



13-Sep-2017

Kevin Stetter
U.S. Steel - Gary Works
1 North Broadway
Mail Station 70
Gary, IN 46402

Re: **USS Gary - SWD-1**

Work Order: **1709021**

Dear Kevin,

ALS Environmental received 8 samples on 01-Sep-2017 for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 39.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Amanda Grzybowski
Project Manager

Certificate No: IN: C-MI-08

Report of Laboratory Analysis

ADDRESS 3352 128th Ave Holland, Michigan 49424 | PHONE (616) 399-6070 | FAX (616) 399-6185

ALS GROUP USA, CORP Part of the ALS Laboratory Group A Campbell Brothers Limited Company

Environmental 

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

Client: U.S. Steel - Gary Works
Project: USS Gary - SWD-1
Work Order: 1709021

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>
1709021-01	RWL-3-GW-08312017	Water	RWL-3	8/31/2017 09:17	8/31/2017 12:00	<input type="checkbox"/>
1709021-02	RWL-3-GW-08312017-F	Water	RWL-3	8/31/2017 09:17	8/31/2017 12:00	<input type="checkbox"/>
1709021-03	EL-MW-4D-GW-08312017	Water	EL-MW-4D	8/31/2017 09:27	8/31/2017 12:00	<input type="checkbox"/>
1709021-04	EL-MW-4D-GW-08312017-F	Water	EL-MW-4D	8/31/2017 09:27	8/31/2017 12:00	<input type="checkbox"/>
1709021-05	EL-MW-4D-GW-08312017-FD	Water	EL-MW-4D	8/31/2017 09:27	8/31/2017 12:00	<input type="checkbox"/>
1709021-06	EL-MW-4D-GW-08312017-F-FD	Water	EL-MW-4D	8/31/2017 09:27	8/31/2017 12:00	<input type="checkbox"/>
1709021-07	RWL-4-GW-08312017	Water	RWL-4	8/31/2017 11:26	8/31/2017 12:00	<input type="checkbox"/>
1709021-08	RWL-4-GW-08312017-F	Water	RWL-4	8/31/2017 11:26	8/31/2017 12:00	<input type="checkbox"/>

Client: U.S. Steel - Gary Works
Project: USS Gary - SWD-1
Work Order: 1709021

Case Narrative

Samples for the above noted Work Order were received on 09/1/2017. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting.

With the following exceptions, all sample analyses achieved analytical criteria.

ALS Environmental
2400 Cumberland Drive
Valparaiso, IN 46383
(219) 299-8127

The following parameters were received and analyzed at the ALS Valparaiso facility under Florida NELAP certification ID# E871119:

Hexavalent Chromium by SM3500-Cr B / SW846 7196

Sample Receiving:
No deviations or anomalies were noted.

Extractable Organics:
No deviations or anomalies were noted.

Metals:
No deviations or anomalies were noted.

Wet Chemistry:
No deviations or anomalies were noted.

ALS Group USA, Corp**Date:** 13-Sep-17

CLIENT: U.S. Steel - Gary Works
Work Order: 1709021
Project: USS Gary - SWD-1
Lab ID: 1709021-01A

Client Sample ID: RWL-3-GW-08312017
Tag Number: RWL-3
Collection Date: 8/31/2017 9:17:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS			SW846 8270D		Analyst: RS	
2-Methylnaphthalene	ND	5.0		µg/L	1	9/8/2017 4:36:00 AM
Benzo(a)anthracene	ND	5.0		µg/L	1	9/8/2017 4:36:00 AM
Benzo(a)pyrene	ND	5.0		µg/L	1	9/8/2017 4:36:00 AM
Benzo(b)fluoranthene	ND	5.0		µg/L	1	9/8/2017 4:36:00 AM
Benzo(k)fluoranthene	ND	5.0		µg/L	1	9/8/2017 4:36:00 AM
Chrysene	ND	5.0		µg/L	1	9/8/2017 4:36:00 AM
Dibenzo(a,h)anthracene	ND	5.0		µg/L	1	9/8/2017 4:36:00 AM
Indeno(1,2,3-cd)pyrene	ND	5.0		µg/L	1	9/8/2017 4:36:00 AM
Naphthalene	ND	5.0		µg/L	1	9/8/2017 4:36:00 AM

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

ALS Group USA, Corp**Date:** 13-Sep-17

CLIENT: U.S. Steel - Gary Works
Work Order: 1709021
Project: USS Gary - SWD-1
Lab ID: 1709021-01B

Client Sample ID: RWL-3-GW-08312017
Tag Number: RWL-3
Collection Date: 8/31/2017 9:17:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
METALS ANALYSIS BY ICP			SW846 6010C		Analyst: RH	
Arsenic	0.016	0.0050		mg/L	1	9/9/2017 1:25:00 AM
Cobalt	ND	0.0050		mg/L	1	9/9/2017 1:25:00 AM
Iron	ND	0.080		mg/L	1	9/9/2017 1:25:00 AM
Manganese	0.011	0.0050		mg/L	1	9/9/2017 1:25:00 AM
Selenium	ND	0.010		mg/L	1	9/9/2017 1:25:00 AM
Thallium	ND	0.010		mg/L	1	9/9/2017 1:25:00 AM

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

ALS Group USA, Corp

Date: 13-Sep-17

CLIENT: U.S. Steel - Gary Works
Work Order: 1709021
Project: USS Gary - SWD-1
Lab ID: 1709021-01C

Client Sample ID: RWL-3-GW-08312017
Tag Number: RWL-3
Collection Date: 8/31/2017 9:17:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
CHROMIUM, HEXAVALENT			SW7196A			Analyst: CD
Chromium, Hexavalent	ND	0.0050		mg/L	1	8/31/2017 3:15:00 PM

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

ALS Group USA, Corp**Date:** 13-Sep-17**CLIENT:** U.S. Steel - Gary Works**Client Sample ID:** RWL-3-GW-08312017**Work Order:** 1709021**Tag Number:** RWL-3**Project:** USS Gary - SWD-1**Collection Date:** 8/31/2017 9:17:00 AM**Lab ID:** 1709021-01D**Matrix:** WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
CYANIDE, TOTAL			SW9012B			Analyst: JB
Cyanide, Total	0.045	0.0050		mg/L	1	9/7/2017 1:02:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

P - Dual Column results percent difference > 40%

E - Value above quantitation range

H - Analyzed outside of Hold Time

ALS Group USA, Corp

Date: 13-Sep-17

CLIENT: U.S. Steel - Gary Works
Work Order: 1709021
Project: USS Gary - SWD-1
Lab ID: 1709021-01E

Client Sample ID: RWL-3-GW-08312017
Tag Number: RWL-3
Collection Date: 8/31/2017 9:17:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
CYANIDE, FREE			OIA 1677			Analyst: MB
Cyanide, Free	ND	2.0		µg/L	1	9/5/2017 11:30:00 AM

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

ALS Group USA, Corp**Date:** 13-Sep-17

CLIENT: U.S. Steel - Gary Works
Work Order: 1709021
Project: USS Gary - SWD-1
Lab ID: 1709021-02A

Client Sample ID: RWL-3-GW-08312017-F
Tag Number: RWL-3
Collection Date: 8/31/2017 9:17:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
CHROMIUM, HEXAVALENT			SW7196A			Analyst: CD
Chromium, Hexavalent (dissolved)	ND	0.0050		mg/L	1	8/31/2017 3:15:00 PM

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

ALS Group USA, Corp

Date: 13-Sep-17

CLIENT: U.S. Steel - Gary Works
Work Order: 1709021
Project: USS Gary - SWD-1
Lab ID: 1709021-03A

Client Sample ID: EL-MW-4D-GW-08312017
Tag Number: EL-MW-4D
Collection Date: 8/31/2017 9:27:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS			SW846 8270D		Analyst: RS	
2-Methylnaphthalene	ND	5.0		µg/L	1	9/8/2017 4:58:00 AM
Benzo(a)anthracene	ND	5.0		µg/L	1	9/8/2017 4:58:00 AM
Benzo(a)pyrene	ND	5.0		µg/L	1	9/8/2017 4:58:00 AM
Benzo(b)fluoranthene	ND	5.0		µg/L	1	9/8/2017 4:58:00 AM
Benzo(k)fluoranthene	ND	5.0		µg/L	1	9/8/2017 4:58:00 AM
Chrysene	ND	5.0		µg/L	1	9/8/2017 4:58:00 AM
Dibenzo(a,h)anthracene	ND	5.0		µg/L	1	9/8/2017 4:58:00 AM
Indeno(1,2,3-cd)pyrene	ND	5.0		µg/L	1	9/8/2017 4:58:00 AM
Naphthalene	ND	5.0		µg/L	1	9/8/2017 4:58:00 AM

Qualifiers:
 ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 P - Dual Column results percent difference > 40%
 E - Value above quantitation range
 H - Analyzed outside of Hold Time

ALS Group USA, Corp**Date:** 13-Sep-17

CLIENT: U.S. Steel - Gary Works
Work Order: 1709021
Project: USS Gary - SWD-1
Lab ID: 1709021-03B

Client Sample ID: EL-MW-4D-GW-08312017
Tag Number: EL-MW-4D
Collection Date: 8/31/2017 9:27:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
METALS ANALYSIS BY ICP			SW846 6010C		Analyst: RH	
Arsenic	0.036	0.0050		mg/L	1	9/9/2017 1:32:00 AM
Cobalt	ND	0.0050		mg/L	1	9/9/2017 1:32:00 AM
Iron	8.4	0.080		mg/L	1	9/11/2017 8:55:19 AM
Manganese	0.17	0.0050		mg/L	1	9/9/2017 1:32:00 AM
Selenium	ND	0.010		mg/L	1	9/9/2017 1:32:00 AM
Thallium	ND	0.010		mg/L	1	9/9/2017 1:32:00 AM

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

ALS Group USA, Corp**Date:** 13-Sep-17

CLIENT: U.S. Steel - Gary Works
Work Order: 1709021
Project: USS Gary - SWD-1
Lab ID: 1709021-03C

Client Sample ID: EL-MW-4D-GW-08312017
Tag Number: EL-MW-4D
Collection Date: 8/31/2017 9:27:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
CHROMIUM, HEXAVALENT			SW7196A			Analyst: CD
Chromium, Hexavalent	ND	0.0050		mg/L	1	8/31/2017 3:15:00 PM

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

ALS Group USA, Corp**Date:** 13-Sep-17**CLIENT:** U.S. Steel - Gary Works**Client Sample ID:** EL-MW-4D-GW-08312017**Work Order:** 1709021**Tag Number:** EL-MW-4D**Project:** USS Gary - SWD-1**Collection Date:** 8/31/2017 9:27:00 AM**Lab ID:** 1709021-03D**Matrix:** WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
CYANIDE, TOTAL			SW9012B			Analyst: JB
Cyanide, Total	0.038	0.0050		mg/L	1	9/7/2017 1:02:00 PM

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

ALS Group USA, Corp**Date:** 13-Sep-17

CLIENT: U.S. Steel - Gary Works
Work Order: 1709021
Project: USS Gary - SWD-1
Lab ID: 1709021-03E

Client Sample ID: EL-MW-4D-GW-08312017
Tag Number: EL-MW-4D
Collection Date: 8/31/2017 9:27:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
CYANIDE, FREE			OIA 1677			Analyst: MB
Cyanide, Free	ND	2.0		µg/L	1	9/5/2017 11:30:00 AM

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

ALS Group USA, Corp**Date:** 13-Sep-17**CLIENT:** U.S. Steel - Gary Works**Client Sample ID:** EL-MW-4D-GW-08312017-F**Work Order:** 1709021**Tag Number:** EL-MW-4D**Project:** USS Gary - SWD-1**Collection Date:** 8/31/2017 9:27:00 AM**Lab ID:** 1709021-04A**Matrix:** WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
CHROMIUM, HEXAVALENT			SW7196A			Analyst: CD
Chromium, Hexavalent (dissolved)	ND	0.0050		mg/L	1	8/31/2017 3:15:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

S - Spike Recovery outside accepted recovery limits

J - Analyte detected below quantitation limits

P - Dual Column results percent difference > 40%

B - Analyte detected in the associated Method Blank

E - Value above quantitation range

* - Value exceeds Maximum Contaminant Level

H - Analyzed outside of Hold Time

ALS Group USA, Corp

Date: 13-Sep-17

CLIENT: U.S. Steel - Gary Works
Work Order: 1709021
Project: USS Gary - SWD-1
Lab ID: 1709021-05A

Client Sample ID: EL-MW-4D-GW-08312017-FD
Tag Number: EL-MW-4D
Collection Date: 8/31/2017 9:27:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS			SW846 8270D		Analyst: RS	
2-Methylnaphthalene	ND	5.0		µg/L	1	9/8/2017 5:21:00 AM
Benzo(a)anthracene	ND	5.0		µg/L	1	9/8/2017 5:21:00 AM
Benzo(a)pyrene	ND	5.0		µg/L	1	9/8/2017 5:21:00 AM
Benzo(b)fluoranthene	ND	5.0		µg/L	1	9/8/2017 5:21:00 AM
Benzo(k)fluoranthene	ND	5.0		µg/L	1	9/8/2017 5:21:00 AM
Chrysene	ND	5.0		µg/L	1	9/8/2017 5:21:00 AM
Dibenzo(a,h)anthracene	ND	5.0		µg/L	1	9/8/2017 5:21:00 AM
Indeno(1,2,3-cd)pyrene	ND	5.0		µg/L	1	9/8/2017 5:21:00 AM
Naphthalene	ND	5.0		µg/L	1	9/8/2017 5:21:00 AM

Qualifiers:
 ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 P - Dual Column results percent difference > 40%
 E - Value above quantitation range
 H - Analyzed outside of Hold Time

ALS Group USA, Corp

Date: 13-Sep-17

CLIENT: U.S. Steel - Gary Works
Work Order: 1709021
Project: USS Gary - SWD-1
Lab ID: 1709021-05B

Client Sample ID: EL-MW-4D-GW-08312017-FD
Tag Number: EL-MW-4D
Collection Date: 8/31/2017 9:27:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
METALS ANALYSIS BY ICP			SW846 6010C		Analyst: RH	
Arsenic	0.033	0.0050		mg/L	1	9/9/2017 1:38:00 AM
Cobalt	ND	0.0050		mg/L	1	9/9/2017 1:38:00 AM
Iron	8.8	0.080		mg/L	1	9/10/2017 7:55:00 PM
Manganese	0.17	0.0050		mg/L	1	9/9/2017 1:38:00 AM
Selenium	ND	0.010		mg/L	1	9/9/2017 1:38:00 AM
Thallium	ND	0.010		mg/L	1	9/9/2017 1:38:00 AM

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

ALS Group USA, Corp**Date:** 13-Sep-17**CLIENT:** U.S. Steel - Gary Works**Client Sample ID:** EL-MW-4D-GW-08312017-FD**Work Order:** 1709021**Tag Number:** EL-MW-4D**Project:** USS Gary - SWD-1**Collection Date:** 8/31/2017 9:27:00 AM**Lab ID:** 1709021-05C**Matrix:** WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
CHROMIUM, HEXAVALENT			SW7196A			Analyst: CD
Chromium, Hexavalent	ND	0.0050		mg/L	1	8/31/2017 3:15:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

S - Spike Recovery outside accepted recovery limits

J - Analyte detected below quantitation limits

P - Dual Column results percent difference > 40%

B - Analyte detected in the associated Method Blank

E - Value above quantitation range

* - Value exceeds Maximum Contaminant Level

H - Analyzed outside of Hold Time

ALS Group USA, Corp

Date: 13-Sep-17

CLIENT: U.S. Steel - Gary Works
Work Order: 1709021
Project: USS Gary - SWD-1
Lab ID: 1709021-05D

Client Sample ID: EL-MW-4D-GW-08312017-FD
Tag Number: EL-MW-4D
Collection Date: 8/31/2017 9:27:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
CYANIDE, TOTAL			SW9012B			Analyst: JB
Cyanide, Total	0.038	0.0050		mg/L	1	9/7/2017 1:02:00 PM

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

ALS Group USA, Corp**Date:** 13-Sep-17**CLIENT:** U.S. Steel - Gary Works**Client Sample ID:** EL-MW-4D-GW-08312017-FD**Work Order:** 1709021**Tag Number:** EL-MW-4D**Project:** USS Gary - SWD-1**Collection Date:** 8/31/2017 9:27:00 AM**Lab ID:** 1709021-05E**Matrix:** WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
CYANIDE, FREE						Analyst: MB
Cyanide, Free	ND	2.0		µg/L	1	9/5/2017 11:30:00 AM

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

ALS Group USA, Corp**Date:** 13-Sep-17**CLIENT:** U.S. Steel - Gary Works**Client Sample ID:** EL-MW-4D-GW-08312017-F-F**Work Order:** 1709021**Tag Number:** EL-MW-4D**Project:** USS Gary - SWD-1**Collection Date:** 8/31/2017 9:27:00 AM**Lab ID:** 1709021-06A**Matrix:** WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
CHROMIUM, HEXAVALENT			SW7196A			Analyst: CD
Chromium, Hexavalent (dissolved)	ND	0.0050		mg/L	1	8/31/2017 3:15:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

S - Spike Recovery outside accepted recovery limits

J - Analyte detected below quantitation limits

P - Dual Column results percent difference > 40%

B - Analyte detected in the associated Method Blank

E - Value above quantitation range

* - Value exceeds Maximum Contaminant Level

H - Analyzed outside of Hold Time

ALS Group USA, Corp

Date: 13-Sep-17

CLIENT: U.S. Steel - Gary Works
Work Order: 1709021
Project: USS Gary - SWD-1
Lab ID: 1709021-07A

Client Sample ID: RWL-4-GW-08312017
Tag Number: RWL-4
Collection Date: 8/31/2017 11:26:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS			SW846 8270D		Analyst: RS	
2-Methylnaphthalene	ND	5.0		µg/L	1	9/8/2017 5:43:00 AM
Benzo(a)anthracene	ND	5.0		µg/L	1	9/8/2017 5:43:00 AM
Benzo(a)pyrene	ND	5.0		µg/L	1	9/8/2017 5:43:00 AM
Benzo(b)fluoranthene	ND	5.0		µg/L	1	9/8/2017 5:43:00 AM
Benzo(k)fluoranthene	ND	5.0		µg/L	1	9/8/2017 5:43:00 AM
Chrysene	ND	5.0		µg/L	1	9/8/2017 5:43:00 AM
Dibenzo(a,h)anthracene	ND	5.0		µg/L	1	9/8/2017 5:43:00 AM
Indeno(1,2,3-cd)pyrene	ND	5.0		µg/L	1	9/8/2017 5:43:00 AM
Naphthalene	ND	5.0		µg/L	1	9/8/2017 5:43:00 AM

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

ALS Group USA, Corp**Date:** 13-Sep-17

CLIENT: U.S. Steel - Gary Works
Work Order: 1709021
Project: USS Gary - SWD-1
Lab ID: 1709021-07B

Client Sample ID: RWL-4-GW-08312017
Tag Number: RWL-4
Collection Date: 8/31/2017 11:26:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
METALS ANALYSIS BY ICP			SW846 6010C		Analyst: RH	
Arsenic	0.041	0.0050		mg/L	1	9/9/2017 1:45:00 AM
Cobalt	ND	0.0050		mg/L	1	9/9/2017 1:45:00 AM
Iron	0.094	0.080		mg/L	1	9/9/2017 1:45:00 AM
Manganese	0.011	0.0050		mg/L	1	9/9/2017 1:45:00 AM
Selenium	ND	0.010		mg/L	1	9/9/2017 1:45:00 AM
Thallium	ND	0.010		mg/L	1	9/9/2017 1:45:00 AM

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

ALS Group USA, Corp**Date:** 13-Sep-17

CLIENT: U.S. Steel - Gary Works
Work Order: 1709021
Project: USS Gary - SWD-1
Lab ID: 1709021-07C

Client Sample ID: RWL-4-GW-08312017
Tag Number: RWL-4
Collection Date: 8/31/2017 11:26:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
CHROMIUM, HEXAVALENT			SW7196A			Analyst: CD
Chromium, Hexavalent	ND	0.0050		mg/L	1	8/31/2017 3:15:00 PM

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

ALS Group USA, Corp

Date: 13-Sep-17

CLIENT: U.S. Steel - Gary Works
Work Order: 1709021
Project: USS Gary - SWD-1
Lab ID: 1709021-07D

Client Sample ID: RWL-4-GW-08312017
Tag Number: RWL-4
Collection Date: 8/31/2017 11:26:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
CYANIDE, TOTAL			SW9012B			Analyst: JB
Cyanide, Total	0.075	0.0050		mg/L	1	9/7/2017 1:02:00 PM

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

ALS Group USA, Corp**Date:** 13-Sep-17

CLIENT: U.S. Steel - Gary Works
Work Order: 1709021
Project: USS Gary - SWD-1
Lab ID: 1709021-07E

Client Sample ID: RWL-4-GW-08312017
Tag Number: RWL-4
Collection Date: 8/31/2017 11:26:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
CYANIDE, FREE			OIA 1677			Analyst: MB
Cyanide, Free	ND	2.0		µg/L	1	9/5/2017 11:30:00 AM

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
P - Dual Column results percent difference > 40%
E - Value above quantitation range
H - Analyzed outside of Hold Time

ALS Group USA, Corp**Date:** 13-Sep-17

CLIENT: U.S. Steel - Gary Works
Work Order: 1709021
Project: USS Gary - SWD-1
Lab ID: 1709021-08A

Client Sample ID: RWL-4-GW-08312017-F
Tag Number: RWL-4
Collection Date: 8/31/2017 11:26:00 AM
Matrix: WATER

Analyses	Result	Report Limit	Qual	Units	Dilution Factor	Date Analyzed
CHROMIUM, HEXAVALENT			SW7196A			Analyst: CD
Chromium, Hexavalent (dissolved)	ND	0.0050		mg/L	1	8/31/2017 3:15:00 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

P - Dual Column results percent difference > 40%

E - Value above quantitation range

H - Analyzed outside of Hold Time

Client: U.S. Steel - Gary Works
Project: USS Gary - SWD-1
WorkOrder: 1709021

QUALIFIERS, ACRONYMS, UNITS

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte is present at an estimated concentration between the MDL and Report Limit
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

<u>Units Reported</u>	<u>Description</u>
µg/L	Micrograms per Liter
mg/L	Milligrams per Liter

Client: U.S. Steel - Gary Works
Work Order: 1709021
Project: USS Gary - SWD-1

QC BATCH REPORTBatch ID: **107124**Instrument ID **ICP2**Method: **SW846 6010C**

MBLK Sample ID: MBLK-107124-107124					Units: mg/L		Analysis Date: 9/9/2017 12:21 AM				
Client ID:		Run ID: ICP2_170908B			SeqNo: 4631178		Prep Date: 9/8/2017		DF: 1		
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	ND	0.0016	0.0050								
Cobalt	ND	0.00042	0.0050								
Iron	ND	0.0078	0.080								
Manganese	ND	0.00017	0.0050								
Selenium	ND	0.0032	0.010								
Thallium	ND	0.0011	0.010								

LCS Sample ID: LCS-107124-107124					Units: mg/L		Analysis Date: 9/9/2017 12:28 AM				
Client ID:		Run ID: ICP2_170908B			SeqNo: 4631179		Prep Date: 9/8/2017		DF: 1		
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.09389	0.0016	0.0050	0.1	0	93.9	80-120	0			
Cobalt	0.09729	0.00042	0.0050	0.1	0	97.3	80-120	0			
Manganese	0.09319	0.00017	0.0050	0.1	0	93.2	80-120	0			
Selenium	0.09126	0.0032	0.010	0.1	0	91.3	80-120	0			
Thallium	0.104	0.0011	0.010	0.1	0	104	80-120	0			

LCS Sample ID: LCS-107124-107124					Units: mg/L		Analysis Date: 9/10/2017 07:04 PM				
Client ID:		Run ID: ICP2_170910A			SeqNo: 4631399		Prep Date: 9/8/2017		DF: 1		
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Iron	9.58	0.0078	0.080	10	0	95.8	80-120	0			

MS Sample ID: 17081680-34CMS					Units: mg/L		Analysis Date: 9/9/2017 01:06 AM				
Client ID:		Run ID: ICP2_170908B			SeqNo: 4631185		Prep Date: 9/8/2017		DF: 1		
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.2031	0.0016	0.0050	0.1	0.09482	108	75-125	0			
Cobalt	0.09997	0.00042	0.0050	0.1	0.0002811	99.7	75-125	0			
Thallium	0.1027	0.0011	0.010	0.1	-0.0006365	103	75-125	0			

MS Sample ID: 17081680-34CMS					Units: mg/L		Analysis Date: 9/10/2017 07:36 PM				
Client ID:		Run ID: ICP2_170910A			SeqNo: 4631404		Prep Date: 9/8/2017		DF: 1		
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Iron	16.25	0.0078	0.080	10	6.734	95.2	75-125	0			
Manganese	0.3382	0.00017	0.0050	0.1	0.2464	91.8	75-125	0			
Selenium	0.09578	0.0032	0.010	0.1	0.001515	94.3	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: U.S. Steel - Gary Works
 Work Order: 1709021
 Project: USS Gary - SWD-1

QC BATCH REPORT

Batch ID: 107124 Instrument ID ICP2 Method: SW846 6010C

MSD					Sample ID: 17081680-34CMSD			Units: mg/L		Analysis Date: 9/9/2017 01:12 AM	
Client ID:					Run ID: ICP2_170908B			SeqNo: 4631186		Prep Date: 9/8/2017	
										DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.2007	0.0016	0.0050	0.1	0.09482	106	75-125	0.2031	1.17	20	
Cobalt	0.09865	0.00042	0.0050	0.1	0.0002811	98.4	75-125	0.09997	1.34	20	
Thallium	0.1009	0.0011	0.010	0.1	-0.0006365	102	75-125	0.1027	1.78	20	

MSD					Sample ID: 17081680-34CMSD			Units: mg/L		Analysis Date: 9/11/2017 08:49 AM	
Client ID:					Run ID: ICP2_170910A			SeqNo: 4632131		Prep Date: 9/8/2017	
										DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Iron	14.39	0.0078	0.080	10	6.734	76.6	75-125	16.25	12.2	20	
Manganese	0.3405	0.00017	0.0050	0.1	0.2464	94.1	75-125	0.3382	0.664	20	
Selenium	0.09203	0.0032	0.010	0.1	0.001515	90.5	75-125	0.09578	3.99	20	

The following samples were analyzed in this batch:

1709021-01B	1709021-03B	1709021-05B
1709021-07B		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: U.S. Steel - Gary Works
 Work Order: 1709021
 Project: USS Gary - SWD-1

QC BATCH REPORT

Batch ID: **107028** Instrument ID **SVMS5** Method: **SW846 8270D**

MBLK		Sample ID: SBLKW1-107028-107028				Units: µg/L		Analysis Date: 9/7/2017 04:11 PM			
Client ID:		Run ID: SVMS5_170907A				SeqNo: 4630279		Prep Date: 9/7/2017		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	0.065	5.0								
Benzo(a)anthracene	ND	0.022	5.0								
Benzo(a)pyrene	ND	0.044	5.0								
Benzo(b)fluoranthene	ND	0.051	5.0								
Benzo(k)fluoranthene	ND	0.048	5.0								
Chrysene	ND	0.048	5.0								
Dibenzo(a,h)anthracene	ND	0.03	5.0								
Indeno(1,2,3-cd)pyrene	ND	0.067	5.0								
Naphthalene	ND	0.067	5.0								
<i>Surr: 2,4,6-Tribromophenol</i>	28.35	0	0	50	0	56.7	32-92	0			
<i>Surr: 2-Fluorobiphenyl</i>	31.5	0	0	50	0	63	34-98	0			
<i>Surr: 2-Fluorophenol</i>	17.26	0	0	50	0	34.5	23-55	0			
<i>Surr: 4-Terphenyl-d14</i>	44.47	0	0	50	0	88.9	50-111	0			
<i>Surr: Nitrobenzene-d5</i>	32.59	0	0	50	0	65.2	32-89	0			
<i>Surr: Phenol-d6</i>	10.07	0	0	50	0	20.1	10-35	0			

LCS		Sample ID: SLCSW1-107028-107028				Units: µg/L		Analysis Date: 9/7/2017 04:33 PM			
Client ID:		Run ID: SVMS5_170907A				SeqNo: 4630280		Prep Date: 9/7/2017		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	13.25	0.065	5.0	20	0	66.2	37-99	0			
Benzo(a)anthracene	15.31	0.022	5.0	20	0	76.6	56-109	0			
Benzo(a)pyrene	14.7	0.044	5.0	20	0	73.5	55-112	0			
Benzo(b)fluoranthene	15.27	0.051	5.0	20	0	76.4	54-114	0			
Benzo(k)fluoranthene	15.9	0.048	5.0	20	0	79.5	57-112	0			
Chrysene	16.24	0.048	5.0	20	0	81.2	59-108	0			
Dibenzo(a,h)anthracene	14.69	0.03	5.0	20	0	73.4	55-113	0			
Indeno(1,2,3-cd)pyrene	14.18	0.067	5.0	20	0	70.9	52-117	0			
Naphthalene	12.4	0.067	5.0	20	0	62	34-95	0			
<i>Surr: 2,4,6-Tribromophenol</i>	32.19	0	0	50	0	64.4	32-92	0			
<i>Surr: 2-Fluorobiphenyl</i>	32.23	0	0	50	0	64.5	34-98	0			
<i>Surr: 2-Fluorophenol</i>	16.82	0	0	50	0	33.6	23-55	0			
<i>Surr: 4-Terphenyl-d14</i>	41.25	0	0	50	0	82.5	50-111	0			
<i>Surr: Nitrobenzene-d5</i>	30.87	0	0	50	0	61.7	32-89	0			
<i>Surr: Phenol-d6</i>	10.46	0	0	50	0	20.9	10-35	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: U.S. Steel - Gary Works
 Work Order: 1709021
 Project: USS Gary - SWD-1

QC BATCH REPORT

Batch ID: **107028** Instrument ID **SVMS5** Method: **SW846 8270D**

MS					Units: µg/L			Analysis Date: 9/7/2017 07:33 PM			
Client ID:		Run ID: SVMS5_170907A			SeqNo: 4630281		Prep Date: 9/7/2017		DF: 1		
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	12.18	0.065	5.0	20	0	60.9	37-99	0			
Benzo(a)anthracene	14.5	0.022	5.0	20	0	72.5	56-109	0			
Benzo(a)pyrene	13.65	0.044	5.0	20	0	68.2	55-112	0			
Benzo(b)fluoranthene	14.62	0.051	5.0	20	0	73.1	54-114	0			
Benzo(k)fluoranthene	14.36	0.048	5.0	20	0	71.8	57-112	0			
Chrysene	15.22	0.048	5.0	20	0	76.1	59-108	0			
Dibenzo(a,h)anthracene	13.64	0.03	5.0	20	0	68.2	55-113	0			
Indeno(1,2,3-cd)pyrene	13.32	0.067	5.0	20	0	66.6	52-117	0			
Naphthalene	11.58	0.067	5.0	20	0	57.9	34-95	0			
Surr: 2,4,6-Tribromophenol	3.95	0	0	50	0	7.9	32-92	0			S
Surr: 2-Fluorobiphenyl	29.15	0	0	50	0	58.3	34-98	0			
Surr: 2-Fluorophenol	3.5	0	0	50	0	7	23-55	0			S
Surr: 4-Terphenyl-d14	37.55	0	0	50	0	75.1	50-111	0			
Surr: Nitrobenzene-d5	27.88	0	0	50	0	55.8	32-89	0			
Surr: Phenol-d6	0.85	0	0	50	0	1.7	10-35	0			S

DUP					Units: µg/L			Analysis Date: 9/7/2017 08:41 PM			
Client ID:		Run ID: SVMS5_170907A			SeqNo: 4630284		Prep Date: 9/7/2017		DF: 1		
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2-Methylnaphthalene	ND	0.065	5.0	0	0	0	0-0	0	0	30	
Benzo(a)anthracene	ND	0.022	5.0	0	0	0	0-0	0	0	30	
Benzo(a)pyrene	ND	0.044	5.0	0	0	0	0-0	0	0	30	
Benzo(b)fluoranthene	ND	0.051	5.0	0	0	0	0-0	0	0	30	
Benzo(k)fluoranthene	ND	0.048	5.0	0	0	0	0-0	0	0	30	
Chrysene	ND	0.048	5.0	0	0	0	0-0	0	0	30	
Dibenzo(a,h)anthracene	ND	0.03	5.0	0	0	0	0-0	0	0	30	
Indeno(1,2,3-cd)pyrene	ND	0.067	5.0	0	0	0	0-0	0	0	30	
Naphthalene	ND	0.067	5.0	0	0	0	0-0	0	0	30	
Surr: 2,4,6-Tribromophenol	23.44	0	0	50	0	46.9	32-92	23.81	1.57	40	
Surr: 2-Fluorobiphenyl	23.46	0	0	50	0	46.9	34-98	23.4	0.256	40	
Surr: 2-Fluorophenol	10.09	0	0	50	0	20.2	23-55	10.19	0.986	40	S
Surr: 4-Terphenyl-d14	33.55	0	0	50	0	67.1	50-111	33.07	1.44	40	
Surr: Nitrobenzene-d5	21.3	0	0	50	0	42.6	32-89	21.13	0.801	40	
Surr: Phenol-d6	5.66	0	0	50	0	11.3	10-35	5.63	0.531	40	

The following samples were analyzed in this batch:

1709021-01A	1709021-03A	1709021-05A
1709021-07A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: U.S. Steel - Gary Works
 Work Order: 1709021
 Project: USS Gary - SWD-1

QC BATCH REPORT

Batch ID: **R219187** Instrument ID **VAL-WC** Method: **SW7196A**

MBLK		Sample ID: MB-R219187-R219187				Units: mg/L		Analysis Date: 8/31/2017 03:15 PM			
Client ID:		Run ID: VAL-WC_170831C				SeqNo: 4619062		Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	ND	0.002	0.0050								

MBLK		Sample ID: MB-R219187-R219187				Units: mg/L		Analysis Date: 8/31/2017 03:15 PM			
Client ID:		Run ID: VAL-WC_170831C				SeqNo: 4619075		Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent (dissol	ND	0.002	0.0050								

LCS		Sample ID: LCS-R219187-R219187				Units: mg/L		Analysis Date: 8/31/2017 03:15 PM			
Client ID:		Run ID: VAL-WC_170831C				SeqNo: 4619063		Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	0.1972	0.002	0.0050	0.2	0	98.6	85-115	0			

LCS		Sample ID: LCS-R219187-R219187				Units: mg/L		Analysis Date: 8/31/2017 03:15 PM			
Client ID:		Run ID: VAL-WC_170831C				SeqNo: 4619076		Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent (dissol	0.1972	0.002	0.0050	0.2	0	98.6	85-115	0			

MS		Sample ID: 1709021-01C MS				Units: mg/L		Analysis Date: 8/31/2017 03:15 PM			
Client ID: RWL-3-GW-08312017		Run ID: VAL-WC_170831C				SeqNo: 4619068		Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	0.1875	0.002	0.0050	0.2	0.0007	93.4	85-115	0			

MS		Sample ID: 1709021-02A MS				Units: mg/L		Analysis Date: 8/31/2017 03:15 PM			
Client ID: RWL-3-GW-08312017-F		Run ID: VAL-WC_170831C				SeqNo: 4619112		Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent (dissol	0.1875	0.002	0.0050	0.2	-0.0005	94	85-115	0			

MSD		Sample ID: 1709021-01C MSD				Units: mg/L		Analysis Date: 8/31/2017 03:15 PM			
Client ID: RWL-3-GW-08312017		Run ID: VAL-WC_170831C				SeqNo: 4619069		Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	0.1839	0.002	0.0050	0.2	0.0007	91.6	85-115	0.1875	1.94	20	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: U.S. Steel - Gary Works
Work Order: 1709021
Project: USS Gary - SWD-1

QC BATCH REPORT

Batch ID: **R219187** Instrument ID **VAL-WC** Method: **SW7196A**

MSD		Sample ID: 1709021-02A MSD				Units: mg/L		Analysis Date: 8/31/2017 03:15 PM			
Client ID: RWL-3-GW-08312017-F		Run ID: VAL-WC_170831C				SeqNo: 4619114		Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent (dissol	0.1839	0.002	0.0050	0.2	-0.0005	92.2	85-115	0.1875	1.94	20	

The following samples were analyzed in this batch:

1709021-01C	1709021-02A	1709021-03C
1709021-04A	1709021-05C	1709021-06A
1709021-07C	1709021-08A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: U.S. Steel - Gary Works
 Work Order: 1709021
 Project: USS Gary - SWD-1

QC BATCH REPORT

Batch ID: **107082** Instrument ID **LACHAT** Method: **E335.4 R1.0**

MBLK		Sample ID: MBLK-107082-107082				Units: mg/L		Analysis Date: 9/7/2017 01:02 PM			
Client ID:		Run ID: LACHAT_170907E				SeqNo: 4627655		Prep Date: 9/7/2017		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	ND	0.002	0.0050								

MBLK		Sample ID: MBLK-107082-107082				Units: mg/L		Analysis Date: 9/7/2017 01:02 PM			
Client ID:		Run ID: LACHAT_170907E				SeqNo: 4627690		Prep Date: 9/7/2017		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	ND	0.002	0.0050								

LCS		Sample ID: LCS-107082-107082				Units: mg/L		Analysis Date: 9/7/2017 01:02 PM			
Client ID:		Run ID: LACHAT_170907E				SeqNo: 4627656		Prep Date: 9/7/2017		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.2477	0.002	0.0050	0.25	0	99.1	90-110	0			

LCS		Sample ID: LCS-107082-107082				Units: mg/L		Analysis Date: 9/7/2017 01:02 PM			
Client ID:		Run ID: LACHAT_170907E				SeqNo: 4627691		Prep Date: 9/7/2017		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.2477	0.002	0.0050	0.25	0	99.1	90-111	0			

MS		Sample ID: 1709093-01A MS				Units: mg/L		Analysis Date: 9/7/2017 01:02 PM			
Client ID:		Run ID: LACHAT_170907E				SeqNo: 4627658		Prep Date: 9/7/2017		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.2509	0.002	0.0050	0.25	-0.0006047	101	90-110	0			

MSD		Sample ID: 1709093-01A MSD				Units: mg/L		Analysis Date: 9/7/2017 01:02 PM			
Client ID:		Run ID: LACHAT_170907E				SeqNo: 4627659		Prep Date: 9/7/2017		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	0.2376	0.002	0.0050	0.25	-0.0006047	95.3	90-110	0.2509	5.45	12	

MSD		Sample ID: 1709268-09C MSD				Units: mg/L		Analysis Date: 9/7/2017 01:02 PM			
Client ID:		Run ID: LACHAT_170907E				SeqNo: 4627664		Prep Date: 9/7/2017		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Total	2.202	0.02	0.050	2.5	0.005189	87.9	90-110	2.633	17.8	12	SR

The following samples were analyzed in this batch:

1709021-01D	1709021-03D	1709021-05D
1709021-07D		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: U.S. Steel - Gary Works
 Work Order: 1709021
 Project: USS Gary - SWD-1

QC BATCH REPORT

Batch ID: **R219312** Instrument ID **FS3100** Method: **OIA 1677**

MBLK		Sample ID: MB-R219312-R219312				Units: µg/L		Analysis Date: 9/5/2017 11:30 AM			
Client ID:		Run ID: FS3100_170905C				SeqNo: 4622315		Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Free	ND	1.2	2.0								

LCS		Sample ID: LCS-R219312-R219312				Units: µg/L		Analysis Date: 9/5/2017 11:30 AM			
Client ID:		Run ID: FS3100_170905C				SeqNo: 4622316		Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Free	47.21	1.2	2.0	50	0	94.4	82-132	0			

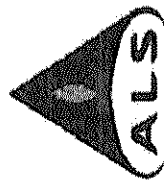
MS		Sample ID: 1709021-01E MS				Units: µg/L		Analysis Date: 9/5/2017 11:30 AM			
Client ID: RWL-3-GW-08312017		Run ID: FS3100_170905C				SeqNo: 4622318		Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Free	49.53	1.2	2.0	50	0.51	98	82-130	0			

MSD		Sample ID: 1709021-01E MSD				Units: µg/L		Analysis Date: 9/5/2017 11:30 AM			
Client ID: RWL-3-GW-08312017		Run ID: FS3100_170905C				SeqNo: 4622319		Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Free	51.22	1.2	2.0	50	0.51	101	82-130	49.53	3.35	11	

The following samples were analyzed in this batch:

1709021-01E	1709021-03E	1709021-05E
1709021-07E		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.



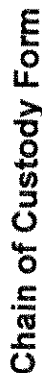
Chain of Custody Form

Page 1 of 2

ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

19709021

Customer Information		ALS Project Manager		Amends G		ALS Work Order #												
Project Information		Project Name		Project Number		Parameter/Method Request for Analysis												
Purchase Order	Project Name	USS SWD-1 3Q2017	A	8270D SVOC														
Work Order	Project Number		B	6010 Metals (As, Co, Fe, Mn, Se, Ti)														
Company Name	Bill To Company	US Steel Corporation	C	7196 Hexavalent Chromium, Total														
Send Report To	Invoice Attn.	Accounts Payable	D	9012 Total Cyanide														
Address	Penn Liberty Plaza 1	PO Box 267	E	1677 Free Cyanide														
City/State/Zip	1350 Penn Ave. Suite 200		F	7196 Hexavalent Chromium, Dissolved														
Phone	Gary, IN	Pittsburgh, PA 15230	G															
Fax	Pittsburgh, PA 15222		H															
e-Mail Address	mmaxwell@wcgrp.com, rsichnoth@wcgrp.com, sbonola@wcgrp.com		I															
Comments			J															
			K															
			L															
No.	Sample Description	Date	Time	Matrix	Pres. Key Numbers	# Bottles	A	B	C	D	E	F	G	H	I	J	K	L
1	RWL-3-GW-08312017	8-31-17	0917	AQ	8,2,4	6	X	X	X	X	X	X	X	X	X	X	X	X
2	RWL-3-GW-08312017	-F	0917	AQ	8	1						X						
3	EL-MW-4D-GW-08312017		0927	AQ	8,2,4	6	X	X	X	X	X	X	X	X	X	X	X	X
4	EL-MW-4D-GW-08312017	-F	0927	AQ	8	1						X						
5	EL-MW-4D-GW-08312017	-FD	0927	AQ	8,2,4	6	X	X	X	X	X	X	X	X	X	X	X	X
6	EL-MW-4D-GW-08312017	-F	0927	AQ	8	1						X						
7	EL-MW-4D-GW-08312017	-FD	0927	AQ	8,2,4	6	X	X	X	X	X	X	X	X	X	X	X	X
8	EL-MW-4D-GW-08312017	-F	0927	AQ	8	1						X						
9																		
10																		
Samples: Please Print & Sign		Shipment Method:		Required Turnaround Time (Check Box)		Results Due Date												
High Source (Long Term)				10 Wk Days 5 Wk Days 3 Wk Days 2 Wk Days 1 Wk Days 3-4 Hour														
Relinquished By:	Date:	Time:	Received By:	Date:	Time:	Notes:												
Arcie Bourne	8-31-17	1200	Blitz	8-31-17	1200	Rec'd 9/11/17 1330 222L												
Relinquished By:	Date:	Time:	Received By:	Date:	Time:	QC Package (Check Box Below)												
Paul Z	8-31-17	1330	gHueo	8/31/17	1330	Level II: Standard QC Level III: Raw Data Level IV: TRRP Level IV												
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):	Date:	Time:	Level IV: SW846 Methods/CLP like Other:												
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-NaHSO ₄ 7-Other		8-4°C		Note: Any changes must be made in writing once samples and COC Form have been submitted to ALS Laboratory Group.														



ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

Page 2 of 2

1709021

Customer Information			Project Information			ALS Project Manager		ALS Work Order #		Parameter/Method Request for Analysis								
Purchase Order	Company Name	Address	Project Name	Project Number	Bill To Company	Invoice Attn	Address	City/State/Zip	Phone	Fax								
	USS Gary Works		USS SWD-1 302017		US Steel Corporation	Accounts Payable												
	Send Report To	Kevin Stetter				PO Box 267												
	Address	Penn Liberty Plaza 1																
	City/State/Zip	1350 Penn Ave, Suite 200																
	Phone	Gary, IN																
	Fax	Pittsburgh, PA 15222																
	e-Mail Address	imaxwell@wcgrp.com, rstichnoth@wcgrp.com, sbonola@wcgrp.com																
	Comments																	
No.	Sample Description	Date	Time	Matrix	Pres. Key Numbers	# Bottles	A	B	C	D	E	F	G	H	I	J	K	L
1	RWL-4-GW-03312017	8-31-17	1200	AQ	824	6	X	X	X	X	X							
2	RWL-4-GW-03312017	8-31-17	260	AQ	8	1						X						
3	RWL-4D-GW			AQ	824	6	X	X	X	X	X							
4	RWL-4D-GW			AQ	8	1						X						
5																		
6																		
7																		
8																		
9																		
10																		
Shipments: Please Print & Sign			Shipment Method:			Required Turnaround Time (Check Box)			Results Due Date									
A. For Laboratory Use Only						<input type="checkbox"/> 30 Wk Days <input type="checkbox"/> 5 Wk Days <input type="checkbox"/> 3 Wk Days <input type="checkbox"/> 2 Wk Days <input type="checkbox"/> 24 Hour <input type="checkbox"/> Other			<input type="checkbox"/> Level I: Raw Data <input type="checkbox"/> Level II: Standard QC <input type="checkbox"/> TRRP Level I <input type="checkbox"/> Level IV: SW846 Methods/CLP like <input type="checkbox"/> Other:									
Relinquished by:			Received by:			Date:			Time:									
Annie Bane			B. J. J.			8/31/17			200									
Relinquished by:			Received by:			Date:			Time:									
B. J. J.			D. H. H.			8/31/17			1330									
Logged by (Laboratory):			Checked by (Laboratory):			Date:			Time:									
Preservative Key: 1-HCI 2-HNO 3-H2SO 4-NaOH 5-Na2CO 6-NaClO 7-Na2S 8-Na2SO 9-Na2S2O 10-Na2S2O3																		

Copyright 2007 by ALS Laboratory Group

Note: Any changes must be made in writing once samples and COC Form have been submitted to ALS Laboratory Group.

Sample Receipt Checklist

Client Name: **USS-GARY**

Date/Time Received: **01-Sep-17 00:00**

Work Order: **1709021**

Received by: **BRF**

Checklist completed by Diane Shaw
eSignature

01-Sep-17
Date

Reviewed by: Amanda Przybowski
eSignature

01-Sep-17
Date

Matrices: **Aqueous**

Carrier name: **ALSHN**

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample(s) received on ice?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temperature(s)/Thermometer(s):	<u>5.0</u>		
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	<u>8/31/17 12:00</u>		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>
pH adjusted by:			

Login Notes: **Holland - 3.2/3.2 c SR2**

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction: