**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 #: 21309 |
| Laboratory: CFA | Project #: DT2002.03.03.03.01 |
| HydroGeoLogic, Inc. Validator: John Tracy | Validation Date: 09.01.23 |
| HGL Peer Reviewer: Ken Rapuano | Peer Review Date: 9.8.23 |

| Client Sample ID | Laboratory Sample ID | Matrix |
|---|---|---|
| SIB-SW-WR198-050522 | 21309001 | Stormwater |
| SIB-SW-WR186-050522 | 21309002 | Stormwater |
| SIB-SW-WR15-050522 | 21309003 | Stormwater |
| SIB-SW-WR428-050522 | 21309004 | Stormwater |
| SIB-SW-WR71-050522 | 21309005 | Stormwater |

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 outside of the 1 year holding time established in the UFP_QAPP. All results should be qualified J/UJ. Note that the QAPP includes the historical holding time requirements associated with PCDD/PCDF analyses. The current holding time requirements associated with Method 1613B were applied during data validation.

***Qualification:* All results are qualified J/UJ, reason code HTP.**

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

- 1,2,3,4,6,7,8,9-OCDD at 12.1 pg/L, leading to a qualification limit of 60.5 pg/L

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 1,2,3,4,6,7,8,9-OCDD results in samples SIB-SW-WR198-050522 and SIB-SW-WR186-050522**

Rinsate Blanks – No rinse blanks were associated with this SDG.

*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) – No MS/MSD was performed with this SDG.

*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.

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

- **All results reported with a laboratory qualifier of K are qualified J with reason code EMPC.**

Qualification Summary Table (results in pg/g):

| Sample | Analyte | Lab Value | Lab Qualifier | Validated Value | Validated Qualifier | Reason Code |
|---|---|---|---|---|---|---|
| SIB-SW-WR198-050522 | 1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN | | Uh | | UJ | HTP |
| SIB-SW-WR198-050522 | 1,2,3,4,6,7,8-HEPTACHLORODIBENZO-P-DIOXIN | | Uh | | UJ | HTP |
| SIB-SW-WR198-050522 | 1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN | | Uh | | UJ | HTP |
| SIB-SW-WR198-050522 | 1,2,3,4,7,8-HEXACHLORODIBENZOFURAN | | Uh | | UJ | HTP |
| SIB-SW-WR198-050522 | 1,2,3,4,7,8-HEXACHLORODIBENZO-P-DIOXIN | | Uh | | UJ | HTP |
| SIB-SW-WR198-050522 | 1,2,3,6,7,8-HEXACHLORODIBENZOFURAN | | Uh | | UJ | HTP |
| SIB-SW-WR198-050522 | 1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN | | Uh | | UJ | HTP |
| SIB-SW-WR198-050522 | 1,2,3,7,8,9-HEXACHLORODIBENZOFURAN | | Uh | | UJ | HTP |
| SIB-SW-WR198-050522 | 1,2,3,7,8,9-HEXACHLORODIBENZO-P-DIOXIN | | Uh | | UJ | HTP |
| SIB-SW-WR198-050522 | 1,2,3,7,8-PENTACHLORODIBENZOFURAN | | Uh | | UJ | HTP |
| SIB-SW-WR198-050522 | 1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN | | Uh | | UJ | HTP |
| SIB-SW-WR198-050522 | 2,3,4,6,7,8-HEXACHLORODIBENZOFURAN | | Uh | | UJ | HTP |
| SIB-SW-WR198-050522 | 2,3,4,7,8-PENTACHLORODIBENZOFURAN | | Uh | | UJ | HTP |
| SIB-SW-WR198-050522 | 2,3,7,8-TETRACHLORODIBENZOFURAN | | Uh | | UJ | HTP |
| SIB-SW-WR198-050522 | 2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN | | Uh | | UJ | HTP |
| SIB-SW-WR198-050522 | OCTACHLORODIBENZOFURAN | | Uh | | UJ | HTP |
| SIB-SW-WR198-050522 | OCTACHLORODIBENZO-P-DIOXIN | 13.4 | BJh | 13.4 | UJ | HTP,MBL |
| SIB-SW-WR186-050522 | 1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN | 2.46 | JKh | 2.46 | J | HTP,EMPC |
| SIB-SW-WR186-050522 | 1,2,3,4,6,7,8-HEPTACHLORODIBENZO-P-DIOXIN | 9.06 | JKh | 9.06 | J | HTP,EMPC |
| SIB-SW-WR186-050522 | 1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN | | Uh | | UJ | HTP |
| SIB-SW-WR186-050522 | 1,2,3,4,7,8-HEXACHLORODIBENZOFURAN | | Uh | | UJ | HTP |
| SIB-SW-WR186-050522 | 1,2,3,4,7,8-HEXACHLORODIBENZO-P-DIOXIN | | Uh | | UJ | HTP |
| SIB-SW-WR186-050522 | 1,2,3,6,7,8-HEXACHLORODIBENZOFURAN | | Uh | | UJ | HTP |
| SIB-SW-WR186-050522 | 1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN | | Uh | | UJ | HTP |
| SIB-SW-WR186-050522 | 1,2,3,7,8,9-HEXACHLORODIBENZOFURAN | | Uh | | UJ | HTP |
| SIB-SW-WR186-050522 | 1,2,3,7,8,9-HEXACHLORODIBENZO-P-DIOXIN | | Uh | | UJ | HTP |
| SIB-SW-WR186-050522 | 1,2,3,7,8-PENTACHLORODIBENZOFURAN | | Uh | | UJ | HTP |
| SIB-SW-WR186-050522 | 1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN | | Uh | | UJ | HTP |

| Sample | Analyte | Lab Value | Lab Qualifier | Validated Value | Validated Qualifier | Reason Code |
|---|---|---|---|---|---|---|
| SIB-SW-WR186-050522 | 2,3,4,6,7,8-HEXACHLORODIBENZOFURAN | | Uh | | UJ | HTP |
| SIB-SW-WR186-050522 | 2,3,4,7,8-PENTACHLORODIBENZOFURAN | | Uh | | UJ | HTP |
| SIB-SW-WR186-050522 | 2,3,7,8-TETRACHLORODIBENZOFURAN | | Uh | | UJ | HTP |
| SIB-SW-WR186-050522 | 2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN | | Uh | | UJ | HTP |
| SIB-SW-WR186-050522 | OCTACHLORODIBENZOFURAN | | Uh | | UJ | HTP |
| SIB-SW-WR186-050522 | OCTACHLORODIBENZO-P-DIOXIN | 54.7 | BJh | 54.7 | UJ | HTP,MBL |
| SIB-SW-WR15-050522 | 1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN | 3.94 | Jh | 3.94 | J | HTP |
| SIB-SW-WR15-050522 | 1,2,3,4,6,7,8-HEPTACHLORODIBENZO-P-DIOXIN | 15.1 | Jh | 15.1 | J | HTP |
| SIB-SW-WR15-050522 | 1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN | | Uh | | UJ | HTP |
| SIB-SW-WR15-050522 | 1,2,3,4,7,8-HEXACHLORODIBENZOFURAN | | Uh | | UJ | HTP |
| SIB-SW-WR15-050522 | 1,2,3,4,7,8-HEXACHLORODIBENZO-P-DIOXIN | | Uh | | UJ | HTP |
| SIB-SW-WR15-050522 | 1,2,3,6,7,8-HEXACHLORODIBENZOFURAN | | Uh | | UJ | HTP |
| SIB-SW-WR15-050522 | 1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN | | Uh | | UJ | HTP |
| SIB-SW-WR15-050522 | 1,2,3,7,8,9-HEXACHLORODIBENZOFURAN | | Uh | | UJ | HTP |
| SIB-SW-WR15-050522 | 1,2,3,7,8,9-HEXACHLORODIBENZO-P-DIOXIN | | Uh | | UJ | HTP |
| SIB-SW-WR15-050522 | 1,2,3,7,8-PENTACHLORODIBENZOFURAN | | Uh | | UJ | HTP |
| SIB-SW-WR15-050522 | 1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN | | Uh | | UJ | HTP |
| SIB-SW-WR15-050522 | 2,3,4,6,7,8-HEXACHLORODIBENZOFURAN | | Uh | | UJ | HTP |
| SIB-SW-WR15-050522 | 2,3,4,7,8-PENTACHLORODIBENZOFURAN | | Uh | | UJ | HTP |
| SIB-SW-WR15-050522 | 2,3,7,8-TETRACHLORODIBENZOFURAN | | Uh | | UJ | HTP |
| SIB-SW-WR15-050522 | 2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN | | Uh | | UJ | HTP |
| SIB-SW-WR15-050522 | OCTACHLORODIBENZOFURAN | | Uh | | UJ | HTP |
| SIB-SW-WR15-050522 | OCTACHLORODIBENZO-P-DIOXIN | 104 | BJh | 104 | J | HTP |
| SIB-SW-WR428-050522 | 1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN | 2.48 | JKh | 2.48 | J | HTP,EMPC |
| SIB-SW-WR428-050522 | 1,2,3,4,6,7,8-HEPTACHLORODIBENZO-P-DIOXIN | 22.1 | JKh | 22.1 | J | HTP,EMPC |
| SIB-SW-WR428-050522 | 1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN | | Uh | | UJ | HTP |
| SIB-SW-WR428-050522 | 1,2,3,4,7,8-HEXACHLORODIBENZOFURAN | | Uh | | UJ | HTP |
| SIB-SW-WR428-050522 | 1,2,3,4,7,8-HEXACHLORODIBENZO-P-DIOXIN | | Uh | | UJ | HTP |
| SIB-SW-WR428-050522 | 1,2,3,6,7,8-HEXACHLORODIBENZOFURAN | | Uh | | UJ | HTP |
| SIB-SW-WR428-050522 | 1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN | | Uh | | UJ | HTP |

| Sample | Analyte | Lab Value | Lab Qualifier | Validated Value | Validated Qualifier | Reason Code |
|---|---|---|---|---|---|---|
| SIB-SW-WR428-050522 | 1,2,3,7,8,9-HEXACHLORODIBENZOFURAN | | Uh | | UJ | HTP |
| SIB-SW-WR428-050522 | 1,2,3,7,8,9-HEXACHLORODIBENZO-P-DIOXIN | | Uh | | UJ | HTP |
| SIB-SW-WR428-050522 | 1,2,3,7,8-PENTACHLORODIBENZOFURAN | | Uh | | UJ | HTP |
| SIB-SW-WR428-050522 | 1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN | | Uh | | UJ | HTP |
| SIB-SW-WR428-050522 | 2,3,4,6,7,8-HEXACHLORODIBENZOFURAN | | Uh | | UJ | HTP |
| SIB-SW-WR428-050522 | 2,3,4,7,8-PENTACHLORODIBENZOFURAN | | Uh | | UJ | HTP |
| SIB-SW-WR428-050522 | 2,3,7,8-TETRACHLORODIBENZOFURAN | | Uh | | UJ | HTP |
| SIB-SW-WR428-050522 | 2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN | | Uh | | UJ | HTP |
| SIB-SW-WR428-050522 | OCTACHLORODIBENZOFURAN | | Uh | | UJ | HTP |
| SIB-SW-WR428-050522 | OCTACHLORODIBENZO-P-DIOXIN | 127 | h | 127 | J | HTP |
| SIB-SW-WR71-050522 | 1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN | 12.4 | Jh | 12.4 | J | HTP |
| SIB-SW-WR71-050522 | 1,2,3,4,6,7,8-HEPTACHLORODIBENZO-P-DIOXIN | 34.8 | JKh | 34.8 | J | HTP,EMPC |
| SIB-SW-WR71-050522 | 1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN | | Uh | | UJ | HTP |
| SIB-SW-WR71-050522 | 1,2,3,4,7,8-HEXACHLORODIBENZOFURAN | | Uh | | UJ | HTP |
| SIB-SW-WR71-050522 | 1,2,3,4,7,8-HEXACHLORODIBENZO-P-DIOXIN | | Uh | | UJ | HTP |
| SIB-SW-WR71-050522 | 1,2,3,6,7,8-HEXACHLORODIBENZOFURAN | | Uh | | UJ | HTP |
| SIB-SW-WR71-050522 | 1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN | | Uh | | UJ | HTP |
| SIB-SW-WR71-050522 | 1,2,3,7,8,9-HEXACHLORODIBENZOFURAN | | Uh | | UJ | HTP |
| SIB-SW-WR71-050522 | 1,2,3,7,8,9-HEXACHLORODIBENZO-P-DIOXIN | | Uh | | UJ | HTP |
| SIB-SW-WR71-050522 | 1,2,3,7,8-PENTACHLORODIBENZOFURAN | | Uh | | UJ | HTP |
| SIB-SW-WR71-050522 | 1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN | | Uh | | UJ | HTP |
| SIB-SW-WR71-050522 | 2,3,4,6,7,8-HEXACHLORODIBENZOFURAN | | Uh | | UJ | HTP |
| SIB-SW-WR71-050522 | 2,3,4,7,8-PENTACHLORODIBENZOFURAN | | Uh | | UJ | HTP |
| SIB-SW-WR71-050522 | 2,3,7,8-TETRACHLORODIBENZOFURAN | | Uh | | UJ | HTP |
| SIB-SW-WR71-050522 | 2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN | | Uh | | UJ | HTP |
| SIB-SW-WR71-050522 | OCTACHLORODIBENZOFURAN | 68.5 | Jh | 68.5 | J | HTP |
| SIB-SW-WR71-050522 | OCTACHLORODIBENZO-P-DIOXIN | 251 | h | 251 | J | HTP |