**Multiple Analysis**
VOCs (SW846 Method 8260C), Semivolatile (SW846 Method 8270D), PAHs (Method SW846 8270D ULL), Herbicides (SW846 method 8151A), PCBs as Aroclors (8082A), Metals (SW846 Method 6020A), Tributyl Tin (ALS SOP), TOC (SW846 Method 9060A), DOC (Standard Methods 5310C), and TSS (Standard Methods 2540D)
**Stage 2A Review**
**Data Quality Control (QC)**

| | |
|---|---|
| Site: PHSS-Swan Island Basin | SDG #: K2212522 |
| Laboratory: ALS Environmental | Project #: DT2002.03.03.03.01 |
| HydroGeoLogic, Inc. Validator: Joseph Vilain | Validation Date: 06.01.23 |
| HGL QC Reviewer: Ken Rapuano | Peer Review Date: 06.01.23 |

| Client Sample ID | Laboratory Sample ID | Matrix |
|---|---|---|
| SIB-SW-WR198-102122 | K2212522-001 (23A0259-01) | Storm Water |
| SIB-SW-WR186-102122 | K2212522-002 (23A0259-02) | Storm Water |
| SIB-SW-WR15-102122 | K2212522-003 (23A0259-03) | Storm Water |
| SIB-SW-WR428-102122 | K2212522-004 (23A0259-04) | Storm Water |
| SIB-SW-WR71-102122 | K2212522-005 (23A0259-05) | Storm Water |
| SIB-SW-WR30-102122 | K2212522-006 (23A0259-06) | Storm Water |

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. It was noted in the narrative that due to lab oversight; pentachlorophenol was not reported in the results. No other completeness issues were noted.

*Qualification:* None required.

Sample Delivery and Condition – All samples arrived intact at the laboratory in acceptable condition. Sample temperatures ranged from 8.2 to 10.8 °C on receipt at ALS Kelso. The field team leader confirmed that the samples were stored refrigerated at the site and were driven to the laboratory the following day. The samples were collected in 20-g carboys and were too large to fit into coolers, so ice was packed around the base of each carboy. In the judgment of the HGL reviewer, sufficient temperature reduction was achieved and no qualification is not required.

*Qualification:* None required.

Holding Times – The VOCs analysis of sample SIB-SW-WR71-102122 was performed 3 days outside the 14-day holding time due to delays in the release of the sample. This discrepancy is not extreme (>2x hold); the ethylbenzene result for sample SIB-SW-WR71-102122 is a non-detection and should be qualified UJ-HTA. All other samples were prepared and analyzed within their required holding times.

***Qualification:* The ethylbenzene result for sample SIB-SW-WR71-102122 is qualified UJ-HTA.**

Laboratory Blanks – The metals, TOC, and DOC calibration blanks were free from contamination. The Semivolatile method blank was contaminated with bis(2-ethylhexyl)phthalate. All sample bis(2-ethylhexyl)phthalate results were below the qualification threshold and should be qualified U. The PAH method blank was contaminated with 2-methylnaphthalene, benz(a)anthracene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, phenanthrene, and pyrene; all detections of these analytes below the qualification threshold (5x blank result) should be qualified U.

***Qualification:*** **All detected bis(2-ethylhexyl)phthalate, 2-methylnaphthalene, benz(a)anthracene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, phenanthrene, and pyrene results below the respective qualification thresholds are qualified U.**

Trip Blanks – A trip blank was not submitted with the samples in this SDG.

*Qualification:* None required.

Rinsate Blanks – Rinsate blanks were not submitted with the samples in this SDG.

*Qualification:* None required.

Ambient Blanks – An ambient blank was not submitted with this SDG.

*Qualification:* None required.

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

*Qualification:* None required.

Surrogates – The recovery of 2,4-dichlorophenylacetic acid was above control limits in sample SIB-SW-WR30-0102122; no herbicides were detected in this sample and no qualification is required.

*Qualification:* None required.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) – MS analysis was performed for metals on sample SIB-SW-WR198-102122 from this SDG. The %R for copper and zinc were above control limits, however the parent concentrations were >4x the spike amount and no qualification is required.

*Qualification:* None required.

Field Duplicate – A field duplicate was not submitted with the samples in this SDG.

*Qualification:* None required.

Laboratory Duplicate – A laboratory replicate was performed on sample SIB-SW-WR198-102122 for metals and sample SIB-SW-SWR71-102122 for TSS; the RPDs were within control limits.

*Qualification:* None required.

Compound Quantitation – Analyte non-detections were reported as ND with the associated MDL and MRL included on the result summary pages. This reporting format is equivalent to reporting non-detected data in the EPA “MDL U” format. Analytes detected between the MDL and MRL were reported as J-qualified results by the laboratory. These J qualifiers were retained unless superseded by a more severe qualifier.

*Qualification:* None required.

Qualification Summary Table (concentrations in µg/L except TDS in mg/L):

| Sample | Analyte | Lab Value | Lab Qualifier | Validated Value | Validated Qualifier | Reason Code |
|---|---|---|---|---|---|---|
| SIB-SW-WR198-102122 | Bis(2-ethylhexyl)phthalate | 2.4 | B | 2.4 | U | MBH |
| SIB-SW-WR186-102122 | Bis(2-ethylhexyl)phthalate | 2.8 | B | 2.8 | U | MBH |
| | Benz(a)anthracene | 4.3 | B | 4.3 | U | MBH |
| | Benzo(g,h,i)perylene | 3.5 | -- | 3.5 | U | MBL |
| | Chrysene | 7.1 | B | 7.1 | U | MBH |
| | Fluoranthene | 16 | B | 16 | U | MBH |
| | Pyrene | 14 | B | 14 | U | MBH |
| SIB-SW-WR15-102122 | Bis(2-ethylhexyl)phthalate | 2.5 | B | 2.5 | U | MBH |
| | Benz(a)anthracene | 3.5 | B | 3.5 | U | MBH |
| | Benzo(b)fluoranthene | 4.3 | -- | 4.3 | U | MBL |
| | Benzo(g,h,i)perylene | 2.8 | J | 2.8 | U | MBL |
| | Benzo(k)fluoranthene | 1.1 | J | 1.1 | U | MBL |
| | Chrysene | 10 | B | 10 | U | MBH |
| | Fluoranthene | 14 | B | 14 | U | MBH |
| | Indeno(1,2,3-cd)pyrene | 2.6 | J | 2.6 | U | MBL |
| | Phenanthrene | 23 | B | 23 | U | MBH |
| | Pyrene | 14 | B | 14 | U | MBH |
| SIB-SW-WR428-102122 | Bis(2-ethylhexyl)phthalate | 2.6 | B | 2.6 | U | MBH |
| | Benz(a)anthracene | 5.3 | B | 5.3 | U | MBH |
| | Benzo(g,h,i)perylene | 3.9 | -- | 3.9 | U | MBL |
| | Chrysene | 8.0 | B | 8.0 | U | MBH |
| | Fluoranthene | 14 | B | 14 | U | MBH |
| | Indeno(1,2,3-cd)pyrene | 2.9 | J | 2.9 | U | MBL |
| | Pyrene | 14 | B | 14 | U | MBH |
| SIB-SW-WR71-102122 | Bis(2-ethylhexyl)phthalate | 2.8 | B | 2.8 | U | MBH |
| | Benz(a)anthracene | 4.0 | B | 4.0 | U | MBH |
| | Benzo(g,h,i)perylene | 3.5 | -- | 3.5 | U | MBL |
| | Chrysene | 4.8 | B | 4.8 | U | MBH |
| | Fluoranthene | 8.9 | B | 8.9 | U | MBH |
| | Pyrene | 9.3 | B | 9.3 | U | MBH |

| Sample | Analyte | Lab Value | Lab Qualifier | Validated Value | Validated Qualifier | Reason Code |
|---|---|---|---|---|---|---|
| SIB-SW-WR30-102122 | Bis(2-ethylhexyl)phthalate | 2.4 | B | 2.4 | U | MBH |
| | Pyrene | 13 | BJ | 13 | U | MBH |