

| U. S. Steel Gary Works - Laboratory Report Data Review | | | | | |
|--|--|----------------|---------------------------|-----------|-----|
| Laboratory Report ID: | | | | 1708602 | |
| Laboratory Name: | ALS Environmental (Holland, MI) | | Report Package Date: | 8/29/2017 | |
| Project Name: | CAMU Monthly Leachate - August 2017 | | Review Date: | 10/9/2017 | |
| Project Number: | 4262-303-01-01 Phase 03 | | | | |
| Reviewer Name: | Angie Bouche | | No. of Environ. Samples?* | 2 | |
| Parameters: | PCBs, VOCs*, SVOCs*, ammonia as N, total dissolved solids, total suspended solids, total metals (As, Ba, Cd, Cr, Pb, Li, Hg, Se, Ag); hexavalent chromium (*list of compounds is in accordance with the CAMU Monitoring Program) | | No. of QC Samples?* | 1 | |
| Method IDs: | SW8082; SW8260B; SW8270D; SW8270D SIM (PAHs); EPA 350.1 R2.0; A2540 C-97; A2540 D-97; SW 6020A; SW7470A; SW7196A | | Rejected Results? | No | |
| Matrix: | Aqueous + QC (TB) | | | | |
| *Attach copy of lab report showing sample IDs and corresponding lab IDs. | | | Yes | No | N/A |
| Report Completeness & Sample Log-In Condition | | | | | |
| 1 Was a signature page with appropriate authority signature provided? | | | X | | |
| 2 Was there a case narrative noting all known problems or anomalies? | | | X | | |
| 3 Were all samples received under chain-of-custody (seals used) and within appropriate temperature? | | | | X | (1) |
| 4 Were all departures from standard conditions narrated (i.e., preservation acceptable, no headspace)? | | | X | | (1) |
| 5 Are all field sample ID numbers cross-referenced to the laboratory ID numbers? | | | X | | (1) |
| 6 Are all laboratory ID numbers cross-referenced to the corresponding QC data (batch IDs provided)? | | | X | | (1) |
| 7 Were reference methods provided and cited appropriately? | | | X | | |
| 8 Were samples prepared and analyzed within holding times? | | | X | | |
| Date Collected: | 8/9/2017 | Date Received: | 8/10/2017 | | |
| 9 Were all soil results reported on a dry-weight basis? | | | | X | |
| 10 Was a percent moisture result reported for all soil and sediment samples? | | | | X | |
| 11 If required for the project, was supporting documentation (CLP-like) provided? | | | | X | |
| 12 If required for the project, were TICs reported? | | | | X | |
| 13 Were all MDLs and/or RLs in accordance with project DQOs & reported in the test report? | | | X | | |
| 14 Was justification provided for elevated RLs (e.g., non-target interferences, etc.)? | | | X | | |
| 15 Is there a QAPP or SAP available as a reference for the project performed? | | | X | | (1) |
| 16 Are non-detects identified as ND at RL with a "U", or other (less than "<")? | | | X | | |
| 17 Are laboratory flags defined? | | | X | | |
| Laboratory Method Blanks and Field Blanks | | | | | |
| 1 Were appropriate types of laboratory method blanks analyzed? | | | X | | |
| 2 Were the laboratory method blanks analyzed at the appropriate frequency? | | | X | | |
| 3 Was the method blank free of contamination (i.e., less than the MDL or RL)? | | | X | | |
| 4 Did the method blank contamination affect the final results? If so, note on page 2. | | | | X | |
| 5 Was a trip blank required and submitted with the samples? | | | X | | |
| 6 Was the trip blank free of contamination (i.e., less than the MDL or RL)? | | | | X | (2) |
| 7 Did the trip blank contamination affect the final results? If so, note on page 2. | | | | X | |
| 8 Was an equipment blank required and submitted with the samples? | | | | X | |
| 9 Was the equipment blank free of contamination (i.e., less than the MDL or RL)? | | | | | X |
| 10 Did the equipment blank contamination affect the final results? If so, note on page 2. | | | | | X |
| 11 Was a source water blank required and submitted with the samples? | | | | X | |
| 12 Was the source water blank free of contamination (i.e., less than the MDL or RL)? | | | | | X |
| 13 Did the source water blank contamination affect the final results? If so, note on page 2. | | | | | X |
| Surrogates | | | | | |
| 1 Were surrogates added prior to extraction for all appropriate methods? | | | X | | |
| 2 Were surrogate percent recoveries within laboratory control limits? | | | | X | |
| 3 Did the surrogate percent recoveries affect the final results? If so, note on page 2. | | | X | | (3) |
| Laboratory Control Samples | | | | | |
| 1 Were LCS performed for all appropriate methods? | | | X | | |
| 2 Were LCSs spiked with appropriate list of target compounds? | | | X | | |
| 3 Were LCS percent recoveries within laboratory control limits? | | | | X | |
| 4 Did the LCS percent recoveries affect the final results? If so, note on page 2. | | | | X | (4) |
| 5 If performed, were LCS Duplicate data provided? | | | | | X |
| 6 Were the LCS/LCSD RPD values within laboratory control limits? | | | | | X |
| Matrix Spikes | | | | | |
| 1 Were MS/MSDs required to be performed on a project sample? | | | | X | |
| Sample used/methods: | | | | | |
| 2 Were MS/MSDs performed on a project sample selected by the laboratory? | | | X | | |
| Sample used/methods: | LCS-01 (-01A MS/-01A MSD): PCBs LCS-01 (-01A MS): PAHs LCS-01 (-01H MS/-0H MSD): Hexavalent chromium LCS-02 (-02D MS/-02D MSD): Ammonia as N | | | | |
| 3 Were MS/MSDs spiked with appropriate list of target compounds? | | | X | | |
| 4 Were MS/MSD percent recoveries within laboratory control limits? | | | | X | |
| 5 Did the MS/MSD percent recoveries affect the final results? If yes, narrate. | | | | X | (5) |
| 6 Were the MS/MSD RPD values within laboratory control limits? | | | X | | |

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| Matrix: | Aqueous + QC (TB) | | | |
| *Attach copy of lab report showing sample IDs and corresponding lab IDs. | | Yes | No | N/A |
| 7 Did the MS/MSD RPDs affect the final results? If so, note on page 2. | | | X | |
| Field and Laboratory Duplicates | | | | |
| 1 Was a field duplicate submitted with this SDG? | | | X | |
| Field Duplicate ID: | | | | |
| 2 Was the RPD values less than review criteria? | | | | X |
| 3 Did the field duplicate RPD results affect the final results? If so, narrate. | | | | X |
| 4 Was a laboratory method duplicate (MD) performed? | | X | | |
| MD ID: | | LCS-02 (-02A Dup): PAHs | | |
| 5 Were the RPD values less than review criteria? | | X | | |
| 6 Did the MD results affect the final results? If so, note on page 2. | | | X | |
| Other Laboratory QC Data | | | | |
| 1 Were internal standard data reported? (organics and inorganics by 6020) | | X | | (6) |
| 2 Were IS area counts and retention times within method required limits? | | | X | |
| 3 Were data associated with manual integration flagged on the test reports? | | | X | |
| 4 Did dual-column confirmation results (PCBs) meet method-required QC limits of <25% difference? | | X | | |
| 5 Was an interference check sample analyzed and were percent recoveries within QC limits? | | | X | |
| 6 If serial dilutions were analyzed using a project sample, were the percent differences within QC limits? | | | X | (7) |
| 7 Was a CRDL check sample analyzed and were the percent recoveries within QC limits? | | | X | |
| 8 If post-digestion spikes (PDS) were performed for metals, were percent recoveries within QC limits? | | | X | (7) |
| 9 If ICV/CCV was reported in the case narrative, did the ICV/CCV affect the project samples? | | | X | |
| 10 Were the total results greater than the dissolved results (e.g., metals)? | | | X | |
| Electronic Data Deliverable | | | | |
| 1 Was an EDD provided with the deliverable? | | X | | |
| 2 Was the electronic data the same as the hardcopy data? | | | X | (8) |
| Comment No. Description (data usability; note any estimated and/or rejected data): | | | | |
| 1 | Sampling: The samples were collected by ALS staff. Departures: Verification of sample preservation indicated a pH>2 for VOC samples (-01, -02, -03). Login: A custody seal was not used on the cooler; because the cooler was not shipped by a commercial courier, this was not mandatory protocol. Dilutions: Dilutions were needed for the following chemicals due to elevated concentrations: VOCs (-01, -02); SVOCs (-01); PAHs (-01, -02); ammonia as N (-01, -02) QAPP: Uniform Federal Policy - Quality Assurance Project Plan, U. S. Steel Corporation, Gary Works, Gary, Indiana, April 2016. | | | |
| 2 | Trip Blank: Chloroform detected in the trip blank sample (-03) @ 0.88 J ug/L x 5 = 4.4 ug/L; (ND for -01 and -02; NQR). | | | |
| 3 | Surrogate Recoveries: VOCs: Samples -01 and -02: dibromofluoromethane %Rec<LCL, but above >10% (target analytes 1,1,1,2-tetrachloroethane, 1,1,1-trichloroethane, 1,1,2,2-tetrachloroethane, 1,1,2-trichloroethane, 1,1-dichloroethane, 1,2,3-trichloropropane, 1,2-dibromo-3-chloropropane, 1,2-dibromomethane, 1,2-dichloroethane, 1,2-dichloropropane, bromodichloromethane, bromomethane, chloroethane, dibromochloromethane, dibromomethane, dichlorodifluoromethane, iodomethane, trichlorofluoromethane ND, revise to "UJ"). PAHs: Sample -02: nitrobenzene d-5 %Rec>UCL; only one base/neutral surrogate was outside of control limits, therefore, NQR for associated base/neutral target analytes. | | | |
| 4 | LCS: <u>VOCs: Iodomethane</u> (VLCWS2-170814-R217796b) LCS %R>UCL, Samples -01, -02, and -03 are non-detect, NQR; NQR for associated samples. | | | |
| 5 | MS/MSD: PAHs - Sample 01A: 2-methylnaphthalene, acenaphthene, acenaphthylene, fluorene, and naphthalene (MS %R<LCL and <10%; parent results >4x spike amount, NQR). | | | |
| 6 | Internal Standards: Included in L4 lab report; no review required for general QC data evaluation. Did not receive a copy of the L4 lab report. | | | |
| 7 | The lab did not perform PDS or SD analysis for this batch report. | | | |
| 8 | Reporting: The laboratory provided an EDD to the database management contractor. | | | |
| Signature of Validator: | | 10/9/2017 | | |
| Signature of Senior Review: | | 12/26/2017 | | |

Attachment 1: Cross-reference of field IDs with laboratory IDs.

Acronyms:

CCV: Continuing Calibration Verification
 CLP-Like: Level 4 Report
 CL: Control Limit
 DQOs: Data Quality Objectives
 EDD: Electronic Deliverable Data
 FD: Field Duplicate
 GC/MS: Gas Chromatography/ Mass Spectrometry
 ICV: Initial Calibration Verification
 IS: Internal Standard
 LCL: Lower Control Limit

LCS/LCSD: Laboratory Control Sample/Duplicate
 MB: Method Blank
 MD: Method Duplicate
 MDL: Method Detection Limit
 MS/MSD: Matrix Spike/Duplicate
 ND: Non Detected
 NFQR: No Further Qualification Required
 NQR: No Qualification Required
 PDS: Post Digestion Spike
 %R: Percent Recovery

RL: Reporting Limit
 RPD: Relative Percent Difference
 SAP: Sampling Analysis Plan
 SDG: Sampling Delivery Group
 SVOC: Semi-Volatile Organic Compounds
 TIC: Tentatively Identified Compound
 QA/QC: Quality Assurance/Quality Control
 QAPP: Quality Assurance Project Plan
 UCL: Upper Control limit
 VOC: Volatile organic compounds

Client: U.S. Steel - Gary Works
Project: (USS- Gary) CAMU Monthly Leachate 8.2017
Work Order: 1708602

Work Order Sample Summary

| <u>Lab Samp ID</u> | <u>Client Sample ID</u> | <u>Matrix</u> | <u>Tag Number</u> | <u>Collection Date</u> | <u>Date Received</u> | <u>Hold</u> |
|--------------------|-------------------------|---------------|-------------------|------------------------|----------------------|--------------------------|
| 1708602-01 | LCS-01 | Aqueous | LCS-01 | 8/9/2017 12:46 | 8/10/2017 10:45 | <input type="checkbox"/> |
| 1708602-02 | LCS-02 | Aqueous | LCS-02 | 8/9/2017 12:35 | 8/10/2017 10:45 | <input type="checkbox"/> |
| 1708602-03 | Trip Blank | Aqueous | Trip Blank | 8/9/2017 12:00 | 8/10/2017 10:45 | <input type="checkbox"/> |