High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry
PCCDs/PCDFs (EPA Method 1613B)
Stage 2A Review
Data Quality Control (QC)

Site: PHSS-Swan Island Basin	SDG #: 21633
Laboratory: CFA	Project #: DT2002.03.03.04.01
HydroGeoLogic, Inc. Validator: John Tracy	Validation Date: 09.12.23
HGL Peer Reviewer: Ken Rapuano	Peer Review Date: 9.15.23

Client Sample ID	Laboratory Sample ID	Matrix
SIB-068-TOB-2-3-10142022	21633001	Riverbank Soil
SIB-073-OHW-1-2-10132022	21633002	Riverbank Soil
SIB-073-TOB-1-2-10132022	21633003	Riverbank Soil
SIB-072-MLW-1-2-10132022	21633004	Riverbank Soil
SIB-072-OHW-1-2-10132022	21633005	Riverbank Soil
SIB-072-TOB-1-2-10132022	21633006	Riverbank Soil
SIB-072-TOB-2-3-10132022	21633007	Riverbank Soil
SIB-075-OHW-1-2-10132022	21633008	Riverbank Soil
SIB-075-TOB-1-2-10132022	21633009	Riverbank Soil
SIB-074-OHW-1-2-10132022	21633010	Riverbank Soil
SIB-074-TOB-1-2-10132022	21633011	Riverbank Soil
SIB-078-OHW-1-2-10122022	21633012	Riverbank Soil
SIB-077-MLW-1-2-10122022	21633013	Riverbank Soil
SIB-077-OHW-1-2-10122022	21633014	Riverbank Soil
SIB-076-MLW-1-2-10122022	21633015	Riverbank Soil
SIB-076-TOB-1-2-10122022	21633016	Riverbank Soil
SIB-080-MLW-1-2-10122022	21633017	Riverbank Soil
SIB-079-MLW-1-2-10122022	21633018	Riverbank Soil
SIB-079-OHW-1-2-10122022	21633019	Riverbank Soil
SIB-079-TOB-1-2-10122022	21633020	Riverbank Soil

The following Stage 2A review was performed on the requested analyses. No results were rejected, and analytical completeness is 100%.

Narrative and Completeness Review – The case narrative and data package were checked for completeness. No completeness issues were noted.

Qualification: None required.

Sample Delivery and Condition – All samples arrived intact at the laboratory in acceptable condition and temperature and were properly preserved. No other discrepancies were noted.

Qualification: None required.

Holding Times – All samples were prepared and analyzed within their required holding times.

Qualification: None required.

Method Blanks – The method 1613B method bank was contaminated with target analytes including the following:

- 1,2,3,4,6,7,8-HpCDD at 0.210 pg/g, leading to a qualification limit of 1.05 pg/g
- 1,2,3,4,6,7,8,9-OCDD at 0.632 pg/g, leading to a qualification limit of 3.16 pg/g
- 1,2,3,7,8-PeCDF at 0.108 pg/g, leading to a qualification limit of 0.540 pg/g
- 2,3,4,7,8-PeCDF at 0.0940 pg/g, leading to a qualification limit of 0.470 pg/g
- 1,2,3,4,7,8-HxCDF at 0.134 pg/g, leading to a qualification limit of 0.670 pg/g
- 1,2,3,4,6,7,8-HpCDF at 0.27 pg/g, leading to a qualification limit of 1.35 pg/g

Detections in associated samples less than or equal to the qualification limits should be qualified U-MBL.

Qualification: **The following results were qualified U-MBL; the detect_flag for the affected results is changed from Y to N.**

- **The 1,2,3,7,8-PeCDF results in samples SIB-068-TOB-2-3-10142022, SIB-072-MLW-1-2-10132022, and SIB-076-MLW-1-2-10122022**
- **The 2,3,4,7,8-PeCDF results in samples SIB-068-TOB-2-3-10142022, SIB-072-MLW-1-2-10132022, and SIB-075-OHW-1-2-10132022**
- **The 1,2,3,4,7,8-HxCDF results in samples SIB-072-MLW-1-2-10132022, SIB-074-OHW-1-2-10132022, and SIB-077-MLW-1-2-10122022**
- **The 1,2,3,4,6,7,8-HpCDF result in sample SIB-077-MLW-1-2-10122022**

Rinsate Blanks – Equipment blank EB02-10102022 (results reported in SDG 20574) is associated with all samples collected on 10/12/2022, 10/13/2022, and 10/14/2022. Due to the differences in mass extracted, the concentrations reported as pg/L in EBs correspond to the 0.1 x concentration in pg/g in soil samples. OCDD was detected in rinse blank EB02-10102022, but the detected concentration was similar to the concentration in the associated aqueous method blank. The OCDD detected in the rinse blank is attributable to laboratory contamination in aqueous sample preparation and no qualification of solid matrix samples is required.

Qualification: None required.

Laboratory Control Sample (LCS) and Laboratory Control Sample Duplicate (LCSD) – LCS/LCSD %Rs and RPDs were within QAPP control limits.

Qualification: None required.

Surrogates – All surrogates (labeled standards) were within control limits.

Qualification: None required.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) – An MS/MSD was performed using sample SIB-068-TOB-2-3-10142022. All %Rs and RPDs were within QAPP control limits.

Qualification: None required.

Field Duplicate – No field duplicate was submitted with this SDG.

Qualification: None required.

Compound Quantitation – Analyte non-detections were reported as the EDL and qualified U. Analytes detected between the EDL and PQL were reported as J-qualified results by the laboratory. These J qualifiers were retained unless superseded by a more severe qualifier.

If a detected analyte has an ion ration outside the characteristic ion ratio window, the result is reported as an estimated maximum potential concentration. All results reported as an EMPC (a “K” flag is present in the laboratory qualifier) are qualified J-EMPC unless superseded by a higher priority qualifier.

2,3,7,8-TCDF is not fully resolved on the DB-5MS column; when detected above the PQL on the DB-5MS column, the result was confirmed on a DB-225 column using the instrument ID listed in the case narrative. In cases where two results are reported for 2,3,7,8-TCDF for a sample, the result from the DB-225 column is selected for use and the result from the DB-5MS is qualified DNR-EXC.

Qualification: **The following results are qualified:**

- **All results reported with a laboratory qualifier of K are qualified J with reason code EMPC.**
- **All 2,3,7,8-TCDF results reported from the DB-5MS column that are paired with a 2,3,7,8-TCDF result from the DB-225 column are qualified DNR, reason code EXC; note that the reportable_result field for these results are populated with “Yes” by the laboratory and are changed to “No” for the affected results.**

Qualification Summary Table (results in pg/g):

Sample	Analyte	Lab Value	Lab Qualifier	Validated Value	Validated Qualifier	Reason Code
SIB-068-TOB-2-3-10142022	1,2,3,4,7,8-HEXACHLORODIBENZOFURAN	0.679	BJK	0.679	J	EMPC
SIB-068-TOB-2-3-10142022	1,2,3,6,7,8-HEXACHLORODIBENZOFURAN	0.377	JK	0.377	J	EMPC
SIB-068-TOB-2-3-10142022	1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN	0.553	JK	0.553	J	EMPC
SIB-068-TOB-2-3-10142022	1,2,3,7,8-PENTACHLORODIBENZOFURAN	0.517	BJK	0.517	UJ	MBL,EMPC
SIB-068-TOB-2-3-10142022	2,3,4,7,8-PENTACHLORODIBENZOFURAN	0.318	BJK	0.318	UJ	MBL,EMPC
SIB-068-TOB-2-3-10142022	2,3,7,8-TETRACHLORODIBENZOFURAN	0.296	JK	0.296	J	EMPC
SIB-073-OHW-1-2-10132022	1,2,3,6,7,8-HEXACHLORODIBENZOFURAN	11	K	11	J	EMPC
SIB-073-OHW-1-2-10132022	1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN	3.95	K	3.95	J	EMPC
SIB-073-OHW-1-2-10132022	2,3,7,8-TETRACHLORODIBENZOFURAN	4.58	--	4.58	DNR	EXC
SIB-073-TOB-1-2-10132022	1,2,3,4,7,8-HEXACHLORODIBENZO-P-DIOXIN	0.676	JK	0.676	J	EMPC
SIB-073-TOB-1-2-10132022	1,2,3,6,7,8-HEXACHLORODIBENZOFURAN	2.5	JK	2.5	J	EMPC
SIB-073-TOB-1-2-10132022	1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN	0.856	JK	0.856	J	EMPC
SIB-072-MLW-1-2-10132022	1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN	0.464	JK	0.464	J	EMPC
SIB-072-MLW-1-2-10132022	1,2,3,4,7,8-HEXACHLORODIBENZOFURAN	0.552	BJ	0.552	U	MBL
SIB-072-MLW-1-2-10132022	1,2,3,4,7,8-HEXACHLORODIBENZO-P-DIOXIN	0.394	JK	0.394	J	EMPC
SIB-072-MLW-1-2-10132022	1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN	1.19	JK	1.19	J	EMPC
SIB-072-MLW-1-2-10132022	1,2,3,7,8,9-HEXACHLORODIBENZO-P-DIOXIN	0.63	JK	0.63	J	EMPC
SIB-072-MLW-1-2-10132022	1,2,3,7,8-PENTACHLORODIBENZOFURAN	0.256	BJK	0.256	UJ	MBL,EMPC
SIB-072-MLW-1-2-10132022	1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN	0.384	JK	0.384	J	EMPC
SIB-072-MLW-1-2-10132022	2,3,4,6,7,8-HEXACHLORODIBENZOFURAN	0.426	JK	0.426	J	EMPC
SIB-072-MLW-1-2-10132022	2,3,4,7,8-PENTACHLORODIBENZOFURAN	0.342	BJK	0.342	UJ	MBL,EMPC
SIB-072-OHW-1-2-10132022	1,2,3,4,7,8-HEXACHLORODIBENZO-P-DIOXIN	0.473	JK	0.473	J	EMPC
SIB-072-OHW-1-2-10132022	1,2,3,7,8,9-HEXACHLORODIBENZO-P-DIOXIN	0.768	JK	0.768	J	EMPC
SIB-072-OHW-1-2-10132022	1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN	0.417	JK	0.417	J	EMPC
SIB-072-TOB-1-2-10132022	1,2,3,4,7,8-HEXACHLORODIBENZO-P-DIOXIN	2.8	JK	2.8	J	EMPC
SIB-072-TOB-1-2-10132022	1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN	13.4	K	13.4	J	EMPC
SIB-072-TOB-1-2-10132022	1,2,3,7,8,9-HEXACHLORODIBENZO-P-DIOXIN	6.7	K	6.7	J	EMPC
SIB-072-TOB-1-2-10132022	1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN	3.05	K	3.05	J	EMPC
SIB-072-TOB-1-2-10132022	2,3,7,8-TETRACHLORODIBENZOFURAN	2.86	K	2.86	DNR	EXC

Sample	Analyte	Lab Value	Lab Qualifier	Validated Value	Validated Qualifier	Reason Code
SIB-072-TOB-1-2-10132022	2,3,7,8-TETRACHLORODIBENZOFURAN	2.62	K	2.62	J	EMPC
SIB-072-TOB-2-3-10132022	1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN	3.02	JK	3.02	J	EMPC
SIB-072-TOB-2-3-10132022	1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN	5.41	K	5.41	J	EMPC
SIB-072-TOB-2-3-10132022	1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN	1.03	JK	1.03	J	EMPC
SIB-072-TOB-2-3-10132022	2,3,4,7,8-PENTACHLORODIBENZOFURAN	2.61	JK	2.61	J	EMPC
SIB-072-TOB-2-3-10132022	2,3,7,8-TETRACHLORODIBENZOFURAN	1.05	--	1.05	DNR	EXC
SIB-072-TOB-2-3-10132022	2,3,7,8-TETRACHLORODIBENZOFURAN	0.89	JK	0.89	J	EMPC
SIB-075-OHW-1-2-10132022	1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN	0.457	JK	0.457	J	EMPC
SIB-075-OHW-1-2-10132022	1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN	0.874	JK	0.874	J	EMPC
SIB-075-OHW-1-2-10132022	1,2,3,7,8,9-HEXACHLORODIBENZO-P-DIOXIN	0.431	JK	0.431	J	EMPC
SIB-075-OHW-1-2-10132022	1,2,3,7,8-PENTACHLORODIBENZOFURAN	0.607	BJK	0.607	J	EMPC
SIB-075-OHW-1-2-10132022	2,3,4,7,8-PENTACHLORODIBENZOFURAN	0.465	BJK	0.465	UJ	MBL,EMPC
SIB-075-OHW-1-2-10132022	2,3,7,8-TETRACHLORODIBENZOFURAN	0.309	JK	0.309	J	EMPC
SIB-075-TOB-1-2-10132022	1,2,3,4,7,8-HEXACHLORODIBENZO-P-DIOXIN	0.905	JK	0.905	J	EMPC
SIB-075-TOB-1-2-10132022	1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN	1.58	JK	1.58	J	EMPC
SIB-075-TOB-1-2-10132022	2,3,7,8-TETRACHLORODIBENZOFURAN	1.38	--	1.38	DNR	EXC
SIB-075-TOB-1-2-10132022	2,3,7,8-TETRACHLORODIBENZOFURAN	1.74	K	1.74	J	EMPC
SIB-074-OHW-1-2-10132022	1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN	0.49	JK	0.49	J	EMPC
SIB-074-OHW-1-2-10132022	1,2,3,4,7,8-HEXACHLORODIBENZOFURAN	0.508	BJK	0.508	UJ	MBL,EMPC
SIB-074-OHW-1-2-10132022	1,2,3,6,7,8-HEXACHLORODIBENZOFURAN	0.944	JK	0.944	J	EMPC
SIB-074-OHW-1-2-10132022	1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN	0.902	JK	0.902	J	EMPC
SIB-074-OHW-1-2-10132022	1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN	0.326	JK	0.326	J	EMPC
SIB-074-TOB-1-2-10132022	1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN	0.649	JK	0.649	J	EMPC
SIB-074-TOB-1-2-10132022	1,2,3,6,7,8-HEXACHLORODIBENZOFURAN	0.691	JK	0.691	J	EMPC
SIB-074-TOB-1-2-10132022	1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN	1.74	JK	1.74	J	EMPC
SIB-074-TOB-1-2-10132022	1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN	1.36	JK	1.36	J	EMPC
SIB-074-TOB-1-2-10132022	2,3,7,8-TETRACHLORODIBENZOFURAN	1.32	K	1.32	DNR	EXC
SIB-074-TOB-1-2-10132022	2,3,7,8-TETRACHLORODIBENZOFURAN	1.68	K	1.68	J	EMPC
SIB-078-OHW-1-2-10122022	1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN	1.94	JK	1.94	J	EMPC
SIB-078-OHW-1-2-10122022	1,2,3,4,7,8-HEXACHLORODIBENZOFURAN	2.81	JK	2.81	J	EMPC
SIB-078-OHW-1-2-10122022	1,2,3,4,7,8-HEXACHLORODIBENZO-P-DIOXIN	1.22	JK	1.22	J	EMPC

Sample	Analyte	Lab Value	Lab Qualifier	Validated Value	Validated Qualifier	Reason Code
SIB-078-OHW-1-2-10122022	1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN	4.38	JK	4.38	J	EMPC
SIB-078-OHW-1-2-10122022	1,2,3,7,8,9-HEXACHLORODIBENZO-P-DIOXIN	1.68	JK	1.68	J	EMPC
SIB-077-MLW-1-2-10122022	1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN	1.34	BJ	1.34	U	MBL
SIB-077-MLW-1-2-10122022	1,2,3,4,7,8-HEXACHLORODIBENZOFURAN	0.162	BJ	0.162	U	MBL
SIB-077-MLW-1-2-10122022	1,2,3,6,7,8-HEXACHLORODIBENZOFURAN	0.134	JK	0.134	J	EMPC
SIB-077-MLW-1-2-10122022	2,3,7,8-TETRACHLORODIBENZOFURAN	0.318	JK	0.318	J	EMPC
SIB-077-MLW-1-2-10122022	OCTACHLORODIBENZOFURAN	1.21	JK	1.21	J	EMPC
SIB-077-OHW-1-2-10122022	1,2,3,4,7,8-HEXACHLORODIBENZO-P-DIOXIN	0.836	JK	0.836	J	EMPC
SIB-077-OHW-1-2-10122022	1,2,3,6,7,8-HEXACHLORODIBENZOFURAN	0.786	JK	0.786	J	EMPC
SIB-077-OHW-1-2-10122022	1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN	0.878	JK	0.878	J	EMPC
SIB-076-MLW-1-2-10122022	1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN	2.06	JK	2.06	J	EMPC
SIB-076-MLW-1-2-10122022	1,2,3,7,8,9-HEXACHLORODIBENZO-P-DIOXIN	1.17	JK	1.17	J	EMPC
SIB-076-MLW-1-2-10122022	1,2,3,7,8-PENTACHLORODIBENZOFURAN	0.532	BJK	0.532	UJ	MBL,EMPC
SIB-076-MLW-1-2-10122022	1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN	0.62	JK	0.62	J	EMPC
SIB-076-TOB-1-2-10122022	1,2,3,4,7,8-HEXACHLORODIBENZOFURAN	6.87	K	6.87	J	EMPC
SIB-076-TOB-1-2-10122022	1,2,3,6,7,8-HEXACHLORODIBENZOFURAN	1.54	JK	1.54	J	EMPC
SIB-076-TOB-1-2-10122022	1,2,3,7,8,9-HEXACHLORODIBENZO-P-DIOXIN	1.39	JK	1.39	J	EMPC
SIB-076-TOB-1-2-10122022	1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN	1.27	JK	1.27	J	EMPC
SIB-076-TOB-1-2-10122022	2,3,7,8-TETRACHLORODIBENZOFURAN	1.48	--	1.48	DNR	EXC
SIB-076-TOB-1-2-10122022	2,3,7,8-TETRACHLORODIBENZOFURAN	2.16	K	2.16	J	EMPC
SIB-080-MLW-1-2-10122022	1,2,3,4,7,8-HEXACHLORODIBENZO-P-DIOXIN	3.62	JK	3.62	J	EMPC
SIB-079-MLW-1-2-10122022	1,2,3,4,7,8-HEXACHLORODIBENZO-P-DIOXIN	0.719	JK	0.719	J	EMPC
SIB-079-MLW-1-2-10122022	1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN	2.79	JK	2.79	J	EMPC
SIB-079-MLW-1-2-10122022	1,2,3,7,8,9-HEXACHLORODIBENZO-P-DIOXIN	1.46	JK	1.46	J	EMPC
SIB-079-MLW-1-2-10122022	1,2,3,7,8-PENTACHLORODIBENZOFURAN	0.705	BJK	0.705	J	EMPC
SIB-079-OHW-1-2-10122022	1,2,3,4,7,8-HEXACHLORODIBENZO-P-DIOXIN	0.49	JK	0.49	J	EMPC
SIB-079-OHW-1-2-10122022	1,2,3,7,8,9-HEXACHLORODIBENZO-P-DIOXIN	0.64	JK	0.64	J	EMPC
SIB-079-OHW-1-2-10122022	2,3,4,7,8-PENTACHLORODIBENZOFURAN	0.865	BJK	0.865	J	EMPC
SIB-079-TOB-1-2-10122022	1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN	1.6	JK	1.6	J	EMPC
SIB-079-TOB-1-2-10122022	2,3,7,8-TETRACHLORODIBENZOFURAN	1.2	K	1.2	DNR	EXC
SIB-079-TOB-1-2-10122022	2,3,7,8-TETRACHLORODIBENZOFURAN	1.39	K	1.39	J	EMPC