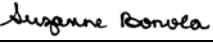



U. S. Steel Gary Works - Laboratory Report Data Review				
Laboratory Report ID:			1708873	
Laboratory Name:	ALS Environmental (Holland, MI)		Report Package Date:	8/31/2017
Project Name:	CAMU Annual GW (Quarter 3, 2017)		Review Date:	9/05/2017
Project Number:	4262-303-01-01 Phase 02			
Reviewer Name:	Suzanne Bonola		No. of Environ.	28
Parameters:	VOCs*, SVOCs*, PCBs, dissolved metals (As, Ba, Cd, Cr, Fe, Pb, Li, Se, Ag), dissolved Hg, dissolved hexavalent chromium. <i>*list of compounds is in accordance with the CAMU Groundwater Monitoring Program</i>		No. of QC Samples?*	9
Method IDs:	SW8260B, SW8270D, SW8082, SW6020A, SW7470A, SW7196A		Rejected Results?	Yes
Matrix:	Aqueous + QC (FD, MS/MSD, TB, EB)			
<b>*Attach copy of lab report showing sample IDs and corresponding lab IDs.</b>			Yes	No
			N/A	Comment
<b>Report Completeness &amp; Sample Log-In Condition</b>				
1 Was a signature page with appropriate authority signature provided?			X	
2 Was there a case narrative noting all known problems or anomalies?			X	(1)
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	
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:	8/14/17, 8/15/17	Date Received:	8/14/17, 8/15/17	
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	(1)
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	
<b>Laboratory Method Blanks and Field Blanks</b>				
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	
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	(2)
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	
<b>Surrogates</b>				
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)
<b>Laboratory Control Samples</b>				
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	
<b>Matrix Spikes</b>				
1 Were MS/MSDs required to be performed on a project sample?			X	
Sample used/methods:	CAMU-MW04-GW-0815-2017 (-20): VOCs, SVOCs, PCBs; CAMU-MW04-GW-08152017-F (-21): Dissolved Hg, Dissolved metals (As, Ba, Cd, Cr, Pb, Li, Se, Ag), Dissolved Cr+6			
2 Were MS/MSDs performed on a project sample selected by the laboratory?			X	
Sample used/methods:	CAMU-MW07-GW-08142017-F (-07): Dissolved Cr+6			
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	
7 Did the MS/MSD RPDs affect the final results? If so, note on page 2.			X	

U. S. Steel Gary Works - Laboratory Report Data Review				
Laboratory Report ID:			1708873	
Laboratory Name:	ALS Environmental (Holland, MI)		Report Package Date:	8/31/2017
Project Name:	CAMU Annual GW (Quarter 3, 2017)		Review Date:	9/05/2017
Project Number:	4262-303-01-01 Phase 02			
Reviewer Name:	Suzanne Bonola		No. of Environ.	28
Parameters:	VOCs*, SVOCs*, PCBs, dissolved metals (As, Ba, Cd, Cr, Fe, Pb, Li, Se, Ag), dissolved Hg, dissolved hexavalent chromium. <i>*list of compounds is in accordance with the CAMU Groundwater Monitoring Program</i>		No. of QC Samples?*	9
Method IDs:	SW8260B, SW8270D, SW8082, SW6020A, SW7470A, SW7196A		Rejected Results?	Yes
Matrix:	Aqueous + QC (FD, MS/MSD, TB, EB)			
<b>*Attach copy of lab report showing sample IDs and corresponding lab IDs.</b>			Yes	No N/A Comment
<b>Field and Laboratory Duplicates</b>				
1 Was a field duplicate submitted with this SDG?			X	
Field Duplicate ID:	CAMU-MW01R-GW-08142017-FD (-08): VOCs, SVOCs, PCBs; CAMU-MW01R-GW-08142017-F-FD (-09): Dissolved metals (As, Ba, Cd, Cr, Fe, Pb, Li, Se, Ag), dissolved Hg, dissolved hexavalent chromium; CAMU-MW05-GW-08152017-FD (-24): VOCs, SVOCs, PCBs; CAMU-MW05-GW-08152017-F-FD (-25): Dissolved metals (As, Ba, Cd, Cr, Fe, Pb, Li, Se, Ag), dissolved Hg, dissolved hexavalent chromium.			
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:				
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
<b>Other Laboratory QC Data</b>				
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
<b>Electronic Data Deliverable</b>				
1 Was an EDD provided with the deliverable?			X	
2 Was the electronic data the same as the hardcopy data?				X (8)
<b>Comment No. Description (data usability; note any estimated and/or rejected data):</b>				
1	<p><b>Sampling:</b> The samples were collected by (Weaver Consultants Group, Chicago, IL); all samples for dissolved analyses were filtered in the field; these are denoted by the "-F" in the field sample ID.</p> <p><b>Anomalies:</b> SVOCs: Vial for sample -22B had a hairline fracture, leaked, and went dry overnight. The analytical lab attempted to re-constitute the extract, but surrogates failed low, and there was no sample left for re-extraction.</p> <p><b>Depatures:</b> VOCs: Verification of sample preservation indicated a pH&gt;2 for samples -01A, -03A, -05A, -06A, -08A, -10A, -12A, -14A, -16A, -18A, -20A, -22A, -24A, -26A, -28A, -30A, -32A. Unpreserved VOA vials were analyzed within 7 days; NQR.</p> <p><b>Login:</b> A custody seal was not used on the cooler; because the cooler was not shipped by a commercial courier, this was not mandatory protocol. One trip blank was received by the laboratory for samples collected on 8/14/2017; a trip blank was not received for samples collected on 8/15/2017.</p> <p><b>Dilutions:</b> Dilutions were needed for the following chemicals due to elevated concentrations: 2-butanone (-14), 2-hexanone (-14), acetone (-14).</p> <p><b>QAPP:</b> Uniform Federal Policy - Quality Assurance Project Plan, U. S. Steel Corporation, Gary Works, Gary, Indiana, April 2016.</p>			
2	<p><b>EB (collected 8/14/17):</b> VOCs - 2-butanone (common lab contaminant) @ 350 x 10 = 3,500 ug/l (ND for all samples collected on 8/14/17, NQR; ND for all samples collected on 8/15/17 [day other than when EB collected], NQR); 2-hexanone @ 48 x 5 = 240 ug/l (ND for all samples collected on 8/14/17, NQR; ND for all samples collected on 8/15/17 [day other than when EB collected], NQR); acetone (common lab contaminant) @ 210 x 10 = 2,100 ug/l (ND for all samples collected on 8/14/17, NQR; ND for all samples collected on 8/15/17 [day other than when EB collected], NQR).</p>			
3	<p><b>Surrogate Recoveries:</b> Sample -22B: Vial had a hairline fracture, leaked, and went dry overnight. The lab attempted to re-constitute the extract, but the surrogates failed low. No sample left for re-extraction. Acid surrogates 2,4,6-tribromophenol %R&lt;LCL, but &gt;10%, and 2-fluorophenol and phenol d-6 %R&lt;LCL and &lt;10% (target analytes ND, reject results). Base/Neutral surrogates 2-fluorobiphenyl and 4-Terphenyl-d14 %R&lt;LCL, but &gt;10% and nitrobenzene-d5 %R&lt;LCL and &lt;10% (target analytes ND, reject results).</p>			
4	<p><b>LCS:</b> VOCs - iodomethane (VLCSW1-170818-R218098B) %R&gt;UCL (other associated samples ND, NQR).</p>			
5	<p><b>MS/MSD:</b> VOCs - iodomethane - MS/MSD %R&gt;UCL, parent sample ND, NQR.</p>			
6	<p><b>ISTD:</b> VOCs &amp; SVOCs - Included in L4 lab report; no review required for a general QC data evaluation.</p>			
7	<p>The lab did not perform PDS or SD analysis for this batch report.</p>			
8	<p><b>Reporting:</b> The laboratory reported non-detect results as &lt;RL. This is acceptable and no change is required; however, the EDD uses a "U" flag and the RL. The hardcopy lab report does not include all COCs for the sampling event. The laboratory provided an EDD to the database management contractor.</p>			

U. S. Steel Gary Works - Laboratory Report Data Review				
			Laboratory Report ID: 1708873	
Laboratory Name:	ALS Environmental (Holland, MI)		Report Package Date:	8/31/2017
Project Name:	CAMU Annual GW (Quarter 3, 2017)		Review Date:	9/05/2017
Project Number:	4262-303-01-01 Phase 02			
Reviewer Name:	Suzanne Bonola		No. of Environ.	28
Parameters:	VOCs*, SVOCs*, PCBs, dissolved metals (As, Ba, Cd, Cr, Fe, Pb, Li, Se, Ag), dissolved Hg, dissolved hexavalent chromium. <i>*list of compounds is in accordance with the CAMU Groundwater Monitoring Program</i>		No. of QC Samples?*	9
Method IDs:	SW8260B, SW8270D, SW8082, SW6020A, SW7470A, SW7196A		Rejected Results?	Yes
Matrix:	Aqueous + QC (FD, MS/MSD, TB, EB)			
*Attach copy of lab report showing sample IDs and corresponding lab IDs.			Yes	No N/A Comment
Signature of Validator:	 9/5/2017			
Signature of Senior Review:	 9/8/2017			

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

NQRR: 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 CAMU 3Q2017  
**Work Order:** 1708873

## 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>
1708873-01	CAMU-MW06R-GW-08142017	Aqueous	CAMU-MW06R	8/14/2017 14:37	8/14/2017 15:50	<input type="checkbox"/>
1708873-02	CAMU-MW06R-GW-08142017-F	Aqueous	CAMU-MW06R	8/14/2017 14:37	8/14/2017 15:50	<input type="checkbox"/>
1708873-03	CAMU-MW07-GW-08142017	Aqueous	CAMU-MW07	8/14/2017 10:00	8/14/2017 15:50	<input type="checkbox"/>
1708873-04	CAMU-MW07-GW-08142017-F	Aqueous	CAMU-MW07	8/14/2017 10:00	8/14/2017 15:50	<input type="checkbox"/>
1708873-05	TB01-08142017	Aqueous	TB01	8/14/2017	8/14/2017 15:50	<input type="checkbox"/>
1708873-06	CAMU-MW01R-GW-08142017	Aqueous	CAMU-MW01R	8/14/2017 12:54	8/14/2017 15:50	<input type="checkbox"/>
1708873-07	CAMU-MW01R-GW-08142017-F	Aqueous	CAMU-MW01R	8/14/2017 12:54	8/14/2017 15:50	<input type="checkbox"/>
1708873-08	CAMU-MW01R-GW-08142017-FD	Aqueous	CAMU-MW01R	8/14/2017 12:54	8/14/2017 15:50	<input type="checkbox"/>
1708873-09	CAMU-MW01R-GW-08142017-F-FD	Aqueous	CAMU-MW01R	8/14/2017 12:54	8/14/2017 15:50	<input type="checkbox"/>
1708873-10	CAMU-P06R-GW-08142017	Aqueous	CAMU-P06R	8/14/2017 15:02	8/14/2017 15:50	<input type="checkbox"/>
1708873-11	CAMU-P06R-GW-08142017-F	Aqueous	CAMU-P06R	8/14/2017 15:02	8/14/2017 15:50	<input type="checkbox"/>
1708873-12	CAMU-P07-GW-08142017	Aqueous	CAMU-P07	8/14/2017 10:12	8/14/2017 15:50	<input type="checkbox"/>
1708873-13	CAMU-P07-GW-08142017-F	Aqueous	CAMU-P07	8/14/2017 10:12	8/14/2017 15:50	<input type="checkbox"/>
1708873-14	EB01-GW-08142017	Aqueous	EB01	8/14/2017 10:12	8/14/2017 15:50	<input type="checkbox"/>
1708873-15	EB01-GW-08142017-F	Aqueous	EB01	8/14/2017 10:12	8/14/2017 15:50	<input type="checkbox"/>
1708873-16	CAMU-P01R-GW-08142017	Aqueous	CAMU-P01R	8/14/2017 13:08	8/14/2017 15:50	<input type="checkbox"/>
1708873-17	CAMU-P01R-GW-08142017-F	Aqueous	CAMU-P01R	8/14/2017 13:08	8/14/2017 15:50	<input type="checkbox"/>
1708873-18	CAMU-MW02R-GW-08152017	Aqueous	CAMU-MW02R	8/15/2017 10:01	8/15/2017 15:15	<input type="checkbox"/>
1708873-19	CAMU-MW02R-GW-08152017-F	Aqueous	CAMU-MW02R	8/15/2017 10:01	8/15/2017 15:15	<input type="checkbox"/>
1708873-20	CAMU-MW04R-GW-08152017	Aqueous	CAMU-MW04R	8/15/2017 08:36	8/15/2017 15:15	<input type="checkbox"/>
1708873-21	CAMU-MW04R-GW-08152017-F	Aqueous	CAMU-MW04R	8/15/2017 08:36	8/15/2017 15:15	<input type="checkbox"/>
1708873-22	CAMU-MW05-GW-08152017	Aqueous	CAMU-MW05	8/15/2017 11:04	8/15/2017 15:15	<input type="checkbox"/>
1708873-23	CAMU-MW05-GW-08152017-F	Aqueous	CAMU-MW05	8/15/2017 11:04	8/15/2017 15:15	<input type="checkbox"/>
1708873-24	CAMU-MW05-GW-08152017-FD	Aqueous	CAMU-MW05	8/15/2017 11:04	8/15/2017 15:15	<input type="checkbox"/>
1708873-25	CAMU-MW05-GW-08152017-F-FD	Aqueous	CAMU-MW05	8/15/2017 11:04	8/15/2017 15:15	<input type="checkbox"/>
1708873-26	CAMU-P05-GW-08152017	Aqueous	CAMU-P05	8/15/2017 11:12	8/15/2017 15:15	<input type="checkbox"/>
1708873-27	CAMU-P05-GW-08152017-F	Aqueous	CAMU-P05	8/15/2017 11:12	8/15/2017 15:15	<input type="checkbox"/>
1708873-28	CAMU-MW08-GW-08152017	Aqueous	CAMU-MW08	8/15/2017 14:34	8/15/2017 15:15	<input type="checkbox"/>
1708873-29	CAMU-MW08-GW-08152017-F	Aqueous	CAMU-MW08	8/15/2017 14:34	8/15/2017 15:15	<input type="checkbox"/>
1708873-30	CAMU-P08-GW-08152017	Aqueous	CAMU-P08	8/15/2017 14:10	8/15/2017 15:15	<input type="checkbox"/>
1708873-31	CAMU-P08-GW-08152017-F	Aqueous	CAMU-P08	8/15/2017 14:10	8/15/2017 15:15	<input type="checkbox"/>
1708873-32	CAMU-P09-GW-08152017	Aqueous	CAMU-P09	8/15/2017 12:40	8/15/2017 15:15	<input type="checkbox"/>
1708873-33	CAMU-P09-GW-08152017-F	Aqueous	CAMU-P09	8/15/2017 12:40	8/15/2017 15:15	<input type="checkbox"/>
1708873-34	CAMU-MW09R-GW-08152017	Aqueous	CAMU-MW09R	8/15/2017 12:41	8/15/2017 15:15	<input type="checkbox"/>
1708873-35	CAMU-MW09R-GW-08152017-F	Aqueous	CAMU-MW09R	8/15/2017 12:41	8/15/2017 15:15	<input type="checkbox"/>