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 #: 20569
Laboratory: CFA	Project #: DT2002.03.03.04.01
HydroGeoLogic, Inc. Validator: John Tracy	Validation Date: 07.20.23
HGL Peer Reviewer: Ken Rapuano	Peer Review Date: 8.3.23

Client Sample ID	Laboratory Sample ID	Matrix
SIB-091-OHW-0-1-10102022	20569001	Riverbank Soil
SIB-091-TOB-0-1-10102022	20569002	Riverbank Soil
SIB-090-MLW-0-1-10102022	20569003	Riverbank Soil
SIB-090-OHW-0-1-10102022	20569004	Riverbank Soil
SIB-090-TOB-0-1-10102022	20569005	Riverbank Soil
SIB-089-MLW-0-1-10102022	20569006	Riverbank Soil
SIB-089-OHW-0-1-10102022	20569007	Riverbank Soil
SIB-089-TOB-0-1-10102022	20569008	Riverbank Soil
SIB-088-MLW-0-1-10102022	20569009	Riverbank Soil
SIB-088-OHW-0-1-10102022	20569010	Riverbank Soil
SIB-088-TOB-0-1-10102022	20569011	Riverbank Soil
SIB-088-TOB-0-1-10102022 MS	20569012	Riverbank Soil
SIB-088-TOB-0-1-10102022 MSD	20569013	Riverbank Soil
FD04-10102022	20569014	Riverbank Soil
SIB-087-MLW-0-1-10102022	20569015	Riverbank Soil
SIB-087-OHW-0-1-10102022	20569016	Riverbank Soil
SIB-087-TOB-0-1-10102022	20569017	Riverbank Soil
SIB-087-TOB-0-1-10102022 MS	20569018	Riverbank Soil
SIB-087-TOB-0-1-10102022 MSD	20569019	Riverbank Soil
FD02-10062022	20569020	Riverbank Soil
SIB-103-OHW-2-3-10062022	20569021	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 contaminated with 0.618 pg/g of 1,2,3,4,6,7,8,9-OCDD and 0.414 pg/g of 1,2,3,4,6,7,8-HpCDF, leading to qualification limits of 3.09 pg/g and 2.07 pg/g, respectively. All detections at or below qualification limits should be qualified U-MBL.

> ***Qualification:*** **The 1,2,3,4,6,7,8-HpCDF results in samples SIB-088-MLW-0-1-10102022, FD04-10102022, and SIB-103-OHW-2-3-10062022 are qualified U-MBL.**

Rinsate Blanks – Rinse blank EB01-10052022 (results reported in SDG 20574) is associated with all samples in this SDG with sample date 10/06/2022 and was free from contamination. Rinse blank EB02-10102022 (results reported in SDG 20574) is associated with all samples in this SDG with sample date 10/10/2022 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-088-TOB-0-1-10102022. 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 and MSD. This result should be qualified J-MSH. All RPDs were within QAPP control limits.

An MS/MSD was performed using sample SIB-087-TOB-0-1-10102022. All %Rs and RSDs were within QAPP control limits.

> ***Qualification:*** **The 1,2,3,4,6,7,8,9-OCDD result in sample SIB-088-TOB-0-1-10102022 is qualified J-MSH.**

Field Duplicate – Sample FD04-10102022 was submitted as a field duplicate of sample SIB-088-MLW-0-1-10102022. All precision criteria were met with the exception of 1,2,3,4,6,7,8,9-OCDD, which failed absolute difference criteria. These results should be qualified J-FDPA.

Sample FD02-10062022 was analyzed with this SDG, while its parent sample, SIB-102-TOB-0-1-10062022 was analyzed with SDG 20567. All precision criteria were met.

> ***Qualification:*** **The 1,2,3,4,6,7,8,9-OCDD results in samples FD04-10102022 and SIB-088-MLW-0-1-10102022 are qualified J-FDPA.**

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.**

Qualification Summary Table (results in pg/g):

Sample	Analyte	Lab Value	Lab Qualifier	Validated Value	Validated Qualifier	Reason Code
SIB-091-OHW-0-1-10102022	1,2,3,4,7,8-HEXACHLORODIBENZO-P-DIOXIN	3.18	JK	3.18	J	EMPC
SIB-091-OHW-0-1-10102022	2,3,7,8-TETRACHLORODIBENZOFURAN	2.69	--	2.69	DNR	EXC
SIB-091-OHW-0-1-10102022	2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN	1.57	K	1.57	J	EMPC
SIB-091-TOB-0-1-10102022	2,3,4,6,7,8-HEXACHLORODIBENZOFURAN	2.8	JK	2.8	J	EMPC
SIB-091-TOB-0-1-10102022	2,3,7,8-TETRACHLORODIBENZOFURAN	2.15	K	2.15	DNR	EXC
SIB-091-TOB-0-1-10102022	2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN	0.518	K	0.518	J	EMPC
SIB-090-MLW-0-1-10102022	1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN	0.49	JK	0.49	J	EMPC
SIB-090-OHW-0-1-10102022	1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN	8.25	K	8.25	J	EMPC
SIB-090-OHW-0-1-10102022	2,3,7,8-TETRACHLORODIBENZOFURAN	11.6	--	11.6	DNR	EXC
SIB-090-OHW-0-1-10102022	OCTACHLORODIBENZO-P-DIOXIN	8590	E	8590	J	ACR
SIB-090-TOB-0-1-10102022	1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN	8.22	K	8.22	J	EMPC
SIB-090-TOB-0-1-10102022	1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN	2.11	JK	2.11	J	EMPC
SIB-090-TOB-0-1-10102022	2,3,7,8-TETRACHLORODIBENZOFURAN	4.1	--	4.1	DNR	EXC
SIB-090-TOB-0-1-10102022	2,3,7,8-TETRACHLORODIBENZOFURAN	2.92	K	2.92	J	EMPC
SIB-089-MLW-0-1-10102022	1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN	1.21	JK	1.21	J	EMPC
SIB-089-OHW-0-1-10102022	1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN	3.96	K	3.96	J	EMPC
SIB-089-OHW-0-1-10102022	2,3,7,8-TETRACHLORODIBENZOFURAN	5.29	--	5.29	DNR	EXC
SIB-089-OHW-0-1-10102022	OCTACHLORODIBENZO-P-DIOXIN	4010	E	4010	J	ACR
SIB-089-TOB-0-1-10102022	2,3,4,6,7,8-HEXACHLORODIBENZOFURAN	1.95	JK	1.95	J	EMPC
SIB-089-TOB-0-1-10102022	2,3,7,8-TETRACHLORODIBENZOFURAN	3.19	K	3.19	DNR	EXC
SIB-088-MLW-0-1-10102022	1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN	0.927	BJK	0.927	UJ	MBL,EMPC
SIB-088-MLW-0-1-10102022	1,2,3,4,6,7,8-HEPTACHLORODIBENZO-P-DIOXIN	5.15	K	5.15	J	EMPC
SIB-088-MLW-0-1-10102022	1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN	0.364	JK	0.364	J	EMPC
SIB-088-MLW-0-1-10102022	2,3,7,8-TETRACHLORODIBENZOFURAN	0.4	JK	0.4	J	EMPC
SIB-088-MLW-0-1-10102022	OCTACHLORODIBENZO-P-DIOXIN	36.5	--	36.5	J	FDPA
SIB-088-OHW-0-1-10102022	1,2,3,7,8,9-HEXACHLORODIBENZOFURAN	1.81	JK	1.81	J	EMPC
SIB-088-OHW-0-1-10102022	1,2,3,7,8,9-HEXACHLORODIBENZO-P-DIOXIN	6.61	K	6.61	J	EMPC
SIB-088-OHW-0-1-10102022	2,3,7,8-TETRACHLORODIBENZOFURAN	14.5	--	14.5	DNR	EXC
SIB-088-TOB-0-1-10102022	1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN	1.31	JK	1.31	J	EMPC

Sample	Analyte	Lab Value	Lab Qualifier	Validated Value	Validated Qualifier	Reason Code
SIB-088-TOB-0-1-10102022	1,2,3,7,8-PENTACHLORODIBENZOFURAN	0.996	JK	0.996	J	EMPC
SIB-088-TOB-0-1-10102022	1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN	1.36	JK	1.36	J	EMPC
SIB-088-TOB-0-1-10102022	2,3,7,8-TETRACHLORODIBENZOFURAN	4.2	--	4.2	DNR	EXC
SIB-088-TOB-0-1-10102022	2,3,7,8-TETRACHLORODIBENZOFURAN	3.72	K	3.72	J	EMPC
SIB-088-TOB-0-1-10102022	2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN	0.926	K	0.926	J	EMPC
SIB-088-TOB-0-1-10102022	OCTACHLORODIBENZO-P-DIOXIN	764	--	764	J	MSH
FD04-10102022	1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN	0.655	BJ	0.655	U	MBL
FD04-10102022	1,2,3,4,7,8-HEXACHLORODIBENZOFURAN	0.233	JK	0.233	J	EMPC
FD04-10102022	2,3,7,8-TETRACHLORODIBENZOFURAN	0.494	JK	0.494	J	EMPC
FD04-10102022	OCTACHLORODIBENZO-P-DIOXIN	13.9	--	13.9	J	FDPA
SIB-087-MLW-0-1-10102022	2,3,4,7,8-PENTACHLORODIBENZOFURAN	0.453	JK	0.453	J	EMPC
SIB-087-OHW-0-1-10102022	1,2,3,4,7,8-HEXACHLORODIBENZO-P-DIOXIN	1.35	JK	1.35	J	EMPC
SIB-087-OHW-0-1-10102022	1,2,3,7,8,9-HEXACHLORODIBENZO-P-DIOXIN	2.29	JK	2.29	J	EMPC
SIB-087-OHW-0-1-10102022	2,3,4,7,8-PENTACHLORODIBENZOFURAN	1.61	JK	1.61	J	EMPC
SIB-087-TOB-0-1-10102022	1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN	2.3	JK	2.3	J	EMPC
SIB-087-TOB-0-1-10102022	1,2,3,4,7,8-HEXACHLORODIBENZO-P-DIOXIN	1.78	JK	1.78	J	EMPC
SIB-087-TOB-0-1-10102022	2,3,7,8-TETRACHLORODIBENZOFURAN	17.5	--	17.5	DNR	EXC
FD02-10062022	1,2,3,4,7,8-HEXACHLORODIBENZOFURAN	0.878	JK	0.878	J	EMPC
FD02-10062022	1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN	1.59	JK	1.59	J	EMPC
FD02-10062022	2,3,4,6,7,8-HEXACHLORODIBENZOFURAN	0.77	JK	0.77	J	EMPC
SIB-103-OHW-2-3-10062022	1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN	1.13	BJK	1.13	UJ	MBL,EMPC