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 #: 20603
Laboratory: CFA	Project #: DT2002.03.03.04.01
HydroGeoLogic, Inc. Validator: John Tracy	Validation Date: 07.21.23
HGL Peer Reviewer: Ken Rapuano	Peer Review Date: 8.4.23

Client Sample ID	Laboratory Sample ID	Matrix
FD06-10122022	20603001	Riverbank Soil
SIB-080-MLW-0-1-10122022	20603002	Riverbank Soil
SIB-080-OHW-0-1-10122022	20603003	Riverbank Soil
SIB-080-TOB-0-1-10122022	20603004	Riverbank Soil
SIB-079-MLW-0-1-10122022	20603005	Riverbank Soil
SIB-079-OHW-0-1-10122022	20603006	Riverbank Soil
SIB-079-TOB-0-1-10122022	20603007	Riverbank Soil
SIB-078-MLW-0-1-10122022	20603008	Riverbank Soil
SIB-078-OHW-0-1-10122022	20603009	Riverbank Soil
SIB-077-MLW-0-1-10122022	20603010	Riverbank Soil
SIB-077-MLW-0-1-10122022 MS	20603011	Riverbank Soil
SIB-077-MLW-0-1-10122022 MSD	20603012	Riverbank Soil
SIB-077-OHW-0-1-10122022	20603013	Riverbank Soil
SIB-077-TOB-0-1-10122022	20603014	Riverbank Soil
SIB-076-MLW-0-1-10122022	20603015	Riverbank Soil
SIB-076-OHW-0-1-10122022	20603016	Riverbank Soil
SIB-076-TOB-0-1-10122022	20603017	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 – With the exception of several labeling discrepancies, which were resolved, 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 blank was free from contamination.

Qualification: None required.

Rinsate Blanks – Rinse blank EB02-10102022 (results reported in SDG 20574) is associated with all samples in this SDG and was free from contamination with the exception of 1,2,3,4,6,7,8,9-OCDD; however, the result in this EB was not substantially different from that reported in the method blank associated with this EB. The OCDD result reported for EB06-08/04/2022 represents contamination associated with aqueous sample preparation and is not related to cross-contamination in the field. No additional qualification is required.

Qualification: None required.

Laboratory Control Sample (LCS) and Laboratory Control Sample Duplicate (LCSD) – All LCS/LCSD %Rs and RSDs 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-077-MLW-0-1-10122022. All %Rs were within QAPP control limits, with the exception of 1,2,3,4,6,7,8,9-OCDD, which recovered above control limits in the MS. This result should be qualified J-MSH in the parent sample. All RPDs were within control limits with the exception of 1,2,3,4,6,7,8,9-OCDD. In the parent sample, this result should be qualified J-MSP.

***Qualification:* The 1,2,3,4,6,7,8,9-OCDD result in sample SIB-077-MLW-0-1-10122022 is qualified J-MSH,MSP.**

Field Duplicate – Field duplicate FD06-10122022 was analyzed with this SDG, while its parent sample SIB-081-OHW-0-1-10122022 was analyzed with SDG 20602. All precision criteria were met.

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.

In cases where a target analyte is detected at a concentration above the calibrated range, the laboratory’s practice is to report the result with a laboratory qualifier of E without running a dilution so long as the detector is not saturated. The OCDD results for 2 affected samples are qualified J-ACR.

***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.

- **2 OCDD results reported with a laboratory qualifier of E are qualified J with reason code ACR; note that the reportable_result field for these results are populated with "No" by the laboratory and are changed to "Yes" for the affected results.**
- **One Heptachloro-p-dioxin result reported with a laboratory qualifier of E has the reportable_result field populated with "No" by the laboratory and is changed to "Yes". Although total congener results are not validated, this result is reportable.**

Qualification Summary Table (results in pg/g):

Sample	Analyte	Lab Value	Lab Qualifier	Validated Value	Validated Qualifier	Reason Code
FD06-10122022	1,2,3,4,7,8-HEXACHLORODIBENZO-P-DIOXIN	2.69	JK	2.69	J	EMPC
FD06-10122022	1,2,3,7,8-PENTACHLORODIBENZOFURAN	1.59	JK	1.59	J	EMPC
FD06-10122022	1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN	2.03	JK	2.03	J	EMPC
SIB-080-MLW-0-1-10122022	1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN	3.2	JK	3.2	J	EMPC
SIB-080-MLW-0-1-10122022	1,2,3,7,8,9-HEXACHLORODIBENZO-P-DIOXIN	2.29	JK	2.29	J	EMPC
SIB-080-MLW-0-1-10122022	1,2,3,7,8-PENTACHLORODIBENZOFURAN	0.628	JK	0.628	J	EMPC
SIB-080-MLW-0-1-10122022	2,3,4,6,7,8-HEXACHLORODIBENZOFURAN	1.22	JK	1.22	J	EMPC
SIB-080-OHW-0-1-10122022	2,3,7,8-TETRACHLORODIBENZOFURAN	38.3	K	38.3	DNR	EXC
SIB-080-OHW-0-1-10122022	2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN	11.8	K	11.8	J	EMPC
SIB-080-OHW-0-1-10122022	OCTACHLORODIBENZO-P-DIOXIN	164000	E	164000	J	ACR
SIB-080-TOB-0-1-10122022	1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN	6.72	K	6.72	J	EMPC
SIB-080-TOB-0-1-10122022	2,3,7,8-TETRACHLORODIBENZOFURAN	4.83	--	4.83	DNR	EXC
SIB-079-MLW-0-1-10122022	1,2,3,4,7,8-HEXACHLORODIBENZOFURAN	1.39	JK	1.39	J	EMPC
SIB-079-MLW-0-1-10122022	1,2,3,7,8,9-HEXACHLORODIBENZO-P-DIOXIN	1.3	JK	1.3	J	EMPC
SIB-079-OHW-0-1-10122022	2,3,4,6,7,8-HEXACHLORODIBENZOFURAN	1.31	JK	1.31	J	EMPC
SIB-079-TOB-0-1-10122022	1,2,3,7,8-PENTACHLORODIBENZOFURAN	1.64	JK	1.64	J	EMPC
SIB-079-TOB-0-1-10122022	2,3,4,7,8-PENTACHLORODIBENZOFURAN	2.92	JK	2.92	J	EMPC
SIB-079-TOB-0-1-10122022	2,3,7,8-TETRACHLORODIBENZOFURAN	1.68	--	1.68	DNR	EXC
SIB-079-TOB-0-1-10122022	2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN	0.642	K	0.642	J	EMPC
SIB-078-MLW-0-1-10122022	1,2,3,4,6,7,8-HEPTACHLORODIBENZO-P-DIOXIN	7.69	K	7.69	J	EMPC
SIB-078-OHW-0-1-10122022	1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN	1.74	JK	1.74	J	EMPC
SIB-078-OHW-0-1-10122022	1,2,3,6,7,8-HEXACHLORODIBENZOFURAN	1.51	JK	1.51	J	EMPC
SIB-078-OHW-0-1-10122022	2,3,7,8-TETRACHLORODIBENZOFURAN	0.666	JK	0.666	J	EMPC
SIB-077-MLW-0-1-10122022	1,2,3,6,7,8-HEXACHLORODIBENZOFURAN	0.939	JK	0.939	J	EMPC
SIB-077-MLW-0-1-10122022	2,3,4,6,7,8-HEXACHLORODIBENZOFURAN	0.885	JK	0.885	J	EMPC
SIB-077-MLW-0-1-10122022	OCTACHLORODIBENZO-P-DIOXIN	193	--	193	J	MSH,MSP
SIB-077-OHW-0-1-10122022	1,2,3,7,8-PENTACHLORODIBENZOFURAN	1.5	JK	1.5	J	EMPC
SIB-077-OHW-0-1-10122022	1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN	2.51	K	2.51	J	EMPC
SIB-077-OHW-0-1-10122022	2,3,7,8-TETRACHLORODIBENZOFURAN	2.72	--	2.72	DNR	EXC

Sample	Analyte	Lab Value	Lab Qualifier	Validated Value	Validated Qualifier	Reason Code
SIB-077-OHW-0-1-10122022	2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN	0.436	JK	0.436	J	EMPC
SIB-077-TOB-0-1-10122022	1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN	4.25	JK	4.25	J	EMPC
SIB-077-TOB-0-1-10122022	1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN	4.24	K	4.24	J	EMPC
SIB-077-TOB-0-1-10122022	2,3,7,8-TETRACHLORODIBENZOFURAN	8.01	--	8.01	DNR	EXC
SIB-077-TOB-0-1-10122022	2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN	0.932	K	0.932	J	EMPC
SIB-076-MLW-0-1-10122022	1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN	0.574	JK	0.574	J	EMPC
SIB-076-MLW-0-1-10122022	1,2,3,4,7,8-HEXACHLORODIBENZOFURAN	0.65	JK	0.65	J	EMPC
SIB-076-MLW-0-1-10122022	1,2,3,7,8,9-HEXACHLORODIBENZO-P-DIOXIN	0.458	JK	0.458	J	EMPC
SIB-076-MLW-0-1-10122022	1,2,3,7,8-PENTACHLORODIBENZOFURAN	0.442	JK	0.442	J	EMPC
SIB-076-MLW-0-1-10122022	2,3,4,6,7,8-HEXACHLORODIBENZOFURAN	0.921	JK	0.921	J	EMPC
SIB-076-MLW-0-1-10122022	2,3,4,7,8-PENTACHLORODIBENZOFURAN	0.915	JK	0.915	J	EMPC
SIB-076-OHW-0-1-10122022	1,2,3,4,7,8-HEXACHLORODIBENZO-P-DIOXIN	21.1	JK	21.1	J	EMPC
SIB-076-OHW-0-1-10122022	2,3,4,7,8-PENTACHLORODIBENZOFURAN	4.68	JK	4.68	J	EMPC
SIB-076-OHW-0-1-10122022	OCTACHLORODIBENZO-P-DIOXIN	48700	E	48700	J	ACR
SIB-076-TOB-0-1-10122022	1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN	3.16	JK	3.16	J	EMPC
SIB-076-TOB-0-1-10122022	1,2,3,4,7,8-HEXACHLORODIBENZO-P-DIOXIN	2.29	JK	2.29	J	EMPC
SIB-076-TOB-0-1-10122022	1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN	2.16	JK	2.16	J	EMPC
SIB-076-TOB-0-1-10122022	2,3,7,8-TETRACHLORODIBENZOFURAN	2.74	--	2.74	DNR	EXC