	RPD	10.8	%	20
MP43153-S2*	7440-22-4	Silver	MSD	REC	90.1	%	83-118
MP43153-S2*	7440-22-4	Silver	MSD	RPD	0	%	20
MP43153-S2*	7440-66-6	Zinc	MSD	REC	180.2 ^a	%	82-119
MP43153-S2*	7440-66-6	Zinc	MSD	RPD	2.9	%	20
MP43153-D1*	7440-38-2	Arsenic	DUP	RPD	14.4	%	20
MP43153-D1*	7440-43-9	Cadmium	DUP	RPD	7.1	%	20
MP43153-D1*	7440-47-3	Chromium	DUP	RPD	5.2	%	20
MP43153-D1*	7440-50-8	Copper	DUP	RPD	30 ^c	%	20
MP43153-D1*	7439-92-1	Lead	DUP	RPD	20.5 ^c	%	20
MP43153-D1*	7440-02-0	Nickel	DUP	RPD	3.8	%	20
MP43153-D1*	7782-49-2	Selenium	DUP	RPD	7.4	%	20
MP43153-D1*	7440-22-4	Silver	DUP	RPD	24 ^c	%	20
MP43153-D1*	7440-66-6	Zinc	DUP	RPD	10.3	%	20
MP43202 SW846 7471B							
MP43202-B1	7439-97-6	Mercury	BSP	REC	96	%	80-124
MP43202-S1*	7439-97-6	Mercury	MS	REC	86.7	%	80-124
MP43202-S2*	7439-97-6	Mercury	MSD	REC	53.3 ^b	%	80-124
MP43202-S2*	7439-97-6	Mercury	MSD	RPD	14.1	%	20
MP43202-D1*	7439-97-6	Mercury	DUP	RPD	8.3	%	20
MP43202-D2*	7439-97-6	Mercury	DUP	RPD	8.3	%	20
MP43203 SW846 7471B							
MP43203-B1	7439-97-6	Mercury	BSP	REC	96	%	80-124
MP43203-S1	7439-97-6	Mercury	MS	REC	98.7	%	80-124
MP43203-S2	7439-97-6	Mercury	MSD	REC	97.7	%	80-124
MP43203-S2	7439-97-6	Mercury	MSD	RPD	1.4	%	20
MP43203-D1	7439-97-6	Mercury	DUP	RPD	12.9	%	20

(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

(b) Spike recovery indicates possible matrix interference and/or sample non-homogeneity.

(c) High RPD due to possible sample non-homogeneity.

* Sample used for QC is not from job FC11168



MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: FC11168
Account: GEOSORP Geosyntec Consultants - Portland, OR
Project: Oakland Harbor

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP458-MB	X091616.D	1	12/06/23	KA	12/06/23	OP458	SX3628

The QC reported here applies to the following samples: Method: SW846 8270E

FC11168-1A, FC11168-2A, FC11168-11A

CAS No.	Compound	Result	RL	MDL	Units	Q
92-52-4	1,1'-Biphenyl	ND	170	17	ug/kg	

CAS No.	Surrogate Recoveries	Limits
367-12-4	2-Fluorophenol	87% 40-102%
4165-62-2	Phenol-d5	99% 41-100%
118-79-6	2,4,6-Tribromophenol	67% 42-108%
4165-60-0	Nitrobenzene-d5	84% 40-105%
321-60-8	2-Fluorobiphenyl	79% 43-107%
1718-51-0	Terphenyl-d14	88% 45-119%

Method Blank Summary

Job Number: FC11168
Account: GEOSORP Geosyntec Consultants - Portland, OR
Project: Oakland Harbor

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP458-MB	X091644.D	1	12/07/23	KA	12/06/23	OP458	SX3629

The QC reported here applies to the following samples: Method: SW846 8270E

FC11168-1A, FC11168-2A, FC11168-11A

CAS No.	Compound	Result	RL	MDL	Units	Q
92-52-4	1,1'-Biphenyl	ND	170	17	ug/kg	

CAS No.	Surrogate Recoveries	Limits
367-12-4	2-Fluorophenol	84% 40-102%
4165-62-2	Phenol-d5	94% 41-100%
118-79-6	2,4,6-Tribromophenol	64% 42-108%
4165-60-0	Nitrobenzene-d5	78% 40-105%
321-60-8	2-Fluorobiphenyl	78% 43-107%
1718-51-0	Terphenyl-d14	87% 45-119%

Method Blank Summary

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Job Number: FC11168

Account: GEOSORP Geosyntec Consultants - Portland, OR

Project: Oakland Harbor

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP182-MB	7G28994.D	1	11/30/23	MF	11/19/23	OP182	S7G1142

The QC reported here applies to the following samples:

Method: SW846 8270E BY SIM

FC11168-1, FC11168-2, FC11168-11

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	67	27	ug/kg	
208-96-8	Acenaphthylene	ND	67	27	ug/kg	
120-12-7	Anthracene	ND	67	17	ug/kg	
56-55-3	Benzo(a)anthracene	ND	13	3.3	ug/kg	
50-32-8	Benzo(a)pyrene	ND	13	3.3	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	13	3.3	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	13	3.3	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	13	3.3	ug/kg	
218-01-9	Chrysene	ND	13	3.3	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	13	3.3	ug/kg	
206-44-0	Fluoranthene	ND	67	17	ug/kg	
86-73-7	Fluorene	ND	67	27	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	13	3.3	ug/kg	
90-12-0	1-Methylnaphthalene	ND	67	27	ug/kg	
91-57-6	2-Methylnaphthalene	ND	67	27	ug/kg	
91-20-3	Naphthalene	ND	67	27	ug/kg	
85-01-8	Phenanthrene	ND	67	17	ug/kg	
129-00-0	Pyrene	ND	67	17	ug/kg	

CAS No.	Surrogate Recoveries	Limits	
7297-45-2	2-Methylnaphthalene-d10	107%	50-150%
93951-69-0	Fluoranthene-d10	122%	50-150%

Blank Spike Summary

Job Number: FC11168
Account: GEOSORP Geosyntec Consultants - Portland, OR
Project: Oakland Harbor

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP458-BS	X091615.D	1	12/06/23	KA	12/06/23	OP458	SX3628

The QC reported here applies to the following samples: Method: SW846 8270E

FC11168-1A, FC11168-2A, FC11168-11A

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
92-52-4	1,1'-Biphenyl	1670	1250	75	53-106

CAS No.	Surrogate Recoveries	BSP	Limits
367-12-4	2-Fluorophenol	73%	40-102%
4165-62-2	Phenol-d5	83%	41-100%
118-79-6	2,4,6-Tribromophenol	70%	42-108%
4165-60-0	Nitrobenzene-d5	78%	40-105%
321-60-8	2-Fluorobiphenyl	73%	43-107%
1718-51-0	Terphenyl-d14	77%	45-119%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC11168
Account: GEOSORP Geosyntec Consultants - Portland, OR
Project: Oakland Harbor

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP458-BS	X091643.D	1	12/07/23	KA	12/06/23	OP458	SX3629

The QC reported here applies to the following samples: Method: SW846 8270E

FC11168-1A, FC11168-2A, FC11168-11A

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
92-52-4	1,1'-Biphenyl	1670	1180	71	53-106

CAS No.	Surrogate Recoveries	BSP	Limits
367-12-4	2-Fluorophenol	69%	40-102%
4165-62-2	Phenol-d5	78%	41-100%
118-79-6	2,4,6-Tribromophenol	68%	42-108%
4165-60-0	Nitrobenzene-d5	71%	40-105%
321-60-8	2-Fluorobiphenyl	70%	43-107%
1718-51-0	Terphenyl-d14	75%	45-119%

* = Outside of Control Limits.

Blank Spike Summary

Page 1 of 1

Job Number: FC11168
Account: GEOSORP Geosyntec Consultants - Portland, OR
Project: Oakland Harbor

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP182-BS	7G28995.D	1	11/30/23	MF	11/19/23	OP182	S7G1142

The QC reported here applies to the following samples:

Method: SW846 8270E BY SIM

FC11168-1, FC11168-2, FC11168-11

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	667	543	81	53-100
208-96-8	Acenaphthylene	667	483	72	51-100
120-12-7	Anthracene	333	332	100	60-102
56-55-3	Benzo(a)anthracene	333	317	95	60-106
50-32-8	Benzo(a)pyrene	333	319	96	58-105
205-99-2	Benzo(b)fluoranthene	333	300	90	59-112
191-24-2	Benzo(g,h,i)perylene	333	286	86	56-109
207-08-9	Benzo(k)fluoranthene	333	287	86	58-109
218-01-9	Chrysene	333	285	85	62-104
53-70-3	Dibenzo(a,h)anthracene	333	282	85	55-110
206-44-0	Fluoranthene	667	586	88	59-109
86-73-7	Fluorene	667	580	87	56-104
193-39-5	Indeno(1,2,3-cd)pyrene	333	299	90	54-110
90-12-0	1-Methylnaphthalene	667	605	91	50-101
91-57-6	2-Methylnaphthalene	667	537	81	49-100
91-20-3	Naphthalene	667	534	80	49-101
85-01-8	Phenanthrene	667	576	86	57-104
129-00-0	Pyrene	667	572	86	58-106

CAS No.	Surrogate Recoveries	BSP	Limits
7297-45-2	2-Methylnaphthalene-d10	113%	50-150%
93951-69-0	Fluoranthene-d10	123%	50-150%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FC11168
Account: GEOSORP Geosyntec Consultants - Portland, OR
Project: Oakland Harbor

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP458-MS	X091632.D	1	12/06/23	KA	12/06/23	OP458	SX3628
OP458-MSD	X091633.D	1	12/07/23	KA	12/06/23	OP458	SX3628
FC11659-1	X091648.D	1	12/07/23	KA	12/06/23	OP458	SX3629

The QC reported here applies to the following samples: Method: SW846 8270E

FC11168-1A, FC11168-2A, FC11168-11A

CAS No.	Compound	FC11659-1 ug/kg	Spike Q ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
92-52-4	1,1'-Biphenyl	190 U	1880	1230	65	1840	1290	70	5	53-106/24

CAS No.	Surrogate Recoveries	MS	MSD	FC11659-1	Limits
367-12-4	2-Fluorophenol	64%	66%	73%	40-102%
4165-62-2	Phenol-d5	74%	77%	93%	41-100%
118-79-6	2,4,6-Tribromophenol	58%	65%	56%	42-108%
4165-60-0	Nitrobenzene-d5	68%	70%	75%	40-105%
321-60-8	2-Fluorobiphenyl	63%	67%	71%	43-107%
1718-51-0	Terphenyl-d14	68%	73%	74%	45-119%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: FC11168

Account: GEOSORP Geosyntec Consultants - Portland, OR

Project: Oakland Harbor

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP182-MS	7G29152.D	1	12/04/23	MF	11/19/23	OP182	S7G1145
OP182-MSD	7G29153.D	1	12/04/23	MF	11/19/23	OP182	S7G1145
FC11135-10	7G29151.D	1	12/04/23	MF	11/19/23	OP182	S7G1145

The QC reported here applies to the following samples:

Method: SW846 8270E BY SIM

FC11168-1, FC11168-2, FC11168-11

CAS No.	Compound	FC11135-10 ug/kg	Spike Q	ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	69 U		684	539	79	684	554	81	3	53-100/28
208-96-8	Acenaphthylene	69 U		684	509	74	684	521	76	2	51-100/25
120-12-7	Anthracene	69 U		342	339	99	342	341	100	1	60-102/29
56-55-3	Benzo(a)anthracene	14 U		342	366	107*	342	367	107*	0	60-106/30
50-32-8	Benzo(a)pyrene	14 U		342	322	94	342	325	95	1	58-105/30
205-99-2	Benzo(b)fluoranthene	14 U		342	333	97	342	328	96	2	59-112/33
191-24-2	Benzo(g,h,i)perylene	14 U		342	256	75	342	270	79	5	56-109/31
207-08-9	Benzo(k)fluoranthene	14 U		342	294	86	342	289	84	2	58-109/33
218-01-9	Chrysene	14 U		342	276	81	342	281	82	2	62-104/30
53-70-3	Dibenzo(a,h)anthracene	14 U		342	267	78	342	283	83	6	55-110/31
206-44-0	Fluoranthene	69 U		684	568	83	684	564	82	1	59-109/29
86-73-7	Fluorene	69 U		684	571	83	684	602	88	5	56-104/27
193-39-5	Indeno(1,2,3-cd)pyrene	14 U		342	303	89	342	319	93	5	54-110/32
90-12-0	1-Methylnaphthalene	69 U		684	596	87	684	610	89	2	50-101/30
91-57-6	2-Methylnaphthalene	69 U		684	550	80	684	556	81	1	49-100/26
91-20-3	Naphthalene	69 U		684	539	79	684	540	79	0	49-101/28
85-01-8	Phenanthrene	69 U		684	618	90	684	600	88	3	57-104/27
129-00-0	Pyrene	69 U		684	649	95	684	619	90	5	58-106/29

CAS No.	Surrogate Recoveries	MS	MSD	FC11135-10	Limits
7297-45-2	2-Methylnaphthalene-d10	107%	108%	106%	50-150%
93951-69-0	Fluoranthene-d10	112%	110%	118%	50-150%

* = Outside of Control Limits.

GC/LC Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: FC11168
Account: GEOSORP Geosyntec Consultants - Portland, OR
Project: Oakland Harbor

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP185-MB	ST171398.D	1	11/20/23	WH	11/19/23	OP185	GST4184

The QC reported here applies to the following samples: Method: SW846 8081B

FC11168-1, FC11168-2, FC11168-11

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	1.7	0.53	ug/kg	
319-84-6	alpha-BHC	ND	1.7	0.53	ug/kg	
319-85-7	beta-BHC	ND	1.7	0.49	ug/kg	
319-86-8	delta-BHC	ND	1.7	0.47	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	1.7	0.50	ug/kg	
5103-71-9	alpha-Chlordane	ND	1.7	0.52	ug/kg	
5103-74-2	gamma-Chlordane	ND	1.7	0.48	ug/kg	
60-57-1	Dieldrin	ND	1.7	0.47	ug/kg	
72-54-8	4,4' -DDD	ND	3.3	0.46	ug/kg	
72-55-9	4,4' -DDE	ND	3.3	0.61	ug/kg	
50-29-3	4,4' -DDT	ND	3.3	0.51	ug/kg	
72-20-8	Endrin	ND	3.3	0.84	ug/kg	
1031-07-8	Endosulfan sulfate	ND	3.3	0.44	ug/kg	
7421-93-4	Endrin aldehyde	ND	3.3	0.39	ug/kg	
53494-70-5	Endrin ketone	ND	3.3	0.52	ug/kg	
959-98-8	Endosulfan-I	ND	1.7	0.38	ug/kg	
33213-65-9	Endosulfan-II	ND	1.7	0.39	ug/kg	
76-44-8	Heptachlor	ND	1.7	0.49	ug/kg	
1024-57-3	Heptachlor epoxide	ND	1.7	0.49	ug/kg	
72-43-5	Methoxychlor	ND	3.3	0.67	ug/kg	
8001-35-2	Toxaphene	ND	83	25	ug/kg	

CAS No.	Surrogate Recoveries	Limits
877-09-8	Tetrachloro-m-xylene	90% 50-122%
2051-24-3	Decachlorobiphenyl	95% 50-133%

Blank Spike Summary

Page 1 of 1

Job Number: FC11168

Account: GEOSORP Geosyntec Consultants - Portland, OR

Project: Oakland Harbor

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP185-B5	ST171396.D	1	11/20/23	WH	11/19/23	OP185	GST4184

The QC reported here applies to the following samples:

Method: SW846 8081B

FC11168-1, FC11168-2, FC11168-11

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
309-00-2	Aldrin	16.7	14.9	89	57-120
319-84-6	alpha-BHC	16.7	16.1	97	60-117
319-85-7	beta-BHC	16.7	17.1	103	57-125
319-86-8	delta-BHC	16.7	15.9	95	42-126
58-89-9	gamma-BHC (Lindane)	16.7	16.6	100	60-123
5103-71-9	alpha-Chlordane	16.7	15.5	93	61-122
5103-74-2	gamma-Chlordane	16.7	15.8	95	63-122
60-57-1	Dieldrin	16.7	14.1	85	63-125
72-54-8	4,4'-DDD	16.7	15.0	90	55-135
72-55-9	4,4'-DDE	16.7	14.5	87	61-129
50-29-3	4,4'-DDT	16.7	16.9	101	60-136
72-20-8	Endrin	16.7	14.4	86	67-138
1031-07-8	Endosulfan sulfate	16.7	14.4	86	59-119
7421-93-4	Endrin aldehyde	16.7	11.5	69	37-110
53494-70-5	Endrin ketone	16.7	15.5	93	60-128
959-98-8	Endosulfan-I	16.7	15.3	92	62-122
33213-65-9	Endosulfan-II	16.7	13.8	83	62-122
76-44-8	Heptachlor	16.7	15.5	93	58-123
1024-57-3	Heptachlor epoxide	16.7	14.2	85	60-122
72-43-5	Methoxychlor	16.7	18.1	109	57-133

CAS No.	Surrogate Recoveries	BSP	Limits
877-09-8	Tetrachloro-m-xylene	96%	50-122%
2051-24-3	Decachlorobiphenyl	101%	50-133%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC11168
Account: GEOSORP Geosyntec Consultants - Portland, OR
Project: Oakland Harbor

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP185-BS2	ST171397.D	1	11/20/23	WH	11/19/23	OP185	GST4184

The QC reported here applies to the following samples: Method: SW846 8081B

FC11168-1, FC11168-2, FC11168-11

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
8001-35-2	Toxaphene	167	223	134	48-155

CAS No.	Surrogate Recoveries	BSP	Limits
877-09-8	Tetrachloro-m-xylene	87%	50-122%
2051-24-3	Decachlorobiphenyl	92%	50-133%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FC11168
Account: GEOSORP Geosyntec Consultants - Portland, OR
Project: Oakland Harbor

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP185-MS	ST171402.D	1	11/20/23	WH	11/19/23	OP185	GST4184
OP185-MSD	ST171403.D	1	11/20/23	WH	11/19/23	OP185	GST4184
FC11168-1	ST171399.D	1	11/20/23	WH	11/19/23	OP185	GST4184

The QC reported here applies to the following samples: Method: SW846 8081B

FC11168-1, FC11168-2, FC11168-11

CAS No.	Compound	FC11168-1 ug/kg	Spike Q ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
309-00-2	Aldrin	2.5 U	25.4	19.1	75	25.4	18.6	73	3	57-120/28
319-84-6	alpha-BHC	2.5 U	25.4	20.2	79	25.4	19.9	78	1	60-117/24
319-85-7	beta-BHC	2.5 U	25.4	21.2	83	25.4	21.4	84	1	57-125/26
319-86-8	delta-BHC	2.5 U	25.4	20.7	81	25.4	23.0	90	11	42-126/24
58-89-9	gamma-BHC (Lindane)	2.5 U	25.4	20.5	81	25.4	19.9	78	3	60-123/29
5103-71-9	alpha-Chlordane	2.5 U	25.4	19.4	76	25.4	18.1	71	7	61-122/26
5103-74-2	gamma-Chlordane	2.5 U	25.4	19.9	78	25.4	18.8	74	6	63-122/28
60-57-1	Dieldrin	2.5 U	25.4	17.9	70	25.4	17.8	70	1	63-125/29
72-54-8	4,4'-DDD	5.0 U	25.4	18.9	74	25.4	18.4	72	3	55-135/31
72-55-9	4,4'-DDE	5.0 U	25.4	19.1	75	25.4	18.8	74	2	61-129/31
50-29-3	4,4'-DDT	5.0 U	25.4	20.9	82	25.4	20.4	80	2	60-136/39
72-20-8	Endrin	5.0 U	25.4	17.5	69	25.4	16.9	66*	3	67-138/28
1031-07-8	Endosulfan sulfate	5.0 U	25.4	18.1	71	25.4	19.1	75	5	59-119/28
7421-93-4	Endrin aldehyde	5.0 U	25.4	15.8	62	25.4	17.9	70	12	37-110/25
53494-70-5	Endrin ketone	5.0 U	25.4	19.4	76	25.4	19.6	77	1	60-128/24
959-98-8	Endosulfan-I	2.5 U	25.4	19.0	75	25.4	18.3	72	4	62-122/29
33213-65-9	Endosulfan-II	2.5 U	25.4	17.9	70	25.4	18.1	71	1	62-122/31
76-44-8	Heptachlor	2.5 U	25.4	18.1	71	25.4	18.1	71	0	58-123/30
1024-57-3	Heptachlor epoxide	2.5 U	25.4	18.1	71	25.4	17.9	70	1	60-122/33
72-43-5	Methoxychlor	5.0 U	25.4	20.9	82	25.4	20.8	82	0	57-133/31

CAS No.	Surrogate Recoveries	MS	MSD	FC11168-1	Limits
877-09-8	Tetrachloro-m-xylene	86%	81%	88%	50-122%
2051-24-3	Decachlorobiphenyl	83%	78%	85%	50-133%

* = Outside of Control Limits.

Metals Analysis

QC Data Summaries



Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: FC11168
Account: GEOSORP - Geosyntec Consultants - Portland, OR
Project: Oakland Harbor

QC Batch ID: MP43153
Matrix Type: SOLID

Methods: SW846 6020B
Units: mg/kg

Prep Date: 11/15/23

Metal	RL	IDL	MDL	MB raw	final
Aluminum	25	1.1	6.3		
Antimony	0.25	.025	.025		
Arsenic	0.25	.025	.025	0.020	<0.25
Barium	0.25	.025	.025		
Beryllium	0.25	.025	.027		
Cadmium	0.25	.025	.025	0.0021	<0.25
Calcium	25	1.8	6.3		
Chromium	0.25	.025	.025	0.039	<0.25
Cobalt	0.25	.025	.025		
Copper	1.3	.025	.13	-0.0050	<1.3
Iron	25	2	6.3		
Lead	0.25	.025	.025	0.0032	<0.25
Magnesium	25	1.3	6.3		
Manganese	0.25	.025	.025		
Molybdenum	0.25	.025	.025		
Nickel	0.50	.025	.05	0.011	<0.50
Potassium	25	1.6	6.3		
Selenium	0.25	.028	.045	-0.013	<0.25
Silver	0.25	.025	.025	0.0020	<0.25
Sodium	25	1.2	6.3		
Strontium	0.25	.025	.025		
Thallium	0.25	.025	.025		
Tin	0.25	.025	.025		
Titanium	0.25	.076	.076		
Vanadium	0.25	.025	.025		
Zinc	1.3	.073	.13	0.079	<1.3

Associated samples MP43153: FC11168-1, FC11168-2, FC11168-11

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: FC11168
Account: GEOSORP - Geosyntec Consultants - Portland, OR
Project: Oakland Harbor

QC Batch ID: MP43153
Matrix Type: SOLID

Methods: SW846 6020B
Units: mg/kg

Prep Date:

11/15/23

11/15/23

Metal	FC11232-1 Original DUP		RPD	QC Limits	FC11232-1 Original MS		Spikelot MPICPMS1	% Rec	QC Limits
Aluminum	anr								
Antimony	anr								
Arsenic	7.9	8.2	14.4	0-20	7.1	29.2	24.3	90.8	80-120
Barium	anr								
Beryllium	anr								
Cadmium	2.8	2.9	7.1	0-20	2.7	27.3	24.3	101.1	80-120
Calcium	anr								
Chromium	28.9	27.8	5.2	0-20	28.9	53.4	24.3	110.9	80-120
Cobalt	anr								
Copper	139	188	30.0*(a)	0-20	139	197	24.3	238.3(b)	80-120
Iron	anr								
Lead	30.2	37.1	20.5*(a)	0-20	30.2	54.3	24.3	99.0	80-120
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	44.0	36.6	3.8	0-20	44.0	65.7	24.3	113.8	80-120
Potassium	anr								
Selenium	1.3	1.4	7.4	0-20	1.3	22.9	24.3	88.7	80-120
Silver	1.1	1.4	24.0*(a)	0-20	1.1	12.0	12.2	89.6	80-120
Sodium	anr								
Strontium									
Thallium	anr								
Tin									
Titanium									
Vanadium	anr								
Zinc	174	184	10.3	0-20	174	202	24.3	147.9(b)	80-120

Associated samples MP43153: FC11168-1, FC11168-2, FC11168-11

Results < IDL are shown as zero for calculation purposes

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

(a) High RPD due to possible sample non-homogeneity.

(b) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: FC11168
Account: GEOSORP - Geosyntec Consultants - Portland, OR
Project: Oakland Harbor

QC Batch ID: MP43153
Matrix Type: SOLID

Methods: SW846 6020B
Units: mg/kg

Prep Date: 11/15/23

Metal	FC11232-1 Original	MSD	SpikeLot MPICPMS1	% Rec	MSD RPD	QC Limit
Aluminum	anr					
Antimony	anr					
Arsenic	7.1	29.2	23.3	94.8	13.1	20
Barium	anr					
Beryllium	anr					
Cadmium	2.7	25.3	23.3	97.0	10.5	20
Calcium	anr					
Chromium	28.9	54.7	23.3	121.5N(a)	2.4	20
Cobalt	anr					
Copper	139	204	23.3	279.0(b)	3.5	20
Iron	anr					
Lead	30.2	55.6	23.3	109.0	2.4	20
Magnesium	anr					
Manganese	anr					
Molybdenum						
Nickel	44.0	68.2	23.3	129.6N(a)	3.7	20
Potassium	anr					
Selenium	1.3	22.0	23.3	88.8	10.8	20
Silver	1.1	11.6	11.7	90.1	0.0	20
Sodium	anr					
Strontium						
Thallium	anr					
Tin						
Titanium						
Vanadium	anr					
Zinc	174	208	23.3	180.2(b)	2.9	20

Associated samples MP43153: FC11168-1, FC11168-2, FC11168-11

Results < IDL are shown as zero for calculation purposes

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

(a) Spike recovery indicates possible matrix interference and/or sample non-homogeneity.

(b) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: FC11168
 Account: GEOSORP - Geosyntec Consultants - Portland, OR
 Project: Oakland Harbor

QC Batch ID: MP43153
 Matrix Type: SOLID

Methods: SW846 6020B
 Units: mg/kg

Prep Date: 11/15/23

Metal	BSP Result	SpikeLot MPICPMS1	% Rec	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	24.6	25	98.4	80-120
Barium	anr			
Beryllium	anr			
Cadmium	25.8	25	103.2	80-120
Calcium	anr			
Chromium	25.0	25	100.0	80-120
Cobalt	anr			
Copper	25.2	25	100.8	80-120
Iron	anr			
Lead	24.9	25	99.6	80-120
Magnesium	anr			
Manganese	anr			
Molybdenum				
Nickel	24.7	25	98.8	80-120
Potassium	anr			
Selenium	23.2	25	92.8	80-120
Silver	11.8	12.5	94.4	80-120
Sodium	anr			
Strontium				
Thallium	anr			
Tin				
Titanium				
Vanadium	anr			
Zinc	24.4	25	97.6	80-120

Associated samples MP43153: FC11168-1, FC11168-2, FC11168-11

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (anr) Analyte not requested

8.1.3
8

SERIAL DILUTION RESULTS SUMMARY

Login Number: FC11168
 Account: GEOSORP - Geosyntec Consultants - Portland, OR
 Project: Oakland Harbor

QC Batch ID: MP43153
 Matrix Type: SOLID

Methods: SW846 6020B
 Units: ug/l

Prep Date: 11/15/23

Metal	FC11232-1 Original	SDL 5:25	%DIF	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	148	162	9.3	0-10
Barium	anr			
Beryllium	anr			
Cadmium	56.3	57.9	2.9	0-10
Calcium	anr			
Chromium	604	599	8.4	0-10
Cobalt	anr			
Copper	2910	3390	16.4*(a)	0-10
Iron	anr			
Lead	628	652	3.4	0-10
Magnesium	anr			
Manganese	anr			
Molybdenum				
Nickel	794	903	13.6*(a)	0-10
Potassium	anr			
Selenium	27.8	30.4	9.3	0-10
Silver	22.5	23.0	4.3	0-10
Sodium	anr			
Strontium				
Thallium	anr			
Tin				
Titanium				
Vanadium	anr			
Zinc	3640	3670	5.9	0-10

Associated samples MP43153: FC11168-1, FC11168-2, FC11168-11

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (anr) Analyte not requested
 (a) Serial dilution indicates possible matrix interference.

POST DIGESTATE SPIKE SUMMARY

Login Number: FC11168
 Account: GEOSORP - Geosyntec Consultants - Portland, OR
 Project: Oakland Harbor

QC Batch ID: MP43153
 Matrix Type: SOLID

Methods: SW846 6020B
 Units: ug/l

Prep Date:

11/15/23

Metal	Sample ml	Final ml	FC11232-1 Raw	Corr.**	PS ug/l	Spike ml	Spike ug/ml	Spike ug/l	% Rec	QC Limits
Aluminum										
Antimony										
Arsenic										
Barium										
Beryllium										
Cadmium										
Calcium										
Chromium	9.8	10	552.298	541.252	617.796	0.2	0.5	10	765.4*(a	80-120
Cobalt										
Copper										
Iron										
Lead										
Magnesium										
Manganese										
Molybdenum										
Nickel	9.8	10	920.703	778.5326	926.92	0.2	0.5	10	1483.9*a	80-120
Potassium										
Selenium										
Silver										
Sodium										
Strontium										
Thallium										
Tin										
Titanium										
Vanadium										
Zinc										

Associated samples MP43153: FC11168-1, FC11168-2, FC11168-11

Results < IDL are shown as zero for calculation purposes

(*) Outside of QC limits

(**) Corr. sample result = Raw * (sample volume / final volume)

(anr) Analyte not requested

(a) Spike recovery indicates matrix interference and/or outside control limits due to high level in sample relative to spike amount.

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: FC11168
Account: GEOSORP - Geosyntec Consultants - Portland, OR
Project: Oakland Harbor

QC Batch ID: MP43202
Matrix Type: SOLID

Methods: SW846 7471B
Units: mg/kg

Prep Date: 11/28/23

Metal	RL	IDL	MDL	MB raw	final
Mercury	0.042	.0025	.0042	0.0014	<0.042

Associated samples MP43202: FC11168-1, FC11168-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: FC11168
 Account: GEOSORP - Geosyntec Consultants - Portland, OR
 Project: Oakland Harbor

QC Batch ID: MP43202
 Matrix Type: SOLID

Methods: SW846 7471B
 Units: mg/kg

Prep Date: 11/28/23 11/28/23

Metal	FC11125-1A		RPD	QC Limits	FC11125-1A		RPD	QC Limits
	Original	DUP			Original	DUP		
Mercury	0.25	0.23	8.3	0-20	0.25	0.23	8.3	0-20

Associated samples MP43202: FC11168-1, FC11168-2

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (N) Matrix Spike Rec. outside of QC limits
 (anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: FC11168
 Account: GEOSORP - Geosyntec Consultants - Portland, OR
 Project: Oakland Harbor

QC Batch ID: MP43202
 Matrix Type: SOLID

Methods: SW846 7471B
 Units: mg/kg

Prep Date: 11/28/23

Metal	FC11125-1A		Spike lot		QC
	Original	MS	HGFLWS1	% Rec	Limits
Mercury	0.25	0.38	0.15	86.7	80-120

Associated samples MP43202: FC11168-1, FC11168-2

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (N) Matrix Spike Rec. outside of QC limits
 (anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: FC11168
 Account: GEOSORP - Geosyntec Consultants - Portland, OR
 Project: Oakland Harbor

QC Batch ID: MP43202
 Matrix Type: SOLID

Methods: SW846 7471B
 Units: mg/kg

Prep Date: 11/28/23

Metal	FC11125-1A Original	MSD	Spike lot HGFLWS1	% Rec	MSD RPD	QC Limit
Mercury	0.25	0.33	0.15	53.3N(a)	14.1	20

Associated samples MP43202: FC11168-1, FC11168-2

Results < IDL are shown as zero for calculation purposes

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

(a) Spike recovery indicates possible matrix interference and/or sample non-homogeneity.

8.2.2

8

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: FC11168
 Account: GEOSORP - Geosyntec Consultants - Portland, OR
 Project: Oakland Harbor

QC Batch ID: MP43202
 Matrix Type: SOLID

Methods: SW846 7471B
 Units: mg/kg

Prep Date: 11/28/23

Metal	BSP Result	SpikeLot HGFLWS1	% Rec	QC Limits
Mercury	0.24	0.25	96.0	80-120

Associated samples MP43202: FC11168-1, FC11168-2

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (anr) Analyte not requested

82.3

8

SERIAL DILUTION RESULTS SUMMARY

Login Number: FC11168
 Account: GEOSORP - Geosyntec Consultants - Portland, OR
 Project: Oakland Harbor

QC Batch ID: MP43202
 Matrix Type: SOLID

Methods: SW846 7471B
 Units: ug/l

Prep Date: 11/28/23

Metal	FC11125-1A		QC	
	Original	SDL 1:5	%DIF	Limits
Mercury	5.08	4.45	12.4*(a)	0-10

Associated samples MP43202: FC11168-1, FC11168-2

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (anr) Analyte not requested
 (a) Serial dilution indicates possible matrix interference.

8.2.4

8

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: FC11168
Account: GEOSORP - Geosyntec Consultants - Portland, OR
Project: Oakland Harbor

QC Batch ID: MP43203
Matrix Type: SOLID

Methods: SW846 7471B
Units: mg/kg

Prep Date: 11/28/23

Metal	RL	IDL	MDL	MB raw	final
Mercury	0.042	.0025	.0042	-0.0010	<0.042

Associated samples MP43203: FC11168-11

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: FC11168
 Account: GEOSORP - Geosyntec Consultants - Portland, OR
 Project: Oakland Harbor

QC Batch ID: MP43203
 Matrix Type: SOLID

Methods: SW846 7471B
 Units: mg/kg

Prep Date: 11/28/23 11/28/23

Metal	FC11168-11 Original DUP		RPD	QC Limits	FC11168-11 Original MS		Spikelot HGFLWS1	% Rec	QC Limits
Mercury	0.33	0.29	12.9	0-20	0.33	0.74	0.415	98.7	80-120

Associated samples MP43203: FC11168-11

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (N) Matrix Spike Rec. outside of QC limits
 (anr) Analyte not requested

8.3.2

8

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: FC11168
 Account: GEOSORP - Geosyntec Consultants - Portland, OR
 Project: Oakland Harbor

QC Batch ID: MP43203
 Matrix Type: SOLID

Methods: SW846 7471B
 Units: mg/kg

Prep Date: 11/28/23

Metal	FC11168-11 Original MSD		Spike lot HGFLWS1	% Rec	MSD RPD	QC Limit
Mercury	0.33	0.73	0.409	97.7	1.4	20

Associated samples MP43203: FC11168-11

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (N) Matrix Spike Rec. outside of QC limits
 (anr) Analyte not requested

8.3.2

8

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: FC11168
 Account: GEOSORP - Geosyntec Consultants - Portland, OR
 Project: Oakland Harbor

QC Batch ID: MP43203
 Matrix Type: SOLID

Methods: SW846 7471B
 Units: mg/kg

Prep Date: 11/28/23

Metal	BSP Result	SpikeLot HGFLWS1	% Rec	QC Limits
Mercury	0.24	0.25	96.0	80-120

Associated samples MP43203: FC11168-11

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: FC11168
 Account: GEOSORP - Geosyntec Consultants - Portland, OR
 Project: Oakland Harbor

QC Batch ID: MP43203
 Matrix Type: SOLID

Methods: SW846 7471B
 Units: ug/l

Prep Date: 11/28/23

Metal	FC11168-11		QC	
	Original	SDL 1:5	%DIF	Limits
Mercury	2.43	2.04	15.8*(a)	0-10

Associated samples MP43203: FC11168-11

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (anr) Analyte not requested
 (a) Serial dilution indicates possible matrix interference.

8.3.4

8

Misc. Forms

Custody Documents and Other Forms

(SGS Dayton, NJ)

Includes the following where applicable:

- Chain of Custody

Bot # 3

Bot # 3 NP

SUB

CHAIN OF CUSTODY

Page 1 of 1

SUB
NP

SGS North America Inc. - Orlando
4405 Vineland Road, Suite C-15 Orlando, FL 32811
TEL: 407-425-6700 FAX: 407-425-0707
www.sgs.com/ehusa

FED-EX Tracking # 629 6673 2409	Bottle Order Control #
SGS Quote #	SGS Job # FC11168

Client / Reporting Information		Project Information		Requested Analysis (see TEST CODE sheet)												Matrix Codes					
Company Name: SGS North America Inc.		Project Name: Oakland Harbor		GRAINS TOCSW846												DW - Drinking Wa GW - Ground Wat WW - Water SW - Surface Wat SO - Soil SL - Sludge SED - Sediment OI - Oil LIQ - Other Liqui AIR - Air SOL - Other Soli WP - Wipe FB - Field Blank EB - Equipment Bla RB - Rinse Blank TB - Trip Blank					
Street Address: 4405 Vineland Rd, Suite C-15		Street:																			
City State Zip: Orlando FL 32811		Billing Information (if different from Report to) Company Name																			
Project Contact E-mail: Elvin.Kumar@sgs.com		Project #																			
Phone #: 407-425-6700		Client Purchase Order #																			
Project Manager		Attention:																			
Sample(s) Name(s) ED		Phone		Project Manager		Attention:															
Turnaround Time (Business days)		Data Deliverable Information		Comments / Special Instructions																	

☐ Std. 10 Business Days ☐ 5 Day RUSH ☐ 3 Day EMERGENCY ☐ 2 Day EMERGENCY ☐ 1 Day EMERGENCY ☒ other 14 Emergency & Rush T/A data available VIA Lablink		Approved By (SGS PM): / Date: _____ _____		☐ Commercial "A" (Level 1) ☐ Commercial "B" (Level 2) ☐ FULLT1 (Level 3+4) ☐ REDT1 (Level 3+4) ☐ Commercial "C" Commercial "A" = Results Only Commercial "B" = Results + QC Summary		☐ TRRP ☐ EDD Format ☐ Other ☒ COMMBN		sub to SGS - Dayton, NJ *Ship 1 x 8oz Glass Jar per Sample Initial Assessment 2A Label Verification _____	
---	--	---	--	--	--	--	--	---	--

Sample Custody must be documented below each time samples change possession, including courier delivery.							
Relinquished by Sampler: [Signature]	Date Time: 11/12/13	Received By: 1	Received By: Fa Fa	Relinquished By: 2	Date Time: 11/16/13	Received By: 2	Received By: [Signature]
Relinquished by Sampler:	Date Time:	Received By:	Received By:	Relinquished By:	Date Time:	Received By:	Received By:
Relinquished by:	Date Time:	Received By:	Received By:	Relinquished By:	Date Time:	Received By:	Received By:

FC11168: Chain of Custody

Page 1 of 2

SGS Dayton, NJ

SGS Sample Receipt Summary

Job Number: FC11168

Client: SGS NORTH AMERICA INC.

Project: OAKLAND HARBOR

Date / Time Received: 11/16/2023 10:00:00 AM

Delivery Method: FEDEX

Airbill #'s: 702466232409

Cooler Temps (Raw Measured) °C: Cooler 1: (4.8);

Cooler Temps (Corrected) °C: Cooler 1: (4.8);

Cooler Security

Y or N

Y or N

- | | | | | | |
|---------------------------|-------------------------------------|--------------------------|-----------------------|-------------------------------------|--------------------------|
| 1. Custody Seals Present: | ☒ | ☐ | 3. COC Present: | ☒ | ☐ |
| 2. Custody Seals Intact: | ☒ | ☐ | 4. Smpl Dates/Time OK | ☒ | ☐ |

Cooler Temperature

Y or N

- | | | |
|------------------------------|-------------------------------------|--------------------------|
| 1. Temp criteria achieved: | ☒ | ☐ |
| 2. Cooler temp verification: | | |
| 3. Cooler media: | Ice (Bag) | |
| 4. No. Coolers: | 1 | |

Quality Control Preservation

Y or N

N/A

- | | | | |
|---------------------------------|-------------------------------------|--------------------------|-------------------------------------|
| 1. Trip Blank present / cooler: | ☐ | ☐ | ☒ |
| 2. Trip Blank listed on COC: | ☐ | ☐ | ☒ |
| 3. Samples preserved properly: | ☒ | ☐ | |
| 4. VOCs headspace free: | ☐ | ☐ | ☒ |

Sample Integrity - Documentation

Y or N

- | | | |
|--|-------------------------------------|--------------------------|
| 1. Sample labels present on bottles: | ☒ | ☐ |
| 2. Container labeling complete: | ☒ | ☐ |
| 3. Sample container label / COC agree: | ☒ | ☐ |

Sample Integrity - Condition

Y or N

- | | | |
|----------------------------------|-------------------------------------|--------------------------|
| 1. Sample recvd within HT: | ☒ | ☐ |
| 2. All containers accounted for: | ☒ | ☐ |
| 3. Condition of sample: | Intact | |

Sample Integrity - Instructions

Y or N

N/A

- | | | | |
|---|-------------------------------------|-------------------------------------|-------------------------------------|
| 1. Analysis requested is clear: | ☒ | ☐ | |
| 2. Bottles received for unspecified tests | ☐ | ☒ | |
| 3. Sufficient volume recvd for analysis: | ☒ | ☐ | |
| 4. Compositing instructions clear: | ☐ | ☐ | ☒ |
| 5. Filtering instructions clear: | ☐ | ☐ | ☒ |

Test Strip Lot #s: pH 1-12: 231619 pH 12+: 203117A Other: (Specify)

Comments

SM089-03
Rev. Date 12/7/17

FC11168: Chain of Custody

Page 2 of 2

General Chemistry

QC Data Summaries

(SGS Dayton, NJ)

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: FC11168
Account: ALSE - SGS Orlando, FL
Project: GEOSORP: Oakland Harbor

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Total Organic Carbon	GP50606/GN48496	1000	0.00	mg/kg	20000	18300	91.5	80-120%

Associated Samples:
Batch GP50606: FC11168-1, FC11168-2, FC11168-11
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: FC11168
Account: ALSE - SGS Orlando, FL
Project: GEOSORP: Oakland Harbor

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
% Gravel	GP50682/GN48757	JD77372-1	%	0.0	0.0	0.0	0-41%
% Sand	GP50682/GN48757	JD77372-1	%	86.9	87.3	-0.6	0-16%
% Silt, Clay, Colloids	GP50682/GN48757	JD77372-1	%	13.1	12.7	3.7	0-40%
0.0015 mm (Hydrometer)	GP50682/GN48757	JD77372-1	%	4.5	3.7	19.5	0-45%
0.005 mm (Hydrometer)	GP50682/GN48757	JD77372-1	%	16	13.8	17.2	0-48%
0.030 mm (Hydrometer)	GP50682/GN48757	JD77372-1	%	9.8	8.1	19.3	0-36%
0.375 Inch Sieve	GP50682/GN48757	JD77372-1	%	100	100	0.0	0-14%
0.75 Inch Sieve	GP50682/GN48757	JD77372-1	%	100	100	0.0	0-9%
1.5 Inch Sieve	GP50682/GN48757	JD77372-1	%	100	100	0.0	0-20%
3 Inch Sieve	GP50682/GN48757	JD77372-1	%	100	100	0.0	0-20%
No.10 Sieve (2.00 mm)	GP50682/GN48757	JD77372-1	%	100	100	0.0	0-14%
No.100 Sieve (0.15 mm)	GP50682/GN48757	JD77372-1	%	15.2	14.6	4.6	0-31%
No.16 Sieve (1.18 mm)	GP50682/GN48757	JD77372-1	%	99.0	99.4	-0.4	0-17%
No.200 Sieve (0.075 mm)	GP50682/GN48757	JD77372-1	%	13.1	12.7	3.7	0-40%
No.30 Sieve (0.60 mm)	GP50682/GN48757	JD77372-1	%	90.5	91.9	-1.6	0-21%
No.4 Sieve (4.75 mm)	GP50682/GN48757	JD77372-1	%	100	100	0.0	0-13%
No.50 Sieve (0.30 mm)	GP50682/GN48757	JD77372-1	%	37.6	33.8	10.7	0-30%
No.8 Sieve (2.36 mm)	GP50682/GN48757	JD77372-1	%	100	100	0.0	0-14%

Associated Samples:

Batch GP50682: FC11168-1, FC11168-2, FC11168-11

(*) Outside of QC limits

10.2
10

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: FC11168
Account: ALSE - SGS Orlando, FL
Project: GEOSORP: Oakland Harbor

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Total Organic Carbon	GP50606/GN48496	FC11080-1	mg/kg	4360	37100	26100	58.6	10-113%

Associated Samples:
Batch GP50606: FC11168-1, FC11168-2, FC11168-11
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: FC11168
Account: ALSE - SGS Orlando, FL
Project: GEOSORP: Oakland Harbor

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Total Organic Carbon	GP50606/GN48496	FC11080-1	mg/kg	4360	37800	28700	5.7	31%

Associated Samples:
Batch GP50606: FC11168-1, FC11168-2, FC11168-11
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

Geosyntec Consultants - Portland, OR

Oakland Harbor

PNG1060

SGS Job Number: FC11168X

Sampling Date: 11/09/23



Report to:

Geosyntec Consultants - Portland, OR
920 SW 6th Ave Suite 600
Portland, OR 97204
edunbar@geosyntec.com

ATTN: Erin Dunbar

Total number of pages in report: **26**



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable unless noted in the narrative, comments or footnotes.



Norm Farmer
Technical Director

Client Service contact: Elvin Kumar 407-425-6700

Certifications: FL(E83510), LA(03051), KS(E-10327), NC(573), NJ(FL002), NY(12022), SC(96038001)

DoD ELAP(ANAB L2229), AZ(AZ0806), CA(2937), TX(T104704404), PA(68-03573), VA(460177),

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Test results relate only to samples analyzed.

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Sample Summary

Geosyntec Consultants - Portland, OR

Job No: FC11168X

Oakland Harbor
Project No: PNG1060

Sample Number	Collected		Time By	Received	Matrix		Client Sample ID
	Date				Code	Type	
FC11168-1X	11/09/23	15:13	ED	11/11/23	SO	Sediment	01TB-TERMINAL
FC11168-2X	11/09/23	15:30	ED	11/11/23	SO	Sediment	01TB-BELOW-35 MLLW
FC11168-11X	11/09/23	16:25	ED	11/11/23	SO	Sediment	01TB-SURFACE TO-35 MLLW

Soil samples reported on a dry weight basis unless otherwise indicated on result page.



Orlando, FL

Section 2

Subcontract Lab Data

Report of Analysis



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 2311B88 **Amended:** 01/02/2024

Revision: 1

Report Created for: SGS North America In.

4405 Vineland Rd. Suite C-15
Orlando, FL 32811

Project Contact: Elvin Kumar

Project P.O.:

Project: FC11168X; FC11168X/ Oakland Harbor

Project Received: 11/16/2023

Analytical Report reviewed & approved for release on 11/29/2023 by:

Christine Askari

Project Manager

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1534 Willow Pass Rd. Pittsburg, CA 94565 ♦ TEL: (877) 252-9262 ♦ FAX: (925) 252-9269 ♦ www.mcccampbell.com
CA ELAP 1644 ♦ NELAP 4033 ORELAP



Revision History

Client: SGS North America In.

WorkOrder: 2311B88

Project: FC11168X; FC11168X/ Oakland Harbor

<u>Date</u>	<u>Revision</u>	<u>Reason</u>
01/02/2024	1	Revised PAHs to include additional compounds per client email.



Glossary of Terms & Qualifier Definitions

Client: SGS North America Inc.

WorkOrder: 2311B88

Project: FC11168X; FC11168X/ Oakland Harbor

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
CCV	Continuing Calibration Verification.
CCV REC (%)	% recovery of Continuing Calibration Verification.
CPT	Consumer Product Testing not NELAP Accredited
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DLT	Dilution Test (Serial Dilution)
DUP	Duplicate
EDL	Estimated Detection Limit
ERS	External reference sample. Second source calibration verification.
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
LCS2	Second LCS for the batch. Spike level is lower than that for the first LCS; applicable to method 1633.
LQL	Lowest Quantitation Level
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit ¹
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
NA	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PDS	Post Digestion Spike
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit ²
RPD	Relative Percent Difference
RRT	Relative Retention Time
RSD	Relative Standard Deviation
SNR	Surrogate is diluted out of the calibration range
SPK Val	Spike Value

¹ MDL is the minimum measured concentration of a substance that can be reported with 99% confidence that the measured concentration is distinguishable from method blank results. Definition and Procedure for the Determination of the Method Detection Limit, Revision 2, 40CFR, Part 136, Appendix B, EPA 821-R-16-006, December 2016. Values are based upon our default extraction volume/amount and are subject to change.

² RL is the lowest level that can be reliably determined within specified limits of precision and accuracy during routine laboratory operating conditions. (The RL cannot be lower than the lowest calibration standard used in the initial calibration of the instrument and must be greater than the MDL.) Values are based upon our default extraction volume/amount and are subject to change.



Glossary of Terms & Qualifier Definitions

Client: SGS North America Inc.

WorkOrder: 2311B88

Project: FC11168X; FC11168X/ Oakland Harbor

SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
ST	Sorbent Tube
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
TNTC	"Too Numerous to Count;" greater than 250 colonies observed on the plate.
TZA	TimeZone Net Adjustment for sample collected outside of MAI's UTC.
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)

Analytical Qualifiers

a2	Sample diluted due to cluttered chromatogram.
h7	Copper (EPA 3660B) cleanup



Case Narrative

Client: SGS North America Inc.
Project: FC11168X; FC11168X/ Oakland Harbor

Work Order: 2311B88
November 29, 2023

Percent Moisture

In accordance with SW-846, 8000, percent moisture is reported as:

$$[\text{Moisture Weight (g)}] / [\text{Sample Wet Weight (g)}] \times 100$$



Analytical Report

Client: SGS North America Inc.
Date Received: 11/16/2023 9:52
Date Prepared: 11/20/2023
Project: FC11168X; FC11168X/ Oakland Harbor

WorkOrder: 2311B88
Extraction Method: SW3550B/3640Am/3630Cm
Analytical Method: SW8081A
Unit: mg/kg-dry

Organochlorine Pesticides w/ Florisil Clean-up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
01TB-TERMINAL	2311B88-001A	Soil	11/09/2023 15:13	GC20 11272316.D	282610

Analytes	Result	RL	DF	Date Analyzed
o,p-DDD	ND	0.00057	5	11/27/2023 12:39
o,p-DDE	ND	0.00057	5	11/27/2023 12:39
o,p-DDT	ND	0.00057	5	11/27/2023 12:39

Surrogates	REC (%)	Limits	
	82	20-145	11/27/2023 12:39

Analyst(s): CK

Analytical Comments: h7,a2

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
01TB-BELOW-35 MLLW	2311B88-002A	Soil	11/09/2023 15:30	GC20 11272317.D	282610

Analytes	Result	RL	DF	Date Analyzed
o,p-DDD	ND	0.00098	5	11/27/2023 12:55
o,p-DDE	ND	0.00098	5	11/27/2023 12:55
o,p-DDT	0.0027	0.00098	5	11/27/2023 12:55

Surrogates	REC (%)	Limits	
	92	20-145	11/27/2023 12:55

Analyst(s): CK

Analytical Comments: h7,a2

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
01TB-SURFACE TO-35 MLLW	2311B88-003A	Soil	11/09/2023 16:25	GC20 11272318.D	282610

Analytes	Result	RL	DF	Date Analyzed
o,p-DDD	ND	0.00091	5	11/27/2023 13:10
o,p-DDE	ND	0.00091	5	11/27/2023 13:10
o,p-DDT	0.0012	0.00091	5	11/27/2023 13:10

Surrogates	REC (%)	Limits	
	95	20-145	11/27/2023 13:10

Analyst(s): CK

Analytical Comments: h7,a2



Analytical Report

Client: SGS North America Inc.
Date Received: 11/16/2023 9:52
Date Prepared: 11/21/2023
Project: FC11168X; FC11168X/ Oakland Harbor

WorkOrder: 2311B88
Extraction Method: SW3550B
Analytical Method: SW8270E
Unit: mg/kg-dry

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
01TB-TERMINAL	2311B88-001A	Soil	11/09/2023 15:13	GC35 11212309.D	282702

Analytes	Result	RL	DE	Date Analyzed
2,6-Dimethylnaphthalene	ND	0.0057	2	11/21/2023 15:02
1-Methylphenanthrene	ND	0.0057	2	11/21/2023 15:02
Perylene	ND	0.0057	2	11/21/2023 15:02
2,3,5-Trimethylnaphthalene	ND	0.0057	2	11/21/2023 15:02

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorobiphenyl	86	70-130	11/21/2023 15:02
4-Terphenyl-d14	89	70-130	11/21/2023 15:02

Analyst(s): LAT

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
01TB-BELOW-35 MLLW	2311B88-002A	Soil	11/09/2023 15:30	GC35 11212310.D	282702

Analytes	Result	RL	DE	Date Analyzed
2,6-Dimethylnaphthalene	ND	0.0098	2	11/21/2023 15:27
1-Methylphenanthrene	ND	0.0098	2	11/21/2023 15:27
Perylene	0.033	0.0098	2	11/21/2023 15:27
2,3,5-Trimethylnaphthalene	ND	0.0098	2	11/21/2023 15:27

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorobiphenyl	101	70-130	11/21/2023 15:27
4-Terphenyl-d14	105	70-130	11/21/2023 15:27

Analyst(s): LAT

(Cont.)

CA ELAP 1644 • NELAP 4033ORELAP



Analytical Report

Client: SGS North America Inc. **WorkOrder:** 2311B88
Date Received: 11/16/2023 9:52 **Extraction Method:** SW3550B
Date Prepared: 11/21/2023 **Analytical Method:** SW8270E
Project: FC11168X; FC11168X/ Oakland Harbor **Unit:** mg/kg-dry

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode

Client ID	Lab ID	Matrix	Date Collected		Instrument	Batch ID
01TB-SURFACE TO-35 MLLW	2311B88-003A	Soil	11/09/2023 16:25		GC35 11212311.D	282702
Analytes	Result		RL	DF		Date Analyzed
2,6-Dimethylnaphthalene	ND		0.022	5		11/21/2023 15:53
1-Methylphenanthrene	ND		0.022	5		11/21/2023 15:53
Perylene	0.036		0.022	5		11/21/2023 15:53
2,3,5-Trimethylnaphthalene	ND		0.022	5		11/21/2023 15:53
Surrogates	REC (%)		Limits			
2-Fluorobiphenyl	99		70-130			11/21/2023 15:53
4-Terphenyl-d14	115		70-130			11/21/2023 15:53
Analyst(s): LAT						



Analytical Report

Client: SGS North America Inc. **WorkOrder:** 2311B88
Date Received: 11/16/2023 9:52 **Extraction Method:** ASTM D2216
Date Prepared: 11/20/2023 **Analytical Method:** SW8000
Project: FC11168X; FC11168X/ Oakland Harbor **Unit:** wet wt%

Percent Moisture

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
01TB-TERMINAL	2311B88-001A	Soil	11/09/2023 15:13	WetChem	282670

<u>Analytes</u>	<u>Result</u>	<u>RL</u>	<u>Date Analyzed</u>
% Moisture	11.7	0.100	11/20/2023 20:05

Analyst(s): JRA

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
01TB-BELOW-35 MLLW	2311B88-002A	Soil	11/09/2023 15:30	WetChem	282670

<u>Analytes</u>	<u>Result</u>	<u>RL</u>	<u>Date Analyzed</u>
% Moisture	49.0	0.100	11/21/2023 12:30

Analyst(s): JRA

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
01TB-SURFACE TO-35 MLLW	2311B88-003A	Soil	11/09/2023 16:25	WetChem	282670

<u>Analytes</u>	<u>Result</u>	<u>RL</u>	<u>Date Analyzed</u>
% Moisture	45.2	0.100	11/21/2023 12:35

Analyst(s): JRA



Quality Control Report

Client: SGS North America In. **WorkOrder:** 2311B88
Date Prepared: 11/20/2023 **BatchID:** 282610
Date Analyzed: 11/27/2023 **Extraction Method:** SW3550B/3640Am/3630Cm
Instrument: GC20 **Analytical Method:** SW8081A
Matrix: Soil **Unit:** mg/kg
Project: FC11168X; FC11168X/ Oakland Harbor **Sample ID:** MB-282610

QC Summary Report for SW8081B

Analyte	MB Result	MDL	RL	SPK Val	MB SS %REC	MB SS Limits
o,p-DDD	ND	0.000035	0.00010	-	-	-
o,p-DDE	ND	0.000036	0.00010	-	-	-
o,p-DDT	ND	0.000045	0.00010	-	-	-
Surrogate Recovery						
Decachlorobiphenyl	0.0058			0.005	115	28-170



Quality Control Report

Client: SGS North America Inc. **WorkOrder:** 2311B88
Date Prepared: 11/21/2023 **BatchID:** 282702
Date Analyzed: 11/21/2023 **Extraction Method:** SW3550B
Instrument: GC17 **Analytical Method:** SW8270C
Matrix: Soil **Unit:** mg/Kg
Project: FC11168X; FC11168X/ Oakland Harbor **Sample ID:** MB/LCS/LCSD-282702

QC Summary Report for SW8270C

Analyte	MB Result	MDL	RL	SPK Val	MB SS %REC	MB SS Limits
Acenaphthene	ND	0.00035	0.0013	-	-	-
Acenaphthylene	ND	0.00028	0.0013	-	-	-
Anthracene	ND	0.00057	0.0013	-	-	-
Benzo (a) anthracene	ND	0.0036	0.012	-	-	-
Benzo (a) pyrene	ND	0.00070	0.0013	-	-	-
Benzo (b) fluoranthene	ND	0.0011	0.0025	-	-	-
Benzo (g,h,i) perylene	ND	0.00089	0.0025	-	-	-
Benzo (k) fluoranthene	ND	0.0010	0.0025	-	-	-
1,1-Biphenyl	ND	0.0029	0.012	-	-	-
Chrysene	ND	0.00067	0.0013	-	-	-
Dibenzo (a,h) anthracene	ND	0.0011	0.0025	-	-	-
Fluoranthene	ND	0.00079	0.0025	-	-	-
Fluorene	ND	0.0010	0.0025	-	-	-
Indeno (1,2,3-cd) pyrene	ND	0.0016	0.0025	-	-	-
1-Methylnaphthalene	ND	0.00033	0.0013	-	-	-
2-Methylnaphthalene	ND	0.00048	0.0013	-	-	-
Naphthalene	ND	0.00042	0.0025	-	-	-
Phenanthrene	ND	0.00068	0.0013	-	-	-
Pyrene	ND	0.00063	0.0013	-	-	-
Surrogate Recovery						
2-Fluorophenol	1.4			1.25	111	70-130
Phenol-d5	1.3			1.25	104	70-130
Nitrobenzene-d5	1.2			1.25	99	60-130
2-Fluorobiphenyl	1.1			1.25	91	60-130
2,4,6-Tribromophenol	1.1			1.25	88	30-130
4-Terphenyl-d14	1.3			1.25	103	40-130

(Cont.)

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Quality Control Report

Client: SGS North America Inc. **WorkOrder:** 2311B88
Date Prepared: 11/21/2023 **BatchID:** 282702
Date Analyzed: 11/21/2023 **Extraction Method:** SW3550B
Instrument: GC17 **Analytical Method:** SW8270C
Matrix: Soil **Unit:** mg/Kg
Project: FC11168X; FC11168X/ Oakland Harbor **Sample ID:** MB/LCS/LCSD-282702

QC Summary Report for SW8270C

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Acenaphthene	0.045	0.042	0.062	71	68	60-130	5.07	30
Acenaphthylene	0.045	0.043	0.062	72	69	60-130	4.93	30
Anthracene	0.047	0.044	0.062	75	71	60-130	5.90	30
Benzo (a) anthracene	0.052	0.048	0.062	83	76	70-130	8.96	30
Benzo (a) pyrene	0.054	0.049	0.062	87	78	70-130	10.5	30
Benzo (b) fluoranthene	0.053	0.047	0.062	85	75	60-130	11.4	30
Benzo (g,h,i) perylene	0.052	0.047	0.062	84	75	70-130	10.9	30
Benzo (k) fluoranthene	0.052	0.048	0.062	83	76	70-130	9.04	30
1,1-Biphenyl	0.047	0.045	0.062	76	73	60-130	4.47	30
Chrysene	0.050	0.046	0.062	80	74	70-130	8.29	30
Dibenzo (a,h) anthracene	0.054	0.051	0.062	87	81	70-130	6.87	30
Fluoranthene	0.048	0.044	0.062	78	70	70-130	9.61	30
Fluorene	0.050	0.047	0.062	80	76	60-130	5.41	30
Indeno (1,2,3-cd) pyrene	0.053	0.048	0.062	84	77	70-130	8.84	30
1-Methylnaphthalene	0.044	0.044	0.062	71	70	70-130	2.20	30
2-Methylnaphthalene	0.047	0.046	0.062	75	73	70-130	2.61	30
Naphthalene	0.046	0.044	0.062	73	70	70-130	4.15	30
Phenanthrene	0.050	0.047	0.062	80	75	60-130	6.04	30
Pyrene	0.054	0.051	0.062	86	81	70-130	5.73	30
Surrogate Recovery								
2-Fluorophenol	1.3	1.3	1.25	101	100	70-130	1.11	30



Quality Control Report

Client: SGS North America In. **WorkOrder:** 2311B88
Date Prepared: 11/20/2023 **BatchID:** 282670
Date Analyzed: 11/20/2023 **Extraction Method:** ASTM D2216
Instrument: WetChem **Analytical Method:** SW8000
Matrix: Soil **Unit:** wet wt%
Project: FC11168X; FC11168X/ Oakland Harbor **Sample ID:** MB-282670

QC Summary Report for Percent Moisture

Analyte	MB Result	MDL	RL			
% Moisture	ND	0.100	0.100	-	-	-



1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

☐ WaterTrax ☐ CLIP ☐ EDF

CHAIN-OF-CUSTODY RECORD

WorkOrder: 2311B88

ClientCode: SGSAF

☐ EQUIS ☐ Dry-Weight ☒ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag
☐ Detection Summary ☒ Excel [SGS N. America (Hist)]

Report to:

Elvin Kumar
SGS North America Inc.
4405 Vineland Rd. Suite C-15
Orlando, FL 32811
(407) 425-6700 FAX:

Email: elvin.kumar@sgs.com
cc/3rd Party:
PO:
Project: FC11168X; FC11168X/ Oakland Harbor

Bill to:

Accounts Payable
SGS North America Inc.
4405 Vineland Rd. Suite C-15
Orlando, FL 32811
elvin.kumar@sgs.com; sgs.ap.us@hero

Requested TAT: 5 days;

Date Received: 11/16/2023

Date Logged: 11/16/2023

Lab ID	ClientSampleID	Matrix	Collection Date	Hold	Requested Tests (See legend below)											
					1	2	3	4	5	6	7	8	9	10	11	12
2311B88-001	01TB-TERMINAL	Soil	11/9/2023 15:13	☐	A	A	A	A								
2311B88-002	01TB-BELOW-35 MLLW	Soil	11/9/2023 15:30	☐	A	A	A	A								
2311B88-003	01TB-SURFACE TO-35 MLLW	Soil	11/9/2023 16:25	☐	A	A	A	A								

Test Legend:

1	8081O,P_ESL_LL_S	2	8270_PNAEXT_S	3	PERmoist_S	4	PRDisposal Fee
5		6		7		8	
9		10		11		12	

Prepared by: Agustina Venegas

Comments:

NOTE: Soil samples are discarded 60 days after receipt unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.



WORK ORDER SUMMARY

Client Name: SGS NORTH AMERICA IN.

Project: FC11168X; FC11168X/ Oakland Harbor

Work Order: 2311B88

Client Contact: Elvin Kumar

QC Level: LEVEL 2

Contact's Email: elvin.kumar@sgs.com

Comments:

Date Logged: 11/16/2023

☐ WaterTrax ☐ CLIP ☐ EDF ☒ Excel ☐ EQuIS ☒ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

LabID	ClientSampID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	U**	Head Space	Dry-Weight	Collection Date & Time	TAT	Test Due Date	Sediment Content	Hold	Sub Out
001A	01TB-TERMINAL	Soil	SW 8000 (Percent Moisture)	1	8OZ GJ, Unpres	☐	☐	☒	11/9/2023 15:13	5 days	11/27/2023		☐	☐
			SW8270E (PAHs/PNAs) <1-Methylphenanthrene, 2,3,5-Trimethylnaphthalene, 2,6-Dimethylnaphthalene, Perylene>			☐	☐	☒		5 days	11/27/2023		☐	☐
			SW8081B (OC Pesticides) Low Level ESLs			☐	☐	☒		5 days	11/29/2023		☐	☐
002A	01TB-BELOW-35 MLLW	Soil	SW 8000 (Percent Moisture)	1	8OZ GJ, Unpres	☐	☐	☒	11/9/2023 15:30	5 days	11/27/2023		☐	☐
			SW8270E (PAHs/PNAs) <1-Methylphenanthrene, 2,3,5-Trimethylnaphthalene, 2,6-Dimethylnaphthalene, Perylene>			☐	☐	☒		5 days	11/27/2023		☐	☐
			SW8081B (OC Pesticides) Low Level ESLs			☐	☐	☒		5 days	11/29/2023		☐	☐
003A	01TB-SURFACE TO-35 MLLW	Soil	SW 8000 (Percent Moisture)	1	8OZ GJ, Unpres	☐	☐	☒	11/9/2023 16:25	5 days	11/27/2023		☐	☐

NOTES: * STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- ISM prep requires 5 to 10 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 6 to 11 days from sample submission). Due date listed on WO summary will not accurately reflect the time needed for sample preparation.

- Organic extracts are held for 40 days before disposal; Inorganic extract are held for 30 days.

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

U** = An unpreserved container was received for a method that suggests a preservation in order to extend hold time for analysis.



WORK ORDER SUMMARY

Client Name: SGS NORTH AMERICA IN.

Project: FC11168X; FC11168X/ Oakland Harbor

Work Order: 2311B88

Client Contact: Elvin Kumar

QC Level: LEVEL 2

Contact's Email: elvin.kumar@sgs.com

Comments:

Date Logged: 11/16/2023

☐ WaterTrax ☐ CLIP ☐ EDF ☒ Excel ☐ EQuIS ☒ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

LabID	ClientSampID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	U**	Head Space	Dry- Weight	Collection Date & Time	TAT	Test Due Date	Sediment Content	Hold	Sub Out
003A	01TB-SURFACE TO-35 MLLW	Soil	SW8270E (PAHs/PNAs) <1-Methylphenanthrene, 2,3,5-Trimethylnaphthalene, 2,6-Dimethylnaphthalene, Perylene>	1	8OZ GJ, Unpres	☐	☐	☒	11/9/2023 16:25	5 days	11/27/2023		☐	☐
			SW8081B (OC Pesticides) Low Level ESLs			☐	☐	☒		5 days	11/29/2023		☐	☐

NOTES: * STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

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U** = An unpreserved container was received for a method that suggests a preservation in order to extend hold time for analysis.

Christine Askari

From: Kumar, Elvin (Orlando) <Elvin.Kumar@sgs.com>
Sent: Tuesday, January 2, 2024 2:26 PM
To: Nicole Hisamoto; Jennifer Lagerbom
Cc: MAI Sales; Mccampbell Analytical, Inc.
Subject: RE: [EXTERNAL] RE: Sediment samples for Pesticides and SVOCs
Attachments: 2311B88.pdf; RE: [EXTERNAL] RE: Sediment samples for Pesticides and SVOCs

Importance: High

Good afternoon,

This is regarding Work Order: **2311B88**

Per email attached, the following compounds need reported.

My apologies, the 3 other compounds for PAHs(8270SIM) got cut off on the original COC.

Would you please provide a revised report?

Pesticides by EPA 8081B

- 2,4' DDD,
- 2,4' DDE
- 2,4' DDT

PAHs by EPA 8270C

- 1-Methylphenanthrene
- 2,3,5- Trimethylnaphthalene
- Perylene
- 2,6 – Dimethylnaphthalene

Thank you,

Elvin Kumar
Industries & Environment
Sr. Project Manager

SGS North America Inc.

From: Nicole Hisamoto <nicole.hisamoto@mccampbell.com>
Sent: Thursday, November 16, 2023 11:31 AM
To: Kumar, Elvin (Orlando) <Elvin.Kumar@sgs.com>
Cc: MAI Sales <sales@mccampbell.com>; Mccampbell Analytical, Inc. <main@mccampbell.com>
Subject: RE: [EXTERNAL] RE: Sediment samples for Pesticides and SVOCs

*** WARNING: this message is from an EXTERNAL SENDER. Please be cautious, particularly with links and attachments. ***



Sample Receipt Checklist

Client Name: SGS North America Inc.
Project: FC11168X; FC11168X/ Oakland Harbor

Date and Time Received: 11/16/2023 09:52

Date Logged: 11/16/2023

Received by: Agustina Venegas

Logged by: Agustina Venegas

WorkOrder No: 2311B88 Matrix: Soil
Carrier: FedEx

Chain of Custody (COC) Information

Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Sample IDs noted by Client on COC?	Yes ☒	No ☐	
Date and Time of collection noted by Client on COC?	Yes ☒	No ☐	
Sampler's name noted on COC?	Yes ☐	No ☒	
COC agrees with Quote?	Yes ☐	No ☐	NA ☒

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	NA ☒
Custody seals intact on sample bottles?	Yes ☐	No ☐	NA ☒
Shipping container/cooler in good condition?	Yes ☒	No ☐	
Samples in proper containers/bottles?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes ☒	No ☐	NA ☐
Samples Received on Ice?	Yes ☒	No ☐	

(Ice Type: WET ICE)

Sample/Temp Blank temperature	Temp: 1°C		NA ☐
ZHS conditional analyses: VOA meets zero headspace requirement (VOCs, TPHg/BTEX, RSK)?	Yes ☐	No ☐	NA ☒
Sample labels checked for correct preservation?	Yes ☒	No ☐	
pH acceptable upon receipt (Metal: <2; Nitrate 353.2/4500NO3: <2; 522: <4; 218.7: >8)?	Yes ☐	No ☐	NA ☒

UCMR Samples:

pH tested and acceptable upon receipt (200.7: ≤2; 533: 6 - 8; 537.1: 6 - 8)?	Yes ☐	No ☐	NA ☒
Free Chlorine tested and acceptable upon receipt (<0.1mg/L) [not applicable to 200.7]?	Yes ☐	No ☐	NA ☒

Comments:

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody



SGS Sample Receipt Summary

Job Number: fc11168 **Client:** Geosyntec Consultants **Project:** Oakland Harbor
Date / Time Received: 11/11/2023 10:00:00 AM **Delivery Method:** FedEx **Airbill #s:** 786219631416

Cooler Temps (Raw Measured) °C: Cooler 1: (4.6);

Cooler Temps (Corrected) °C: Cooler 1: (5.0);

<u>Cooler Informatio</u>	<u>Y</u>	<u>or</u>	<u>N</u>
1. Custody Seals Present:	☒		☐
2. Custody Seals Intact:	☒		☐
3. Temp criteria achieved:	☒		☐
4. Cooler temp verification:			IR Gun
5. Cooler media:			Ice (Bag)

<u>Trip Blank Information</u>	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Trip Blank present / cooler:	☐		☐	☒
2. Trip Blank listed on COC:	☐		☐	☒

<u>W</u>	<u>or</u>	<u>S</u>	<u>N/A</u>
3. Type of TB Received		☐	☒

<u>Sample Information</u>	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Sample labels present on bottles:	☒		☐	
2. Samples presented properly	☒		☐	
3. Suffient volume/containers recv'd for analysi	☒		☐	
4. Condition of sample:			Intact	
5. Sample recv'd within HT	☒		☐	
6. Dates/Times/IDs on COC match sample labe	☒		☐	
7. VOCs have headspace	☐		☐	☒
8. Bottles received for unspecified tests	☐		☒	
9. Compositing instructions clear	☐		☐	☒
10. Voa Soil Kits/Jars received past 48hrs?	☐		☐	☒
11. % Solids Jar Received?	☒		☐	☐
12. Residual Chlorine Present?	☐		☐	☒

<u>Misc Information</u>			
Number of Encores: 25 Gram	5 Gram	Number of Lab Filtered Metals	
Test Strip Lot #s: pH 0-3: <u>226422</u>	pH 10-12: _____	Other: (Specify) pH 1.0 - 12.0	<u>222221</u>
Residual Chlorine Test Strip Lot _____			

Comments

SM001 Technician: DONM Date: 11/11/2023 3:46:04 PM Reviewer: ZD Date: 11/11/2023
 Rev. Date 05/04/17

FC11168X: Chain of Custody

Page 2 of 2

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

Geosyntec Consultants - Portland, OR

Oakland Harbor

PNG1060

SGS Job Number: FC11168XE

Sampling Date: 11/09/23



Report to:

Geosyntec Consultants - Portland, OR
920 SW 6th Ave Suite 600
Portland, OR 97204
edunbar@geosyntec.com

ATTN: Erin Dunbar

Total number of pages in report: **26**



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable unless noted in the narrative, comments or footnotes.



Norm Farmer
Technical Director

Client Service contact: Elvin Kumar 407-425-6700

Certifications: FL(E83510), LA(03051), KS(E-10327), NC(573), NJ(FL002), NY(12022), SC(96038001)

DoD ELAP(ANAB L2229), AZ(AZ0806), CA(2937), TX(T104704404), PA(68-03573), VA(460177),

AL, AK, AR, CT, IA, KY, MA, MI, MS, ND, NH, NV, OK, OR, IL, UT, VT, WA, WI, WV

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Test results relate only to samples analyzed.

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Sample Summary

Geosyntec Consultants - Portland, OR

Job No: FC11168XE

Oakland Harbor
Project No: PNG1060

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
FC11168-1XE	11/09/23	15:13 ED	11/11/23	SO	Sediment	01TB-TERMINAL
FC11168-2XE	11/09/23	15:30 ED	11/11/23	SO	Sediment	01TB-BELOW-35 MLLW
FC11168-11XE	11/09/23	16:25 ED	11/11/23	SO	Sediment	01TB-SURFACE TO-35 MLLW

Soil samples reported on a dry weight basis unless otherwise indicated on result page.



Orlando, FL

Section 2

Subcontract Lab Data

Report of Analysis

ANALYTICAL REPORT

PREPARED FOR

Attn: Elvin Kumar
SGS North America, Inc
4405 Vineland Road
Suite C-15
Orlando, Florida 32811

Generated 1/10/2024 11:49:35 AM Revision 1

JOB DESCRIPTION

Tributyltin in Sediments

JOB NUMBER

570-161346-1

Eurofins Calscience
2841 Dow Avenue, Suite 100
Tustin CA 92780

See page two for job notes and contact information.

Page 1 of 19



Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



Authorized for release by
Janice Hsu, Project Manager I
Janice.Hsu@et.eurofinsus.com
(657)210-6359

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Revision 1

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Definitions/Glossary

Client: SGS North America, Inc
Project/Site: Tributyltin in Sediments

Job ID: 570-161346-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1-	Surrogate recovery exceeds control limits, low biased.

General Chemistry

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time. This does not meet regulatory requirements.
H3	Sample was received and analyzed past holding time. This does not meet regulatory requirements.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Eurofins Calscience

Case Narrative

Client: SGS North America, Inc
Project: Tributyltin in Sediments

Job ID: 570-161346-1

Job ID: 570-161346-1

Eurofins Calscience

**Job Narrative
570-161346-1**

REVISION

The report being provided is a revision of the original report sent on 12/13/2023. The report (revision 1) is being revised due to Revised to report Organotins full list per client's request on 01/02/24.

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt

The samples were received on 11/17/2023 9:40 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.7°C

GC/MS Semi VOA

Method Organotins_SIM: The method blank for preparation batch 570-386121 and analytical batch 570-387328 contained Dibutyltin and Monobutyltin above the method detection limit. This target analyte concentration was less than the reporting limit (RL) in the method blank; therefore, re-extraction and/or re-analysis of samples was not performed.

Method Organotins_SIM: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 570-386121 and analytical batch 570-386903 were outside control limits for one or more analytes. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

Method Organotins_SIM: The surrogate recovery for the blank associated with preparation batch 570-386121 and analytical batch 570-386903 was outside the upper control limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

General Chemistry

Method Moisture: The following samples were received outside of holding time: 01TB-TERMINAL (570-161346-1), 01TB-BELOW-35 MLLW (570-161346-2) and 01TB-SURFACE TO-35 MLLW (570-161346-3).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Eurofins Calscience

Detection Summary

Client: SGS North America, Inc
Project/Site: Tributyltin in Sediments

Job ID: 570-161346-1

Client Sample ID: 01TB-TERMINAL Lab Sample ID: 570-161346-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sample Homogenized	yes				NONE	1		Homogenization	Total/NA

Client Sample ID: 01TB-BELOW-35 MLLW Lab Sample ID: 570-161346-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Dibutyltin	5.6	J	5.8	2.5	ug/Kg	1	⚙	Organotins SIM	Total/NA
Sample Homogenized	yes				NONE	1		Homogenization	Total/NA

Client Sample ID: 01TB-SURFACE TO-35 MLLW Lab Sample ID: 570-161346-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Dibutyltin	3.1	J	5.3	2.3	ug/Kg	1	⚙	Organotins SIM	Total/NA
Sample Homogenized	yes				NONE	1		Homogenization	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: SGS North America, Inc
Project/Site: Tributyltin in Sediments

Job ID: 570-161346-1

Method: Lab SOP Organotins SIM - Organotins (GC/MS SIM)

Client Sample ID: 01TB-TERMINAL

Date Collected: 11/09/23 15:13

Date Received: 11/17/23 09:40

Lab Sample ID: 570-161346-1

Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibutyltin	ND		4.5	1.9	ug/Kg	☼	11/21/23 17:35	11/27/23 16:10	1
Monobutyltin	ND	F1	4.5	0.81	ug/Kg	☼	11/21/23 17:35	11/27/23 16:10	1
Tetrabutyltin	ND		4.5	2.4	ug/Kg	☼	11/21/23 17:35	11/27/23 16:10	1
Tributyltin	ND		4.5	2.1	ug/Kg	☼	11/21/23 17:35	11/27/23 16:10	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Tripentyltin	88		39 - 150				11/21/23 17:35	11/27/23 16:10	1

Client Sample ID: 01TB-BELOW-35 MLLW

Date Collected: 11/09/23 15:30

Date Received: 11/17/23 09:40

Lab Sample ID: 570-161346-2

Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibutyltin	5.6	J	5.8	2.5	ug/Kg	☼	11/21/23 17:35	11/27/23 16:28	1
Monobutyltin	ND		5.8	1.0	ug/Kg	☼	11/21/23 17:35	11/27/23 16:28	1
Tetrabutyltin	ND		5.8	3.1	ug/Kg	☼	11/21/23 17:35	11/27/23 16:28	1
Tributyltin	ND		5.8	2.7	ug/Kg	☼	11/21/23 17:35	11/27/23 16:28	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Tripentyltin	85		39 - 150				11/21/23 17:35	11/27/23 16:28	1

Client Sample ID: 01TB-SURFACE TO-35 MLLW

Date Collected: 11/09/23 16:25

Date Received: 11/17/23 09:40

Lab Sample ID: 570-161346-3

Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibutyltin	3.1	J	5.3	2.3	ug/Kg	☼	11/21/23 17:35	11/27/23 16:46	1
Monobutyltin	ND		5.3	0.95	ug/Kg	☼	11/21/23 17:35	11/27/23 16:46	1
Tetrabutyltin	ND		5.3	2.9	ug/Kg	☼	11/21/23 17:35	11/27/23 16:46	1
Tributyltin	ND		5.3	2.5	ug/Kg	☼	11/21/23 17:35	11/27/23 16:46	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Tripentyltin	91		39 - 150				11/21/23 17:35	11/27/23 16:46	1

Eurofins Calscience

Client Sample Results

Client: SGS North America, Inc
Project/Site: Tributyltin in Sediments

Job ID: 570-161346-1

General Chemistry

Client Sample ID: 01TB-TERMINAL							Lab Sample ID: 570-161346-1			
Date Collected: 11/09/23 15:13							Matrix: Solid			
Date Received: 11/17/23 09:40										
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
Sample Homogenized (None Homogenization)	yes				NONE			11/20/23 11:17	1	
Percent Moisture (EPA Moisture)	35.5	H H3	0.1	0.1	%			11/22/23 10:04	1	
Client Sample ID: 01TB-BELOW-35 MLLW							Lab Sample ID: 570-161346-2			
Date Collected: 11/09/23 15:30							Matrix: Solid			
Date Received: 11/17/23 09:40										
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
Sample Homogenized (None Homogenization)	yes				NONE			11/20/23 11:17	1	
Percent Moisture (EPA Moisture)	48.7	H H3	0.1	0.1	%			11/22/23 10:04	1	
Client Sample ID: 01TB-SURFACE TO-35 MLLW							Lab Sample ID: 570-161346-3			
Date Collected: 11/09/23 16:25							Matrix: Solid			
Date Received: 11/17/23 09:40										
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
Sample Homogenized (None Homogenization)	yes				NONE			11/20/23 11:17	1	
Percent Moisture (EPA Moisture)	45.7	H H3	0.1	0.1	%			11/22/23 10:04	1	

Eurofins Calscience

Surrogate Summary

Client: SGS North America, Inc
Project/Site: Tributyltin in Sediments

Job ID: 570-161346-1

Method: Organotins SIM - Organotins (GC/MS SIM)

Matrix: Solid

Prep Type: Total/NA

			Percent Surrogate Recovery (Acceptance Limits)					
Lab Sample ID	Client Sample ID	TPTT (39-150)						
570-161346-1	01TB-TERMINAL	88						
570-161346-1 MS	01TB-TERMINAL	65						
570-161346-1 MSD	01TB-TERMINAL	72						
570-161346-2	01TB-BELOW-35 MLLW	85						
570-161346-3	01TB-SURFACE TO-35 MLLW	91						
LCS 570-386121/2-A	Lab Control Sample	55						
LCSD 570-386121/3-A	Lab Control Sample Dup	54						
MB 570-386121/1-A	Method Blank	31 S1-						
MB 570-386121/1-A	Method Blank	78						
Surrogate Legend								
TPTT = Triphenyltin								

QC Sample Results

Client: SGS North America, Inc
Project/Site: Tributyltin in Sediments

Job ID: 570-161346-1

Method: Organotins SIM - Organotins (GC/MS SIM)

Lab Sample ID: MB 570-386121/1-A

Matrix: Solid

Analysis Batch: 386903

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 386121

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibutyltin	ND		3.0	1.3	ug/Kg		11/21/23 17:35	11/27/23 14:38	1
Monobutyltin	ND		3.0	0.54	ug/Kg		11/21/23 17:35	11/27/23 14:38	1
Tetrabutyltin	ND		3.0	1.6	ug/Kg		11/21/23 17:35	11/27/23 14:38	1
Tributyltin	ND		3.0	1.4	ug/Kg		11/21/23 17:35	11/27/23 14:38	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Triphenyltin	31	S1-	39 - 150	11/21/23 17:35	11/27/23 14:38	1

Lab Sample ID: MB 570-386121/1-A

Matrix: Solid

Analysis Batch: 387328

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 386121

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibutyltin	1.873	J	3.0	1.3	ug/Kg		11/21/23 17:35	11/28/23 10:58	1
Monobutyltin	0.6596	J	3.0	0.54	ug/Kg		11/21/23 17:35	11/28/23 10:58	1
Tetrabutyltin	ND		3.0	1.6	ug/Kg		11/21/23 17:35	11/28/23 10:58	1
Tributyltin	ND		3.0	1.4	ug/Kg		11/21/23 17:35	11/28/23 10:58	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Triphenyltin	78		39 - 150	11/21/23 17:35	11/28/23 10:58	1

Lab Sample ID: LCS 570-386121/2-A

Matrix: Solid

Analysis Batch: 386903

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 386121

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Tetrabutyltin	20.0	13.18		ug/Kg		66	10 - 153
Tributyltin	17.8	13.16		ug/Kg		74	10 - 126

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Triphenyltin	55		39 - 150

Lab Sample ID: LCSD 570-386121/3-A

Matrix: Solid

Analysis Batch: 386903

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 386121

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Tetrabutyltin	20.0	13.32		ug/Kg		67	10 - 153	1	30
Tributyltin	17.8	13.20		ug/Kg		74	10 - 126	0	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Triphenyltin	54		39 - 150

Eurofins Calscience

QC Sample Results

Client: SGS North America, Inc
Project/Site: Tributyltin in Sediments

Job ID: 570-161346-1

Method: Organotins SIM - Organotins (GC/MS SIM) (Continued)

Lab Sample ID: 570-161346-1 MS

Matrix: Solid

Analysis Batch: 386903

Client Sample ID: 01TB-TERMINAL

Prep Type: Total/NA

Prep Batch: 386121

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Tetrabutyltin	ND		29.9	29.93		ug/Kg	☼	100	10 - 140
Tributyltin	ND		26.6	21.39		ug/Kg	☼	80	10 - 135
Surrogate	MS %Recovery	MS Qualifier	Limits						
Tripentyltin	65		39 - 150						

Lab Sample ID: 570-161346-1 MSD

Matrix: Solid

Analysis Batch: 386903

Client Sample ID: 01TB-TERMINAL

Prep Type: Total/NA

Prep Batch: 386121

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Tetrabutyltin	ND		29.9	32.07		ug/Kg	☼	107	10 - 140	7	40
Tributyltin	ND		26.7	23.19		ug/Kg	☼	87	10 - 135	8	40
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
Tripentyltin	72		39 - 150								

Eurofins Calscience

QC Association Summary

Client: SGS North America, Inc
Project/Site: Tributyltin in Sediments

Job ID: 570-161346-1

GC/MS Semi VOA

Prep Batch: 386121

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-161346-1	01TB-TERMINAL	Total/NA	Solid	Organotin Prep	
570-161346-2	01TB-BELOW-35 MLLW	Total/NA	Solid	Organotin Prep	
570-161346-3	01TB-SURFACE TO-35 MLLW	Total/NA	Solid	Organotin Prep	
MB 570-386121/1-A	Method Blank	Total/NA	Solid	Organotin Prep	
LCS 570-386121/2-A	Lab Control Sample	Total/NA	Solid	Organotin Prep	
LCSD 570-386121/3-A	Lab Control Sample Dup	Total/NA	Solid	Organotin Prep	
570-161346-1 MS	01TB-TERMINAL	Total/NA	Solid	Organotin Prep	
570-161346-1 MSD	01TB-TERMINAL	Total/NA	Solid	Organotin Prep	

Analysis Batch: 386903

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-161346-1	01TB-TERMINAL	Total/NA	Solid	Organotins SIM	386121
570-161346-2	01TB-BELOW-35 MLLW	Total/NA	Solid	Organotins SIM	386121
570-161346-3	01TB-SURFACE TO-35 MLLW	Total/NA	Solid	Organotins SIM	386121
MB 570-386121/1-A	Method Blank	Total/NA	Solid	Organotins SIM	386121
LCS 570-386121/2-A	Lab Control Sample	Total/NA	Solid	Organotins SIM	386121
LCSD 570-386121/3-A	Lab Control Sample Dup	Total/NA	Solid	Organotins SIM	386121
570-161346-1 MS	01TB-TERMINAL	Total/NA	Solid	Organotins SIM	386121
570-161346-1 MSD	01TB-TERMINAL	Total/NA	Solid	Organotins SIM	386121

Analysis Batch: 387328

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-386121/1-A	Method Blank	Total/NA	Solid	Organotins SIM	386121

General Chemistry

Analysis Batch: 385447

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-161346-1	01TB-TERMINAL	Total/NA	Solid	Homogenization	
570-161346-2	01TB-BELOW-35 MLLW	Total/NA	Solid	Homogenization	
570-161346-3	01TB-SURFACE TO-35 MLLW	Total/NA	Solid	Homogenization	

Analysis Batch: 386844

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-161346-1	01TB-TERMINAL	Total/NA	Solid	Moisture	
570-161346-2	01TB-BELOW-35 MLLW	Total/NA	Solid	Moisture	
570-161346-3	01TB-SURFACE TO-35 MLLW	Total/NA	Solid	Moisture	

Eurofins Calscience

Lab Chronicle

Client: SGS North America, Inc
Project/Site: Tributyltin in Sediments

Job ID: 570-161346-1

Client Sample ID: 01TB-TERMINAL

Lab Sample ID: 570-161346-1

Date Collected: 11/09/23 15:13

Matrix: Solid

Date Received: 11/17/23 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Organotin Prep			20.61 g	2 mL	386121	11/21/23 17:35	UWEZ	EET CAL 4
Total/NA	Analysis	Organotins SIM		1	1 mL	1 mL	386903	11/27/23 16:10	ULLI	EET CAL 4
		Instrument ID: GCMSY								
Total/NA	Analysis	Homogenization		1			385447	11/20/23 11:17	KZX6	EET CAL 4
		Instrument ID: NOEQUIP								
Total/NA	Analysis	Moisture		1			386844	11/22/23 10:04	B4QL	EET CAL 4
		Instrument ID: MOI4								

Client Sample ID: 01TB-BELOW-35 MLLW

Lab Sample ID: 570-161346-2

Date Collected: 11/09/23 15:30

Matrix: Solid

Date Received: 11/17/23 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Organotin Prep			20.06 g	2 mL	386121	11/21/23 17:35	UWEZ	EET CAL 4
Total/NA	Analysis	Organotins SIM		1	1 mL	1 mL	386903	11/27/23 16:28	ULLI	EET CAL 4
		Instrument ID: GCMSY								
Total/NA	Analysis	Homogenization		1			385447	11/20/23 11:17	KZX6	EET CAL 4
		Instrument ID: NOEQUIP								
Total/NA	Analysis	Moisture		1			386844	11/22/23 10:04	B4QL	EET CAL 4
		Instrument ID: MOI4								

Client Sample ID: 01TB-SURFACE TO-35 MLLW

Lab Sample ID: 570-161346-3

Date Collected: 11/09/23 16:25

Matrix: Solid

Date Received: 11/17/23 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Organotin Prep			20.71 g	2 mL	386121	11/21/23 17:35	UWEZ	EET CAL 4
Total/NA	Analysis	Organotins SIM		1	1 mL	1 mL	386903	11/27/23 16:46	ULLI	EET CAL 4
		Instrument ID: GCMSY								
Total/NA	Analysis	Homogenization		1			385447	11/20/23 11:17	KZX6	EET CAL 4
		Instrument ID: NOEQUIP								
Total/NA	Analysis	Moisture		1			386844	11/22/23 10:04	B4QL	EET CAL 4
		Instrument ID: MOI4								

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Eurofins Calscience

Accreditation/Certification Summary

Client: SGS North America, Inc
Project/Site: Tributyltin in Sediments

Job ID: 570-161346-1

Laboratory: Eurofins Calscience

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
California	State	3082	07-31-24
The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.			
Analysis Method	Prep Method	Matrix	Analyte
Homogenization		Solid	Sample Homogenized
Moisture		Solid	Percent Moisture
Organotins SIM	Organotin Prep	Solid	Dibutyltin
Organotins SIM	Organotin Prep	Solid	Monobutyltin
Organotins SIM	Organotin Prep	Solid	Tetrabutyltin
Organotins SIM	Organotin Prep	Solid	Tributyltin
Oregon	NELAP	4175	02-02-24
The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.			
Analysis Method	Prep Method	Matrix	Analyte
Homogenization		Solid	Sample Homogenized

Eurofins Calscience

Method Summary

Client: SGS North America, Inc
Project/Site: Tributyltin in Sediments

Job ID: 570-161346-1

Method	Method Description	Protocol	Laboratory
Organotins SIM	Organotins (GC/MS SIM)	Lab SOP	EET CAL 4
Homogenization	Homogenization	None	EET CAL 4
Moisture	Percent Moisture	EPA	EET CAL 4
Organotin Prep	Extraction (Organotins)	None	EET CAL 4

Protocol References:

- EPA = US Environmental Protection Agency
- Lab SOP = Laboratory Standard Operating Procedure
- None = None

Laboratory References:

- EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

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Sample Summary

Client: SGS North America, Inc
Project/Site: Tributyltin in Sediments

Job ID: 570-161346-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-161346-1	01TB-TERMINAL	Solid	11/09/23 15:13	11/17/23 09:40
570-161346-2	01TB-BELOW-35 MLLW	Solid	11/09/23 15:30	11/17/23 09:40
570-161346-3	01TB-SURFACE TO-35 MLLW	Solid	11/09/23 16:25	11/17/23 09:40

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ORIGI
SAMPL
SGS N
4405
STE C
ORLAN
UNITED

DATE: 16NOV23
WT: 25.00 LB MAN
: 0358759/CAFE3755

L SENDER

TO JAMES HSC
EUROFINS EN... SOUTHWEST
2841 DOW AVE, SUITE 100

58555/F012/NE37

TUSTIN CA 92780

(714) 999-6494

REF: SUBS - EUROFINS



FedEx
Express



J233023051201 W

TRK# 7024 6623 2497
0201

FRI - 17 NOV 10:30A
PRIORITY OVERNIGHT

NW DTHA

92780
CA-US SNA

Part # 156148-434 MTW EXP 06/24



570-161346 Waybill

SGS

Login Sample Receipt Checklist

Client: SGS North America, Inc

Job Number: 570-161346-1

Login Number: 161346

List Number: 1

Creator: Hsu, Janice

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody



SGS Sample Receipt Summary

Job Number: fc11168 **Client:** Geosyntec Consultants **Project:** Oakland Harbor
Date / Time Received: 11/11/2023 10:00:00 AM **Delivery Method:** FedEx **Airbill #s:** 786219631416

Cooler Temps (Raw Measured) °C: Cooler 1: (4.6);

Cooler Temps (Corrected) °C: Cooler 1: (5.0);

<u>Cooler Informatio</u>	<u>Y</u>	<u>or</u>	<u>N</u>
1. Custody Seals Present:	☒		☐
2. Custody Seals Intact:	☒		☐
3. Temp criteria achieved:	☒		☐
4. Cooler temp verification:			IR Gun
5. Cooler media:			Ice (Bag)

<u>Trip Blank Information</u>	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Trip Blank present / cooler:	☐		☐	☒
2. Trip Blank listed on COC:	☐		☐	☒

<u>W</u>	<u>or</u>	<u>S</u>	<u>N/A</u>
3. Type of TB Received		☐	☒

<u>Sample Information</u>	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Sample labels present on bottles:	☒		☐	
2. Samples presented properly	☒		☐	
3. Suffient volume/containers recv'd for analysi	☒		☐	
4. Condition of sample:			Intact	
5. Sample recv'd within HT	☒		☐	
6. Dates/Times/IDs on COC match sample labe	☒		☐	
7. VOCs have headspace	☐		☐	☒
8. Bottles received for unspecified tests	☐		☒	
9. Compositing instructions clear	☐		☐	☒
10. Voa Soil Kits/Jars received past 48hrs?	☐		☐	☒
11. % Solids Jar Received?	☒		☐	☐
12. Residual Chlorine Present?	☐		☐	☒

Misc Information

Number of Encores: 25 Gram	5 Gram	Number of Lab Filtered Metals
Test Strip Lot #s: pH 0-3: <u>226422</u>	pH 10-12: _____	Other: (Specify) pH 1.0 - 12.0 <u>222221</u>
Residual Chlorine Test Strip Lot _____		

Comments

SM001 Technician: DONM Date: 11/11/2023 3:46:04 PM Reviewer: ZD Date: 11/11/2023

FC11168XE: Chain of Custody

Page 2 of 2

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

Geosyntec Consultants - Portland, OR

Oakland Harbor

PNG1060

SGS Job Number: FC11168XW

Sampling Date: 11/09/23

Report to:

Geosyntec Consultants - Portland, OR
920 SW 6th Ave Suite 600
Portland, OR 97204
edunbar@geosyntec.com

ATTN: Erin Dunbar

Total number of pages in report: 40



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable unless noted in the narrative, comments or footnotes.



Norm Farmer
Technical Director

Client Service contact: Elvin Kumar 407-425-6700

Certifications: FL(E83510), LA(03051), KS(E-10327), NC(573), NJ(FL002), NY(12022), SC(96038001)

DoD ELAP(ANAB L2229), AZ(AZ0806), CA(2937), TX(T104704404), PA(68-03573), VA(460177),

AL, AK, AR, CT, IA, KY, MA, MI, MS, ND, NH, NV, OK, OR, IL, UT, VT, WA, WI, WV

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Test results relate only to samples analyzed.

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Section 3: Misc. Forms 38

3.1: Chain of Custody 39



Sample Summary

Geosyntec Consultants - Portland, OR

Job No: FC11168XW

Oakland Harbor
Project No: PNG1060

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
FC11168-1XW	11/09/23	15:13 ED	11/11/23	SO	Sediment	01TB-TERMINAL
FC11168-2XW	11/09/23	15:30 ED	11/11/23	SO	Sediment	01TB-BELOW-35 MLLW
FC11168-11XW	11/09/23	16:25 ED	11/11/23	SO	Sediment	01TB-SURFACE TO-35 MLLW

Soil samples reported on a dry weight basis unless otherwise indicated on result page.



Orlando, FL

2

Section 2

Subcontract Lab Data

Report of Analysis



FINAL LAB REPORT

Prepared by

SGS NORTH AMERICA

Prepared for

This report is approved by

PROJECT INFORMATION SUMMARY *(When applicable, see QC Annotations for details)*

Client Project
SGS Project #
Analytical Protocol(s)
No. Samples Submitted
Additional QC Sample(s)
No. Laboratory Method Blanks
No. OPRs / Batch CS3
Date Received
Condition Received
Temperature upon Receipt (°C)
Extraction within Holding Time
Analysis within Holding Time

QC ANNOTATIONS:

1. Please see Appendices attached for data qualifier/attribute and lab identifier descriptions which may be contained in the project.

APPENDIX A: GENERAL DATA QUALIFIERS / DATA ATTRIBUTES

B	The analyte was found in the method blank, at a concentration that was at least 10% of the concentration in the sample.
C	Two or more congeners co-elute. In EDDs, C denotes the lowest IUPAC congener in a co-elution group and additional co-eluters for the group are shown with the number of the lowest IUPAC co-eluter.
E	The reported concentration exceeds the calibration range (upper point of the calibration curve) and is an estimated value.
EMPC	Represents an Estimated Maximum Possible Concentration. EMPCs arise in cases where the signal/noise ratio is not sufficient for peak identification (the determined ion-abundance ratio is outside the allowed theoretical range), or where there is a co-eluting interference.
H/h	If the standard recovery is below the method or SOP specified value "H" is assigned. If the obtained value is less than half the specified value "h" is assigned.
J	Indicates that an analyte has a concentration below the reporting limit (lowest point of the calibration curve) and is an estimated value.
ND	Indicates a non-detect.
NR or R	Indicates a value that is not reportable.
PR	Due to interference, the associated congener is poorly resolved.
QI	Indicates the presence of a quantitative interference.
SI	Denotes "Single Ion Mode" and is utilized for PCBs where the secondary ion trace has a significantly elevated noise level due to background PFK. Responses for such peaks are calculated using an EMPC approach based solely on the primary ion area(s) and may be considered estimates.
U	The analyte was not detected. The estimated detection limit (EDL) may be reported for this analyte.
V	The labeled standard recovery was found to be outside of the method control limits.

APPENDIX B: DRBC/TMDL SPECIFIC DATA QUALIFIERS / DATA ATTRIBUTES

J	The reported result is an estimate. The value is less than the minimum calibration level but greater than the estimated detection limit (EDL).
U	The analyte was not detected in the sample at the estimated detection limit (EDL).
E	The reported concentration is an estimate. The value exceeds the upper calibration range (upper point of the calibration curve).
D	Dilution Data. Result was obtained from the analysis of a dilution.
B	Analyte found in the sample and associated method blank.
C	Co-eluting congener
Cxx	Co-elutes with the indicated congener, data is reported under the lowest IUPAC congener. 'Xx' denotes the IUPAC number with the lowest numerical designated congener.
NR	Analyte is not reportable because of problems in sample preparation or analysis.
V	Labeled standard recovery is not within method control limits.
X	Results from re-injection/repeat/second-column analysis.
EMPC	Estimated maximum possible concentration. Indicates that a peak is identified but did not meet the method specified ion-abundance ratio.

APPENDIX C: LAB IDENTIFIERS

AR	Indicates use of the archived portion of the sample extract.
CU	Indicates a sample that required additional clean-up prior to MS injection/processing.
D	Indicates a dilution of the sample extract. The number that follows the "D" indicates the dilution factor.
DE	Indicates a dilution performed with the addition of ES (extraction standard) solution.
DUP	Designation for a duplicate sample.
MS	Designation for a matrix spike.
MSD	Designation for a matrix spike duplicate.
RJ	Indicates a reinjection of the sample extract.
S	Indicates a sample split. The number that follows the "S" indicates the split factor.

SGS CERTIFICATIONS / APPROVALS / PERMITS

Alaska DEC LAP	17-012
Alaska DEC LCP	NC00919
Arkansas	88-0682
California (ELAP)	ELAP Cert #2914
CLIA	34D1013708
Colorado	NC00919
Connecticut	PH-0258
USDA Soil Permit	P330-20-00103
American Association for Laboratory Accreditation (A2LA)	2726.01 (ISO 17025:2017, 2009 TNI, DoD ELAP QSM 5.4)
Florida DOH	E87634
Hawaii DOH	Approval
Louisiana DEQ	4115
Louisiana DOH	LA031
Maine	2020020
Massachusetts	M-NC919
Michigan	9950
Minnesota (Primary NELAP For Method 23)	037-999-459
Montana	0106
New Hampshire (Secondary NELAP)	2083
New Jersey	NC100
New York	11685
North Carolina DEQ	481
Ohio	87785
Oklahoma	2205
Oregon	NC200002
Pennsylvania	68-03675
South Carolina	99029002
Texas	T104704260
UCMR 5	NC00919
US Coast Guard	16714/159.317/SGS
U.S. Fish and Wildlife Service	A22801
Vermont	VT-87634
Virginia	460214
Washington	C913

Rev. 16-Mar-2023

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Sample ID: 01TB-TERMINAL

Method 1613B

Client Data			Sample Data			Laboratory Data				
Name: SGS North America Inc. - Orlando			Matrix: Solid			Lab Project ID: B8803			Date Received: 17-Nov-2023	
Project ID: FC11168XW			Weight/Volume: 10.12 g			Lab Sample ID B8803_20707_DF_001			Date Extracted: 04-Dec-2023	
Date Collected: 09-Nov-2023			% Solid: 58.3 %			QC Batch No: 20707			Date Analyzed: 19-Dec-2023	
			Split: -			Dilution: -			Time Analyzed: 12:44:44	
Analyte	Conc. (pg/g)	DL (pg/g)	EMPC (pg/g)	Qualifiers	Standard	ES Recoveries	Qualifiers			
2378-TCDD	0.317			J	ES 2378-TCDD	92.5				
12378-PeCDD	1.09			J	ES 12378-PeCDD	92.9				
123478-HxCDD	1.19			J B	ES 123478-HxCDD	85.1				
123678-HxCDD	2.41			J	ES 123678-HxCDD	90.2				
123789-HxCDD	EMPC		2.35	J	ES 123789-HxCDD	85.6				
1234678-HpCDD	56.1				ES 1234678-HpCDD	79.2				
OCDD	580				ES OCDD	87.1				
2378-TCDF	1.14				ES 2378-TCDF	95.2				
12378-PeCDF	0.526			J	ES 12378-PeCDF	98.1				
23478-PeCDF	EMPC		1.36	J	ES 23478-PeCDF	96.2				
123478-HxCDF	1.02			J B	ES 123478-HxCDF	98.6				
123678-HxCDF	0.985			J B	ES 123678-HxCDF	98.6				
234678-HxCDF	1.34			J B	ES 234678-HxCDF	98.8				
123789-HxCDF	ND	0.211			ES 123789-HxCDF	90.7				
1234678-HpCDF	12.7				ES 1234678-HpCDF	88.1				
1234789-HpCDF	EMPC		0.65	J B	ES 1234789-HpCDF	83.4				
OCDF	27				ES OCDF	92.1				
Totals					Standard	CS Recoveries				
Total TCDD	1.7		1.7		CS 37Cl-2378-TCDD	91.1				
Total PeCDD	2.46		5.93							
Total HxCDD	27.4		30.3							
Total HpCDD	150		150							
Total TCDF	8.71		11.5							
Total PeCDF	11.8		14							
Total HxCDF	20.6		21.1							
Total HpCDF	31.2		31.9							
Total PCDD/Fs	860		873							
ITEF TEQs										
TEQ: ND=0	2.99		3.91							
TEQ: ND=DL/2	3	0.29	3.92							
TEQ: ND=DL	3.01	0.581	3.93							
										
				5500 Business Drive Wilmington, NC 28405, USA www.us.sgs.com Tel: +1 910 794-1613; Toll-Free 866 846-8290						

Checkcode: 941-397-NTC

SGS North America - DF v0.99

Report Created: 20-Dec-2023 09:28 Analyst: pw

B8803 Page 7 of 33

Sample ID: 01TB-TERMINAL				TEQ Summary			Method 1613B	
Client Project Name: SGS North America Inc. - Orlando		Lab Sample ID: B8803_20707_DF_001		Solid		QC Batch No.: 20707		
Client Project ID: FC11168XW		Matrix: Weight/Volume: 10.12 g		-		Date Extracted: 04-Dec-2023		
Date Collected: 09-Nov-2023		Split:		-		Date Analyzed: 19-Dec-2023 12:44		
Date Received: 17-Nov-2023		Dilution:		-				
Lab Project No: B8803		Units		pg/g				
Analyte	Result	Qualifiers	DLS	I-TEQ	WHO-1998	WHO-2005		
2378-TCDD	0.317	J	0.192	0.317	0.317	0.317		
12378-PeCDD	1.09	J	0.193	0.543	1.09	1.09		
123478-HxCDD	1.19	J B	0.325	0.119	0.119	0.119		
123678-HxCDD	2.41	J	0.316	0.241	0.241	0.241		
123789-HxCDD	[2.35]	J	0.309	[0.235]	[0.235]	[0.235]		
1234678-HpCDD	56.1		0.382	0.561	0.561	0.561		
OCDD	580		0.291	0.58	0.058	0.174		
2378-TCDF	1.14		0.112	0.114	0.114	0.114		
12378-PeCDF	0.526	J	0.182	0.0263	0.0263	0.0158		
23478-PeCDF	[1.36]	J	0.188	[0.682]	[0.682]	[0.409]		
123478-HxCDF	1.02	J B	0.18	0.102	0.102	0.102		
123678-HxCDF	0.985	J B	0.169	0.0985	0.0985	0.0985		
234678-HxCDF	1.34	J B	0.198	0.134	0.134	0.134		
123789-HxCDF	(0.211)		0.211	(0.0211)	(0.0211)	(0.0211)		
1234678-HpCDF	12.7		0.16	0.127	0.127	0.127		
1234789-HpCDF	[0.65]	J B	0.196	[0.0065]	[0.0065]	[0.0065]		
OCDF	27		0.256	0.027	0.0027	0.0081		
TEQ Summaries								
EMPC = 0, ND = 0								
EMPC = 0, ND = DL / 2								
EMPC = 0, ND = DL								
EMPC = 0, < J-level = 0								
EMPC = EMPC, ND = 0								
EMPC = EMPC, ND = DL / 2								
EMPC = EMPC, ND = DL								
EMPC = EMPC, < J-level = 0								

5500 Business Drive
Wilmington, NC 28405, USA
Tel: +1 910 794-1613; Toll-Free 866 846-8290
www.us.sgs.com



Checkcode: 941-397-NTC

SGS North America - DF v0.99

Sample ID: 01TB-BELOW-35 MLLW

Method 1613B

Client Data			Sample Data			Laboratory Data			Date Received:		Date Analyzed:	
Name: SGS North America Inc. - Orlando			Matrix: Solid			Lab Project ID: B8803			Date Received:		17-Nov-2023	
Project ID: FC11168XW			Weight/Volume: 10.35 g			Lab Sample ID B8803_20707_DF_002			Date Extracted:		04-Dec-2023	
Date Collected: 09-Nov-2023			% Solid: 53.4 %			QC Batch No: 20707			Date Analyzed:		19-Dec-2023	
			Split: -			Dilution: -			Time Analyzed:		13:31:16	
Analyte	Conc. (pg/g)	DL (pg/g)	EMPC (pg/g)	Qualifiers	Standard	ES Recoveries	Qualifiers					
2378-TCDD	1.04				ES 2378-TCDD	84.9						
12378-PeCDD	3.16				ES 12378-PeCDD	87.5						
123478-HxCDD	6.1				ES 123478-HxCDD	79.5						
123678-HxCDD	16.1				ES 123678-HxCDD	62.5						
123789-HxCDD	9.22				ES 123789-HxCDD	73.9						
1234678-HpCDD	312				ES 1234678-HpCDD	82.6						
OCDD	2,270				ES OCDD	96.4						
2378-TCDF	4.62				ES 2378-TCDF	84.9						
12378-PeCDF	2.57				ES 12378-PeCDF	92.7						
23478-PeCDF	9.3				ES 23478-PeCDF	88.2						
123478-HxCDF	5.37				ES 123478-HxCDF	90.9						
123678-HxCDF	5.63				ES 123678-HxCDF	91.3						
234678-HxCDF	10.8				ES 234678-HxCDF	55.1						
123789-HxCDF	1.57			J B	ES 123789-HxCDF	55.8						
1234678-HpCDF	59.2				ES 1234678-HpCDF	92.8						
1234789-HpCDF	4.15				ES 1234789-HpCDF	92.8						
OCDF	131				ES OCDF	98.4						
Totals					Standard	CS Recoveries						
Total TCDD	7.99		12		CS 37Cl-2378-TCDD	86.6						
Total PeCDD	24.7		27.2									
Total HxCDD	212		212									
Total HpCDD	958		958									
Total TCDF	64		68.4									
Total PeCDF	126		127									
Total HxCDF	192		192									
Total HpCDF	169		169									
Total PCDD/Fs	4,150		4,170									
ITEF TEQs												
TEQ: ND=0	19.5		19.5									
TEQ: ND=DL/2	19.5	0.319	19.5									
TEQ: ND=DL	19.5	0.637	19.5									
												
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Report Created: 20-Dec-2023 09:28 Analyst: pw

SGS North America - DF v0.99

B8803 Page 9 of 33

Checkcode: 262-340-CPD

Sample ID: 01TB-BELOW-35 MLLW				TEQ Summary		Method 1613B	
Client Project Name: SGS North America Inc. - Orlando		Matrix: Weight/Volume: 10.35 g		Lab Sample ID: B8803_20707_DF_002			
Client Project ID: FC11168XW		Split: -		QC Batch No.: 20707			
Date Collected: 09-Nov-2023		Dilution: -		Date Extracted: 04-Dec-2023			
Date Received: 17-Nov-2023		Units pg/g		Date Analyzed: 19-Dec-2023 13:31			
Lab Project No: B8803							
Analyte	Result	Qualifiers	DLS	I-TEQ	WHO-1998	WHO-2005	
2378-TCDD	1.04		0.164	1.04	1.04	1.04	
12378-PeCDD	3.16		0.234	1.58	3.16	3.16	
123478-HxCDD	6.1		0.478	0.61	0.61	0.61	
123678-HxCDD	16.1		0.571	1.61	1.61	1.61	
123789-HxCDD	9.22		0.295	0.922	0.922	0.922	
1234678-HpCDD	312		0.246	3.12	3.12	3.12	
OCDD	2270		0.322	2.27	0.227	0.681	
2378-TCDF	4.62		0.111	0.462	0.462	0.462	
12378-PeCDF	2.57		0.153	0.129	0.129	0.0771	
23478-PeCDF	9.3		0.172	4.65	4.65	2.79	
123478-HxCDF	5.37		0.252	0.537	0.537	0.537	
123678-HxCDF	5.63		0.257	0.563	0.563	0.563	
234678-HxCDF	10.8		0.406	1.08	1.08	1.08	
123789-HxCDF	1.57	J B	0.211	0.157	0.157	0.157	
1234678-HpCDF	59.2		0.0955	0.592	0.592	0.592	
1234789-HpCDF	4.15		0.128	0.0415	0.0415	0.0415	
OCDF	131		0.186	0.131	0.0131	0.0392	
TEQ Summaries							
EMPC = 0, ND = 0							
EMPC = 0, ND = DL / 2							
EMPC = 0, ND = DL							
EMPC = 0, < J-level = 0							
EMPC = EMPC, ND = 0							
EMPC = EMPC, ND = DL / 2							
EMPC = EMPC, ND = DL							
EMPC = EMPC, < J-level = 0							

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Checkcode: 262-340-CPD

SGS North America - DF v0.99

Sample ID: 01TB-SURFACE TO-35 MLLW

Method 1613B

Client Data			Sample Data		Laboratory Data		Date Received:	
Name: SGS North America Inc. - Orlando			Matrix: Solid		Lab Project ID: B8803		17-Nov-2023	
Project ID: FC11168XW			Weight/Volume: 10.16 g		Lab Sample ID B8803_20707_DF_003		04-Dec-2023	
Date Collected: 09-Nov-2023			% Solid: 53.4 %		QC Batch No: 20707		19-Dec-2023	
			Split: -		Dilution: -		Time Analyzed: 14:17:48	
Analyte	Conc. (pg/g)	DL (pg/g)	EMPC (pg/g)	Qualifiers	Standard	ES Recoveries	Qualifiers	
2378-TCDD	0.409			J	ES 2378-TCDD	87.8		
12378-PeCDD	1.53			J	ES 12378-PeCDD	90.5		
123478-HxCDD	EMPC		2.04	J B	ES 123478-HxCDD	85.1		
123678-HxCDD	7.59				ES 123678-HxCDD	85.6		
123789-HxCDD	4.62				ES 123789-HxCDD	87.3		
1234678-HpCDD	162				ES 1234678-HpCDD	87.4		
OCDD	1,240				ES OCDD	99.5		
2378-TCDF	EMPC		2.06		ES 2378-TCDF	88		
12378-PeCDF	1.36			J	ES 12378-PeCDF	92.6		
23478-PeCDF	3.89				ES 23478-PeCDF	89.1		
123478-HxCDF	2.7				ES 123478-HxCDF	96.6		
123678-HxCDF	2.32			J	ES 123678-HxCDF	98.4		
234678-HxCDF	3.85				ES 234678-HxCDF	96.8		
123789-HxCDF	0.745			J B	ES 123789-HxCDF	98		
1234678-HpCDF	32.3				ES 1234678-HpCDF	96.7		
1234789-HpCDF	2.28			J	ES 1234789-HpCDF	99.4		
OCDF	89.4				ES OCDF	105		
Totals					Standard	CS Recoveries		
Total TCDD	4.39		5.72		CS 37Cl-2378-TCDD	90.6		
Total PeCDD	8.92		14.2					
Total HxCDD	89.7		91.7					
Total HpCDD	479		479					
Total TCDF	17.1		26.7					
Total PeCDF	45		46					
Total HxCDF	57.9		59					
Total HpCDF	92.1		92.1					
Total PCDD/Fs	2,120		2,140					
ITEF TEQs								
TEQ: ND=0	8.66		9.07					
TEQ: ND=DL/2	8.66	0.315	9.07					
TEQ: ND=DL	8.66	0.63	9.07					
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Sample ID: 01TB-SURFACE TO-35 MLLW				TEQ Summary		Method 1613B	
Client Project Name: SGS North America Inc. - Orlando		Matrix: Solid		Lab Sample ID: B8803_20707_DF_003			
Client Project ID: FC11168XW		Weight/Volume: 10.16 g		QC Batch No.: 20707			
Date Collected: 09-Nov-2023		Split: -		Date Extracted: 04-Dec-2023			
Date Received: 17-Nov-2023		Dilution: -		Date Analyzed: 19-Dec-2023 14:17			
Lab Project No: B8803		Units pg/g					
Analyte	Result	Qualifiers	DLS	I-TEQ	WHO-1998	WHO-2005	
2378-TCDD	0.409	J	0.21	0.409	0.409	0.409	
12378-PeCDD	1.53	J	0.282	0.765	1.53	1.53	
123478-HxCDD	[2.04]	J B	0.436	[0.204]	[0.204]	[0.204]	
123678-HxCDD	7.59		0.432	0.759	0.759	0.759	
123789-HxCDD	4.62		0.452	0.462	0.462	0.462	
1234678-HpCDD	162		0.24	1.62	1.62	1.62	
OCDD	1240		0.393	1.24	0.124	0.372	
2378-TCDF	[2.06]		0.116	[0.206]	[0.206]	[0.206]	
12378-PeCDF	1.36	J	0.145	0.068	0.068	0.0408	
23478-PeCDF	3.89		0.144	1.95	1.95	1.17	
123478-HxCDF	2.7		0.137	0.27	0.27	0.27	
123678-HxCDF	2.32	J	0.123	0.232	0.232	0.232	
234678-HxCDF	3.85		0.139	0.385	0.385	0.385	
123789-HxCDF	0.745	J B	0.104	0.0745	0.0745	0.0745	
1234678-HpCDF	32.3		0.0935	0.323	0.323	0.323	
1234789-HpCDF	2.28	J	0.109	0.0228	0.0228	0.0228	
OCDF	89.4		0.204	0.0894	0.00894	0.0268	
TEQ Summaries							
EMPC = 0, ND = 0				8.66	8.23	7.69	
EMPC = 0, ND = DL / 2				8.66	8.23	7.69	
EMPC = 0, ND = DL				8.66	8.23	7.69	
EMPC = 0, < J-level = 0				7.09	5.9	5.38	
EMPC = EMPC, ND = 0				9.07	8.64	8.1	
EMPC = EMPC, ND = DL / 2				9.07	8.64	8.1	
EMPC = EMPC, ND = DL				9.07	8.64	8.1	
EMPC = EMPC, < J-level = 0				7.3	6.1	5.59	

Checkcode: 334-093-NHK

SGS North America - DF v0.99

Sample ID: Method Blank B8803_20707

Method 1613B

Client Data		Sample Data		Laboratory Data		Date Received:	
Name: SGS North America Inc. - Orlando		Matrix: Solid		Lab Project ID: B8803		Date Extracted: 04-Dec-2023	
Project ID: FC11168XW		Weight/Volume: 10.00 g		Lab Sample ID MB1_20707_DF_SDS		Date Analyzed: 19-Dec-2023	
Date Collected: n/a		% Solid: n/a		QC Batch No: 20707		Time Analyzed: 11:58:11	
		Split: -		Dilution: -			
Analyte	Conc. (pg/g)	DL (pg/g)	EMPC (pg/g)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	ND	0.201			ES 2378-TCDD	82.6	
12378-PeCDD	ND	0.184			ES 12378-PeCDD	93.1	
123478-HxCDD	EMPC		0.313	J	ES 123478-HxCDD	86.4	
123678-HxCDD	ND	0.172			ES 123678-HxCDD	90.7	
123789-HxCDD	ND	0.169			ES 123789-HxCDD	88.4	
1234678-HpCDD	0.302			J	ES 1234678-HpCDD	92.4	
OCDD	7.06				ES OCDD	93.6	
2378-TCDF	ND	0.111			ES 2378-TCDF	80.6	
12378-PeCDF	ND	0.161			ES 12378-PeCDF	89	
23478-PeCDF	ND	0.164			ES 23478-PeCDF	85.6	
123478-HxCDF	0.18			J	ES 123478-HxCDF	97.6	
123678-HxCDF	0.179			J	ES 123678-HxCDF	103	
234678-HxCDF	0.186			J	ES 234678-HxCDF	97.3	
123789-HxCDF	EMPC		0.288	J	ES 123789-HxCDF	92.7	
1234678-HpCDF	EMPC		0.215	J	ES 1234678-HpCDF	105	
1234789-HpCDF	0.203			J	ES 1234789-HpCDF	96.3	
OCDF	ND	0.198			ES OCDF	92.3	
Totals					Standard	CS Recoveries	
Total TCDD	ND	0.201	ND		CS 37Cl-2378-TCDD	91.9	
Total PeCDD	ND	0.184	ND				
Total HxCDD	ND		0.313				
Total HpCDD	0.501		0.501				
Total TCDF	ND	0.111	ND				
Total PeCDF	ND	0.162	ND				
Total HxCDF	0.545		0.833				
Total HpCDF	0.203		0.418				
Total PCDD/Fs	8.31		9.12				
ITEF TEQs							
TEQ: ND=0	0.0666		0.129				
TEQ: ND=DL/2	0.281	0.249	0.343				
TEQ: ND=DL	0.495	0.499	0.557				
							5500 Business Drive Wilmington, NC 28405, USA www.us.sgs.com Tel: +1 910 794-1613; Toll-Free 866 846-8290

Sample ID: Method Blank B8803_20707				TEQ Summary		Method 1613B	
Client Project Name: SGS North America Inc. - Orlando		Matrix: Solid		Lab Sample ID: MB1_20707_DF_SDS			
Client Project ID: FC11168XW		Weight/Volume: 10.00 g		QC Batch No.: 20707			
Date Collected: n/a		Split: -		Date Extracted: 04-Dec-2023			
Date Received: n/a		Dilution: -		Date Analyzed: 19-Dec-2023 11:58			
Lab Project No: B8803		Units: pg/g					
Analyte	Result	Qualifiers	DLS	I-TEQ	WHO-1998	WHO-2005	
2378-TCDD	(0.201)		0.201	(0.201)	(0.201)	(0.201)	
12378-PeCDD	(0.184)		0.184	(0.092)	(0.184)	(0.184)	
123478-HxCDD	[0.313]	J	0.18	[0.0313]	[0.0313]	[0.0313]	
123678-HxCDD	(0.172)		0.172	(0.0172)	(0.0172)	(0.0172)	
123789-HxCDD	(0.169)		0.169	(0.0169)	(0.0169)	(0.0169)	
1234678-HpCDD	0.302	J	0.118	0.00302	0.00302	0.00302	
OCDD	7.06		0.238	0.00706	0.000706	0.00212	
2378-TCDF	(0.111)		0.111	(0.0111)	(0.0111)	(0.0111)	
12378-PeCDF	(0.161)		0.161	(0.00805)	(0.00805)	(0.00483)	
23478-PeCDF	(0.164)		0.164	(0.0818)	(0.0818)	(0.0491)	
123478-HxCDF	0.18	J	0.113	0.018	0.018	0.018	
123678-HxCDF	0.179	J	0.117	0.0179	0.0179	0.0179	
234678-HxCDF	0.186	J	0.124	0.0186	0.0186	0.0186	
123789-HxCDF	[0.288]	J	0.138	[0.0288]	[0.0288]	[0.0288]	
1234678-HpCDF	[0.215]	J	0.0843	[0.00215]	[0.00215]	[0.00215]	
1234789-HpCDF	0.203	J	0.108	0.00203	0.00203	0.00203	
OCDF	(0.198)		0.198	(0.000198)	(0.0000198)	(0.0000593)	
TEQ Summaries							
EMPC = 0, ND = 0				0.0666			
EMPC = 0, ND = DL / 2				0.281			
EMPC = 0, ND = DL				0.495			
EMPC = 0, < J-level = 0				0.00706			
EMPC = EMPC, ND = 0				0.129			
EMPC = EMPC, ND = DL / 2				0.343			
EMPC = EMPC, ND = DL				0.557			
EMPC = EMPC, < J-level = 0				0.00706			

Checkcode: 842-171-PRH

SGS North America - DF v0.99

METHOD 1613B

Lab Name:
Initial Calibration:
Instrument ID:
VER Data Filename:
Lab ID:

PCDD/F ONGOING PRECISION AND RECOVERY (OPR)

SGS North America
ICAL: HRMS3_DF_10172022_26APR2023
HRMS3
231219C02
OPR1_20707_DF
GC Column ID:
Analysis Date:
ZB-5ms
19-DEC-2023 10:25:36

FORM 8A

NATIVE ANALYTES	SPIKE CONC.	CONC. FOUND	RANGE (ng/mL)	OK
2,3,7,8-TCDD	10	12.7	6.7 - 15.8	Y
1,2,3,7,8-PeCDD	50	54.1	35 - 71	Y
1,2,3,4,7,8-HxCDD	50	58.9	35 - 82	Y
1,2,3,6,7,8-HxCDD	50	59.2	38 - 67	Y
1,2,3,7,8,9-HxCDD	50	54.3	32 - 81	Y
1,2,3,4,6,7,8-HpCDD	50	57.3	35 - 70	Y
OCDD	100	110	78 - 144	Y
2,3,7,8-TCDF	10	12	7.5 - 15.8	Y
1,2,3,7,8-PeCDF	50	55.7	40 - 67	Y
2,3,4,7,8-PeCDF	50	58.7	34 - 80	Y
1,2,3,4,7,8-HxCDF	50	56.3	36 - 67	Y
1,2,3,6,7,8-HxCDF	50	55.2	42 - 65	Y
2,3,4,6,7,8-HxCDF	50	55.8	35 - 78	Y
1,2,3,7,8,9-HxCDF	50	52	39 - 65	Y
1,2,3,4,6,7,8-HpCDF	50	54.1	41 - 61	Y
1,2,3,4,7,8,9-HpCDF	50	52.7	39 - 69	Y
OCDF	100	108	63 - 170	Y

Contract-required concentration limits for OPR as specified in Table 6,
Method 1613. 10/94

Processed: 20 Dec 2023 09:28 Analyst: pw

METHOD 1613B PCDD/F ONGOING PRECISION AND RECOVERY (OPR) FORM 8B

Lab Name: SGS North America
Initial Calibration: ICAL: HRMS3_DF_10172022_26APR2023
Instrument ID: HRMS3 GC Column ID: ZB-5ms
VER Data Filename: 231219C02 Analysis Date: 19-DEC-2023 10:25:36
Lab ID: OPR1_20707_DF

LABELED ANALYTES	SPIKE CONC.	CONC. FOUND	RANGE (ng/mL)	OK
13C-2,3,7,8-TCDD	100	82.9	20 - 175	Y
13C-1,2,3,7,8-PeCDD	100	89.3	21 - 227	Y
13C-1,2,3,4,7,8-HxCDD	100	90.1	21 - 193	Y
13C-1,2,3,6,7,8-HxCDD	100	92.3	25 - 163	Y
13C-1,2,3,7,8,9-HxCDD	100	90.2	26 - 166	Y
13C-1,2,3,4,6,7,8-HpCDD	100	91.7	26 - 166	Y
13C-OCDD	200	207	26 - 397	Y
13C-2,3,7,8-TCDF	100	80.3	22 - 152	Y
13C-1,2,3,7,8-PeCDF	100	86.8	21 - 192	Y
13C-2,3,4,7,8-PeCDF	100	85.1	13 - 328	Y
13C-1,2,3,4,7,8-HxCDF	100	100	19 - 202	Y
13C-1,2,3,6,7,8-HxCDF	100	110	21 - 159	Y
13C-2,3,4,6,7,8-HxCDF	100	100	22 - 176	Y
13C-1,2,3,7,8,9-HxCDF	100	97.8	17 - 205	Y
13C-1,2,3,4,6,7,8-HpCDF	100	106	21 - 158	Y
13C-1,2,3,4,7,8,9-HpCDF	100	101	20 - 186	Y
13C-OCDF	200	220	26 - 397	Y
CLEANUP STANDARD				
37Cl-2,3,7,8-TCDD	40	37.9	12.4 - 76.4	Y

Contract-required concentration limits for OPR as specified in Table 6,
Method 1613. 10/94

Processed: 20 Dec 2023 09:28 Analyst: pw

Sample ID: 01TB-TERMINAL

Method 1668C

Client Data			Sample Data		Laboratory Data			Project No.: B8803			Date Received: 17-Nov-2023	
Name: SGS North America Inc. - Orlando			Matrix:		Soil			B8803_20707_PCB_001			Date Extracted: 04-Dec-2023	
Project ID: FC11168XW			Weight/Volume:		10.12 g			Sample ID:			Date Analyzed: 22-Dec-2023	
Date Collected: 09-Nov-2023			% Solid		58.3 %			QC Batch No.: 20707				
Analyte	Conc.	DL	EMPC	Qualifier	Standard	Recovery						
	pg/g	pg/g	pg/g			%						
PCB-77 33'44"-TeCB	30.7				ES PCB-1	55.2						
PCB-81 344'5"-TeCB	ND	1.43			ES PCB-3	64.4						
PCB-105 233'44"-PeCB	220				ES PCB-4	78.4						
PCB-114 2344'5"-PeCB	10.4				ES PCB-15	65.6						
PCB-118 23'44'5"-PeCB	628				ES PCB-19	71.7						
PCB-123 23'44'5"-PeCB	10.5				ES PCB-37	61.1						
PCB-126 33'44'5"-PeCB	EMPC		3.18		ES PCB-54	82.9						
PCB-156/157 233'44'5"/233'44'5"-HxCB	115			C	ES PCB-77	71.9						
PCB-167 23'44'55"-HxCB	45.2				ES PCB-81	67.4						
PCB-169 33'44'55"-HxCB	ND	1.67			ES PCB-104	97.7						
PCB-189 233'44'55"-HpCB	11.8				ES PCB-105	81.9						
					ES PCB-114	81.6						
					ES PCB-118	80.4						
					ES PCB-123	82.4						
TEQs (WHO 2005 M/H)												
ND = 0	0.0343		0.352		ES PCB-126	70.2						
ND = 0.5 x DL	0.124		0.378		ES PCB-153	88						
ND = DL	0.213		0.403		ES PCB-155	78.4						
					ES PCB-156/157	57.2						
Totals					ES PCB-167	65.4						
					ES PCB-169	56.6						
Mono-CB	31.3				ES PCB-170	111						
Di-CB	313		1,100		ES PCB-180	111						
Tri-CB	1,080		2,110		ES PCB-188	113						
Tetra-CB	2,100		4,130		ES PCB-189	86						
Penta-CB	4,130		4,630		ES PCB-202	94.7						
Hexa-CB	4,610		4,630		ES PCB-205	90.8						
Hepta-CB	2,320		2,340		ES PCB-206	111						
Octa-CB	755				ES PCB-208	106						
Nona-CB	228				ES PCB-209	101						
Deca-CB	169				CS PCB-28	70.4						
Total PCB (Mono-Deca)	15,700		15,800		CS PCB-111	86.5						
					CS PCB-178	121						

Checkcode: 204-704-HHS/C SGS North America - PCB v0.99 Report Created: 27-Dec-2023 10:11 Analyst: RB

Sample ID: 01TB-TERMINAL														Method 1668C									
Client Data				Sample Data				Laboratory Data				B8803				Date Received:							
Name: SGS North America Inc. - Orlando				Matrix: 10.12 g				Project No.: B8803				B8803_20707_PCB_001				Date Received: 17-Nov-2023							
Project ID: FC11168XW				Weight/Volume: 58.3 %				Sample ID: B8803_20707_PCB_001				20707				Date Extracted: 04-Dec-2023							
Date Collected: 09-Nov-2023				Units: pp/g				QC Batch No.: 20707				204-704-HHSC				Date Analyzed: 22-Dec-2023							
								Checkcode: 204-704-HHSC								Time Analyzed: 07:36:28							
Mono		Conc.		Qualifiers		Tri		Conc.		Qualifiers		Tetra		Conc.		Qualifiers		Tetra		Conc.		Qualifiers	
PCB-1		13.8				PCB-19		[12.2]		EMPC		PCB-54		2.08		5.33		PCB-72		5.33			
PCB-2		8.07				PCB-30/18		109		C		PCB-50/53		42.2		[5.29]		PCB-68		[5.29]		EMPC	
PCB-3		9.4				PCB-17		81				PCB-45		27		1.85		PCB-57		1.85			
						PCB-27		18.2				PCB-51		18.8		[1.32]		PCB-58		[1.32]		EMPC	
Conc.		31.3				PCB-24		(3.14)				PCB-46		14.8		8.42		PCB-67		8.42			
EMPC		31.3				PCB-16		52.7				PCB-52		306		11.7		PCB-63		11.7			
						PCB-32		58.4				PCB-73		[2.17]		391		PCB-61/70/74/76		391		C	
Di		Conc.		Qualifiers		PCB-34		(4.5)				PCB-43		5.65		256		PCB-66		256			
PCB-4		27.7				PCB-23		(4.52)				PCB-69/49		246		2.48		PCB-55		2.48			
PCB-10		1.71				PCB-26/29		60.2		C		PCB-48		42		82		PCB-56		82			
PCB-9		5.05				PCB-25		26.8				PCB-44/47/65		269		39.1		PCB-60		39.1			
PCB-7		8.13				PCB-31		162				PCB-59/62/75		20.7		2.46		PCB-80		2.46			
PCB-6		24.9				PCB-28/20		255		C		PCB-42		65.5		3.69		PCB-79		3.69			
PCB-5		(1.74)				PCB-21/33		127		C		PCB-41		10.5		(1.46)		PCB-78		(1.46)			
PCB-8		102				PCB-22		60.4				PCB-71/40		108		(1.43)		PCB-81		(1.43)			
PCB-14						PCB-36		(3.82)				PCB-64		89.9		30.7		PCB-77		30.7			
PCB-11		37.3		B		PCB-39		(4.2)															
PCB-13/12		16.6		C		PCB-38		(4.17)															
PCB-15		88.9				PCB-35		(4.22)															
						PCB-37		73															
Conc.		313				Conc.		1,080								2,100		Conc.		2,100			
EMPC		313				EMPC		1,100								2,110		EMPC		2,110			
 5500 Business Drive Wilmington, NC 28405, USA Tel: +1 910 794-1613 www.us.sgs.com										Totals		Conc.		EMPC									
										Mono-Tri		1,430		1,440									
										Tetra-Hexa		10,800		10,900									
										Hepta-Deca		3,470		3,490									
										Mono-Deca		15,700		15,800									

Sample ID: 01TB-TERMINAL														Method 1668C													
Penta		Conc.	Qualifiers	Penta	Conc.	Qualifiers	Hexa	Conc.	Qualifiers	Hexa	Conc.	Qualifiers	Hexa	Conc.	Qualifiers												
PCB-104		(0.725)		PCB-109/119/86/97/125/67	391	C	PCB-155	(0.389)		PCB-165	[1.56]		PCB-165	[1.56]	EMPC												
PCB-96		3.09		PCB-117	20.2		PCB-152	[1.09]		PCB-146	180		PCB-146	180													
PCB-103		14.8		PCB-116/85	100	C	PCB-150	[4.66]		PCB-161	(0.388)		PCB-161	(0.388)													
PCB-94		4.56		PCB-110	678		PCB-136	131		PCB-153/168	963	C	PCB-153/168	963	C												
PCB-95		386		PCB-115	(1.44)		PCB-145	(0.458)		PCB-141	142		PCB-141	142													
PCB-100/93		11.5	C	PCB-82	49		PCB-148	4.41		PCB-130	71.4		PCB-130	71.4													
PCB-102		21		PCB-111	(1.74)		PCB-151/135	322	C	PCB-137	39.4		PCB-137	39.4													
PCB-98		(2.07)		PCB-120	5.41		PCB-154	34.7		PCB-164	59.1		PCB-164	59.1													
PCB-88		(2.42)		PCB-108/124	22.3	C	PCB-144	37.6		PCB-163/138/129	1.120	C	PCB-163/138/129	1.120	C												
PCB-91		104		PCB-107	55.8		PCB-147/149	720		PCB-160	(0.432)		PCB-160	(0.432)													
PCB-84		132		PCB-123	10.5		PCB-134	54.5		PCB-158	100		PCB-158	100													
PCB-89		4.69		PCB-106	(1.62)		PCB-143	2.07		PCB-128/166	165	C	PCB-128/166	165	C												
PCB-121		(1.55)		PCB-118	628		PCB-139/140	18.8	C	PCB-159	[4.63]		PCB-159	[4.63]	EMPC												
PCB-92		130		PCB-122	8.29		PCB-131	10.9		PCB-162	4.32		PCB-162	4.32													
PCB-113/90/101		702	C	PCB-114	10.4		PCB-142	(0.577)		PCB-167	45.2		PCB-167	45.2													
PCB-83		33.1		PCB-105	220		PCB-132	256		PCB-156/157	115	C	PCB-156/157	115	C												
PCB-99		386		PCB-127	(1.7)		PCB-133	18		PCB-169	(1.67)		PCB-169	(1.67)													
PCB-112		(1.47)		PCB-126	[3.18]	EMPC																					
				Conc.	4,130					Conc.	4,610		Conc.	4,610													
				EMPC	4,130					EMPC	4,630		EMPC	4,630													
Hepta		Conc.	Qualifiers	Hepta	Conc.	Qualifiers	Octa	Conc.	Qualifiers	Nona	Conc.	Qualifiers		Conc.	Qualifiers												
PCB-188		[2.17]	EMPC	PCB-174	226		PCB-202	52.2		PCB-208	51.8		PCB-208	51.8													
PCB-179		113		PCB-177	186		PCB-201	39		PCB-207	21.9		PCB-207	21.9													
PCB-184		[0.789]	J EMPC	PCB-181	(0.953)		PCB-204	(0.353)		PCB-206	154		PCB-206	154													
PCB-176		38.3		PCB-171/173	97.6	C	PCB-197	8.76																			
PCB-186		(0.356)		PCB-172	47.7		PCB-200	20		Conc.	228		Conc.	228													
PCB-178		72.8		PCB-192	(0.751)		PCB-198/199	197	C	EMPC	228		EMPC	228													
PCB-175		[12.4]	EMPC	PCB-180/193	598	C	PCB-196	94.9																			
PCB-187		399		PCB-191	11.7		PCB-203	111																			
PCB-182		[2.63]	EMPC	PCB-170	270		PCB-195	55.3		Deca	Conc.	Qualifiers	PCB-209	169													
PCB-183		185		PCB-190	46.1		PCB-194	169																			
PCB-185		19.3		PCB-189	11.8		PCB-205	8.25																			
				Conc.	2,320		Conc.	755																			
				EMPC	2,340		EMPC	755																			

Sample ID: 01TB-BELOW-35 MLLW

Method 1668C

Client Data			Sample Data		Laboratory Data			Project No.: B8803			Date Received: 17-Nov-2023	
Name: SGS North America Inc. - Orlando			Matrix:		Soil			B8803_20707_PCB_002			Date Extracted: 04-Dec-2023	
Project ID: FC11168XW			Weight/Volume:		10.35 g			Sample ID:			Date Analyzed: 22-Dec-2023	
Date Collected: 09-Nov-2023			% Solid		53.4 %			QC Batch No.:				
Analyte	Conc.	DL	EMPC	Qualifier	Standard	Recovery						
	pg/g	pg/g	pg/g			%						
PCB-77 33'44"-TeCB	437				ES PCB-1	48.9						
PCB-81 344'5- TeCB	12.7				ES PCB-3	57.3						
PCB-105 233'44'-PeCB	2,670				ES PCB-4	70.6						
PCB-114 2344'5'-PeCB	133				ES PCB-15	60.8						
PCB-118 23'44'5'-PeCB	8,010			E	ES PCB-19	66.4						
PCB-123 23'44'5'-PeCB	146				ES PCB-37	54						
PCB-126 33'44'5'-PeCB	38.5				ES PCB-54	80.7						
PCB-156/157 233'44'5'/233'44'5'-HxCB	1,390			C	ES PCB-77	58.7						
PCB-167 23'44'55'-HxCB	591				ES PCB-81	59.8						
PCB-169 33'44'55'-HxCB	ND	7.21			ES PCB-104	107						
PCB-189 233'44'55'-HpCB	156				ES PCB-105	76.2						
TEQs (WHO 2005 M/H)												
ND = 0	4.29		4.29		ES PCB-126	64.4						
ND = 0.5 x DL	4.4		4.4		ES PCB-153	86.2						
ND = DL	4.5		4.5		ES PCB-155	80.5						
Totals												
Mono-CB	248				ES PCB-167	51.3						
Di-CB	6,460				ES PCB-169	52.5						
Tri-CB	29,000				ES PCB-170	98.7						
Tetra-CB	42,200			E	ES PCB-180	99.7						
Penta-CB	60,800		60,800	E	ES PCB-188	111						
Hexa-CB	51,100		51,100	E	ES PCB-189	69.1						
Hepta-CB	26,500		26,500	E	ES PCB-202	88.1						
Octa-CB	7,290				ES PCB-205	79.4						
Nona-CB	1,560				ES PCB-206	112						
Deca-CB	845				ES PCB-208	95.6						
Total PCB (Mono-Deca)							226,000	E		CS PCB-209	82.6	
										CS PCB-28	70	
										CS PCB-111	87.7	
										CS PCB-178	118	

Checkcode: 013-419-DVV/C

SGS North America - PCB v0.99

Report Created: 27-Dec-2023 10:12 Analyst: RB

Sample ID: 01TB-BELOW-35 MLLW										Method 1668C									
Client Data				Sample Data				Laboratory Data				B8803				Date Received:			
Name: SGS North America Inc. - Orlando				Matrix: 10.35 g				Project No.: B8803				Date Received: 17-Nov-2023							
Project ID: FC11168XW				Weight/Volume: 53.4 %				Sample ID: B8803_20707_PCB_002				Date Extracted: 04-Dec-2023							
Date Collected: 09-Nov-2023				% Solid				QC Batch No.: 20707				Date Analyzed: 22-Dec-2023							
				Units				Checkcode: 013-419-DV/C				Time Analyzed: 08:33:23							
Mono		Conc.	Qualifiers	Tri	Conc.	Qualifiers	Tetra		Conc.	Qualifiers	Tetra		Conc.	Qualifiers					
PCB-1		102		PCB-19	540		PCB-54		39.3		PCB-72		86.1						
PCB-2		43.9		PCB-30/18	4,140	C	PCB-50/53		1,290	C	PCB-68		96.4						
PCB-3		102		PCB-17	2,280		PCB-45		646		PCB-57		21.3						
				PCB-27	535		PCB-51		556		PCB-58		31.9						
Conc.		248		PCB-24	37.9		PCB-46		458		PCB-67		167						
EMPC		248		PCB-16	1,150		PCB-52		6,700	E	PCB-63		172						
				PCB-32	1,790		PCB-73		74.6		PCB-61/70/74/76		7,100	C					
Di			Qualifiers	PCB-34	58.6		PCB-43		111		PCB-66		4,150	E					
PCB-4		1,240		PCB-23	(8.03)		PCB-69/49		5,420	C	PCB-55		(5.98)						
PCB-10		76		PCB-26/29	1,680	C	PCB-48		939		PCB-56		1,340						
PCB-9		122		PCB-25	759		PCB-44/47/65		5,060	C	PCB-60		594						
PCB-7		112		PCB-31	4,670	E	PCB-59/62/75		435	C	PCB-80		(6.22)						
PCB-6		929		PCB-28/20	6,040	C	PCB-42		1,420		PCB-79		61.1						
PCB-5		10.1		PCB-21/33	2,820	C	PCB-41		164		PCB-78		(6.75)						
PCB-8		2,410		PCB-22	1,070		PCB-71/40		2,940	C	PCB-81		12.7						
PCB-14		2.07		PCB-36	(6.8)		PCB-64		1,680		PCB-77		437						
PCB-11		93.5		PCB-39	28.5														
PCB-13/12		321	C	PCB-38	(7.41)														
PCB-15		1,140		PCB-35	74.9														
				PCB-37	1,350														
Conc.		6,460		Conc.	29,000						Conc.		42,200						
EMPC		6,460		EMPC	29,000						EMPC		42,200						
					Totals					Conc.					EMPC				
					Mono-Tri					35,700					35,700				
					Tetra-Hexa					154,000					154,000				
					Hepta-Deca					36,200					36,200				
					Mono-Deca					226,000					226,000				

SGS

5500 Business Drive

Wilmington, NC 28405, USA

Tel: +1 910 794-1613

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Tel: +1 910 794-1613
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Sample ID: 01TB-BELOW-35 MLLW

Method 1668C

Penta	Conc.	Qualifiers	Penta	Conc.	Qualifiers	Hexa	Conc.	Qualifiers	Hexa	Conc.	Qualifiers
PCB-104	[8.68]	EMPC	PCB-109/119/86/97/125/87	5,700	C	PCB-155	2.6		PCB-165	[5.87]	EMPC
PCB-96	72.6		PCB-117	271		PCB-152	12.4		PCB-146	1,670	
PCB-103	286		PCB-116/85	1,280	C	PCB-150	50.3		PCB-161	(0.673)	
PCB-94	67		PCB-110	9,900	E	PCB-136	1,570		PCB-153/168	10,100	E C
PCB-95	6,720	E	PCB-115	(1.04)		PCB-145	3.97		PCB-141	1,610	
PCB-100/93	185	C	PCB-82	763		PCB-148	33.3		PCB-130	772	
PCB-102	338		PCB-111	10.2		PCB-151/135	3,330	C	PCB-137	451	
PCB-98	100		PCB-120	69.3		PCB-154	325		PCB-164	699	
PCB-88	(1.74)		PCB-108/124	323	C	PCB-144	499		PCB-163/138/129	12,100	E C
PCB-91	1,850		PCB-107	653		PCB-147/149	8,240	E C	PCB-160	(0.75)	
PCB-84	2,410		PCB-123	146		PCB-134	634		PCB-158	1,170	
PCB-89	69.6		PCB-106	(1.17)		PCB-143	(0.933)		PCB-128/166	2,110	C
PCB-121	[5.79]	EMPC	PCB-118	8,010	E	PCB-139/140	224	C	PCB-159	84.1	
PCB-92	1,830		PCB-122	108		PCB-131	138		PCB-162	55.1	
PCB-113/90/101	10,900	C	PCB-114	133		PCB-142	(1)		PCB-167	591	
PCB-83	469		PCB-105	2,670		PCB-132	3,010		PCB-156/157	1,390	C
PCB-99	5,390	E	PCB-127	9.67		PCB-133	174		PCB-169	(7.21)	
PCB-112	3.85		PCB-126	38.5							
			Conc.	60,800					Conc.	51,100	
			EMPC	60,800					EMPC	51,100	

Hepta	Conc.	Qualifiers	Hepta	Conc.	Qualifiers	Octa	Conc.	Qualifiers	Nona	Conc.	Qualifiers
PCB-188	15.5		PCB-174	2,710		PCB-202	422		PCB-208	347	
PCB-179	1,110		PCB-177	1,930		PCB-201	342		PCB-207	160	
PCB-184	[6.6]	EMPC	PCB-181	27.2		PCB-204	(1.22)		PCB-206	1,060	
PCB-176	433		PCB-171/173	1,150	C	PCB-197	83				
PCB-186	(0.537)		PCB-172	559		PCB-200	235		Conc.	1,560	
PCB-178	662		PCB-192	(3.06)		PCB-198/199	1,750	C	EMPC	1,560	
PCB-175	185		PCB-180/193	7,080	C	PCB-196	913				
PCB-187	4,050	E	PCB-191	163		PCB-203	1,040		Deca	Conc.	Qualifiers
PCB-182	28.1		PCB-170	3,210		PCB-195	641		PCB-209	845	
PCB-183	2,140		PCB-190	575		PCB-194	1,770				
PCB-185	291		PCB-189	156		PCB-205	89				
			Conc.	26,500		Conc.	7,290				
			EMPC	26,500		EMPC	7,290				

Sample ID: 01TB-SURFACE TO-35 MLLW

Method 1668C

Client Data			Sample Data		Laboratory Data		Project Data		
Name: SGS North America Inc. - Orlando			Matrix:		Soil		B8803		
Project ID: FC11168XW			Weight/Volume:		10.16 g		Date Received: 17-Nov-2023		
Date Collected: 09-Nov-2023			% Solid		53.4 %		Sample ID: B8803_20707_PCB_003		
Analyte			Conc.	DL	EMPC	Qualifier	Date Analyzed: 22-Dec-2023		
			pg/g	pg/g	pg/g		QC Batch No.: 20707		
PCB-77 33'44"-TeCB			179				Standard		
PCB-81 344'5"-TeCB			EMPC				Recovery		
PCB-105 233'44"-PeCB			1,250		6.18		%		
PCB-114 2344'5"-PeCB			69				ES PCB-1		
PCB-118 23'44'5"-PeCB			3,290				ES PCB-3		
PCB-123 23'44'5"-PeCB			58.2				ES PCB-4		
PCB-126 33'44'5"-PeCB			17.1				ES PCB-15		
PCB-156/157 233'44'5"/233'44'5"-HxCB			614				ES PCB-19		
PCB-167 23'44'55"-HxCB			251			C	ES PCB-37		
PCB-169 33'44'55"-HxCB			ND	4.87			ES PCB-54		
PCB-189 233'44'55"-HpCB			59.1				ES PCB-77		
TEQs (WHO 2005 M/H)							ES PCB-81		
ND = 0							ES PCB-104		
ND = 0.5 x DL			1.9		1.9		ES PCB-105		
ND = DL			1.97		1.97		ES PCB-114		
			2.05		2.05		ES PCB-118		
Totals							ES PCB-123		
Mono-CB			120				ES PCB-126		
Di-CB			1,930				ES PCB-153		
Tri-CB			8,580				ES PCB-155		
Tetra-CB			14,700				ES PCB-156/157		
Penta-CB			23,900				ES PCB-167		
Hexa-CB			20,300				ES PCB-169		
Hepta-CB			9,380				ES PCB-170		
Octa-CB			2,630				ES PCB-180		
Nona-CB			592				ES PCB-188		
Deca-CB			363				ES PCB-189		
Total PCB (Mono-Deca)			82,400				ES PCB-202		
							ES PCB-205		
							ES PCB-206		
							ES PCB-208		
							ES PCB-209		
							CS PCB-28		
							CS PCB-111		
							CS PCB-178		

Checkcode: 826-342-HBT/C

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Report Created: 27-Dec-2023 10:12 Analyst: RB

Sample ID: 01TB-SURFACE TO-35 MLLW										Method 1668C									
Client Data			Sample Data			Laboratory Data				B8803			Date Received:						
Name: SGS North America Inc. - Orlando			Matrix:			Project No.: B8803				Date Received: 17-Nov-2023									
Project ID: FC11168XW			Weight/Volume:			Sample ID: B8803_20707_PCB_003				Date Extracted: 04-Dec-2023									
Date Collected: 09-Nov-2023			% Solid			QC Batch No.: 20707				Date Analyzed: 22-Dec-2023									
			Units			Checkcode: 826-342-HBT/C				Time Analyzed: 09:32:37									

Sample ID: 01TB-SURFACE TO-35 MLLW										Method 1668C				
Penta	Conc.	Qualifiers	Penta	Conc.	Qualifiers	Hexa	Conc.	Qualifiers	Hexa	Conc.	Qualifiers			
PCB-104	2.43		PCB-109/119/86/97/125/67	2,410	C	PCB-155	[1.11]	EMPC	PCB-165	4.55				
PCB-96	23.2		PCB-117	94.3		PCB-152	5.16		PCB-146	659				
PCB-103	76.5		PCB-116/85	616	C	PCB-150	20.3		PCB-161	(0.602)				
PCB-94	28.1		PCB-110	3,890		PCB-136	595		PCB-153/168	3,840	C			
PCB-95	2,460		PCB-115	(1.14)		PCB-145	(0.561)		PCB-141	674				
PCB-100/93	61.1	C	PCB-82	352		PCB-148	11.1		PCB-130	334				
PCB-102	111		PCB-111	[4.68]	EMPC	PCB-151/135	1,310	C	PCB-137	244				
PCB-98	39		PCB-120	23		PCB-154	120		PCB-164	273				
PCB-88	(1.92)		PCB-108/124	147	C	PCB-144	188		PCB-163/138/129	4,990	C			
PCB-91	610		PCB-107	284		PCB-147/149	3,020	C	PCB-160	[2.24]	EMPC			
PCB-84	900		PCB-123	58.2		PCB-134	254		PCB-158	488				
PCB-89	31.9		PCB-106	[1.96]	EMPC	PCB-143	12.3		PCB-128/166	913	C			
PCB-121	2.27		PCB-118	3,290		PCB-139/140	93.3	C	PCB-159	28				
PCB-92	743		PCB-122	47.5		PCB-131	57.1		PCB-162	21.4				
PCB-113/90/101	4,070	C	PCB-114	69		PCB-142	(0.896)		PCB-167	251				
PCB-83	214		PCB-105	1,250		PCB-132	1,240		PCB-156/157	614	C			
PCB-99	1,920		PCB-127	[4.62]	EMPC	PCB-133	69.4		PCB-169	(4.87)				
PCB-112	4.26		PCB-126	17.1										
			Conc.	23,900					Conc.	20,300				
			EMPC	23,900					EMPC	20,300				
Hepta	Conc.	Qualifiers	Hepta	Conc.	Qualifiers	Octa	Conc.	Qualifiers	Nona	Conc.	Qualifiers			
PCB-188	6.32		PCB-174	980		PCB-202	152		PCB-208	141				
PCB-179	406		PCB-177	696		PCB-201	121		PCB-207	61				
PCB-184	[1.71]	EMPC	PCB-181	[10.8]	EMPC	PCB-204	(1.39)		PCB-206	390				
PCB-176	154		PCB-171/173	409	C	PCB-197	34.3							
PCB-186	(0.663)		PCB-172	202		PCB-200	77.8		Conc.	592				
PCB-178	246		PCB-192	(2.03)		PCB-198/199	645	C	EMPC	592				
PCB-175	64.6		PCB-180/193	2,470	C	PCB-196	335							
PCB-187	1,480		PCB-191	57		PCB-203	363		Deca	Conc.	Qualifiers			
PCB-182	10.8		PCB-170	1,130		PCB-195	224		PCB-209	363				
PCB-183	744		PCB-190	199		PCB-194	646							
PCB-185	71.5		PCB-189	59.1		PCB-205	32.9							
			Conc.	9,380		Conc.	2,630							
			EMPC	9,400		EMPC	2,630							

Sample ID: Method Blank B8803_20707

Method 1668C

Client Data			Sample Data		Laboratory Data			B8803			Date Received:		Date Extracted:		n/a	
Name: SGS North America Inc. - Orlando			Matrix:		Soil		Project No.:		MB1_20707_PCB_SDS		Date Received:		Date Extracted:		04-Dec-2023	
Project ID: FC11168XW			Weight/Volume:		10.00 g		Sample ID:		20707		Date Received:		Date Extracted:		22-Dec-2023	
Date Collected: n/a			% Solid		n/a		QC Batch No.:				Date Analyzed:					
Analyte	Conc.	DL	EMPC	Qualifier	Standard	Recovery										
	pg/g	pg/g	pg/g			%										
PCB-77 33'44"-TeCB	ND	0.463			ES PCB-1	68.1										
PCB-81 344'5"-TeCB	ND	0.496			ES PCB-3	65.5										
PCB-105 233'44"-PeCB	ND	0.282			ES PCB-4	85.3										
PCB-114 2344'5"-PeCB	ND	0.293			ES PCB-15	65.8										
PCB-118 23'44'5"-PeCB	0.696			J	ES PCB-19	78.2										
PCB-123 23'44'5"-PeCB	ND	0.306			ES PCB-37	59.7										
PCB-126 33'44'5"-PeCB	ND	0.192			ES PCB-54	89										
PCB-156/157 233'44'5"/233'44'5"-HxCB	EMPC		0.297	J C	ES PCB-77	66.1										
PCB-167 23'44'55"-HxCB	ND	0.24			ES PCB-81	66.8										
PCB-169 33'44'55"-HxCB	ND	0.238			ES PCB-104	99.7										
PCB-189 233'44'55"-HpCB	ND	0.174			ES PCB-105	74.9										

Checkcode: 171-486-FQ/JC SGS North America - PCB v0.99 Report Created: 27-Dec-2023 10:11 Analyst: RB

Sample ID: Method Blank B8803_20707										Method 1668C													
Client Data			Sample Data			Laboratory Data				B8803			Date Received:			n/a							
Name: SGS North America Inc. - Orlando			Matrix:			Project No.:				MB1_20707_PCB_SDS			Date Extracted:			04-Dec-2023							
Project ID: FC11168XW			Weight/Volume:			Sample ID:				20707			Date Analyzed:			22-Dec-2023							
Date Collected: n/a			% Solid			QC Batch No.:				171-486-FQJ/C			Time Analyzed:			04:26:48							
			Units			pp/g																	
Mono		Conc.		Qualifiers		Tri		Conc.		Qualifiers		Tetra		Conc.		Qualifiers		Tetra		Conc.		Qualifiers	
PCB-1				(0.505)		PCB-19		(0.866)				PCB-54		(0.262)				PCB-72		(0.455)			
PCB-2		(0.246)				PCB-30/18		(0.67)		C		PCB-50/53		(0.394)		C		PCB-68		(0.49)			
PCB-3		(0.264)				PCB-17		(0.915)				PCB-45		(0.444)				PCB-57		(0.483)			
						PCB-27		(0.682)				PCB-51		(0.401)				PCB-58		(0.442)			
Conc.		0				PCB-24		(0.682)				PCB-46		(0.481)				PCB-67		(0.432)			
EMPC		0				PCB-16		(0.944)				PCB-52		[0.498]		J EMPC		PCB-63		(0.521)			
						PCB-32		(0.614)				PCB-73		(0.297)				PCB-61/70/74/76		[1.06]		J EMPC C	
Di				Conc.		PCB-34		(0.918)				PCB-43		(0.39)				PCB-66		(0.455)			
PCB-4		(0.409)				PCB-23		(0.922)				PCB-69/49		0.578		J C		PCB-55		(0.447)			
PCB-10		(0.331)				PCB-26/29		(0.907)		C		PCB-48		[0.833]		J EMPC C		PCB-56		(0.464)			
PCB-9		(0.291)				PCB-25		(0.766)				PCB-44/47/65		[0.833]				PCB-60		(0.542)			
PCB-7		(0.319)				PCB-31		0.661		J		PCB-59/62/75		(0.323)		C		PCB-80		(0.465)			
PCB-6		0.362		J		PCB-28/20		(0.86)		C		PCB-42		(0.445)				PCB-79		(0.429)			
PCB-5		(0.323)				PCB-21/33		(0.88)		C		PCB-41		(0.507)				PCB-78		(0.505)			
PCB-14		0.648		J		PCB-22		(0.789)				PCB-71/40		(0.372)		C		PCB-81		(0.496)			
PCB-11		(0.324)		EMPC		PCB-36		(0.78)				PCB-64		(0.308)				PCB-77		(0.463)			
PCB-13/12		[5.21]		C		PCB-39		(0.856)															
PCB-15		(0.324)		J		PCB-38		(0.85)															
		0.426				PCB-35		(0.862)															
						PCB-37		(0.849)															
Conc.		1.43				Conc.		0.661										Conc.		0.578			
EMPC		6.64				EMPC		0.661										EMPC		2.97			
						Totals						Conc.						EMPC					
						5500 Business Drive Wilmington, NC 28405, USA Tel: +1 910 794-1613 www.us.sgs.com						Mono-Tri Tetra-Hexa Hepta-Deca Mono-Deca						2.1 7.48 0.855 10.4 7.3 12.2 1.83 21.3					

Sample ID: Method Blank B8803_20707										Method 1668C				
Penta	Conc.	Qualifiers	Penta	Conc.	Qualifiers	Hexa	Conc.	Qualifiers	Hexa	Conc.	Qualifiers			
PCB-104	(0.129)		PCB-109/119/86/97/125/67	1	J C	PCB-155	(0.122)		PCB-165	(0.148)				
PCB-96	(0.148)		PCB-117	(0.349)		PCB-152	(0.132)		PCB-146	(0.149)				
PCB-103	(0.408)		PCB-116/85	(0.401)	C	PCB-150	(0.151)		PCB-161	(0.128)				
PCB-94	(0.496)		PCB-110	1.04		PCB-136	[0.186]	J EMPC	PCB-153/168	0.752	J C			
PCB-95	0.665	J	PCB-115	(0.275)		PCB-145	(0.144)		PCB-141	(0.183)				
PCB-100/93	(0.443)	C	PCB-82	(0.449)		PCB-148	(0.172)		PCB-130	(0.21)				
PCB-102	(0.384)		PCB-111	(0.331)		PCB-151/135	(0.173)	C	PCB-137	(0.193)				
PCB-98	(0.394)		PCB-120	(0.276)		PCB-154	(0.163)		PCB-164	(0.123)				
PCB-88	(0.461)		PCB-108/124	(0.338)	C	PCB-144	(0.176)	J EMPC C	PCB-163/138/129	1.47	J C			
PCB-91	(0.437)		PCB-107	(0.285)		PCB-147/149	[0.86]		PCB-160	(0.142)				
PCB-84	(0.507)		PCB-123	(0.306)		PCB-134	(0.207)		PCB-158	(0.132)				
PCB-89	(0.422)		PCB-106	(0.309)		PCB-143	(0.177)		PCB-128/166	0.449	J C			
PCB-121	(0.295)		PCB-118	0.696	J	PCB-139/140	(0.172)	C	PCB-159	(0.207)				
PCB-92	0.412	J	PCB-122	(0.371)		PCB-131	(0.188)		PCB-162	(0.248)				
PCB-113/90/101	[0.987]	J EMPC C	PCB-114	(0.293)		PCB-142	[0.19]		PCB-167	(0.24)				
PCB-83	(0.498)		PCB-105	(0.282)		PCB-132	(0.18)		PCB-156/157	[0.297]	J EMPC C			
PCB-99	0.413	J	PCB-127	(0.281)		PCB-133	(0.171)		PCB-169	(0.238)				
PCB-112	(0.281)		PCB-126	(0.192)										
			Conc.	4.23					Conc.	2.67				
			EMPC	5.21					EMPC	4.01				
Hepta	Conc.	Qualifiers	Hepta	Conc.	Qualifiers	Octa	Conc.	Qualifiers	Nona	Conc.	Qualifiers			
PCB-188	(0.155)		PCB-174	(0.376)		PCB-202	(0.131)		PCB-208	(0.46)				
PCB-179	[0.216]	J EMPC	PCB-177	[0.35]	J EMPC	PCB-201	(0.159)		PCB-207	(0.522)				
PCB-184	(0.162)		PCB-181	(0.361)		PCB-204	(0.138)		PCB-206	(0.92)				
PCB-176	(0.176)		PCB-171/173	(0.424)	C	PCB-197	(0.147)							
PCB-186	(0.147)		PCB-172	(0.401)		PCB-200	(0.155)		Conc.	0				
PCB-178	(0.221)		PCB-192	(0.284)		PCB-198/199	(0.176)	C	EMPC	0				
PCB-175	(0.4)		PCB-180/193	0.855	J C	PCB-196	(0.195)							
PCB-187	(0.33)		PCB-191	(0.328)		PCB-203	(0.161)		Deca	Conc.	Qualifiers			
PCB-182	(0.339)		PCB-170	(0.441)		PCB-195	[0.189]	J EMPC	PCB-209	(0.253)				
PCB-183	(0.359)		PCB-190	(0.313)		PCB-194	[0.217]	J EMPC						
PCB-185	(0.438)		PCB-189	(0.174)		PCB-205	(0.162)							
			Conc.	0.855		Conc.	0							
			EMPC	1.42		EMPC	0.406							

**METHOD 1668C****PCB ONGOING PRECISION AND RECOVERY (OPR)****FORM 8A**

Lab Name: SGS North America
Initial Calibration: ICAL: MM4-PCB_07AUG2023
Instrument ID: MM4 GC Column ID:
VER Data Filename: 231221S17 Analysis Date: 22-DEC-2023 02:28:20
Lab ID: OPR1_20707_PCB

NATIVE ANALYTES	SPIKE		RANGE			OK
	CONC. (pg/uL)	RECOVERY (%)	(%)			
PCB-1 2-MoCB	50	103	60	-	135	Y
PCB-3 4-MoCB	50	105	60	-	135	Y
PCB-4 22'-DiCB	50	98.5	60	-	135	Y
PCB-15 44'-DiCB	50	98.3	60	-	135	Y
PCB-19 22'6-TrCB	50	97	60	-	135	Y
PCB-37 344'-TrCB	50	93	60	-	135	Y
PCB-54 22'66'-TeCB	50	84.8	60	-	135	Y
PCB-77 33'44'-TeCB	50	90.7	60	-	135	Y
PCB-81 344'5-TeCB	50	80.3	60	-	135	Y
PCB-104 22'466'-PeCB	50	78.4	60	-	135	Y
PCB-105 233'44'-PeCB	50	91.2	60	-	135	Y
PCB-114 2344'5-PeCB	50	88.7	60	-	135	Y
PCB-118 23'44'5-PeCB	50	88.8	60	-	135	Y
PCB-123 23'44'5'-PeCB	50	84.4	60	-	135	Y
PCB-126 33'44'5-PeCB	50	108	60	-	135	Y
PCB-155 22'44'66'-HxCB	50	80.7	60	-	135	Y
PCB-156/157 ...-HxCB	100	92.9	60	-	135	Y
PCB-167 23'44'55'-HxCB	50	106	60	-	135	Y
PCB-169 33'44'55'-HxCB	50	106	60	-	135	Y
PCB-188 22'34'566'-HpCB	50	93.9	60	-	135	Y
PCB-189 233'44'55'-HpCB	50	90.8	60	-	135	Y
PCB-202 22'33'55'66'-OcCB	50	85.8	60	-	135	Y
PCB-205 233'44'55'6-OcCB	50	93.2	60	-	135	Y
PCB-206 22'33'44'55'6-NoCB	50	113	60	-	135	Y
PCB-208 22'33'455'66'-NoCB	50	89	60	-	135	Y
PCB-209 DeCB	50	93.2	60	-	135	Y

Contract-required recovery limits for OPR as specified in Table 6,
Method 1668C.

Processed: 27 Dec 2023 10:10 Analyst: RB



METHOD 1668C

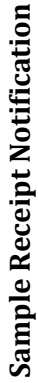
PCB ONGOING PRECISION AND RECOVERY (OPR)

FORM 8B

Lab Name: SGS North America
Initial Calibration: ICAL: MM4-PCB_07AUG2023
Instrument ID: MM4 GC Column ID:
VER Data Filename: 231221S17 Analysis Date: 22-DEC-2023 02:28:20
Lab ID: OPR1_20707_PCB

LABELED STANDARDS	SPIKE	RECOVERY (%)	RANGE			OK
	CONC. (pg/uL)		(%)			
ES PCB-1	100	65.2	15	-	145	Y
ES PCB-3	100	63.1	15	-	145	Y
ES PCB-4	100	83.1	15	-	145	Y
ES PCB-15	100	69.7	15	-	145	Y
ES PCB-19	100	79.3	15	-	145	Y
ES PCB-37	100	62.7	15	-	145	Y
ES PCB-54	100	85.9	15	-	145	Y
ES PCB-77	100	70.8	40	-	145	Y
ES PCB-81	100	71.4	40	-	145	Y
ES PCB-104	100	89.9	40	-	145	Y
ES PCB-105	100	73.9	40	-	145	Y
ES PCB-114	100	72.7	40	-	145	Y
ES PCB-118	100	72.3	40	-	145	Y
ES PCB-123	100	71.7	40	-	145	Y
ES PCB-126	100	68.4	40	-	145	Y
ES PCB-153	100	84	40	-	145	Y
ES PCB-155	100	71.8	40	-	145	Y
ES PCB-156/157	200	61.9	40	-	145	Y
ES PCB-167	100	57.9	40	-	145	Y
ES PCB-169	100	58.9	40	-	145	Y
ES PCB-170	100	102	40	-	145	Y
ES PCB-180	100	99.9	40	-	145	Y
ES PCB-188	100	95.6	40	-	145	Y
ES PCB-189	100	79.6	40	-	145	Y
ES PCB-202	100	91.3	40	-	145	Y
ES PCB-205	100	89.4	40	-	145	Y
ES PCB-206	100	99.5	40	-	145	Y
ES PCB-208	100	95.9	40	-	145	Y
ES PCB-209	100	95.1	40	-	145	Y
CLEANUP STANDARDS						
CS PCB-28	100	75	15	-	145	Y
CS PCB-111	100	89	40	-	145	Y
CS PCB-178	100	120	40	-	145	Y

Processed: 27 Dec 2023 10:10 Analyst: RB



Project Manager:	Tamara Burkamper
Receipt Date & Time:	17-Nov-23 at 09:23
AP Project name:	B9803
Requested TAT:	15 business days
Projected due date:	12-Dec-23
Matrix:	Soil
Phone#:	910-794-1613
Email Address:	Tamara.Burkamper@erdc.dod.mil

Company Contact:	Elvin Kumar
Company:	SGS North America Inc. - Orlando
Project Name & Site:	FC11168XW
Project PO#:	FC11168XW
QAAP/Contract #:	n/a
Requested Analysis:	M1668C , M1613B
Phone#:	408-612-9410
Email Address:	elvin_kumar@sgs.com

[illegible]

QC'ed by: AEH 11/20/23

http://www.sgs.com/terms_and_conditions.htm

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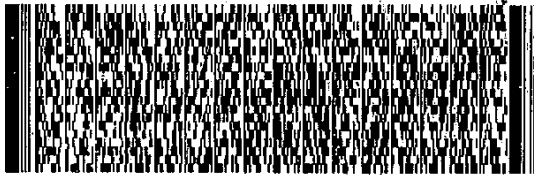
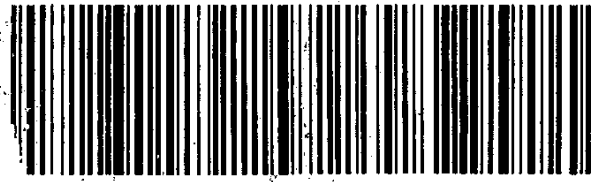
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SGS

"SGS North America Inc. - Orlando
4405 Vineland Road, Suite C-15 Orlando, FL 32811
TEL: 407-425-6700 FAX: 407-425-0707
www.sgs.com/ehsusa"

[illegible]

BP823

ORIGIN: TO: ORLA (407) 425-6700 SAMPLE RECEIVING SGS NORTH AMERICA INC 4405 VINELAND ROAD STE C15 ORLANDO, FL 32811 UNITED STATES US		SHIP DATE: 16NOV23 ACTWGT: 25.00 LB MAN CAD: 0358759/CAFE3755	
TO: SAMPLE RECEIVINGS SGS NORTH AMERICA INC. 5500 BUSINESS DRIVE WILMINGTON NC 28405 (910) 360-1903 REF: SUBS - SGS WILMINGTON		BILL SENDER	
		FedEx Express 	
TRK# 7024 6623 2486 0201		FRI - 17 NOV 10:30A PRIORITY OVERNIGHT	
NG ILMA		28405 NC-US RDU	
			

14P19
4:23
0.8

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody



SGS North America Inc - Orlando

Chain of Custody

4405 Vineland Road, Suite C-15 Orlando, FL 32811
TEL: 407-425-6700 FAX: 407-425-0707
www.sgs.com

FC11168

SGS - ORLANDO JOB #:

PAGE 1 OF 1

Client / Reporting Information				Project Information														Analytical Information														Matrix Codes
Company Name: <u>Geosyntec Consultants</u>				Project Name: <u>Oakland Harbor</u>																												DW - Drinking Water
Address: <u>920 SW 16th Ave, Suite 600</u>				Street																												GW - Ground Water
City: <u>Portland</u> State: <u>OR</u> Zip: <u>97204</u>				City: <u>Oakland</u> CA State																												WW - Water
Project Contact: <u>Erin Dunbar</u> Email: <u>edunbare@geosyntec.com</u>				Project # <u>PNG1060</u>																												SW - Surface Water
Phone #: <u>971-271-5916</u>				Fax #																												SO - Soil
Sampler(s) Name(s) (Printed): <u>Erin Dunbar</u>				Client Purchase Order # <u>1000539162</u>																												SL - Sludge
Sampler 2: <u>Megan Ogburn</u>																																OI - Oil
COLLECTION				CONTAINER INFORMATION																												LIQ - Other Liquid
SGS Orlando Sample #	Field ID / Point of Collection	DATE	TIME	SAMPLED BY:	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	HCl	NOH	HNO3	H2SO4	NaOH/NaM	DI WATER	MEQ	PAHs 8270	Pesticides 8081	PCBs Congeners 8082/1006	TOC 9060	Dioxin/Furan 1613	Bathtubins Kore 1909	Grain Size 0422	Metals 6020/7471	Solids 2540	Archive	LAB USE ONLY						
1	01TB - Terminal	11/9/23	1513	ED	SOL	6		X									X	X	X	X	X	X	X	X								
2	01TB - Below -35 MLW	11/9/23	1530	ED	SOL	6		X									X	X	X	X	X	X	X	X								
3	Archive-02	11/9/23	1552	ED	SOL	1		X																	X							
4	Archive-03	11/9/23	1556	ED	SOL	1		X																	X							
5	Archive-04	11/9/23	1559	ED	SOL	1		X																	X							
6	Archive-01	11/9/23	1606	ED	SOL	1		X																	X							
7	Archive-08	11/9/23	1609	ED	SOL	1		X																	X							
8	Archive-05A	11/9/23	1611	ED	SOL	1		X																	X							
9	Archive-07	11/9/23	1618	ED	SOL	1		X																	X							
10	Archive-05	11/9/23	1622	ED	SOL	1		X																	X							
11	01TB - Surface to -35 MLW	11/9/23	1625	ED	SOL	6		X									X	X	X	X	X	X	X	X								
Turnaround Time (Business days)				Data Deliverable Information														Comments / Remarks														
10 Day (Business)				Approved By: / Date:														Metals include: As, Cr, Cd, Cu, Pb, Ni														
7 Day																		Se, Ag, Zn, Hg														
5 Day																																
3 Day RUSH																																
2 Day RUSH																																
1 Day RUSH																																
Other																																
Rush T/A Data Available VIA Email or Lablink				Sample Custody must be documented below each time samples change possession, including courier delivery.																												
Relinquished by Sampler/Affiliation				Date Time:				Received By/Affiliation				Date Time:				Received By/Affiliation				Date Time:				Received By/Affiliation								
1 Erin Dunbar Geosyntec				11/10/23				2 to FedEx								3				4 381 1000				11/11/23								
Relinquished by/Affiliation				Date Time:				Received By/Affiliation				Date Time:				Relinquished By/Affiliation				Date Time:				Received By/Affiliation								
5								6								7								8								
Lab Use Only: Cooler Temperature (s) Celsius (corrected): <u>4.621</u>																																

ORLD-SMT-0001-03-FORM-COC (4).xls Rev 031318

<http://www.sgs.com/en/terms-and-conditions>

FC11168XW: Chain of Custody

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SGS Sample Receipt Summary

Job Number: fc11168 **Client:** Geosyntec Consultants **Project:** Oakland Harbor
Date / Time Received: 11/11/2023 10:00:00 AM **Delivery Method:** FedEx **Airbill #s:** 786219631416

Cooler Temps (Raw Measured) °C: Cooler 1: (4.6);

Cooler Temps (Corrected) °C: Cooler 1: (5.0);

<u>Cooler Informatio</u>	<u>Y</u>	<u>or</u>	<u>N</u>
1. Custody Seals Present:	☒		☐
2. Custody Seals Intact:	☒		☐
3. Temp criteria achieved:	☒		☐
4. Cooler temp verification:			IR Gun
5. Cooler media:			Ice (Bag)

<u>Trip Blank Information</u>	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Trip Blank present / cooler:	☐		☐	☒
2. Trip Blank listed on COC:	☐		☐	☒

	<u>W</u>	<u>or</u>	<u>S</u>	<u>N/A</u>
3. Type of TB Received	☐		☐	☒

<u>Sample Information</u>	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Sample labels present on bottles:	☒		☐	
2. Samples presented properly	☒		☐	
3. Suffient volume/containers recv'd for analysi	☒		☐	
4. Condition of sample:			Intact	
5. Sample recv'd within HT	☒		☐	
6. Dates/Times/IDs on COC match sample labe	☒		☐	
7. VOCs have headspace	☐		☐	☒
8. Bottles received for unspecified tests	☐		☒	
9. Compositing instructions clear	☐		☐	☒
10. Voa Soil Kits/Jars received past 48hrs?	☐		☐	☒
11. % Solids Jar Received?	☒		☐	☐
12. Residual Chlorine Present?	☐		☐	☒

<u>Misc Information</u>			
Number of Encores:	25 Gram	5 Gram	Number of Lab Filtered Metals
Test Strip Lot #s:	pH 0-3: <u>226422</u>	pH 10-12: _____	Other: (Specify) pH 1.0 - 12.0 <u>222221</u>
Residual Chlorine Test Strip Lot	_____		

Comments

SM001 Technician: DONM Date: 11/11/2023 3:46:04 PM Reviewer: ZD Date: 11/11/2023
 Rev. Date 05/04/17

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