**Metals (ICP-MS) and Mercury (CVAA)**
Methods 6020A and 7471B
Level 2A Review

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|---|---|
| Site: Portland Harbor DT2002 | SDG #: K2306272 |
| Laboratory: ALS Environmental, Kelso Laboratory | Date: 07/12/2023 |
| HydroGeoLogic, Inc. Reviewer: Joseph Vilain<br>Peer Reviewer: Ken Rapuano (10/10/23) | Project: DT2002.03.03.03.01 |

| Client Sample ID | Laboratory Sample ID | Prep Batch | Analysis Batch | Matrix |
|---|---|---|---|---|
| SIB-SW-AAM131-CAR-SE-030923 | K23067272-001 | 421107 / 421330* | 806805 / 807273* | Sediment |
| SIB-SW-AAQ005-CAR-SE-030923 | K23067272-002 | 421107 / 421108* | 806805 / 803934* | Sediment |
| SIB-SW-AAM169-CAR-SE-030923 | K23067272-003 | 421107 / 421108* | 806805 / 803934* | Sediment |
| SIB-SW-AAM107-CAR-SE-030923 | K23067272-004 | 421107 / 421108* | 806805 / 803934* | Sediment |
| SIB-SW-AAP957-CAR-SE-030923 | K23067272-005 | 421107 / 421108* | 806805 / 803934* | Sediment |

*Samples analyzed for arsenic, cadmium, copper, lead, zinc and mercury.*
**indicates a mercury batch.*

Narrative and Completeness Review – The case narrative and data package were checked for completeness. The Narrative indicated, "Due to the limited sample mass available for sample SIB-SW-AAM131-CAR-SE-030923 a separate digestion for Mercury could not be performed as per standard operating procedures. Instead, a sub-aliquot of the 3050B digestion prepared for the 6020A analysis was used for the Mercury determination. Recoveries in the Laboratory Control Samples (LCS/DLCS) indicate the modified analytical procedure was in control. No other discrepancies were noted.

*Qualification:* None required.

Sample Delivery and Condition – All samples arrived intact at the laboratory and were in acceptable condition and temperature, see narrative and completeness note. Proper custody was documented and the samples were properly preserved.

*Qualification:* None required.

Holding Times – The samples were analyzed within the holding times established in the QAPP, with the exception of mercury. All mercury samples were analyzed approximately 2 months outside the 28-day holding time; there is no indication in the sample preparation forms that the sample material was frozen before preparation. All mercury results are detections and should be qualified J-HTAX.

***Qualification:* All mercury results are qualified J with reason code HTAX.**

Laboratory Control Sample – The associated 6020 LCS and LCS duplicate met project control limits. Both of the mercury LCS/LCSD pairs met project control limits.

*Qualification:* None required.

MS/MSD – MS/MSD analyses were not performed on samples from this SDG.

*Qualification:* none required.

Laboratory Duplicate Sample – A laboratory duplicate was not prepared from samples in this SDG.

*Qualification:* none required.

Method Blank – The 6020A method blank associated with these samples was contaminated with 0.10 mg/kg copper. All copper results in the samples were >5x the contamination amount and no qualification is required. No other contamination was noted in the method blank and the mercury method blanks were free from contamination.

*Qualification:* None Required.

Equipment Blank – No equipment blanks were collected for this SDG.

*Qualification:* None required.

Field Duplicate – No field duplicates were collected for this SDG.

*Qualification:* None required.

Compound Quantitation – Analyte non-detections were reported as ND and qualified U. These U qualifiers were retained unless superseded by a more severe qualifier. 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 (results in mg/kg):

| Sample | Analyte | Lab Value | Lab Qualifier | Validated Value | Validated Qualifier | Reason Code |
|---|---|---|---|---|---|---|
| All samples | Mercury | varies | J | varies | J | HTAX |