SDG COVER PAGE

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D00

SOW No.: ISM02.3

EPA Sample No.	Lab Sample ID	Analysis Method ICP-AES	ICP-MS	Mercury	Cyanide
MF1D00	1620331001				X
MF1D01	1620331002				X
MF1D02	1620331003				X
MF1D02D	1620331005				X
MF1D02S	1620331004				X
MF1D03	1620331006				X
MF1D04	1620331007				X
MF1D06	1620331008				X
MF1D07	1620331009				X
MF1D08	1620331010				X
MF1D09	1620331011				X
MF1D10	1620331012				X
MF1D11	1620331013				X

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the SDG Narrative. Release of the data contained in this hardcopy data package and in the electronic data submitted has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: /S/ Roxanne Olson Name: Roxanne Olson

Date: 08/03/2016 Title: Project Manager

(/S/ is an electronic signature that complies with 21 CFR Part 11)

9923518

56 001

Sample Delivery Group (SDG)
Cover Sheet

SDG Number: MF1D00

☐ ICPAES ☐ ICPMS ☐ HG ☒ CN

Laboratory Name: ALS Laboratory Group (SLC)

Laboratory Code: ALS

Contract No.: EPW14027

Case No.: 46321

Analysis Price: N/A

SDG Turnaround: 21

Modified Analysis Requested: NO

Program: ISM02.3

Modification Reference No.: N/A

EPA Sample Numbers in SDG (Listed in Numerical Order)

1) MF1D00	7) MF1D07	13)	19)
2) MF1D01	8) MF1D08	14)	20)
3) MF1D02	9) MF1D09	15)	21)
4) MF1D03	10) MF1D10	16)	22)
5) MF1D04	11) MF1D11	17)	23)
6) MF1D06	12)	18)	24)

MF1D00	MF1D11
First Sample in SDG	Last Sample in SDG
07/21/16	07/21/16
First Sample Receipt Date	Last Sample Receipt Date

Note: *There are a maximum of 20 field samples (excluding PE samples) in an SDG. Attach the TR/COC records to this form in alphanumeric order (the order listed above on this form).*

Signature: /S/ Roxanne Olson

Date: 7/21/2016 10:26:33 AM

(/S/ is an electronic signature that complies with 21 CFR Part 11)

EPA Sample Receipt

Client: U. S. EPA Region 6 **Contract:** EPW14027 **Case: 46321** **SDG: MF1D00** **Mod:** None

Due to Client: Thu, Aug 11, 2016 **TAT:** 21 **Date Reported:** Not Reported **Status: CLOSED**

Workorder Information **Program:** ISM02.3 **Region:** 6 **EDD Level:** 3

Work Order	Received	PR	Fractions
1620331	07/21/16 8:56 AM	No	Cyanide

Sample Information

Lab ID	Client ID	Type	Matrix	ICPAES	ICPMS	HG	CN
1620331001	MF1D00	SAMPLE	Soil[S]	☐	☐	☐	X
1620331002	MF1D01	SAMPLE	Soil[S]	☐	☐	☐	X
1620331003	MF1D02	SAMPLE	Soil[S]	☐	☐	☐	X
1620331005	MF1D02D	MD	Soil[S]	☐	☐	☐	X
1620331004	MF1D02S	MS	Soil	☐	☐	☐	X
1620331006	MF1D03	SAMPLE	Soil[S]	☐	☐	☐	X
1620331007	MF1D04	SAMPLE	Soil[S]	☐	☐	☐	X
1620331008	MF1D06	SAMPLE	Soil[S]	☐	☐	☐	X
1620331009	MF1D07	SAMPLE	Soil[S]	☐	☐	☐	X
1620331010	MF1D08	SAMPLE	Soil[S]	☐	☐	☐	X
1620331011	MF1D09	SAMPLE	Soil[S]	☐	☐	☐	X
1620331012	MF1D10	SAMPLE	Soil[S]	☐	☐	☐	X
1620331013	MF1D11	SAMPLE	Soil[S]	☐	☐	☐	X

Field Samples: 11 **MS: 1** **MSD:** 0 **MD: 1** **PE:** 0

Report Parameters = SDG:MF1D00 Case:<NULL> Region:<NULL>
Mod:<NULL> Workorder:<NULL> BeginDate:<NULL> EndDate:<NULL>
OpenSummary:No SortBy:Case

1620331

USEPA CLP COC (LAB COPY)

DateShipped: 7/18/2016
CarrierName: FedEx
AirbillNo: 810257801911

CHAIN OF CUSTODY RECORD

MF 1D00

Case #: 46321
Cooler #: 1

No: 6-072016-154639-0005

Lab: ALS Laboratory Group - Salt Lake City
Lab Contact: Meredith Edwards
Lab Phone: 801-266-7700

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
MF1D00	MF1D00	Soil/ Stephen Ellis	Grab	CN(21)	1001 (None) (1)	SO-01	07/20/2016 14:15	
MF1D01	MF1D01	Soil/ Stephen Ellis	Grab	CN(21)	1003 (None) (1)	SO-02	07/20/2016 14:30	
MF1D02	MF1D02	Soil/ Bret Kendrick	Grab	CN(21)	1005 (None) (1)	SO-03	07/20/2016 10:35	
MF1D03	MF1D03	Soil/ Bret Kendrick	Grab	CN(21)	1007 (None) (1)	SO-04	07/20/2016 10:55	
MF1D04	MF1D04	Soil/ Bret Kendrick	Grab	CN(21)	1009 (None) (1)	SO-05	07/20/2016 11:10	
MF1D06	MF1D06	Soil/ Stephen Ellis	Grab	CN(21)	1013 (None) (1)	SO-07	07/20/2016 09:15	
MF1D07	MF1D07	Soil/ Bret Kendrick	Grab	CN(21)	1015 (None) (1)	SO-08	07/20/2016 10:40	
MF1D08	MF1D08	Sediment/ Stephen Ellis	Grab	CN(21)	1017 (None) (1)	SE-01	07/20/2016 12:20	
MF1D09	MF1D09	Sediment/ Stephen Ellis	Grab	CN(21)	1019 (None) (1)	SE-02	07/20/2016 14:40	
MF1D10	MF1D10	Sediment/ Stephen Ellis	Grab	CN(21)	1021 (None) (1)	SE-03	07/20/2016 09:45	
MF1D11	MF1D11	Sediment/ Stephen Ellis	Grab	CN(21)	1023 (None) (1)	SE-04	07/20/2016 09:30	

Sample(s) to be used for Lab QC: MF1D02 Tag 1005 - Special Instructions: Samples MF1D02, MF1D03, MF1D04, and MF1D07 may have high concentrations.

Shipment for Case Complete? N

Samples Transferred From Chain of Custody #

Analysis Key: CN=CLP Cyanide

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	Adrienne Rose	7/20/16 16:00	Meredith Edwards DATAC	7/21/2016 8:24	good

56 004

SAMPLE LOG-IN SHEET
FORM DC-1

Lab Name ALS Environmental	Page 1 of 1
Received By (Print Name) Meredith Edwards	Log-In Date 7/21/2016
Received By (Signature) Meredith Edwards	
Case Number 46321	Sample Delivery Group No. MF1D00
Mod. Ref. No. N/A	

Remarks:

1. Custody Seal (s) — Present/Absent* (Present); Intact/Broken* (Intact)
2. Custody Seal Nos. — N/A; 1
3. Traffic Report/ Chain-of Custody Records or Packing Lists — Present/Absent* (Present)
4. Airbill — Airbill/Sticker Present/Absent* (Present)
5. Airbill No. — 8102 5780 1911; N/A
6. Sample Tags — Present/Absent* (Present); Sample Tag Numbers — Listed/Not Listed on Chain-of-Custody (Listed)
7. Sample Condition — Intact/Broken*/Leaking* (Intact)
8. Cooler Temperature Indicator Bottle — Present/Absent* (Present)
9. Cooler Temperature — 7°
10. Does information on TR/COCs and sample tags agree? — Yes/No* (Yes)
11. Date Received at Laboratory — 7/21/2016
12. Time Received — 8:26

	EPA Sample #	Aqueous/ Water Sample pH	Corresponding Sample Tag #	Corresponding Assigned Lab #	Remarks: Condition of Sample Shipment, etc.
1	MF1D00	N/A	N/A	1602331 001	CN Soil
2	01			002	
3	02			003, 004, 005	CNS/MP
4	03			006	
5	04			007	
6	06			008	
7	07			009	
8	08			010	
9	09			ME 7/21/16 011 012	Tmlfg but should be for CN
10	10			013 012	CN Soil
11	11			013	
12	27	>12			CN water
13	29				
14	30				
15					
16			ME 7/21/2016		
17					
18					
19					
20					
21					
22					

Sample Transfer

Fraction	Fraction
CN	ME 7/21/2016
Area # R331	Area #
By ME	By
On 7/21/2016	On

* Contact SMO and attach record of resolution

Reviewed By Roxanne Olsen	Logbook No. Not Applicable
Date 7/21/16	Logbook Page No. Not Applicable

FORM DC-2

FULL INORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET

LAB NAME	ALS Environmental		
LAB CODE	ALS		
CONTRACT NO.	EPW14027		
CASE NO.	46321	SDG NO.	MFID00
MA No.	N/A		
SOW NO.	ISM02.3		

All documents delivered in the Complete SDG File must be original documents where possible. (Reference - Exhibit B Section 2.4)

		PAGE NOs FROM	PAGE NOs TO	CHECK LAB	CHECK REGION
1.	Cover Page	1	1	✓	
2.	Traffic Report/Chain of Custody Record(s)	2	4	✓	
3.	Sample Log-In Sheet (DC-1)	5	5	✓	
4.	Inventory Sheet (DC-2)	6	8	✓	
5.	SDG Narrative	9	18	✓	
Inorganic Analysis					
ICP-AES					
6.	Inorganic Analysis Data Sheet (Form 1-IN)	N/A		✓	
7.	Initial and Continuing Calibration Verification (Form 2-IN)			✓	
8.	Blanks (Form 3-IN)			✓	
9.	ICP Interference Check Sample(Form 4-IN)			✓	
10.	Matrix Spike Sample Recovery(Form 5-IN)			✓	
11.	Post-Digestion Spike Sample Recovery(Form 5B-IN)			✓	
12.	Duplicates (Form 6-IN)			✓	
13.	Laboratory Control Sample(Form 7-IN)			✓	
14.	ICP-AES and ICP-MS Serial Dilutions(Form 8-IN)			✓	
15.	Method Detection Limit(Form 9-IN)			✓	
16.	ICP-AES Interelement Correction Factors (Form 10A-IN)			✓	
17.	ICP-AES Interelement Correction Factors (Form 10B-IN)			✓	
18.	Analysis Log (Form 12-IN)			✓	
19.	Initial Calibration (Form 15-IN)			✓	
20.	Initial Calibration Summary (Form 16-IN)			✓	
21.	ICP-AES Raw Data			✓	
22.	ICP-AES Preparation Log Books, Preparation Records, Analysis Records, and PE Instructions			✓	

08/10/2016 DT

56 006

FORM DC-2
FULL INORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET

	PAGE NOs FROM	PAGE NOs TO	CHECK LAB	CHECK REGION
ICP-MS				
23. Inorganic Analysis Data Sheet (Form 1-IN)	N/A		✓	
24. Initial and Continuing Calibration Verification (Form 2-IN)			✓	
25. Blanks (Form 3-IN)			✓	
26. ICP Interference Check Sample(Form 4-IN)			✓	
27. Matrix Spike Sample Recovery(Form 5A-IN)			✓	
28. Post-Digestion/Distillation Spike Sample Recovery (Form 5B-IN)			✓	
29. Duplicates (Form 6-IN)			✓	
30. Laboratory Control Sample(Form 7-IN)			✓	
31. ICP-AES and ICP-MS Serial Dilutions(Form 8-IN)			✓	
32. Method Detection Limit(Form 9-IN)			✓	
33. ICP-MS Internal Standard Association (Form 11-IN)			✓	
34. Analysis Log (Form 12-IN)			✓	
35. ICP-MS Tune (Form 13-N)			✓	
36. ICP-MS Internal Standards Relative Intensity Summary (Form 14-IN)			✓	
37. Initial Calibration (Form 15-IN)			✓	
38. Initial Calibration Summary (Form 16-IN)			✓	
39. ICP-MS Raw Data			✓	
40. ICP-MS Preparation Log Books, Preparation Records, Analysis Records, and PE Instructions			✓	
Mercury				
41. Inorganic Analysis Data Sheet (Form 1-IN)			✓	
42. Initial and Continuing Calibration Verification (Form 2-IN)			✓	
43. Blanks (Form 3-IN)			✓	
44. Matrix Spike Sample Recovery(Form 5A-IN)			✓	
45. Duplicates (Form 6-IN)			✓	
46. Method Detection Limit(Form 9-IN)			✓	
47. Analysis Log (Form 12-IN)			✓	
48. Initial Calibration (Form 15-IN)			✓	
49. Initial Calibration Summary (Form 16-IN)			✓	
50. Mercury Raw Data			✓	
51. Mercury Preparation Log Books, Preparation Records, Analysis Records, and PE Instructions			✓	

08/10/2016 DH

56 007

FORM DC-2
FULL INORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET

	PAGE NOs FROM	PAGE NOs TO	CHECK LAB	CHECK REGION
Cyanide				
52. Inorganic Analysis Data Sheet (Form 1-IN)	19	29	✓	
53. Initial and Continuing Calibration Verification (Form 2-IN)	30	31	✓	
54. Blanks (Form 3-IN)	32	33	✓	
55. Matrix Spike Sample Recovery(Form 5A-IN)	34	34	✓	
56. Post-Digestion/Distillation Spike Sample Recovery (Form 5B-IN)	N/A		✓	
57. Duplicates (Form 6-IN)	35	35	✓	
58. Method Detection Limit(Form 9-IN)	36	36	✓	
59. Analysis Log (Form 12-IN)	37	38	✓	
60. Initial Calibration (Form 15-IN)	39	44	✓	
61. Initial Calibration Summary (Form 16-IN)	45	46	✓	
62. Cyanide Raw Data	47	53	✓	
63. Cyanide Preparation Log Books, Preparation Records, Analysis Records, and PE Instructions	54	73	✓	
Additional				
64. Percent Solids Determination Log	74	76	✓	
65. EPA Shipping/Receiving Documents				
Airbill (No. of Shipments 1)	77	77	✓	
Sample Tags	78	78	✓	
Sample Log-In Sheet (Lab)	N/A		✓	
66. Misc. Shipping/Receiving Records (list all individual records)				
Communication Logs			✓	
ALS SDG TR Cover Sheet	N/A		✓	
			✓	
67. Internal Lab Sample Transfer Records & Tracking Sheets (describe or list)				
ALS CoC	79	83	✓	
68. Other Records (describe or list)				
Communication Logs	N/A		✓	
E-mail Communications			✓	
	84	91		

69. Comments: N/A

Completed by: (CLP Lab) Desiree Hill (Signature) — Desiree Hill (Document Control) (Print Name & Title) — 08/10/2014 (Date)

Completed by: (USEPA) (Signature) — (Print Name & Title) — 56 008 (Date)

960 W. LeVoy Drive
Salt Lake City, UT 84123
T: +1 801 266 7700
F: +1 801 268 9992
www.alsglobal.com

SDG Administrative Narrative

Contract: EPN14027

Case: 46321

SDG: MF1D00

WO No(s): 1620331

Cooler # and Temperatures of each (upon receipt)

Cooler Number C15-	N/A	Arrival temperature was	7	°C
Cooler Number C15-		Arrival temperature was		°C
Cooler Number C15-		Arrival temperature was		°C
Cooler Number C15-		Arrival temperature was		°C
Cooler Number C15-		Arrival temperature was		°C
Cooler Number C15-		Arrival temperature was		°C
Cooler Number C15-		Arrival temperature was		°C
Cooler Number C15-		Arrival temperature was		°C

08/10/2016
DH

Communications:

Any sample receiving issues with this SDG are fully documented through the email communications which are included as a portion of this SDG Narrative and immediately follow this page. Copies of each email communication are also located in the communication section of this datapackage. In addition, any analytical issues pertinent to a given fraction are fully documented by the analyst in the associated narrative for the applicable fraction.

Comments:

None

Signature: Dawne Hill
Document Control Officer

Date: 08/10/2016

56 009

: 00009

Roxanne Olson

From: Dean, Whitlee <Whitlee.Dean@csra.com>
Sent: Tuesday, August 02, 2016 12:57 PM
To: Roxanne Olson
Cc: Flores.Raymond@epa.gov; Humphrey.marvelyn@Epa.gov; Nick Gannon; perez.myra@epa.gov; Sylvia Gorostiza
Subject: Region 06 | Case 46321 | Lab ALS | Issue Non-sampler Issues | FINAL

Good afternoon Roxy,

Issue: Samples MF1D02, MF1D03, MF1D04, and MF1D07 and may contain high concentrations of mercury as indicated below.

S0-03 off calibration scale
S0-04 35 ppb
S0-05 18 ppb
S0-08 175 ppb

Resolution: Per Region 6, the laboratory should use caution when analyzing these samples. Please note the issue in the SDG Narrative and proceed with the analysis of the samples.

Please let me know if you have any questions or problems. To waive any defect(s) associated with this issue, please contact your Regional CLP COR.
Thanks,

WHITLEE DEAN
Environmental Coordinator-Regions 1, 6, and 9
CSRA LLC
6361 Walker Lane, Alexandria, VA 22310
t: +1.703.461.2322 | Whitlee.Dean@csra.com
www.csra.com
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-----Original Message-----
From: Flores, Raymond [mailto:flores.raymond@epa.gov]
Sent: Tuesday, August 02, 2016 2:42 PM
To: Dean, Whitlee <Whitlee.Dean@csra.com>
Cc: Moody, Brett <Moody.Brett@epa.gov>
Subject: FW: XXX Day 3

Whitlee,

Please notify ALS that some of these samples are high in mercury and to use caution when performing cyanide analysis:

S0-03 off calibration scale
S0-04 35 ppb

S0-05 18 ppb
S0-08 175 ppb

RAYMOND FLORES

Digitally signed by RAYMOND FLORES
DN: c=US, o=U.S. Government, ou=USEPA, ou=Staff, cn=RAYMOND FLORES, dnQualifier=0000004084
Date: 2017.08.15 12:46:48 -05'00'

-----Original Message-----
From: Perez, Myra
Sent: Thursday, July 21, 2016 8:36 AM
To: Flores, Raymond <flores.raymond@epa.gov>
Subject: FW: **XXX** Day 3

Ray - please see message concerning samples with potential of being high concentration. Do you need to notify the lab?

-----Original Message-----
From: Adrienne Love [mailto:adrienne.love@tceq.texas.gov] ALove 8/11/17
Sent: Wednesday, July 20, 2016 5:37 PM
To: whitlee.dean@csra.com
Cc: Perez, Myra <perez.myra@epa.gov>; Rebecca Storms <Rebecca.Comeaux@tceq.onmicrosoft.com>
Subject: RE: **XXX** Day 3

Samples MF1D02, MF1D03, MF1D04, and MF1D07 may have high concentrations.

From: Adrienne Love ALove 8/11/17
Sent: Wednesday, July 20, 2016 5:27 PM
To: whitlee.dean@csra.com
Cc: perez.myra@epa.gov; Rebecca Storms
Subject: RE: Lane Plating Day 3

Whitlee,

Day 3 information for the **XXX** site:

a. The case number. - 46321
b. Name of laboratory. - ALS Laboratory Group Salt Lake City
c. Airbill number. -810257801911
d. Number of coolers under each airbill number. -1
e. Number of samples per matrix per concentration in each cooler. 7 soil samples, 4 sediment samples and 3 aqueous samples.
f. Type of analysis. - cyanide analysis.

Thanks,
Adrienne

From: Adrienne Love ALove 8/11/17
Sent: Tuesday, July 19, 2016 9:54 PM
To: whitlee.dean@csra.com
Cc: perez.myra@epa.gov; Rebecca Storms
Subject: RE: **XXX** Day 1

Whitlee,

Day 2 information for the **XXX** site:

a. The case number. - 46321

b. Name of laboratory. - ALS Laboratory Group Salt Lake City
c. Airbill number. -809524402130
d. Number of coolers under each airbill number. -1
e. Number of samples per matrix per concentration in each cooler. 1 soil sample, 4 sediment samples and 3 aqueous samples.
f. Type of analysis. - cyanide analysis.

Thanks,
Adrienne Love, P.G. ALove 8/11/17
TCEQ Remediation
Superfund Section

From: Adrienne Love
Sent: Monday, July 18, 2016 10:03 PM
To: whitlee.dean@csra.com
Cc: perez.myra@epa.gov; Rebecca Storms
Subject: **XXX** Day 1

Hello Whitlee,

See below for information on July 18, 2016 chain of custody for the **XXX** Site Inspection.
a. The case number. - 46321
b. Name of laboratory. - ALS Laboratory Group Salt Lake City
c. Airbill number. - 809524402173
d. Number of coolers under each airbill number. -1
e. Number of samples per matrix per concentration in each cooler. 3 sediment samples and 3 aqueous samples.
f. Type of analysis. - cyanide analysis.
g. Shipping complete? - no.

Please let me know if there are any questions.
Thank you,
Adrienne Love, P.G. ALove 8/11/17
TCEQ Remediation
Superfund Section

ALS Group: Click here to report this email as spam.

Roxanne Olson

From: Dean, Whitlee <Whitlee.Dean@csra.com>
Sent: Thursday, July 21, 2016 7:47 AM
To: Roxanne Olson
Cc: Flores.Raymond@epa.gov; Humphrey.marvelyn@Epa.gov; Nick Gannon; perez.myra@epa.gov; Sylvia Gorostiza
Subject: Region 06 | Case 46321 | Lab ALS | Issue Non-sampler Issues | FINAL

Good morning,

Issue: Samples MF1D02, MF1D03, MF1D04, and MF1D07 were shipped to the laboratory under airbill 810257801911 and may contain high concentrations.
Resolution: Per Region 6, the laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.

Please let me know if you have any questions or problems. To waive any defect(s) associated with this issue, please contact your Regional CLP COR.
Thanks,

WHITLEE DEAN
Environmental Coordinator-Regions 1, 6, and 9
CSRA LLC
6361 Walker Lane, Alexandria, VA 22310
t: +1.703.461.2322 | Whitlee.Dean@csra.com
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From: Flores, Raymond [mailto:flores.raymond@epa.gov]
Sent: Thursday, July 21, 2016 9:40 AM
To: Dean, Whitlee <Whitlee.Dean@csra.com>
Subject: Please notify ALS

Samples MF1D02, MF1D03, MF1D04, and MF1D07 may have high concentrations.

a. The case number. - 46321
b. Name of laboratory. - ALS Laboratory Group Salt Lake City
c. Airbill number. -810257801911
d. Number of coolers under each airbill number. -1
e. Number of samples per matrix per concentration in each cooler. 7 soil samples, 4 sediment samples and 3 aqueous samples.
f. Type of analysis. - cyanide analysis.

Raymond Flores
USEPA Region 6
CLP Laboratory COR
ESAT PO

RAYMOND FLORES

Digitally signed by RAYMOND FLORES
DN: c=US, o=U.S. Government, ou=USEPA, ou=Staff, cn=RAYMOND FLORES, dnQualifier=0000004084
Date: 2017.08.15 12:48:30 -05'00'

ALS Group: Click here to report this email as spam.

Roxanne Olson

From:	Dean, Whitlee <Whitlee.Dean@csra.com>
Sent:	Thursday, July 21, 2016 10:33 AM
To:	Roxanne Olson
Cc:	Flores, Raymond; Humphrey, Marvelyn; Gannon, Nick; Gorostiza, Sylvia; Kendrick, Bret; Perez, Myra
Subject:	Region 06 | Case 46321 | Lab ALS | Issue Discrepancies with tags, jars, and/or COC | FINAL

Good afternoon Roxy,

Issue: The laboratory received a soil sample labeled as SE-02. It matches the information for sample MF1D09; however, the label lists TM/Hg not CN. The laboratory is only scheduled for CN samples. The laboratory did not receive any other containers for this sample so they will be using it for CN analysis.
Resolution: Per Region 6, the laboratory should analyze the sample for CN as scheduled. Please note the issue in the SDG Narrative and proceed with the analysis of the samples.

Please let me know if you have any questions or problems. To waive any defect(s) associated with this issue, please contact your Regional CLP COR.
Thanks,

WHITLEE DEAN
Environmental Coordinator-Regions 1, 6, and 9
CSRA LLC
6361 Walker Lane, Alexandria, VA 22310
t: +1.703.461.2322 | Whitlee.Dean@csra.com
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From: Perez, Myra [mailto:perez.myra@epa.gov]
Sent: Thursday, July 21, 2016 12:29 PM
To: Dean, Whitlee <Whitlee.Dean@csra.com>
Cc: Flores, Raymond <flores.raymond@epa.gov>; Humphrey, Marvelyn <humphrey.marvelyn@epa.gov>; Gannon, Nick <Gannon.Nick@epa.gov>; Gorostiza, Sylvia <Gorostiza.Sylvia@epa.gov>; Kendrick, Bret <kendrick.bret@epa.gov>
Subject: RE: Region 06 | Case 46321 | Lab ALS | Issue Discrepancies with tags, jars, and/or COC

Hello Whitlee – The lab shall note the issue and resolution in the SDG narrative and analyze for CN as scheduled.

Thank you.

Myra Perez
R6 CLP RSCC
281-983-2130

MYRA PEREZ

Digitally signed by MYRA PEREZ
DN: c=US, o=U.S. Government, ou=USEPA, ou=Staff, cn=MYRA PEREZ, dnQualifier=0000009936
Date: 2017.08.15 12:32:54 -05'00'

From: Dean, Whitlee [mailto:Whitlee.Dean@csra.com]
Sent: Thursday, July 21, 2016 11:18 AM

To: Perez, Myra <perez.myra@epa.gov>
Cc: Flores, Raymond <flores.raymond@epa.gov>; Humphrey, Marvelyn <humphrey.marvelyn@epa.gov>; Gannon, Nick <Gannon.Nick@epa.gov>; Gorostiza, Sylvia <Gorostiza.Sylvia@epa.gov>
Subject: Region 06 | Case 46321 | Lab ALS | Issue Discrepancies with tags, jars, and/or COC

Good afternoon,

ALS is reporting the following issue. Please advise how the laboratory should proceed.

Issue: The laboratory received a soil sample labeled as SE-02. It matches the information for sample MF1D09; however, the label lists TM/Hg not CN. The laboratory is only scheduled for CN samples. The laboratory did not receive any other containers for this sample so they will be using it for CN analysis.

Please let me know if you have any questions,
Thanks,

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From: Roxanne Olson [mailto:Roxanne.Olson@ALSGlobal.com]
Sent: Thursday, July 21, 2016 12:01 PM
To: Dean, Whitlee <Whitlee.Dean@csra.com>
Subject: FW: Inorganic Case 46321

Whitlee:

See Mere's comment concerning one soil sample we received today. Pic and CoC attached.

Roxy

For further information about ALS Environmental – Salt Lake City, the following link will lead you to our facility's webpage. Check us Out!

Scroll down for available PDF Downloads including: Industrial Hygiene Analytical Request Form; Environmental CoC; Statement of Qualifications; Salt Lake City Test Catalog and Fee Schedule; and much more.

WEB: www.alsglobal.com

Regards, Roxanne Olson 8/14/17
Roxanne Olson
Client Services Manager/Project Manager, Environmental
Salt Lake City

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From: Meredith D. Edwards
Sent: Thursday, July 21, 2016 9:51 AM
To: Roxanne Olson <Roxanne.Olson@ALSGlobal.com>
Subject: Inorganic Case 46321

I received one soil sample labeled as SE-02. It matches the information of MF1D09. However, the label shows for TM/Hg not for CN. I didn't received any other containers for this sample, so I will be using it for CN.
Mere

Regards,

Meredith Edwards
Assistant Project Manager
Salt Lake City

8/14/17

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SDG Narrative

Case:	46321	**Contract #:**	EPW14027
SDG:	MF1D00	**EPA Lab ID:**	ALS

General Information: The eleven soil samples in this SDG were analyzed by methodologies contained in ISM02.3. All concentration, analytical, and method qualifiers are defined in the SOW.

Target Analytes: The Target analyte for this SDG is cyanide.

Holding Times: All samples were prepared and analyzed within method required holding times.

Initial and Continuing Calibration: All initial and continuing calibration verification and blank analyses were performed within the designated frequency and recoveries of the verifications and concentrations of the blanks met method acceptance criteria.

Preparation Blanks: The absolute values of all analyte concentrations in the preparation blanks were lower than the Contract Required Quantitation Limits.

Matrix Spike Analysis: The matrix spike recovery met method acceptance criteria.

Matrix Duplicate Analysis: The matrix duplicate result met method criteria.

Miscellaneous Comments: All calibration data is linear, please see raw data.

Example Equations:

Method Micro-distillation: $C \times \frac{Vf}{W \times S} \times (1/1000) \times DF = Concentration\,(mg/Kg)$

Micro-distillation Example: $10\mu g/L \times \frac{6mL}{0.5g \times 1} \times (1/1000) \times 1 = 0.12\,mg/Kg$

Where,
C = Instrument value in µg/L (The average of all replicate integrations).
Vf = Final digestion volume (mL)
W = Initial digestion Weight (g)
DF = Dilution Factor
S = % Solids/100

FORM 1-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MF1D00

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D00

Matrix: Soil Lab Sample ID: 1620331001

% Solids: 83.5 Date Received: 07/21/2016

Analytical Method: Spectrophotometry

Concentration Units (ug/L, mg/L, mg/kg dry weight or ug): mg/kg

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
57-12-5	Cyanide	0.29	J	07/27/2016	11:11

NOTE: hardness (total) is reported in mg/L

Comments:

56 019

FORM 1-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MF1D01

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D00

Matrix: Soil Lab Sample ID: 1620331002

% Solids: 82.3 Date Received: 07/21/2016

Analytical Method: Spectrophotometry

Concentration Units (ug/L, mg/L, mg/kg dry weight or ug): mg/kg

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
57-12-5	Cyanide	0.087	J	07/28/2016	13:26

NOTE: hardness (total) is reported in mg/L

Comments:

56 020

FORM 1-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MF1D02

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D00

Matrix: Soil Lab Sample ID: 1620331003

% Solids: 82.4 Date Received: 07/21/2016

Analytical Method: Spectrophotometry

Concentration Units (ug/L, mg/L, mg/kg dry weight or ug): mg/kg

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
57-12-5	Cyanide	0.48	J	07/27/2016	11:14

NOTE: hardness (total) is reported in mg/L

Comments:

56 021

FORM 1-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MF1D03

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D00

Matrix: Soil Lab Sample ID: 1620331006

% Solids: 78.1 Date Received: 07/21/2016

Analytical Method: Spectrophotometry

Concentration Units (ug/L, mg/L, mg/kg dry weight or ug): mg/kg

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
57-12-5	Cyanide	0.80		07/27/2016	11:16

NOTE: hardness (total) is reported in mg/L

Comments:

FORM 1-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MF1D04

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D00

Matrix: Soil Lab Sample ID: 1620331007

% Solids: 75.6 Date Received: 07/21/2016

Analytical Method: Spectrophotometry

Concentration Units (ug/L, mg/L, mg/kg dry weight or ug): mg/kg

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
57-12-5	Cyanide	0.24	J	07/27/2016	11:18

NOTE: hardness (total) is reported in mg/L

Comments:

56 023

FORM 1-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MF1D06

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D00

Matrix: Soil Lab Sample ID: 1620331008

% Solids: 82.5 Date Received: 07/21/2016

Analytical Method: Spectrophotometry

Concentration Units (ug/L, mg/L, mg/kg dry weight or ug): mg/kg

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
57-12-5	Cyanide	0.47	J	07/27/2016	11:19

NOTE: hardness (total) is reported in mg/L

Comments:

56 024

FORM 1-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MF1D07

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D00

Matrix: Soil Lab Sample ID: 1620331009

% Solids: 82.6 Date Received: 07/21/2016

Analytical Method: Spectrophotometry

Concentration Units (ug/L, mg/L, mg/kg dry weight or ug): mg/kg

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
57-12-5	Cyanide	0.59	J	07/27/2016	11:19

NOTE: hardness (total) is reported in mg/L

Comments:

FORM 1-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MF1D08

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D00

Matrix: Soil Lab Sample ID: 1620331010

% Solids: 72.8 Date Received: 07/21/2016

Analytical Method: Spectrophotometry

Concentration Units (ug/L, mg/L, mg/kg dry weight or ug): mg/kg

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
57-12-5	Cyanide	0.67	U	07/27/2016	11:20

NOTE: hardness (total) is reported in mg/L

Comments:

56 026

FORM 1-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MF1D09

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D00

Matrix: Soil Lab Sample ID: 1620331011

% Solids: 66.2 Date Received: 07/21/2016

Analytical Method: Spectrophotometry

Concentration Units (ug/L, mg/L, mg/kg dry weight or ug): mg/kg

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
57-12-5	Cyanide	0.11	J	07/27/2016	11:22

NOTE: hardness (total) is reported in mg/L

Comments:

56 027

FORM 1-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MF1D10

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D00

Matrix: Soil Lab Sample ID: 1620331012

% Solids: 71.4 Date Received: 07/21/2016

Analytical Method: Spectrophotometry

Concentration Units (ug/L, mg/L, mg/kg dry weight or ug): mg/kg

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
57-12-5	Cyanide	0.63	U	07/27/2016	11:23

NOTE: hardness (total) is reported in mg/L

Comments:

56 028

FORM 1-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MF1D11

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D00

Matrix: Soil Lab Sample ID: 1620331013

% Solids: 59.4 Date Received: 07/21/2016

Analytical Method: Spectrophotometry

Concentration Units (ug/L, mg/L, mg/kg dry weight or ug): mg/kg

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
57-12-5	Cyanide	0.84	U	07/27/2016	11:24

NOTE: hardness (total) is reported in mg/L

Comments:

56 029

FORM 2-IN
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D00

Initial Calibration Verification Source: EPA-ICV6(0400)

Continuing Calibration Verification Source: ALS-32873

Run Batch: 20160727001 Analytical Method: Spectrophotometry

Concentration Units: ug/L

	Initial Calibration Verification				Continuing Calibration Verification						
	ID: ICV				ID: CCV1				ID: CCV2		
Analyte	True	Found	%R	%RSD	True	Found	%R	%RSD	Found	%R	%RSD
Cyanide	99	95.8	97		200	200	100		196	98	

56 030

FORM 2-IN
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D00

Initial Calibration Verification Source: EPA-ICV6(0400)

Continuing Calibration Verification Source: ALS-32873

Run Batch: 20160728002S Analytical Method: Spectrophotometry

Concentration Units: ug/L

	Initial Calibration Verification				Continuing Calibration Verification						
	ID: ICV2				ID: CCV3				ID: CCV4		
Analyte	True	Found	%R	%RSD	True	Found	%R	%RSD	Found	%R	%RSD
Cyanide	99	95.1	96		200	193	97		194	97	

56 031

FORM 3-IN
BLANKS

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D00

Preparation Blank Matrix: Soil

Preparation Blank Concentration Units (ug/L, mg/L, mg/kg dry weight, or ug): mg/kg

Analytical Method: Spectrophotometry Preparation Batch: 173504

Run Batch: 20160727001 Preparation Method: Micro-Distillation

	Initial Calibration Blank (ug/L)		Continuing Calibration Blank (ug/L)						Preparation Blank/Leachate Extraction Blank	
Analyte	ID: ICB	Q	ID: CCB1	Q	ID: CCB2	Q	ID:	Q	ID: PBS1	Q
Cyanide	41.7	U	41.7	U	41.7	U			0.50	U

56 032

FORM 3-IN
BLANKS

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D00

Preparation Blank Matrix: Soil

Preparation Blank Concentration Units (ug/L, mg/L, mg/kg dry weight, or ug): mg/kg

Analytical Method: Spectrophotometry Preparation Batch: 173643

Run Batch: 20160728002S Preparation Method: Micro-Distillation

	Initial Calibration Blank (ug/L)		Continuing Calibration Blank (ug/L)						Preparation Blank/Leachate Extraction Blank	
Analyte	ID: ICB2	Q	ID: CCB3	Q	ID: CCB4	Q	ID:	Q	ID: PBS2	Q
Cyanide	2.4	J	41.7	U	2.8	J			0.50	U

FORM 5A-IN
MATRIX SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.
MF1D02S

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D00

Matrix: Soil Analytical Method: Spectrophotometry

% Solids: 82.4

Concentration Units (ug/L, mg/L or mg/kg dry weight): mg/kg

Analyte	Control Limit %R	Spiked Sample Result (SSR)	Q	Sample Result (SR)	Q	Spike Added (SA)	%R	Q
Cyanide	75-125	1.9		0.48	J	1.4	102	

56 034

FORM 6-IN
DUPLICATES

EPA SAMPLE NO.
MF1D02D

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D00

Matrix: Soil Analytical Method: Spectrophotometry

% Solids: 82.4

Concentration Units (ug/L, mg/L or mg/kg dry weight): mg/kg

Analyte	Control Limit	Sample (S)	Q	Duplicate (D)	Q	RPD	Q
Cyanide	0.57	0.48	J	0.85		55	

FORM 9-IN
METHOD DETECTION LIMIT

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D00

Analytical Method: Spectrophotometry Instrument ID: WET01

Preparation Method: Micro-Distillation

Concentration Units (ug/L, ug or mg/kg): mg/kg

Analyte	Wavelength/Mass	MDL	Date Analyzed
Cyanide	570.00	0.024	05/10/2016

FORM 12-IN
ANALYSIS LOG

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D00

Instrument ID: WET01 Analytical Method: Spectrophotometry

Start Date: 07/27/2016 End Date: 07/27/2016

Run Batch: 20160727001

EPA Sample No.	D/F	Time	Analytes																								
			Cn																								
S0	1.0	1059	X																								
S01	1.0	1102	X																								
S02	1.0	1102	X																								
S03	1.0	1103	X																								
S04	1.0	1103	X																								
S05	1.0	1106	X																								
S06	1.0	1106	X																								
ICV	1.0	1107	X																								
ICB	1.0	1107	X																								
CCV1	1.0	1110	X																								
CCB1	1.0	1110	X																								
PBS1	1.0	1111	X																								
MF1D00	1.0	1111	X																								
MF1D02	1.0	1114	X																								
MF1D02S	1.0	1114	X																								
MF1D02D	1.0	1115	X																								
MF1D03	1.0	1116	X																								
MF1D04	1.0	1118	X																								
MF1D06	1.0	1119	X																								
MF1D07	1.0	1119	X																								
MF1D08	1.0	1120	X																								
MF1D09	1.0	1122	X																								
MF1D10	1.0	1123	X																								
MF1D11	1.0	1124	X																								
CCV2	1.0	1124	X																								
CCB2	1.0	1127	X																								

56 037

/

FORM 12-IN
ANALYSIS LOG

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D00

Instrument ID: WET01 Analytical Method: Spectrophotometry

Start Date: 07/28/2016 End Date: 07/28/2016

Run Batch: 20160728002S

EPA Sample No.	D/F	Time	Analytes																								
			Cn																								
S0	1.0	1256	X																								
S01	1.0	1259	X																								
S02	1.0	1259	X																								
S03	1.0	1300	X																								
S04	1.0	1300	X																								
S05	1.0	1303	X																								
S06	1.0	1303	X																								
ICV2	1.0	1304	X																								
ICB2	1.0	1305	X																								
CCV3	1.0	1307	X																								
CCB3	1.0	1308	X																								
ZZZZZZ	1.0	1308																									
ZZZZZZ	1.0	1309																									
ZZZZZZ	1.0	1311																									
ZZZZZZ	1.0	1312																									
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ZZZZZZ	1.0	1321																									
ZZZZZZ	1.0	1324																									
ZZZZZZ	1.0	1324																									
PBS2	1.0	1325	X																								
MF1D01	1.0	1326	X																								
CCV4	1.0	1328	X																								
CCB4	1.0	1329	X																								

FORM 15-IN
INITIAL CALIBRATION

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D00

Instrument ID: WET01 Start Date: 07/27/2016

Analytical Method: Spectrophotometry Run Batch: 20160727001

Concentration Units: ug/L

Analyte	True	Found	%D	True	Found	%D	True	Found	%D
Cyanide	0.0	-4.1		10.0	10.8	8	50.0	50.4	1

56 039

FORM 15-IN
INITIAL CALIBRATION

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D00

Instrument ID: WET01 Start Date: 07/27/2016

Analytical Method: Spectrophotometry Run Batch: 20160727001

Concentration Units: ug/L

Analyte	True	Found	%D	True	Found	%D	True	Found	%D
Cyanide	100	101	1	200	204	2	300	300	0

56 040

FORM 15-IN
INITIAL CALIBRATION

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D00

Instrument ID: WET01 Start Date: 07/27/2016

Analytical Method: Spectrophotometry Run Batch: 20160727001

Concentration Units: ug/L

Analyte	True	Found	%D	True	Found	%D	True	Found	%D
Cyanide	400	397	-1						

56 041

FORM 15-IN
INITIAL CALIBRATION

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D00

Instrument ID: WET01 Start Date: 07/28/2016

Analytical Method: Spectrophotometry Run Batch: 20160728002S

Concentration Units: ug/L

Analyte	True	Found	%D	True	Found	%D	True	Found	%D
Cyanide	0.0	0.70		10.0	12.9	29	50.0	51.1	2

FORM 15-IN
INITIAL CALIBRATION

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D00

Instrument ID: WET01 Start Date: 07/28/2016

Analytical Method: Spectrophotometry Run Batch: 20160728002S

Concentration Units: ug/L

Analyte	True	Found	%D	True	Found	%D	True	Found	%D
Cyanide	100	99.7	0	200	196	-2	300	292	-3

56 043

FORM 15-IN
INITIAL CALIBRATION

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D00

Instrument ID: WET01 Start Date: 07/28/2016

Analytical Method: Spectrophotometry Run Batch: 20160728002S

Concentration Units: ug/L

Analyte	True	Found	%D	True	Found	%D	True	Found	%D
Cyanide	400	407	2						

56 044

FORM 16-IN
INITIAL CALIBRATION SUMMARY

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D00

Instrument ID: WET01 Start Date: 07/27/2016

Analytical Method: Spectrophotometry Run Batch: 20160727001

Analyte	Corr. Coeff.	Slope	Intercept	Calib. Type	Weighting
Cyanide	0.9998	765	-1.99	LIN None	NONE

56 045

FORM 16-IN
INITIAL CALIBRATION SUMMARY

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D00

Instrument ID: WET01 Start Date: 07/28/2016

Analytical Method: Spectrophotometry Run Batch: 20160728002S

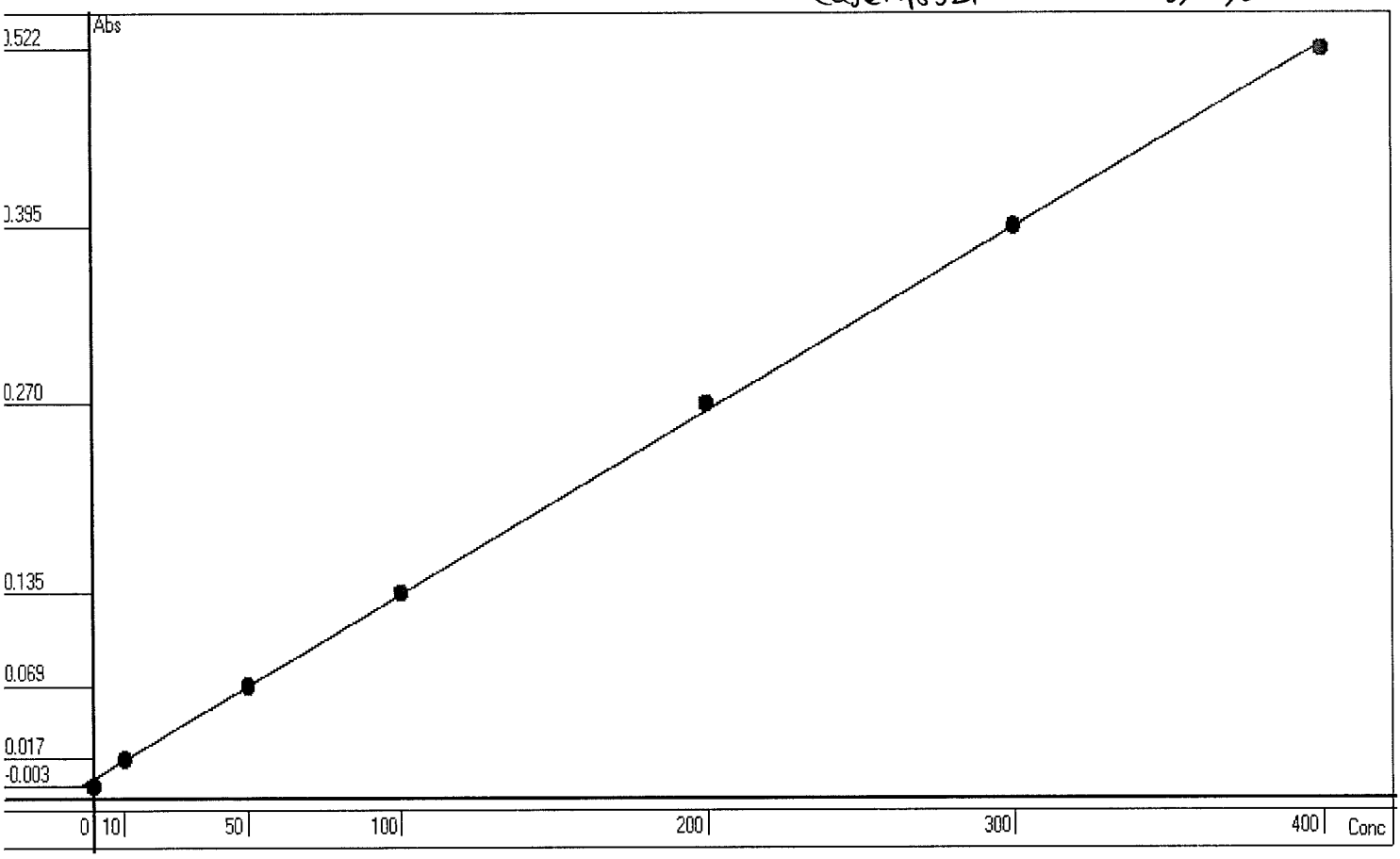
Analyte	Corr. Coeff.	Slope	Intercept	Calib. Type	Weighting
Cyanide	0.9995	760	1.13	LIN None	NONE

Calibrant Report - CYN2 -

Calib Lot #:010104 Exp Date:1/1/2025 User:Westco Scientific
Plan # : 20160727001 Description : [CN-46321-MF1D00] Unit

Workorder: 1620331
SDG: MF1D00
Case: 46321

Instrument ID: WET01
Christopher R Hansen
08/02/2016



Point	OD	Conc	Recalc Conc	% Error
1	-0.0028	0	-4.1312	-413.12
2	0.0167	10	10.7809	7.81
3	0.0685	50	50.3938	0.79
4	0.1349	100	101.1717	1.17
5	0.2695	200	204.1039	2.05
6	0.3954	300	300.3830	0.13
7	0.5219	400	397.1210	-0.72

Conc= +764.7269*Abso -1.99 R^2=0.9997

RBL
0.0087
0

Report Date 7/27/2016 Run Date 7/27/2016

56 047

: 00047

CYN2 - CYANIDE - NEW EPA SOW

Type	: End Point
Direction	: Up
Unit	: µg/L
Model	: Linear
Unit Factor	: 1
Factor	: 1
Decimal	: 3
Slope	: 1
Intercept	: 0
Linearity Low	: -10
Linearity High	: 400
Filter 1	: 570
Fluidics	: Yes
Sample Blank	: Yes *

RBL 1	: 0.0087
Rbl Replicate	: 3
Use RBL	: Yes
Rgt Rate 1	: 0.0082
E.P. OD Limit	: 0.0030

	Code	Vol	Delay	Read	Rinse
Reagent 1	CNSP	89	108	0	0
Reagent 2 *	CNCL	21	36	0	0
Reagent 3	CNPY	210	0	576	0

Diluent	: NAOH
Sample Vol	: 210

	Concentration	OD		Concentration	OD
C1	0	-0.0028	C5	200	0.2695
C2	10	0.0167	C6	300	0.3954
C3	50	0.0685	C7	400	0.5219
C4	100	0.1349	C8	-	-

Code	: CN
Description	: Cyanide
Lot#	: 010104
Exp Date	: 1/1/2025
User	: Westco Scientific
Cal Replicate	: 1

Report Date :07/27/2016 **Run Date :07/27/2016** **Operator : CRHANSEN** **Plan # :20160727001**

Plan Description : CN-46321-MF1D00

ALS Environmental

Method : CYN2 -Unit [µg/L] - CYANIDE - NEW EPA SOW

Smp#/[Dil Fact]	Sample ID	Conc	OD	%Recovery/RPD	Analysis Time
DIL-1	RBL	0.000	0.0086	0.00	10:57:31 AM
DIL-1	RBL	0.000	0.0126	0.00	10:57:47 AM
DIL-1	RBL	0.000	0.0087	0.00	10:58:39 AM
ST-1	Std-1	0.000	-0.0028	0.00	10:59:00 AM
ST-2	Std-2	10.000	0.0167	0.00	11:02:04 AM
ST-3	Std-3	50.000	0.0685	0.00	11:02:20 AM
ST-4	Std-4	100.000	0.1349	0.00	11:03:11 AM
ST-5	Std-5	200.000	0.2695	0.00	11:03:29 AM
ST-6	Std-6	300.000	0.3954	0.00	11:06:12 AM
ST-7	Std-7	400.000	0.5219	0.00	11:06:30 AM
1	ICV	95.844	0.1279	0.00	11:07:23 AM
2	ICB	0.330	0.0030	0.00	11:07:41 AM
3	CCV1	199.541	0.2635	0.00	11:10:23 AM
4	CCB1	-1.124	0.0011	0.00	11:10:44 AM
5	PBS	0.024	0.0026	0.00	11:11:35 AM
6	MF1D00	20.872	0.0299	0.00	11:11:53 AM
7	MF1D02	35.048	0.0484	0.00	11:14:35 AM
8	MF1D02S	137.311	0.1822	0.00	11:14:53 AM
9	MF1D02D	61.661	0.0832	0.00	11:15:47 AM
10	MF1D03	55.958	0.0758	0.00	11:16:05 AM
11	MF1D04	17.536	0.0255	0.00	11:18:47 AM
12	MF1D06	32.983	0.0457	0.00	11:19:05 AM
13	MF1D07	40.939	0.0561	0.00	11:19:59 AM
14	MF1D08	-17.290	-0.0200	0.00	11:20:17 AM
15	MF1D09	6.218	0.0107	0.00	11:22:59 AM
16	MF1D10	-2.118	-0.0002	0.00	11:23:17 AM
17	MF1D11	-28.082	-0.0341	0.00	11:24:11 AM
18	CCV2	195.794	0.2586	0.00	11:24:29 AM
19	CCB2	-0.971	0.0013	0.00	11:27:11 AM

Report Date :07/27/2016 **Run Date :7/27/2016** **Operator : CRHANSEN** **Plan # :20160727001**

56 049

Plan Description : CN-46321-MF1D00

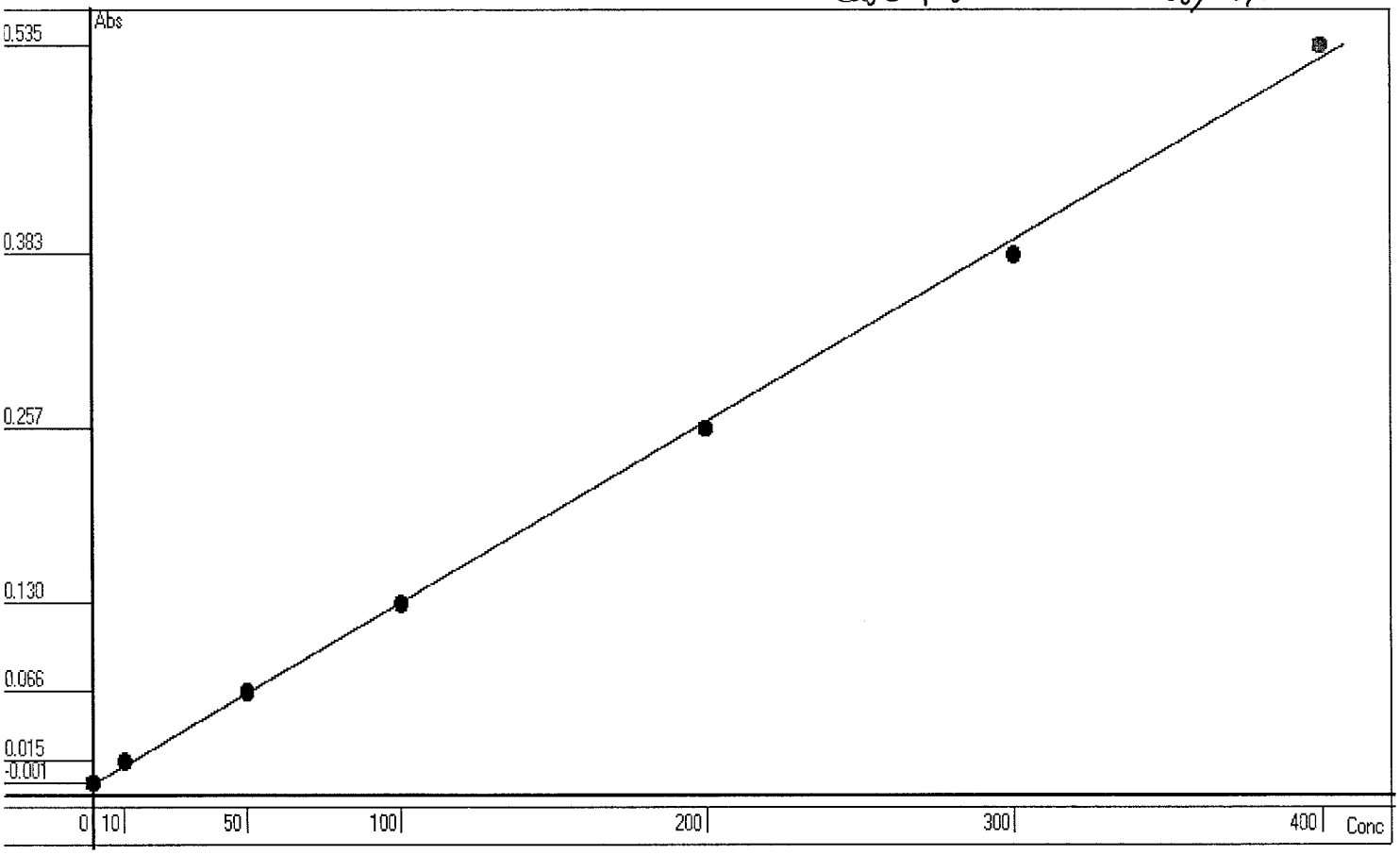
Calibrant Report - CYN2 -

Calib Lot #:010104 Exp Date:1/1/2025 User:Westco Scientific

Plan # : 20160728002 Description : [CN-46321-MF1D37] Unit

Workorder: 1620331
SDG: MF1D00
Case: 46321

Instrument ID: WET01
Christopher R Hansen
08/02/2016



Point	OD	Conc	Recalc Conc	% Error
1	-0.0006	0	0.6712	67.12
2	0.0154	10	12.8276	28.28
3	0.0657	50	51.0441	2.09
4	0.1297	100	99.6696	-0.33
5	0.2568	200	196.2366	-1.88
6	0.3829	300	292.0439	-2.65
7	0.5346	400	407.3013	1.83

Conc= +759.7722*Abso +1.1271 R^2=0.9990

RBL
0.0088
0

Report Date 7/28/2016 Run Date 7/28/2016

56 050

: 00058

CYN2 - CYANIDE - NEW EPA SOW

Type	: End Point
Direction	: Up
Unit	: µg/L
Model	: Linear
Unit Factor	: 1
Factor	: 1
Decimal	: 3
Slope	: 1
Intercept	: 0
Linearity Low	: -10
Linearity High	: 400
Filter 1	: 570
Fluidics	: Yes
Sample Blank	: Yes *

RBL 1	: 0.0089
Rbl Replicate	: 3
Use RBL	: Yes
Rgt Rate 1	: 0.0075
E.P. OD Limit	: 0.0030

	Code	Vol	Delay	Read	Rinse
Reagent 1	CNSP	89	108	0	0
Reagent 2 *	CNCL	21	36	0	0
Reagent 3	CNPY	210	0	576	0

Diluent	: NAOH
Sample Vol	: 210

	Concentration	OD		Concentration	OD
C1	0	-0.0006	C5	200	0.2568
C2	10	0.0154	C6	300	0.3829
C3	50	0.0657	C7	400	0.5346
C4	100	0.1297	C8	-	-

Code	: CN
Description	: Cyanide
Lot#	: 010104
Exp Date	: 1/1/2025
User	: Westco Scientific
Cal Replicate	: 1

Report Date :07/28/2016 **Run Date :07/28/2016** **Operator : CRHANSEN** **Plan # :20160728002**

56 051

Plan Description : CN-46321-MF1D37

ALS Environmental

Method : CYN2 -Unit [µg/L] - CYANIDE - NEW EPA SOW

Smp#/[Dil Fact]	Sample ID	Conc	OD	%Recovery/RPD	Analysis Time
DIL-1	RBL	0.000	0.0067	0.00	12:55:09 PM
DIL-1	RBL	0.000	0.0087	0.00	12:55:27 PM
DIL-1	RBL	0.000	0.0090	0.00	12:56:21 PM
ST-1	Std-1	0.000	-0.0006	0.00	12:56:39 PM
ST-2	Std-2	10.000	0.0154	0.00	12:59:21 PM
ST-3	Std-3	50.000	0.0657	0.00	12:59:39 PM
ST-4	Std-4	100.000	0.1297	0.00	1:00:33 PM
ST-5	Std-5	200.000	0.2568	0.00	1:00:51 PM
ST-6	Std-6	300.000	0.3829	0.00	1:03:33 PM
ST-7	Std-7	400.000	0.5346	0.00	1:03:51 PM
1	ICV	95.064	0.1236	0.00	1:04:45 PM
2	ICB	2.448	0.0017	0.00	1:05:03 PM
3	CCV1	193.379	0.2530	0.00	1:07:45 PM
4	CCB1	1.460	0.0004	0.00	1:08:03 PM
5	PBW	0.701	-0.0006	0.00	1:08:57 PM
6	MF1D37	1.688	0.0007	0.00	1:09:15 PM
7	MF1D37S	100.459	0.1307	0.00	1:11:57 PM
8	MF1D37D	1.840	0.0009	0.00	1:12:15 PM
9	MF1D38	2.220	0.0014	0.00	1:13:10 PM
10	MF1D39	3.360	0.0029	0.00	1:13:27 PM
11	MF1D31	3.436	0.0030	0.00	1:16:09 PM
12	MF1D32	3.284	0.0028	0.00	1:16:27 PM
13	MF1D33	2.372	0.0016	0.00	1:17:21 PM
14	MF1D27	1.233	0.0001	0.00	1:17:39 PM
15	MF1D29	4.196	0.0040	0.00	1:20:21 PM
16	MF1D30	1.233	0.0001	0.00	1:20:39 PM
17	MF1D34	2.448	0.0017	0.00	1:21:33 PM
18	MF1D35	3.588	0.0032	0.00	1:21:51 PM
19	MF1D40	2.448	0.0017	0.00	1:24:33 PM
20	MF1D41	-2.187	-0.0044	0.00	1:24:51 PM
21	PBS2	0.777	-0.0005	0.00	1:25:45 PM
22	MF1D01	6.475	0.0070	0.00	1:26:03 PM

Data not part of SDG MF1D00

CH 08/09/2016

Report Date :07/28/2016 Run Date :7/28/2016 Operator : CRHANSEN Plan # :20160728002

Plan Description : CN-46321-MF1D37

ALS Environmental

Method : CYN2 -Unit [µg/L] - CYANIDE - NEW EPA SOW

Smp#/[Dil Fact]	Sample ID	Conc	OD	%Recovery/RPD	Analysis Time
23	**CCV2**	**193.835**	**0.2536**	**0.00**	**1:28:51 PM**
24	**CCB2**	**2.828**	**0.0022**	**0.00**	**1:29:09 PM**

Report Date :07/28/2016 **Run Date :7/28/2016** **Operator : CRHANSEN** **Plan # :20160728002**

56 053

Plan Description : CN-46321-MF1D37

ISM02.3 CN in Soil by Micro-Distillation Electronic Physical Description Log

File Location: \\Alsltws013\INORGANIC\WaterLab\ISM02.3			File Name: CN-S-173504-MF1D00
HBN: 173504	Case: 46321	SDG: MF1D00	Cyanide in EPA-CLP soil
Workorder ID(s): 1620331			Preparer: Christopher R. hansen

ISM02.3 Cyanide Soil Standards Preparation Description

Sample ID.	Solution used	Amount	Description of solution	Std. final volume	Std. final conc.
S0, ICB, CCBs, PBS	NA	NA	NA	50mL	0 µg/L cyanide
S01	CN INT WKG (32873)	0.1 mL	CN INT WKG = 5,000 µg/L CN^-		10 µg/L cyanide
S02		0.5 mL			50 µg/L cyanide
S03		1.0 mL			100 µg/L cyanide
S04, CCVs		2.0 mL			200 µg/L cyanide
S05		3.0 mL			300 µg/L cyanide
S06		4.0 mL			400 µg/L cyanide
ICV	EPA-ICV6-0400 (29902)	0.5 mL	CN CLP-ICV = 9900 µg/L CN		99 µg/L cyanide
MS	CN INT WKG (32873)	0.12mL	CN INT WKG = 5,000 µg/L CN^-	6mL	100 µg/L cyanide
MD	NA	NA	NA	6mL	NA

ISM02.3 Cyanide Soil Samples Preparation Description

	EPA Sample ID	Matrix	Method **	Prep Date and Time	Amount of Sample Used (g)	Final Volume of Samples (mL)	pH
Calibration Standards	S0	0.25N NaOH	Micro-Distillation	07/26/2016 11:26	NA	6 mL	NA
Calibration Standards	S01						
Calibration Standards	S02						
Calibration Standards	S03						
Calibration Standards	S04/CCVs						
Calibration Standards	S05						
Calibration Standards	S06						
	ICV						
	ICB/CCBs						
	PBS1						
	MF1D00	Soil			0.5066		
	MF1D02				0.5303		
	MF1D02S				0.5326		
	MF1D02D				0.5324		
	MF1D03				0.5422		
	MF1D04				0.5817		
	MF1D06				0.5142		
	MF1D07				0.5040		
	MF1D08				0.5073		
	MF1D09				0.5219		
	MF1D10				0.5560		
	MF1D11				0.5010		

Method Suumary: Samples weighed into micro-distillation sample tubes and QCs prepared as described above. 2mL of 0.25N NaOH added to all collector tubes with the M end facing up. Tubes capped with membranes and 0.75mL of the releasing solution added to each sample. Sample tubes immediately assembled with collector tubes and placed on the distillation unit for 30 minutes. Disillation unit is maintained at 120°C, as measured by an onboard temperature indicator. The tubes are broken down and the distillate collected into one tube after allowing the tubes to cool for at least 10 minutes. Distillate brought to 6mL total volume with 0.25N NaOH. Samples are ready for analysis.

Notes: Samples were all reactive with acid. Sample MF1D06 and MF1D11 were especially reactive. Sample MF1D01 required redistillation and is therefore included in a separate physical description log. See the sample preparation and analysis writeups for more details on these samples.

ISM02.3 CN in Soil by Micro-Distillation Electronic Physical Description Log

File Location: \\Alsltws013\INORGANIC\WaterLab\ISM02.3			File Name: CN-S-173643-MF1D00
HBN: 173643	Case: 46321	SDG: MF1D00	Cyanide in EPA-CLP soil
Workorder ID(s): 1620331			Preparer: Christopher R. hansen

ISM02.3 Cyanide Soil Standards Preparation Description

Sample ID.	Solution used	Amount	Description of solution	Std. final volume	Std. final conc.
S0, ICB, CCBs, PBS	NA	NA	NA	50mL	0 µg/L cyanide
S01	CN INT WKG (32873)	0.1 mL	CN INT WKG = 5,000 µg/L CN^-		10 µg/L cyanide
S02		0.5 mL			50 µg/L cyanide
S03		1.0 mL			100 µg/L cyanide
S04, CCVs		2.0 mL			200 µg/L cyanide
S05		3.0 mL			300 µg/L cyanide
S06		4.0 mL			400 µg/L cyanide
ICV	EPA-ICV6-0400 (29902)	0.5 mL	CN CLP-ICV = 9900 µg/L CN		99 µg/L cyanide

ISM02.3 Cyanide Soil Samples Preparation Description

	EPA Sample ID	Matrix	Method **	Prep Date and Time	Amount of Sample Used (g)	Final Volume of Samples (mL)	pH
Calibration Standards	S0	0.25N NaOH	Micro-Distillation	07/27/2016 14:56	NA	6 mL	NA
	S01						
	S02						
	S03						
	S04/CCVs						
	S05						
	S06						
	ICV						
	ICB/CCBs						
	PBS2						
	MF1D01	Soil			0.5433		

Method Suumary: Samples weighed into micro-distillation sample tubes and QCs prepared as described above. 2mL of 0.25N NaOH added to all collector tubes with the M end facing up. Tubes capped with membranes and 0.75mL of the releasing solution added to each sample. Sample tubes immediately assembled with collector tubes and placed on the distillation unit for 30 minutes. Disillation unit is maintained at 120°C, as measured by an onboard temperature indicator. The tubes are broken down and the distillate collected into one tube after allowing the tubes to cool for at least 10 minutes. Distillate brought to 6mL total volume with 0.25N NaOH. Samples are ready for analysis.

Notes: Sample MF1D01 penetrated the distillation membrane of the distillation tube during the first sample distillation procedure with the other samples in this SDG. This sample was therefore redistilled on the date and time shown in this physical description log.

Analyte/Method: Cyanide in Soil ISM02.3 by Micro-Distillation	HBN #: 173504	SDG #: MF1D00	Case #: 46321	Samples Prepared by (name): Christopher R. Hansen
Workorder ID(s): 1620331	Sample ID(s): MF1D00-04, MFD106-11			Starting Date/Time: 07/26/2016 11:26

Procedure:

0.5 g to 0.6 g of each sample is transfered into a Lachat MicroDist sample tube. 5 mL of ASTM Type II water is added to each sample. 6 mL of each QC is transferred into a Lachat MicroDist sample tube. 0.75 mL of an acidic releasing agent is added to each sample and QC which is then quickly capped and placed on a Lachat MicroDist hotblock, protected from light by aluminum foil. Samples and QCs are distilled for 30 minutes on a hot block set to maintain temperature at 122 ± 2 ºC (Temp. Correction factor: -2ºC) Samples/QCs are removed from the hot block and the sample tube is removed from the collection tube within 4 seconds to prevent sample suck-back. The sample tube is discarded and the collection tubes are allowed to cool to room temperature. The distillate is brought to a final volume of 6 mL with 0.25N NaOH. (NOTE: Lachat MicroDist Tubes require set up prior to distillation.) After distillation cyanide is quantified by UV-Vis spectroscopy on a SmartChem discrete AA.

Equipment:

Balance: 105930 Pipettes: PL-214, WC#6 Other: LACHAT "Micro Dist' Hotblocks

Calibration and QC Stock Standards used:

STD	Std ID#	Expiration
Stock 1,000 µg/mL	**31750**	09/30/2016
Check Stock 9,900 µg/L	**29902**	10/16/2024
Stock Int. 5,000 µg/L	**32873**	08/02/2016

Calibration and QC Standards preparation in 0.25 N NaOH

STD ID	Spike amount (mL)	Std ID#	Final volume (mL)	Target (µg/L)
S0 /CCB / PBS1	NONE	NONE	50	0
S01	0.1	32873	50	10
S02	0.5	32873	50	50
S03	1.0	32873	50	100
S04 / CCV	2.0	32873	50	200
S05	3.0	32873	50	300
S06	4.0	32873	50	400
ICV	0.5	29902	50	99
MS	0.12	32873	6	100

Sample(s) for MS and MD: MF1D02

Verification of Procedure

Verified By: KB

Date Verified: 08/09/2016

Reagents for Preparation:

ID	Log Book or Horizon ID	Expiration
0.25 N NaOH	32636	07/06/2018
	32765	07/19/2018
$MgCl_2$ Releasing Solution	848	09/03/2016

EPA-SOW Reporting Limit: 0.5 mg/kg

Distillation Hotblock Times and Temperatures

MD1: Time On	MD1: Time Off	Temp On (°C)	Temp Off (°C)
14:12	14:42	120	120
MD2: Time On	**MD2: Time Off**	**Temp On (°C)**	**Temp Off (°C)**
14:12	14:42	120	120

CONVERSION FACTOR: 1 µg/L = 0.012 mg/kg

(µg/L)(0.006 L/0.5g) = µg/g
(µg/g)(1mg/1000µg)(1000g/kg) = mg/kg

Comment(s):

Samples were reactive with the acidic releasing solution. All samples foamed when the solution was added. Samples MF1D06, and MF1D11 in particular overflowed the reaction cup the first time that releasing solution was added. These samples were reweighed with a minimum (~2.5mL) of water added. Releasing solution was added to these samples as quickly as was feasible to prevent overflow and sample loss.

Analyte/Method: Cyanide in Soil ISM02.3 by Micro-Distillation	HBN #: 173643	SDG #: MF1D00	Case #: 46321	Samples Prepared by (name): Christopher R. Hansen
Workorder ID(s): 1620331	Sample ID(s): MF1D01			Starting Date/Time: 07/27/2016 14:56

Procedure:

0.5 g to 0.6 g of each sample is transfered into a Lachat MicroDist sample tube. 5 mL of ASTM Type II water is added to each sample. 6 mL of each QC is transferred into a Lachat MicroDist sample tube. 0.75 mL of an acidic releasing agent is added to each sample and QC which is then quickly capped and placed on a Lachat MicroDist hotblock, protected from light by aluminum foil. Samples and QCs are distilled for 30 minutes on a hot block set to maintain temperature at 122 ± 2 ºC (Temp. Correction factor: -2ºC) Samples/QCs are removed from the hot block and the sample tube is removed from the collection tube within 4 seconds to prevent sample suck-back. The sample tube is discarded and the collection tubes are allowed to cool to room temperature. The distillate is brought to a final volume of 6 mL with 0.25N NaOH. (NOTE: Lachat MicroDist Tubes require set up prior to distillation.) After distillation cyanide is quantified by UV-Vis spectroscopy on a SmartChem discrete AA.

Equipment:

Balance: 105930 Pipettes: PL-214, WC#6 Other: LACHAT "Micro Dist" Hotblocks

Calibration and QC Stock Standards used:

STD	Std ID#	Expiration
Stock 1,000 µg/mL	**31750**	09/30/2016
Check Stock 9,900 µg/L	**29902**	10/16/2024
Stock Int. 5,000 µg/L	**32873**	08/02/2016

Calibration and QC Standards preparation in 0.25 N NaOH

STD ID	Spike amount (mL)	Std ID#	Final volume (mL)	Target (µg/L)
S0 /CCB / PBS 2	NONE	NONE	50	0
S01	0.1	32873	50	10
S02	0.5	32873	50	50
S03	1.0	32873	50	100
S04 / CCV	2.0	32873	50	200
S05	3.0	32873	50	300
S06	4.0	32873	50	400
ICV	0.5	29902	50	99

Verification of Procedure

Verified By: KD

Date Verified: 08/09/2016

Reagents for Preparation:

ID	Log Book or Horizon ID	Expiration
0.25 N NaOH	32636	07/06/2018
	32765	07/19/2018
$MgCl_2$ Releasing Solution	848	09/03/2016

EPA-SOW Reporting Limit: 0.5 mg/kg

Distillation Hotblock Times and Temperatures

MD1: Time On	MD1: Time Off	Temp On (°C)	Temp Off (°C)
15:33	16:03	119	120
MD2: Time On	**MD2: Time Off**	**Temp On (°C)**	**Temp Off (°C)**
15:33	16:03	120	120

CONVERSION FACTOR: 1 µg/L = 0.012 mg/kg

(µg/L)(0.006 L/0.5g) = µg/g
(µg/g)(1mg/1000µg)(1000g/kg) = mg/kg

Comment(s):

Sample MF1D01 penetrated the distillation membrane of the distillation tube during the first sample distillation procedure with the other samples in this SDG. This sample was therefore redistilled on the date and time shown in this preparation writeup.

Batch Worklist

Batch: EWC/ 6523 **Created:** 7/25/2016 16:28 **Instrument:** **HBN:** 173504

Rule: ISM02.3 Cn Micro Dist, Prep **Analyst:** C. Hansen **Status:** NA

Workorder: 1620331 **SDG:** MF1D00 **Case:** 46321

weighed 07/26/2016 11:26 Balance: 105930 CH

Pos	Lab ID	Sample ID	Prep Initial	Prep Final	Dust Weight	Type	Mx	Container	Procedure	Mgr	Expire Date	Due Date	Run Date
1	509820	S0				STB	3		I23CN...3P	6118	8/6/2016	7/27/2016	
2	509821	S01				STD	3		I23CN...3P	6118	8/6/2016	7/27/2016	
3	509822	S02				STD	3		I23CN...3P	6118	8/6/2016	7/27/2016	
4	509823	S03				STD	3		I23CN...3P	6118	8/6/2016	7/27/2016	
5	509824	S04				STD	3		I23CN...3P	6118	8/6/2016	7/27/2016	
6	509825	S05				STD	3		I23CN...3P	6118	8/6/2016	7/27/2016	
7	509826	S06				STD	3		I23CN...3P	6118	8/6/2016	7/27/2016	
8	509827	ICV				ICV	3		I23CN...3P	6118	8/6/2016	7/27/2016	
9	509828	ICB				ICB	3		I23CN...3P	6118	8/6/2016	7/27/2016	
10	509829	CCV1				CCV	3		I23CN...3P	6118	8/6/2016	7/27/2016	
11	509830	CCB1				CCB	3		I23CN...3P	6118	8/6/2016	7/27/2016	
12	509804	PBS I				PBS	4		I23CN...4P	6118	8/6/2016	7/25/2016	
13	1620331001	MF1D00	0.5066 g			SAMPLE	4	1620331001-A	I23CN...4P	5936	8/2/2016	7/27/2016	
14	1620331002	MF1D01	0.5333 g	<REDISTILL>		SAMPLE	4	1620331002-A	I23CN...4P	5936	8/2/2016	7/27/2016	
15	1620331003	MF1D02	0.5303 g			SAMPLE	4	1620331003-A	I23CN...4P	5936	8/2/2016	7/27/2016	
16	1620331004	MF1D02S	0.5326 g			MS	4	1620331004-A	I23CN...4P	5936	8/2/2016	7/27/2016	
17	1620331005	MF1D02D	0.5324 g			MD	4	1620331005-A	I23CN...4P	5936	8/2/2016	7/27/2016	
* 18	1620331006	MF1D03	CH 08/02/16 ~~0.5422~~ g	VOID CH 07/26/16 ~~0.5239~~ g CH 07/26/16		SAMPLE	4	1620331006-A	I23CN...4P	5936	8/2/2016	7/27/2016	
19	1620331007	MF1D04	0.5817 g			SAMPLE	4	1620331007-A	I23CN...4P	5936	8/2/2016	7/27/2016	
* 20	1620331008	MF1D06	0.5575 g	0.5142 g		SAMPLE	4	1620331008-A	I23CN...4P	5936	8/2/2016	7/27/2016	
21	1620331009	MF1D07	0.5040 g			SAMPLE	4	1620331009-A	I23CN...4P	5936	8/2/2016	7/27/2016	
22	1620331010	MF1D08	CH 07/26/16 ~~0.5675~~ g	0.5073 g		SAMPLE	4	1620331010-A	I23CN...4P	5936	8/2/2016	7/27/2016	
* 23	1620331011	MF1D09	0.5219 g			SAMPLE	4	1620331011-A	I23CN...4P	5936	8/2/2016	7/27/2016	
24	1620331012	MF1D10	0.5560 g			SAMPLE	4	1620331012-A	I23CN...4P	5936	8/2/2016	7/27/2016	
* 25	1620331013	MF1D11	CH 08/02/16 ~~0.5208~~ g	0.5010 g		SAMPLE	4	1620331013-A	I23CN...4P	5936	8/2/2016	7/27/2016	

VOID LINE CH 07/26/2016

* Highly reactive samples overflowed when releasing solution added. Reweighed with minimum water added. Weights written farthest right were used. CH 07/26/2016

058

Batch Worklist

Batch: EWC/ 6526 **Created:** 7/27/2016 13:53 **Instrument:** **HBN:** 173643

Rule: ISM02.3 Cn Micro Dist, Prep **Analyst:** C. Hansen **Status:** NA

Workorder: 1620331 **SDG:** MF1D00 **Case:** 46321

Pos	Lab ID	Sample ID	Prep Initial	Prep Final	Dust Weight	Type	Mx	Container	Procedure	Mgr	Expire Date	Due Date	Run Date
1	510148	S0				STB	3		I23CN...3P	6118	8/8/2016	7/27/2016	
2	510149	S01				STD	3		I23CN...3P	6118	8/8/2016	7/27/2016	
3	510150	S02				STD	3		I23CN...3P	6118	8/8/2016	7/27/2016	
4	510151	S03				STD	3		I23CN...3P	6118	8/8/2016	7/27/2016	
5	510152	S04				STD	3		I23CN...3P	6118	8/8/2016	7/27/2016	
6	510153	S05				STD	3		I23CN...3P	6118	8/8/2016	7/27/2016	
7	510154	S06				STD	3		I23CN...3P	6118	8/8/2016	7/27/2016	
8	510155	ICV				ICV	3		I23CN...3P	6118	8/8/2016	7/27/2016	
9	510156	ICB				ICB	3		I23CN...3P	6118	8/8/2016	7/27/2016	
10	510157	CCV3				CCV	3		I23CN...3P	6118	8/8/2016	7/27/2016	
11	510158	CCB3				CCB	3		I23CN...3P	6118	8/8/2016	7/27/2016	
12	510159	PBS 2				PBS	4		I23CN...4P	6118	8/8/2016	7/27/2016	
13	1620331002	MF1D01 0.5433 g 07/27/16 14:56 Balance 105930 CH				SAMPLE	4	1620331002-A	I23CN...4P	5936	8/2/2016	7/27/2016	

56 059

STANDARD REPORT

Stock Standard - CLPCN-ICV6

CLPCN-ICV6		Description - EPA-CLP CN ICV
Standard: 29902	**Created By:** C. Hansen	**Amount:** 250 mL
MFG: QATS Laboratory	**Create Date:** 10/16/2014	**Expires:** 10/16/2024
MFG Lot: EPA ICV6-0400	**Lab Lot:** CN ICV	**Usable:** Yes
Part ID:		

Pos.	Analyte	Name	Concentration
1	57-12-5	Cyanide	9900 ug/L

56 060

: 00060

STANDARD REPORT

Working Standard - CN INT

CN INT		Description - CN INT 5000
Standard: 32873	**Created By:** C. Hansen	**Amount:** 50 mL
MFG: CRH	**Create Date:** 07/26/2016	**Expires:** 08/02/2016
MFG Lot:	**Lab Lot:** CN INT	**Usable:** Yes
Part ID:		

Pos.	Analyte	Name	Concentration
1	57-12-5	Cyanide	5000 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
31750	CN stock	CN stock	CN stock	0.25 mL	09/30/2016
32636	0.25N NaOH	20g NaOH per 2L DDI water	0.25N NaOH	9.75 mL	07/06/2018
32765	0.25N NaOH	20g NaOH per 2L DDI water	0.25N NaOH	40 mL	07/19/2018

STANDARD REPORT

Constituent

Stock Standard - CN stock

CN stock		Description - CN stock
Standard: 31750	**Created By:** C. Hansen	**Amount:** 120 mL
MFG: Ricca	**Create Date:** 5/10/2016	**Expires:** 9/30/2016
MFG Lot: 2603B34	**Lab Lot:** CN stock	**Usable:** Yes
Part ID: 2543-4		

Pos.	Analyte	Name	Concentration
1	57-12-5	Cyanide	1000 ug/mL

STANDARD REPORT

Constituent

Solvent Standard - 0.25N NaOH

0.25N NaOH			Description - 20g NaOH per 2L DDI water
Standard: 32636	**Created By:** C. Hansen		**Amount:** 2 L
MFG: MACRON	**Create Date:** 7/6/2016		**Expires:** 7/6/2018
MFG Lot: 68773	**Lab Lot:** 0.25N NaOH		**Usable:** Yes
Part ID: balance:105930			

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

STANDARD REPORT

Constituent

Solvent Standard - 0.25N NaOH

0.25N NaOH	Description - 20g NaOH per 2L DDI water

Standard:	32765	**Created By:**	C. Hansen	**Amount:**	2 L
MFG:	MACRON	**Create Date:**	7/19/2016	**Expires:**	7/19/2018
MFG Lot:	112044	**Lab Lot:**	0.25N NaOH	**Usable:**	Yes
Part ID:	balance:105930				

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

56 064

ALSSTANDARDS V2.3
Tue, 08/02/16 8:11 PM

: 00064

ALS - SLC Reagent Report

Reagent ID	Date Created	Expiration Date	Final Volume	Units
848	09/03/2015	09/03/2016		

Analyst: Brittney Austin

Reagent Description	Comments
Releasing solution for cyanide	77mL sulfuric acid = 139g; very exothermic reaction.

Chemical	Vendor	LotNo
ASTM TYPE II water	ALS	

Pipette Used	Volume Used	Units
Grad. Cyln.	444.0000	mL

Balance ID	Weight	Units

Chemical	Vendor	LotNo
Magnesium Chloride HexaHydrate	Calbiochem	D00127194

Pipette Used	Volume Used	Units

Balance ID	Weight	Units
102887	128.8009	g

Chemical	Vendor	LotNo
Sulfuric Acid, conc.	EMD	53232

Pipette Used	Volume Used	Units
dispenser	308.0000	mL

Balance ID	Weight	Units

56 065

Analysis of Cyanide in Soil by ISM02.3

File Location: \\Alsltws013\INORGANIC\WaterLab\ISM02.3

Analyst: Christopher R. Hansen

Instrument ID: Westco SmartChem (WET01)

Analysis Data: 20160727001

Date/Time: 07/27/2016 10:57

WorkOrder#	Sample IDs	Analyte/Matrix	HBN	SDG	CASE
1620331	MF1D00, 02-04, 06-11	Cyanide in Soil	174016	MF1D00	46321

CONVERSION FACTOR: 1 µg/L = 0.012 mg/kg

(µg/L)(0.006 L/0.5g) = µg/g

(µg/g)(1mg/1000µg)(1000g/kg) = mg/kg

SOW-RL: 0.5 mg/kg

MDL: 0.0238 mg/kg

05/10/2016 - 05/10/2017

ANALYSIS REAGENTS:

Entry ID	Solution	Expiration
1379	Chloramine-T	07/28/2016
1227	Color Solution	10/18/2016
1343	Phosphate Buffer	06/27/2017

METHOD INFORMATION:

Prep Method: Micro-Distillation

SOP: SC-EP-CASC-CN

Preparation Date: 07/26/2016 11:26

Preparation HBN: 173504

Prepared By: Christopher R. Hansen

VERIFICATION OF PROCEDURE	
Verified By:	KB
Date Verified:	08/09/2016

CALIBRATION:

Correlation R^2: 0.9997

% Difference : See Raw data.

ANALYSIS PARAMETERS:

See Raw data.

Dilutions: None were required.

Comments: None were required.

Analysis of Cyanide in Soil by ISM02.3

File Location: \\Alsltws013\INORGANIC\WaterLab\ISM02.3

Analyst: Christopher R. Hansen

Instrument ID: Westco SmartChem (WET01)

Analysis Data: 20160728002

Date/Time: 07/28/2016 12:55

WorkOrder#	Sample IDs	Analyte/Matrix	HBN	SDG	CASE
1620331	MF1D01	Cyanide in Soil	174017	MF1D00	46321

CONVERSION FACTOR: 1 µg/L = 0.012 mg/kg

(µg/L)(0.006 L/0.5g) = µg/g

(µg/g)(1mg/1000µg)(1000g/kg) = mg/kg

SOW-RL: 0.5 mg/kg

MDL: 0.0238 mg/kg

05/10/2016 - 05/10/2017

ANALYSIS REAGENTS:

Entry ID	Solution	Expiration
1387	Chloramine-T	07/29/2016
1227	Color Solution	10/18/2016
1343	Phosphate Buffer	06/27/2017

METHOD INFORMATION:

Prep Method: Micro-Distillation

SOP: SC-EP-CASC-CN

Preparation Date: 07/27/2016 14:56

Preparation HBN: 173643

Prepared By: Christopher R. Hansen

VERIFICATION OF PROCEDURE	
Verified By:	KB
Date Verified:	08/09/2016

CALIBRATION:

Correlation R^2: 0.999

% Difference : See Raw data.

ANALYSIS PARAMETERS:

See Raw data.

Dilutions: None were required.

Comments: None were required.

Batch Worklist

Batch: EWC/ 6542 **Created:** 8/2/2016 19:23 **Instrument:** **HBN:** 174016
Rule: ISM02.3 Cn MicroDist, Analysis **Analyst:** C. Hansen **Status:** WP

Workorder: 1620331 **SDG:** MF1D00 **Case:** 46321

Pos	Lab ID	Sample ID	Prep Initial	Prep Final	Dust Weight	Type	Mx	Container	Procedure	Mgr	Expire Date	Due Date	Run Date
1	509820	S0	6 mL	6 mL		STB	3		I23CN....3	6118	8/6/2016	8/10/2016	
2	509821	S01	6 mL	6 mL		STD	3		I23CN....3	6118	8/6/2016	8/10/2016	
3	509822	S02	6 mL	6 mL		STD	3		I23CN....3	6118	8/6/2016	8/10/2016	
4	509823	S03	6 mL	6 mL		STD	3		I23CN....3	6118	8/6/2016	8/10/2016	
5	509824	S04	6 mL	6 mL		STD	3		I23CN....3	6118	8/6/2016	8/10/2016	
6	509825	S05	6 mL	6 mL		STD	3		I23CN....3	6118	8/6/2016	8/10/2016	
7	509826	S06	6 mL	6 mL		STD	3		I23CN....3	6118	8/6/2016	8/10/2016	
8	509827	ICV	6 mL	6 mL		ICV	3		I23CN....3	6118	8/6/2016	8/10/2016	
9	509828	ICB	6 mL	6 mL		ICB	3		I23CN....3	6118	8/6/2016	8/10/2016	
10	509829	CCV1	6 mL	6 mL		CCV	3		I23CN....3	6118	8/6/2016	8/10/2016	
11	509830	CCB1	6 mL	6 mL		CCB	3		I23CN....3	6118	8/6/2016	8/10/2016	
12	509804	PBS 1	.5 grams	6 mL		PBS	4		I23CN....4	6118	8/6/2016	8/10/2016	
13	1620331001	MF1D00	.5066 grams	6 mL		SAMPLE	4	1620331001-A	I23CN....4	5936	8/2/2016	8/10/2016	
14	1620331003	MF1D02	.5303 grams	6 mL		SAMPLE	4	1620331003-A	I23CN....4	5936	8/2/2016	8/10/2016	
15	1620331004	MF1D02S	.5326 grams	6 mL		MS	4	1620331004-A	I23CN....4	5936	8/2/2016	8/10/2016	
16	1620331005	MF1D02D	.5324 grams	6 mL		MD	4	1620331005-A	I23CN....4	5936	8/2/2016	8/10/2016	
17	1620331006	MF1D03	.5422 grams	6 mL		SAMPLE	4	1620331006-A	I23CN....4	5936	8/2/2016	8/10/2016	
18	1620331007	MF1D04	.5817 grams	6 mL		SAMPLE	4	1620331007-A	I23CN....4	5936	8/2/2016	8/10/2016	
19	1620331008	MF1D06	.5142 grams	6 mL		SAMPLE	4	1620331008-A	I23CN....4	5936	8/2/2016	8/10/2016	
20	1620331009	MF1D07	.504 grams	6 mL		SAMPLE	4	1620331009-A	I23CN....4	5936	8/2/2016	8/10/2016	
21	1620331010	MF1D08	.5073 grams	6 mL		SAMPLE	4	1620331010-A	I23CN....4	5936	8/2/2016	8/10/2016	
22	1620331011	MF1D09	.5219 grams	6 mL		SAMPLE	4	1620331011-A	I23CN....4	5936	8/2/2016	8/10/2016	
23	1620331012	MF1D10	.556 grams	6 mL		SAMPLE	4	1620331012-A	I23CN....4	5936	8/2/2016	8/10/2016	
24	1620331013	MF1D11	.501 grams	6 mL		SAMPLE	4	1620331013-A	I23CN....4	5936	8/2/2016	8/10/2016	

56 068

Batch Worklist

Batch: EWC/ 6543 **Created:** 8/2/2016 19:25 **Instrument:** **HBN:** 174017

Rule: ISM02.3 Cn MicroDist, Analysis **Analyst:** C. Hansen **Status:** WP

Workorder: 1620331 **SDG:** MF1D00 **Case:** 46321

Pos	Lab ID	Sample ID	Prep Initial	Prep Final	Dust Weight	Type	Mx	Container	Procedure	Mgr	Expire Date	Due Date	Run Date
1	510148	S0	6 mL	6 mL		STB	3		I23CN....3	6118	8/8/2016	8/10/2016	
2	510149	S01	6 mL	6 mL		STD	3		I23CN....3	6118	8/8/2016	8/10/2016	
3	510150	S02	6 mL	6 mL		STD	3		I23CN....3	6118	8/8/2016	8/10/2016	
4	510151	S03	6 mL	6 mL		STD	3		I23CN....3	6118	8/8/2016	8/10/2016	
5	510152	S04	6 mL	6 mL		STD	3		I23CN....3	6118	8/8/2016	8/10/2016	
6	510153	S05	6 mL	6 mL		STD	3		I23CN....3	6118	8/8/2016	8/10/2016	
7	510154	S06	6 mL	6 mL		STD	3		I23CN....3	6118	8/8/2016	8/10/2016	
8	510155	ICV	6 mL	6 mL		ICV	3		I23CN....3	6118	8/8/2016	8/10/2016	
9	510156	ICB	6 mL	6 mL		ICB	3		I23CN....3	6118	8/8/2016	8/10/2016	
10	510157	CCV3	6 mL	6 mL		CCV	3		I23CN....3	6118	8/8/2016	8/10/2016	
11	510158	CCB3	6 mL	6 mL		CCB	3		I23CN....3	6118	8/8/2016	8/10/2016	
12	510159	PBS 2	.5 grams	6 mL		PBS	4		I23CN....4	6118	8/8/2016	8/10/2016	
13	1620331002	MF1D01	.5433 grams	6 mL		SAMPLE	4	1620331002-A	I23CN....4	5936	8/2/2016	8/10/2016	

56 069

ALS - SLC Reagent Report

Reagent ID	Date Created	Expiration Date	Final Volume	Units
1379	07/27/2016	07/28/2016	25.0000	mL

Analyst: Christopher Hansen

Reagent Description

CN - Chloramine T

Comments

made at 09:30 - use within 24 hours

Chemical	Vendor	LotNo
Chloramine-T	Mallinckrodt	0614B21H11

Pipette Used	Volume Used	Units
	0.0000	mL

Balance ID	Weight	Units
105930	0.2495	g

56 070

ALS - SLC Reagent Report

Reagent ID	Date Created	Expiration Date	Final Volume	Units
1387	07/28/2016	07/29/2016	25.0000	mL

Analyst: Christopher Hansen

Reagent Description	Comments
CN - Chloramine T	made at 09:38 - use within 24 hours

Chemical	Vendor	LotNo
Chloramine-T	Mallinckrodt	0614B21H11

Pipette Used	Volume Used	Units
	0.0000	mL

Balance ID	Weight	Units
105930	0.2496	g

56 071

ALS - SLC Reagent Report

Reagent ID	Date Created	Expiration Date	Final Volume	Units
1227	04/18/2016	10/18/2016	500.0000	mL

Analyst: Christopher Hansen

Reagent Description	Comments
CN - Pyridine Color Reagent	

Chemical	Vendor	LotNo
Barbituric Acid 99%	Aldrich	07021HU

Pipette Used	Volume Used	Units

Balance ID	Weight	Units
102887	7.5026	g

Chemical	Vendor	LotNo
HCl conc.	Millipore	55177

Pipette Used	Volume Used	Units
dispenser	7.5000	mL

Balance ID	Weight	Units

Chemical	Vendor	LotNo
Pyradine	EM Science	53009

Pipette Used	Volume Used	Units
Grad. Cyln.	37.5000	mL

Balance ID	Weight	Units

56 072

ALS - SLC Reagent Report

Reagent ID	Date Created	Expiration Date	Final Volume	Units
1343	06/27/2016	06/27/2017	500.0000	mL

Analyst: Christopher Hansen

Reagent Description

CN - Phosphate Buffer

Comments

Contains 0.25mL of Westco Rinse Solution LOT# 168022

Chemical	Vendor	LotNo

Pipette Used	Volume Used	Units
	0.0000	mL

Balance ID	Weight	Units
	0.0000	g

Chemical	Vendor	LotNo
Sodium Dihydrogen Phosphate	Alfa Aesar	R22A024

Pipette Used	Volume Used	Units
	0.0000	mL

Balance ID	Weight	Units
105930	69.0038	g

56 073

% Moistures & Solids

Analyst: IJO
Queue: EGRV
Batch: 5674
Instrument: GRAV03

Oven Start Time 07/25/2016 14:30 P.M. **Start Oven Temp:** 105° **Start Desiccator:** 07/26/2016 10:00 A.M.
Oven Finish Time 07/26/2016 10:00 A.M. **End Oven Temp:** 105° **End Desiccator:** 07/26/2016 11:30 A.M

Workorder	Dish#	Lab Sample ID	Dish (g)	Dish + Soil (g)	Soil Weight (g)	Dish + DS (g)	Dry Soil (g)	% Solids	% Moistures
1620331	1	1620331001	1.2773	9.7286	8.4513	8.3312	7.0539	83.4653%	16.5347%
1620331	2	1620331002	1.2710	9.7872	8.5162	8.2803	7.0093	82.3055%	17.6945%
1620331	3	1620331003	1.2696	9.5825	8.3129	8.1235	6.8539	82.4490%	17.5510%
1620331	4	1620331005	1.2630	9.5598	8.2968	8.1448	6.8818	82.9452%	17.0548%
1620331	5	1620331006	1.2692	9.7053	8.4361	7.8555	6.5863	78.0728%	21.9272%
1620331	6	1620331007	1.2573	9.8073	8.5500	7.7184	6.4611	75.5684%	24.4316%
1620331	7	1620331008	1.2608	9.8204	8.5596	8.3262	7.0654	82.5436%	17.4564%
1620331	8	1620331009	1.2606	9.9694	8.7088	8.4558	7.1952	82.6199%	17.3801%
1620331	9	1620331010	1.2648	9.8299	8.5651	7.4995	6.2347	72.7919%	27.2081%
1620331	10	1620331011	1.2642	9.7705	8.5063	6.8932	5.6290	66.1745%	33.8255%
1620331	11	1620331012	1.2680	9.7469	8.4789	7.3183	6.0503	71.3571%	28.6429%
1620331	12	1620331013	1.2618	9.8097	8.5479	6.3354	5.0736	59.3549%	40.6451%

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: EPW14027	***Split:***	**Workorder ID:** 1620331	**Level:** EPACLP_PDF
Client: U. S. EPA Region 6 [46321/MF1D00]		**Account:** 8201	**Type:** 8ozGWM
Comments:			**Preservatives** COOL

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	Requested Analysis: ISM02.3 Cyanide, Soil
1	07/20/2016 14:15	MF1D00	1620331001		Soil/Solid/Sediment	A	1	A
2	07/20/2016 14:30	MF1D01	1620331002		Soil/Solid/Sediment	A	1	A
3	07/20/2016 10:35	MF1D02	1620331003		Soil/Solid/Sediment	A	1	A
4	07/20/2016 10:35	MF1D02S	1620331004	MS	Soil/Solid/Sediment	A	1	A
5	07/20/2016 10:35	MF1D02D	1620331005	MD	Soil/Solid/Sediment	A	1	A
6	07/20/2016 10:55	MF1D03	1620331006		Soil/Solid/Sediment	A	1	A
7	07/20/2016 11:10	MF1D04	1620331007		Soil/Solid/Sediment	A	1	A
8	07/20/2016 09:15	MF1D06	1620331008		Soil/Solid/Sediment	A	1	A
9	07/20/2016 10:40	MF1D07	1620331009		Soil/Solid/Sediment	A	1	A
10	07/20/2016 12:20	MF1D08	1620331010		Soil/Solid/Sediment	A	1	A

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Edwards, Meredith D.	07/21/2016 08:56	ALS Sample Receiving	Sample Login
Meredith Edwards	7/21/2016 1006	FB	Storage
R-33-17B IJO	07/25/16 12:00	Elsie J Ovalle	solid
Elsie J Ovalle	07/25/16 16:00	R-33-17B IJO	Storage

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

56 075

Thu, 07/21/16 10:04 AM

ALSCOCV3.1

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: EPW14027 | **Split:** | **Workorder ID:** 1620331 | **Level:** EPACLP_PDF

Client: U. S. EPA Region 6 [46321/MF1D00] | **Account:** 8201 | **Type:** 8ozGWM

Comments:

Preservatives: COOL

Requested Analysis: ISM02.3 Cyanide, Soil

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	ISM02.3 Cyanide, Soil
11	07/20/2016 14:40	MF1D09	1620331011		Soil/Solid/Sediment	A	1	A
12	07/20/2016 09:45	MF1D10	1620331012		Soil/Solid/Sediment	A	1	A
13	07/20/2016 09:30	MF1D11	1620331013		Soil/Solid/Sediment	A	1	A
14								
15								
16								
17								
18								
19								
20								

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Edwards, Meredith D.	07/21/2016 08:56	ALS Sample Receiving	Sample Login
Meredith Edwards	7/21/2016 10:00	FB	Storage
R-33-17B JJO	07/25/16 12:00	Alex Orralle	Solid
Alex Orralle	07/25/16 16:00	R-33-17B JJO	Storage

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

56 076

Thu, 07/21/16 10:04 AM

ALSCOCV3.1

FedEx Express **Package US Airbill**

FedEx Tracking Number 8102 5780 1911

Form ID No. 0200

To CLP Lab

Recipient's Copy

1 From

Date

Sender's Name: Adrienne Love Phone: 512 239 2273

Company: TCEQ

Address: 12100 Park 35 Circle MC-136 Dept/Floor/Suite/Room

City: Austin State: TX ZIP: 78753

2 Your Internal Billing Reference 16-606 12/4441/703603

3 To

Recipient's Name: Meredith Edwards Phone: 801 266 7700

Company: ALS Laboratory Group - Salt Lake

Address: 9100 West Le Voy Dr. Dept/Floor/Suite/Room

We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address: Use this line for the HOLD location address or for continuation of your shipping address.

City: Salt Lake City State: UT ZIP: 84123

Hold Weekday — FedEx location address REQUIRED. NOT available for FedEx First Overnight.

Hold Saturday — FedEx location address REQUIRED. Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.

8102 5780 1911

4 Express Package Service * To most locations.

Packages up to 150 lbs. For packages over 150 lbs., use the FedEx Express Freight US Airbill.

Next Business Day

- [ ] FedEx First Overnight — Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless Saturday Delivery is selected.
- [x] FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless Saturday Delivery is selected.
- [ ] FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available.

2 or 3 Business Days

- [ ] FedEx 2Day A.M. — Second business morning.* Saturday Delivery NOT available.
- [ ] FedEx 2Day — Second business afternoon.* Thursday shipments will be delivered on Monday unless Saturday Delivery is selected.
- [ ] FedEx Express Saver — Third business day.* Saturday Delivery NOT available.

5 Packaging * Declared value limit $500.

- [ ] FedEx Envelope*
- [ ] FedEx Pak*
- [ ] FedEx Box
- [ ] FedEx Tube
- [x] Other

6 Special Handling and Delivery Signature Options Fees may apply. See the FedEx Service Guide.

- [ ] Saturday Delivery — NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.
- [ ] No Signature Required — Package may be left without obtaining a signature for delivery.
- [ ] Direct Signature — Someone at recipient's address may sign for delivery.
- [ ] Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only.

Does this shipment contain dangerous goods? One box must be checked.

- [ ] No
- [ ] Yes — As per attached Shipper's Declaration.
- [ ] Yes — Shipper's Declaration not required.
- [ ] Dry Ice — Dry ice, 9, UN 1845 ____ x ____ kg
- [ ] Cargo Aircraft Only

Restrictions apply for dangerous goods — see the current FedEx Service Guide.

7 Payment *Bill to:*

Enter FedEx Acct. No. or Credit Card No. below. Obtain recip. Acct. No. [ ]

- [x] Sender — Acct. No. in Section 1 will be billed.
- [ ] Recipient
- [ ] Third Party
- [ ] Credit Card
- [ ] Cash/Check

Credit Card Auth.

Total Packages ____ Total Weight ____ lbs.

†Our liability is limited to US$100 unless you declare a higher value. See the current FedEx Service Guide for details.

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644

fedex.com 1.800.GoFedEx 1.800.463.3339

Right Open End of FedEx Pouch Here

56 077

SAMPLE TAG INFORMATION SHEET

There are no Sample Tags included with this SDG

Notations concerning the location of the Sample Tags are included in Forms DC-1,, DC-2 and in the SDG Administrative Narrative (if it is required).

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: EPW14027 | ***Split:*** | **Workorder ID:** 1620331 | **Level:** EPACLP_PDF

Client: U. S. EPA Region 6 [46321/MF1D00] | **Account:** 8201 | **Type:** 8ozGWM

Comments:

Preservatives: COOL

Requested Analysis: ISM02.3 Cyanide, Soil

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	ISM02.3 Cyanide, Soil
1	07/20/2016 14:15	MF1D00	1620331001		Soil/Solid/Sediment	A	1	A
2	07/20/2016 14:30	MF1D01	1620331002		Soil/Solid/Sediment	A	1	A
3	07/20/2016 10:35	MF1D02	1620331003		Soil/Solid/Sediment	A	1	A
4	07/20/2016 10:35	MF1D02S	1620331004	MS	Soil/Solid/Sediment	A	1	A
5	07/20/2016 10:35	MF1D02D	1620331005	MD	Soil/Solid/Sediment	A	1	A
6	07/20/2016 10:55	MF1D03	1620331006		Soil/Solid/Sediment	A	1	A
7	07/20/2016 11:10	MF1D04	1620331007		Soil/Solid/Sediment	A	1	A
8	07/20/2016 09:15	MF1D06	1620331008		Soil/Solid/Sediment	A	1	A
9	07/20/2016 10:40	MF1D07	1620331009		Soil/Solid/Sediment	A	1	A
10	07/20/2016 12:20	MF1D08	1620331010		Soil/Solid/Sediment	A	1	A

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Edwards, Meredith D.	07/21/2016 08:56	ALS Sample Receiving	Sample Login
Meredith Edwards	7/21/2016 1006	7B	Storage
R-33-17B JJO	07/25/16 12:00	Elise Orvalle	solid
Elise Orvalle	07/25/16 16:00	R-33-17B JJO	Storage
R-33-1 (7B) CH	07/25/2016 18:15	wet chem lab CH	CN prep

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

56 079

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: EPW14027	Split:	Workorder ID: 1620331	Level: EPACLP_PDF
Client: U. S. EPA Region 6 [46321/MF1D00]		Account: 8201	Type: 8ozGWM
Comments:			Preservatives: COOL

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	Requested Analysis: ISM02.3 Cyanide, Soil
11	07/20/2016 14:40	MF1D09	1620331011		Soil/Solid/Sediment	A	1	A
12	07/20/2016 09:45	MF1D10	1620331012		Soil/Solid/Sediment	A	1	A
13	07/20/2016 09:30	MF1D11	1620331013		Soil/Solid/Sediment	A	1	A
14								
15								
16								
17								
18								
19								
20								

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Edwards, Meredith D.	07/21/2016 08:56	ALS Sample Receiving	Sample Login
Meredith Edwards	7/21/2016 1006	7B	Storage
R-33-17B IJO	07/25/16 12:00	Alise J Ovalle	solid
Alise J Ovalle	07/25/16 16:00	R-33-17B IJO	storage
R-33-1 (7B) CH	07/25/2016 18:15	wet chem lab CH	CN prep

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

56 080

Thu, 07/21/16 10:04 AM

ALSCOCV3.1

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: EPW14027	Split:	Workorder ID: 1620331	Level: EPACLP_PDF
Client: U. S. EPA Region 6 [46321/MF1D00]		Account: 8201	Type: 8ozGWM
Comments:			Preservatives: COOL

Requested Analysis: ISM02.3 Cyanide, Soil

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	ISM02.3 Cyanide, Soil
1	07/20/2016 14:15	MF1D00	1620331001		Soil/Solid/Sediment	A	1	A
~~2~~	~~07/20/2016 14:30~~	~~MF1D01~~	~~1620331002~~		~~Soil/Solid/Sediment~~	~~A~~	~~1~~	~~A~~
3	07/20/2016 10:35	MF1D02	1620331003		Soil/Solid/Sediment	A	1	A
4	07/20/2016 10:35	MF1D02S	1620331004	MS	Soil/Solid/Sediment	A	1	A
5	07/20/2016 10:35	MF1D02D	1620331005	MD	Soil/Solid/Sediment	A	1	A
6	07/20/2016 10:55	MF1D03	1620331006		Soil/Solid/Sediment	A	1	A
7	07/20/2016 11:10	MF1D04	1620331007		Soil/Solid/Sediment	A	1	A
8	07/20/2016 09:15	MF1D06	1620331008		Soil/Solid/Sediment	A	1	A
9	07/20/2016 10:40	MF1D07	1620331009		Soil/Solid/Sediment	A	1	A
10	07/20/2016 12:20	MF1D08	1620331010		Soil/Solid/Sediment	A	1	A

CH 08/02/2016

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Edwards, Meredith D.	07/21/2016 08:56	ALS Sample Receiving	Sample Login
Meredith Edwards	7/21/2016 1006	7B	storage
R-33-17B JJO	07/25/16 12:00	Elise Orvalle	solid
Elise Orvalle	07/25/16 16:00	R-33-17B JJO	storage
R-33-1 (7B) CH	07/25/2016 18:15	wet chem lab CH	CN prep

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: Cyanide soil
Prepared / Analyzed by: CH / CH
Lab Notebook No.: HBN:174016,17
Date / Time: 07/25/2016 11:26

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
wet chem lab CH	07/26/2016 15:07	R-403-1 (44) CH	storage
R-403-1 (44) CH	07/27/2016 08:54	wet chem lab CH	CN analysis
wet chem lab CH	08/02/2016 20:30	CN waste disposal CH	Disposed

CH 08/02/2016

56 081

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: EPW14027	Split:	Workorder ID: 1620331	Level: EPACLP_PDF
Client: U. S. EPA Region 6 [46321/MF1D00]		Account: 8201	Type: 8ozGWM
Comments:			Preservatives: COOL

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	Requested Analysis: ISM02.3 Cyanide, Soil
11	07/20/2016 14:40	MF1D09	1620331011		Soil/Solid/Sediment	A	1	A
12	07/20/2016 09:45	MF1D10	1620331012		Soil/Solid/Sediment	A	1	A
13	07/20/2016 09:30	MF1D11	1620331013		Soil/Solid/Sediment	A	1	A
14								
15								
16								
17								
18								
19								
20								

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Edwards, Meredith D.	07/21/2016 08:56	ALS Sample Receiving	Sample Login
[signature]	7/21/2016 1006	7B	Storage
R-33-17B IJO	07/25/16 12:00	[signature]	Solid
[signature]	07/25/16 16:00	R-33-17B IJO	Storage
R-33-1 (7B) CH	07/25/2016 18:15	wet chem lab CH	CN prep

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: Cyanide Soil — Lab Notebook No.: HBN:174016,17

Prepared / Analyzed by: CH / CH — Date / Time: 07/25/2016 11:27

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
wet chem lab CH	07/26/2016 15:07	R-403-1 (44) CH	storage
R-403-1 (44) CH	07/27/2016 08:54	wet chem lab CH	CN analysis
wet chem lab CH	~~07~~ 08/02/2016 20:30	CN waste	Disposed
		CH 08/02/2016	

56 082

Thu, 07/21/16 10:04 AM

ALSCOCV3.1

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: EPW14027	Split:	Workorder ID: 1620331	Level: EPACLP_PDF	Requested Analysis
Client: U. S. EPA Region 6 [46321/MF1D00]		Account: 8201	Type: 8ozGWM	
Comments:			Preservatives: COOL	

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	ISM02.3 Cyanide, Soil
~~1~~	~~07/20/2016 14:15~~	~~MF1D00~~	~~1620331001~~		~~Soil/Solid/Sediment~~	~~A~~	~~1~~	~~A~~
2	07/20/2016 14:30	MF1D01	1620331002		Soil/Solid/Sediment	A	1	A
3	07/20/2016 10:35	MF1D02	1620331003		Soil/Solid/Sediment	A	1	A
4	07/20/2016 10:35	MF1D02S	1620331004	MS	Soil/Solid/Sediment	A	1	A
5	07/20/2016 10:35	MF1D02D	1620331005	MD	Soil/Solid/Sediment	A	1	A
6	07/20/2016 10:55	MF1D03	1620331006		Soil/Solid/Sediment	A	1	A
7	07/20/2016 11:10	MF1D04	1620331007		Soil/Solid/Sediment	A	1	A
8	07/20/2016 09:15	MF1D06	1620331008		Soil/Solid/Sediment	A	1	A
9	07/20/2016 10:40	MF1D07	1620331009		Soil/Solid/Sediment	A	1	A
10	07/20/2016 12:20	MF1D08	1620331010		Soil/Solid/Sediment	A	1	A

CH 08/02/2016

CH 08/02/2016

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Edwards, Meredith D.	07/21/2016 08:56	ALS Sample Receiving	Sample Login
Meredith Edwards	7/21/2016 1006	7B	storage
R-33-17B JJO	07/25/16 12:00	Elsa J Orvalle	solid
Elsa J Orvalle	07/25/16 16:00	R-33-17B JJO	storage
R-33-1 (7B) CH	07/25/2016 18:15	wet chem lab CH	CN prep

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: Cyanide Soil

Lab Notebook No.: HBN: 174015, 17

Prepared / Analyzed by: CH/CH

Date / Time: 07/27/2016 11:20

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
wet chem lab CH	07/27/2016 16:25	R-403-1 (43) CH	storage
R-403-1 (43) CH	07/28/2016 09:28	wet chem lab CH	CN Analysis
wet chem lab CH	08/02/2016 20:30	CN waste	Disposed CH 08/22/2016

56 083

Roxanne Olson

From: Dean, Whitlee <Whitlee.Dean@csra.com>
Sent: Tuesday, August 02, 2016 12:57 PM
To: Roxanne Olson
Cc: Flores.Raymond@epa.gov; Humphrey.marvelyn@Epa.gov; Nick Gannon; perez.myra@epa.gov; Sylvia Gorostiza
Subject: Region 06 | Case 46321 | Lab ALS | Issue Non-sampler Issues | FINAL

Good afternoon Roxy,

Issue: Samples MF1D02, MF1D03, MF1D04, and MF1D07 and may contain high concentrations of mercury as indicated below.

S0-03 off calibration scale
S0-04 35 ppb
S0-05 18 ppb
S0-08 175 ppb

Resolution: Per Region 6, the laboratory should use caution when analyzing these samples. Please note the issue in the SDG Narrative and proceed with the analysis of the samples.

Please let me know if you have any questions or problems. To waive any defect(s) associated with this issue, please contact your Regional CLP COR.
Thanks,

WHITLEE DEAN
Environmental Coordinator-Regions 1, 6, and 9
CSRA LLC
6361 Walker Lane, Alexandria, VA 22310
t: +1.703.461.2322 | Whitlee.Dean@csra.com
www.csra.com
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-----Original Message-----
From: Flores, Raymond [mailto:flores.raymond@epa.gov]
Sent: Tuesday, August 02, 2016 2:42 PM
To: Dean, Whitlee <Whitlee.Dean@csra.com>
Cc: Moody, Brett <Moody.Brett@epa.gov>
Subject: FW: XXX Day 3

Whitlee,

Please notify ALS that some of these samples are high in mercury and to use caution when performing cyanide analysis:

S0-03 off calibration scale
S0-04 35 ppb

S0-05 18 ppb
S0-08 175 ppb

RAYMOND FLORES

Digitally signed by RAYMOND FLORES
DN: c=US, o=U.S. Government, ou=USEPA, ou=Staff, cn=RAYMOND FLORES, dnQualifier=0000004084
Date: 2017.08.15 12:49:56 -05'00'

-----Original Message-----
From: Perez, Myra
Sent: Thursday, July 21, 2016 8:36 AM
To: Flores, Raymond <flores.raymond@epa.gov>
Subject: FW: XXX Day 3

Ray - please see message concerning samples with potential of being high concentration. Do you need to notify the lab?

-----Original Message-----
From: Adrienne Love [mailto:adrienne.love@tceq.texas.gov]
Sent: Wednesday, July 20, 2016 5:37 PM
To: whitlee.dean@csra.com
Cc: Perez, Myra <perez.myra@epa.gov>; Rebecca Storms <Rebecca.Comeaux@tceq.onmicrosoft.com>
Subject: RE: XXX Day 3

Samples MF1D02, MF1D03, MF1D04, and MF1D07 may have high concentrations.

From: Adrienne Love
Sent: Wednesday, July 20, 2016 5:27 PM
To: whitlee.dean@csra.com
Cc: perez.myra@epa.gov; Rebecca Storms
Subject: RE: Lane Plating Day 3

Whitlee,

Day 3 information for the XXX site:

a. The case number. - 46321
b. Name of laboratory. - ALS Laboratory Group Salt Lake City
c. Airbill number. -810257801911
d. Number of coolers under each airbill number. -1
e. Number of samples per matrix per concentration in each cooler. 7 soil samples, 4 sediment samples and 3 aqueous samples.
f. Type of analysis. - cyanide analysis.

Thanks,
Adrienne ALove 8/11/17

From: Adrienne Love
Sent: Tuesday, July 19, 2016 9:54 PM
To: whitlee.dean@csra.com
Cc: perez.myra@epa.gov; Rebecca Storms
Subject: RE: XXX Day 1

Whitlee,

Day 2 information for the XXX site:

a. The case number. - 46321

b. Name of laboratory. - ALS Laboratory Group Salt Lake City
c. Airbill number. -809524402130
d. Number of coolers under each airbill number. -1
e. Number of samples per matrix per concentration in each cooler. 1 soil sample, 4 sediment samples and 3 aqueous samples.
f. Type of analysis. - cyanide analysis.

Thanks,
Adrienne Love, P.G.
TCEQ Remediation
Superfund Section

ALove 8/11/17

From: Adrienne Love
Sent: Monday, July 18, 2016 10:03 PM
To: whitlee.dean@csra.com
Cc: perez.myra@epa.gov; Rebecca Storms
Subject: XXX Day 1

Hello Whitlee,

See below for information on July 18, 2016 chain of custody for the XXX Site Inspection.
a. The case number. - 46321
b. Name of laboratory. - ALS Laboratory Group Salt Lake City
c. Airbill number. - 809524402173
d. Number of coolers under each airbill number. -1
e. Number of samples per matrix per concentration in each cooler. 3 sediment samples and 3 aqueous samples.
f. Type of analysis. - cyanide analysis.
g. Shipping complete? - no.

Please let me know if there are any questions.
Thank you,
Adrienne Love, P.G.
TCEQ Remediation
Superfund Section

ALove 8/11/17

ALS Group: Click here to report this email as spam.

Roxanne Olson

From: Dean, Whitlee <Whitlee.Dean@csra.com>
Sent: Thursday, July 21, 2016 7:47 AM
To: Roxanne Olson
Cc: Flores.Raymond@epa.gov; Humphrey.marvelyn@Epa.gov; Nick Gannon; perez.myra@epa.gov; Sylvia Gorostiza
Subject: Region 06 | Case 46321 | Lab ALS | Issue Non-sampler Issues | FINAL

Good morning,

Issue: Samples MF1D02, MF1D03, MF1D04, and MF1D07 were shipped to the laboratory under airbill 810257801911 and may contain high concentrations.
Resolution: Per Region 6, the laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.

Please let me know if you have any questions or problems. To waive any defect(s) associated with this issue, please contact your Regional CLP COR.
Thanks,

WHITLEE DEAN
Environmental Coordinator-Regions 1, 6, and 9
CSRA LLC
6361 Walker Lane, Alexandria, VA 22310
t: +1.703.461.2322 | Whitlee.Dean@csra.com
www.csra.com
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From: Flores, Raymond [mailto:flores.raymond@epa.gov]
Sent: Thursday, July 21, 2016 9:40 AM
To: Dean, Whitlee <Whitlee.Dean@csra.com>
Subject: Please notify ALS

Samples MF1D02, MF1D03, MF1D04, and MF1D07 may have high concentrations.

a. The case number. - 46321
b. Name of laboratory. - ALS Laboratory Group Salt Lake City
c. Airbill number. -810257801911
d. Number of coolers under each airbill number. -1
e. Number of samples per matrix per concentration in each cooler. 7 soil samples, 4 sediment samples and 3 aqueous samples.
f. Type of analysis. - cyanide analysis.

Raymond Flores
USEPA Region 6
CLP Laboratory COR
ESAT PO

RAYMOND FLORES

Digitally signed by RAYMOND FLORES
DN: c=US, o=U.S. Government, ou=USEPA, ou=Staff, cn=RAYMOND FLORES, dnQualifier=0000004084
Date: 2017.08.15 12:51:33 -05'00'

ALS Group: Click here to report this email as spam.

Roxanne Olson

From:	Dean, Whitlee <Whitlee.Dean@csra.com>
Sent:	Thursday, July 21, 2016 10:33 AM
To:	Roxanne Olson
Cc:	Flores, Raymond; Humphrey, Marvelyn; Gannon, Nick; Gorostiza, Sylvia; Kendrick, Bret; Perez, Myra
Subject:	Region 06 | Case 46321 | Lab ALS | Issue Discrepancies with tags, jars, and/or COC | FINAL

Good afternoon Roxy,

Issue: The laboratory received a soil sample labeled as SE-02. It matches the information for sample MF1D09; however, the label lists TM/Hg not CN. The laboratory is only scheduled for CN samples. The laboratory did not receive any other containers for this sample so they will be using it for CN analysis.
Resolution: Per Region 6, the laboratory should analyze the sample for CN as scheduled. Please note the issue in the SDG Narrative and proceed with the analysis of the samples.

Please let me know if you have any questions or problems. To waive any defect(s) associated with this issue, please contact your Regional CLP COR.
Thanks,

WHITLEE DEAN
Environmental Coordinator-Regions 1, 6, and 9
CSRA LLC
6361 Walker Lane, Alexandria, VA 22310
t: +1.703.461.2322 | Whitlee.Dean@csra.com
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From: Perez, Myra [mailto:perez.myra@epa.gov]
Sent: Thursday, July 21, 2016 12:29 PM
To: Dean, Whitlee <Whitlee.Dean@csra.com>
Cc: Flores, Raymond <flores.raymond@epa.gov>; Humphrey, Marvelyn <humphrey.marvelyn@epa.gov>; Gannon, Nick <Gannon.Nick@epa.gov>; Gorostiza, Sylvia <Gorostiza.Sylvia@epa.gov>; Kendrick, Bret <kendrick.bret@epa.gov>
Subject: RE: Region 06 | Case 46321 | Lab ALS | Issue Discrepancies with tags, jars, and/or COC

Hello Whitlee – The lab shall note the issue and resolution in the SDG narrative and analyze for CN as scheduled.

Thank you.

Myra Perez
R6 CLP RSCC
281-983-2130

MYRA PEREZ

Digitally signed by MYRA PEREZ
DN: c=US, o=U.S. Government, ou=USEPA, ou=Staff, cn=MYRA PEREZ, dnQualifier=0000009936
Date: 2017.08.15 12:31:08 -05'00'

From: Dean, Whitlee [mailto:Whitlee.Dean@csra.com]
Sent: Thursday, July 21, 2016 11:18 AM

To: Perez, Myra <perez.myra@epa.gov>
Cc: Flores, Raymond <flores.raymond@epa.gov>; Humphrey, Marvelyn <humphrey.marvelyn@epa.gov>; Gannon, Nick <Gannon.Nick@epa.gov>; Gorostiza, Sylvia <Gorostiza.Sylvia@epa.gov>
Subject: Region 06 | Case 46321 | Lab ALS | Issue Discrepancies with tags, jars, and/or COC

Good afternoon,

ALS is reporting the following issue. Please advise how the laboratory should proceed.

Issue: The laboratory received a soil sample labeled as SE-02. It matches the information for sample MF1D09; however, the label lists TM/Hg not CN. The laboratory is only scheduled for CN samples. The laboratory did not receive any other containers for this sample so they will be using it for CN analysis.

Please let me know if you have any questions,
Thanks,

WHITLEE DEAN
Environmental Coordinator-Regions 1, 6, and 9
CSRA LLC
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t: +1.703.461.2322 | Whitlee.Dean@csra.com
www.csra.com
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From: Roxanne Olson [mailto:Roxanne.Olson@ALSGlobal.com]
Sent: Thursday, July 21, 2016 12:01 PM
To: Dean, Whitlee <Whitlee.Dean@csra.com>
Subject: FW: Inorganic Case 46321

Whitlee:

See Mere's comment concerning one soil sample we received today. Pic and CoC attached.

Roxy

For further information about ALS Environmental - Salt Lake City, the following link will lead you to our facility's webpage. Check us Out!

Scroll down for available PDF Downloads including: Industrial Hygiene Analytical Request Form; Environmental CoC; Statement of Qualifications; Salt Lake City Test Catalog and Fee Schedule; and much more.

WEB: www.alsglobal.com

Regards, Roxanne Olson 8/14/17

Roxanne Olson
Client Services Manager/Project Manager, Environmental
Salt Lake City

56 090
: 00090

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F +1 801 268 9992 M +1 801 879 5889
roxanne.olson@alsglobal.com
960 West LeVoy Drive
Salt Lake City, UT 84123

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www.alsglobal.com

From: Meredith D. Edwards
Sent: Thursday, July 21, 2016 9:51 AM
To: Roxanne Olson <Roxanne.Olson@ALSGlobal.com>
Subject: Inorganic Case 46321

I received one soil sample labeled as SE-02. It matches the information of MF1D09. However, the label shows for TM/Hg not for CN. I didn't received any other containers for this sample, so I will be using it for CN.
Mere

Regards,

Meredith Edwards
Assistant Project Manager
Salt Lake City

Meredith Edwards 8/14/17

T +1 801 266 7700 D +1 801 904 4296
F +1 801 268 9992 M +1 801 879 0185
Meredith.d.edwards@alsglobal.com
960 West LeVoy Drive
Salt Lake City, UT 84123

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SDG COVER PAGE

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D18

SOW No.: ISM02.3

EPA Sample No.	Lab Sample ID	Analysis Method ICP-AES	ICP-MS	Mercury	Cyanide
MF1D05	1620228001				X
MF1D12	1620228002				X
MF1D13	1620467001				X
MF1D14	1620228004				X
MF1D15	1620467002				X
MF1D16	1620467003				X
MF1D17	1620228005				X
MF1D18	1620157001				X
MF1D18D	1620157003				X
MF1D18S	1620157002				X
MF1D19	1620157004				X
MF1D20	1620157005				X
MF1D21	1620467004				X
MF1D22	1620467005				X

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the SDG Narrative. Release of the data contained in this hardcopy data package and in the electronic data submitted has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: /S/ Roxanne Olson Name: Roxanne Olson

Date: 08/09/2016 Title: Project Manager

(/S/ is an electronic signature that complies with 21 CFR Part 11)

Sample Delivery Group (SDG)
Cover Sheet

SDG Number: MF1D18

☐ ICPAES ☐ ICPMS ☐ HG ☒ CN

Laboratory Name: ALS Laboratory Group (SLC)

Laboratory Code: ALS

Contract No.: EPW14027

Case No.: 46321

Analysis Price: N/A

SDG Turnaround: 21

Modified Analysis Requested: NO

Program: ISM02.3

Modification Reference No.: N/A

EPA Sample Numbers in SDG (Listed in Numerical Order)

1) MF1D05	7) MF1D17	13)	19)
2) MF1D12	8) MF1D18	14)	20)
3) MF1D13	9) MF1D19	15)	21)
4) MF1D14	10) MF1D20	16)	22)
5) MF1D15	11) MF1D21	17)	23)
6) MF1D16	12) MF1D22	18)	24)

MF1D18

First Sample in SDG

MF1D22

Last Sample in SDG

07/19/16

First Sample Receipt Date

07/22/16

Last Sample Receipt Date

Note: *There are a maximum of 20 field samples (excluding PE samples) in an SDG. Attach the TR/COC records to this form in alphanumeric order (the order listed above on this form).*

Signature: /S/ Roxanne Olson

Date: 7/20/2016 8:15:47 AM

(/S/ is an electronic signature that complies with 21 CFR Part 11)

EPA Sample Receipt

Client: U. S. EPA Region 6 **Contract:** EPW14027 **Case: 46321** **SDG: MF1D18** **Mod:** None

Due to Client: Fri, Aug 12, 2016 **TAT:** 21 **Date Reported:** Not Reported **Status: CLOSED**

Workorder Information **Program:** ISM02.3 **Region:** 6 **EDD Level:** 3

Work Order	Received	PR	Fractions
1620157	07/19/16 10:07 AM	No	Cyanide
1620228	07/20/16 10:02 AM	No	Cyanide
1620467	07/22/16 9:32 AM	No	Cyanide

Sample Information

Lab ID	Client ID	Type	Matrix	ICPAES	ICPMS	HG	CN
1620228001	MF1D05	SAMPLE	Soil[S]	☐	☐	☐	X
1620228002	MF1D12	SAMPLE	Soil[S]	☐	☐	☐	X
1620228003 **CA**	MF1D13	SAMPLE		☐	☐	☐	☐
1620467001	MF1D13	SAMPLE	Soil[S]	☐	☐	☐	X
1620228004	MF1D14	SAMPLE	Soil[S]	☐	☐	☐	X
1620467002	MF1D15	SAMPLE	Soil[S]	☐	☐	☐	X
1620467003	MF1D16	SAMPLE	Soil[S]	☐	☐	☐	X
1620228005	MF1D17	SAMPLE	Soil[S]	☐	☐	☐	X
1620157001	MF1D18	SAMPLE	Soil[S]	☐	☐	☐	X
1620157003	MF1D18D	MD	Soil	☐	☐	☐	X
1620157002	MF1D18S	MS	Soil	☐	☐	☐	X
1620157004	MF1D19	SAMPLE	Soil[S]	☐	☐	☐	X
1620157005	MF1D20	SAMPLE	Soil[S]	☐	☐	☐	X
1620467004	MF1D21	SAMPLE	Soil[S]	☐	☐	☐	X
1620467005	MF1D22	SAMPLE	Soil[S]	☐	☐	☐	X

Field Samples: 12 **MS: 1** **MSD:** 0 **MD: 1** **PE:** 0

56 094

Report Parameters = SDG:MF1D18 Case:<NULL> Region:<NULL>
Mod:<NULL> Workorder:<NULL> BeginDate:<NULL> EndDate:<NULL>
OpenSummary:No SortBy:Case

Sample Delivery Group (SDG)
Cover Sheet

SDG Number: MF1D18

☐ ICPAES ☐ ICPMS ☐ HG ☒ CN

Laboratory Name: ALS Laboratory Group (SLC)

Laboratory Code: ALS

Contract No.: EPW14027

Case No.: 46321

Analysis Price: N/A

SDG Turnaround: 21

Modified Analysis Requested: NO

Program: ISM02.3

Modification Reference No.: N/A

EPA Sample Numbers in SDG (Listed in Numerical Order)

1) MF1D05	7) MF1D17	13)	19)
2) MF1D12	8) MF1D18	14)	20)
3) MF1D13	9) MF1D19	15)	21)
4) MF1D14	10) MF1D20	16)	22)
5) MF1D15	11) MF1D21	17)	23)
6) MF1D16	12) MF1D22	18)	24)

MF1D18

First Sample in SDG

MF1D22

Last Sample in SDG

07/19/16

First Sample Receipt Date

07/22/16

Last Sample Receipt Date

Note: *There are a maximum of 20 field samples (excluding PE samples) in an SDG. Attach the TR/COC records to this form in alphanumeric order (the order listed above on this form).*

Signature: /S/ Roxanne Olson

Date: 7/20/2016 8:15:47 AM

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EPA Sample Receipt

Client: U. S. EPA Region 6 **Contract:** EPW14027 **Case: 46321** **SDG: MF1D18** **Mod:** None

Due to Client: Fri, Aug 12, 2016 **TAT:** 21 **Date Reported:** Not Reported **Status: CLOSED**

Workorder Information **Program:** ISM02.3 **Region:** 6 **EDD Level:** 3

Work Order	Received	PR	Fractions
1620157	07/19/16 10:07 AM	No	Cyanide
1620228	07/20/16 10:02 AM	No	Cyanide
1620467	07/22/16 9:32 AM	No	Cyanide

Sample Information

Lab ID	Client ID	Type	Matrix	ICPAES	ICPMS	HG	CN
1620228001	MF1D05	SAMPLE	Soil[S]	☐	☐	☐	X
1620228002	MF1D12	SAMPLE	Soil[S]	☐	☐	☐	X
1620228003 CA	MF1D13	SAMPLE		☐	☐	☐	☐
1620467001	MF1D13	SAMPLE	Soil[S]	☐	☐	☐	X
1620228004	MF1D14	SAMPLE	Soil[S]	☐	☐	☐	X
1620467002	MF1D15	SAMPLE	Soil[S]	☐	☐	☐	X
1620467003	MF1D16	SAMPLE	Soil[S]	☐	☐	☐	X
1620228005	MF1D17	SAMPLE	Soil[S]	☐	☐	☐	X
1620157001	MF1D18	SAMPLE	Soil[S]	☐	☐	☐	X
1620157003	MF1D18D	MD	Soil	☐	☐	☐	X
1620157002	MF1D18S	MS	Soil	☐	☐	☐	X
1620157004	MF1D19	SAMPLE	Soil[S]	☐	☐	☐	X
1620157005	MF1D20	SAMPLE	Soil[S]	☐	☐	☐	X
1620467004	MF1D21	SAMPLE	Soil[S]	☐	☐	☐	X
1620467005	MF1D22	SAMPLE	Soil[S]	☐	☐	☐	X

Field Samples: 12 **MS: 1** **MSD:** 0 **MD: 1** **PE:** 0

56 096

Report Parameters = SDG:MF1D18 Case:<NULL> Region:<NULL>
Mod:<NULL> Workorder:<NULL> BeginDate:<NULL> EndDate:<NULL>
OpenSummary:No SortBy:Case

Sample Delivery Group (SDG)
Cover Sheet

SDG Number: MF1D18

☐ ICPAES ☐ ICPMS ☐ HG ☒ CN

Laboratory Name: ALS Laboratory Group (SLC)

Laboratory Code: ALS

Contract No.: EPW14027

Case No.: 46321

Analysis Price: N/A

SDG Turnaround: 21

Modified Analysis Requested: NO

Program: ISM02.3

Modification Reference No.: N/A

EPA Sample Numbers in SDG (Listed in Numerical Order)

1) MF1D05	7) MF1D17	13)	19)
2) MF1D12	8) MF1D18	14)	20)
3) MF1D13	9) MF1D19	15)	21)
4) MF1D14	10) MF1D20	16)	22)
5) MF1D15	11) MF1D21	17)	23)
6) MF1D16	12) MF1D22	18)	24)

MF1D18

First Sample in SDG

MF1D22

Last Sample in SDG

07/19/16

First Sample Receipt Date

07/22/16

Last Sample Receipt Date

Note: *There are a maximum of 20 field samples (excluding PE samples) in an SDG. Attach the TR/COC records to this form in alphanumeric order (the order listed above on this form).*

Signature: /S/ Roxanne Olson

Date: 7/20/2016 8:15:47 AM

(/S/ is an electronic signature that complies with 21 CFR Part 11)

EPA Sample Receipt

Client: U. S. EPA Region 6 **Contract:** EPW14027 **Case: 46321** **SDG: MF1D18** **Mod:** None

Due to Client: Fri, Aug 12, 2016 **TAT:** 21 **Date Reported:** Not Reported **Status: CLOSED**

Workorder Information **Program:** ISM02.3 **Region:** 6 **EDD Level:** 3

Work Order	Received	PR	Fractions
1620157	07/19/16 10:07 AM	No	Cyanide
1620228	07/20/16 10:02 AM	No	Cyanide
1620467	07/22/16 9:32 AM	No	Cyanide

Sample Information

Lab ID	Client ID	Type	Matrix	ICPAES	ICPMS	HG	CN
1620228001	MF1D05	SAMPLE	Soil[S]	☐	☐	☐	X
1620228002	MF1D12	SAMPLE	Soil[S]	☐	☐	☐	X
1620228003 **CA**	MF1D13	SAMPLE		☐	☐	☐	☐
1620467001	MF1D13	SAMPLE	Soil[S]	☐	☐	☐	X
1620228004	MF1D14	SAMPLE	Soil[S]	☐	☐	☐	X
1620467002	MF1D15	SAMPLE	Soil[S]	☐	☐	☐	X
1620467003	MF1D16	SAMPLE	Soil[S]	☐	☐	☐	X
1620228005	MF1D17	SAMPLE	Soil[S]	☐	☐	☐	X
1620157001	MF1D18	SAMPLE	Soil[S]	☐	☐	☐	X
1620157003	MF1D18D	MD	Soil	☐	☐	☐	X
1620157002	MF1D18S	MS	Soil	☐	☐	☐	X
1620157004	MF1D19	SAMPLE	Soil[S]	☐	☐	☐	X
1620157005	MF1D20	SAMPLE	Soil[S]	☐	☐	☐	X
1620467004	MF1D21	SAMPLE	Soil[S]	☐	☐	☐	X
1620467005	MF1D22	SAMPLE	Soil[S]	☐	☐	☐	X

Field Samples: 12 **MS: 1** **MSD:** 0 **MD: 1** **PE:** 0

56 098

Report Parameters = SDG:MF1D18 Case:<NULL> Region:<NULL>
Mod:<NULL> Workorder:<NULL> BeginDate:<NULL> EndDate:<NULL>
OpenSummary:No SortBy:Case

1620157

USEPA CLP COC (LAB COPY)

DateShipped: 7/18/2016
CarrierName: FedEx
AirbillNo: 809524402173

CHAIN OF CUSTODY RECORD

MF 1D18

Case #: 46321
Cooler #: 1

No: 6-070816-132935-0001

Lab: ALS Laboratory Group - Salt Lake City
Lab Contact: Meredith Edwards
Lab Phone: 801-266-7700

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
MF1D18	MF1D18	Sediment/ Matthew Hubbard	Grab	CN(21)	1037 (None) (1)	SE-11	07/18/2016 16:05	
MF1D20	MF1D20	Sediment/ Stephen Ellis	Grab	CN(21)	1041 (None) (1)	SE-13	07/18/2016 15:20	
MF1D37	MF1D37	Surface Water/ Matthew Hubbard	Grab	CN(21)	1077 (NaOH pH >10) (1)	SW-11	07/18/2016 16:03	
MF1D38	MF1D38	Surface Water/ Stephen Ellis	Grab	CN(21)	1081 (NaOH pH >10) (1)	SW-12	07/18/2016 15:45	
MF1D39	MF1D39	Surface Water/ Stephen Ellis	Grab	CN(21)	1083 (NaOH pH >10) (1)	SW-13	07/18/2016 15:15	
MF1D19	MF1D54	Sediment/ Stephen Ellis	Grab	CN(21)	1114 (None) (1)	SE-12	07/18/2016 15:47	received as MF 1D19

7/19/2016

Sample(s) to be used for Lab QC: MF1D18 Tag 1037, MF1D37 Tag 1077

Shipment for Case Complete? N

Samples Transferred From Chain of Custody #

Analysis Key: CN=CLP Cyanide

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	[signature]	7/18/16/1757	Meredith Edwards DATAC	7/19/2016/1007	good

56 099

000003

1620228

MF 1D18

USEPA CLP COC (LAB COPY)

DateShipped: 7/18/2016
CarrierName: FedEx
AirbillNo: 809524402130

CHAIN OF CUSTODY RECORD

Case #: 46321
Cooler #: 1

No: 6-071916-152450-0003

Lab: ALS Laboratory Group - Salt Lake City
Lab Contact: Meredith Edwards
Lab Phone: 801-266-7700

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
MF1D05	MF1D05	Soil/ Stephen Ellis	Grab	CN(21)	1011 (None) (1)	SO-06	07/19/2016 12:55	
MF1D12	MF1D12	Sediment/ Stephen Ellis	Grab	CN(21)	1025 (None) (1)	SE-05	07/19/2016 12:45	
MF1D13	MF1D13	Soil/ Stephen Ellis	Grab	CN(21)	1027 (None) (1)	SE-06	07/19/2016 15:10	
MF1D14	MF1D14	Sediment/ Stephen Ellis	Grab	CN(21)	1029 (None) (1)	SE-07	07/19/2016 14:55	
MF1D17	MF1D17	Sediment/ Matthew Hubbard	Grab	CN(21)	1035 (None) (1)	SE-10	07/19/2016 09:55	
MF1D31	MF1D31	Surface Water/ Stephen Ellis	Grab	CN(21)	1064 (NaOH pH >10) (1)	SW-05	07/19/2016 15:20	
MF1D32	MF1D32	Surface Water/ Stephen Ellis	Grab	CN(21)	1066 (NaOH pH >10) (1)	SW-06	07/19/2016 15:05	
MF1D33	MF1D33	Surface Water/ Stephen Ellis	Grab	CN(21)	1069 (NaOH pH >10) (1)	SW-07	07/19/2016 14:50	

Special Instructions:

Shipment for Case Complete? N

Samples Transferred From Chain of Custody #

Analysis Key: CN=CLP Cyanide

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	Adrienne Love	7/19/16 ~~18:30~~ 12:30	Meredith Edwards DATAC	7/20/2016/1032	good

56 100

000025

1620467

USEPA CLP COC (LAB COPY)

DateShipped: 7/18/2016
CarrierName: FedEx
AirbillNo: 810257801841

CHAIN OF CUSTODY RECORD

MF 1D18

Case #: 46321
Cooler #: 1

No: 6-072116-134031-0007

Lab: ALS Laboratory Group - Salt Lake City
Lab Contact: Meredith Edwards
Lab Phone: 801-266-7700

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
MF1D13	MF1D13	Sediment/ Stephen Ellis	Grab	CN(21)	1027 (None) (1)	SE-06	07/21/2016 12:05	
MF1D15	MF1D15	Sediment/ Stephen Ellis	Grab	CN(21)	1031 (None) (1)	SE-08	07/21/2016 11:10	
MF1D16	MF1D16	Sediment/ Stephen Ellis	Grab	CN(21)	1033 (None) (1)	SE-09	07/21/2016 10:40	
MF1D21	MF1D21	Sediment/ Stephen Ellis	Grab	CN(21)	1043 (None) (1)	SE-14	07/21/2016 11:15	
MF1D22	MF1D22	Sediment/ Stephen Ellis	Grab	CN(21)	1045 (None) (1)	SE-15	07/21/2016 10:45	
MF1D34	MF1D34	Surface Water/ Stephen Ellis	Grab	CN(21)	1071 (NaOH pH >10) (1)	SW-08	07/21/2016 11:00	
MF1D35	MF1D35	Surface Water/ Stephen Ellis	Grab	CN(21)	1073 (NaOH pH >10) (1)	SW-09	07/21/2016 10:30	
MF1D40	MF1D40	Surface Water/ Stephen Ellis	Grab	CN(21)	1085 (NaOH pH >10) (1)	SW-14	07/21/2016 11:05	
MF1D41	MF1D41	Surface Water/ Stephen Ellis	Grab	CN(21)	1087 (NaOH pH >10) (1)	SW-15	07/21/2016 10:35	

MG 7/22/2016

Special Instructions:

Shipment for Case Complete? N

Samples Transferred From Chain of Custody #

Analysis Key: CN=CLP Cyanide

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	Adrienne Love	7/21/16 14:00	Meredith Edwards DATAC	7/22/2016 9:32	good

56 101

: 00018

SAMPLE LOG-IN SHEET
FORM DC-1

Lab Name ALS Environmental	Page 1 of 1
Received By (Print Name) Meredith Edwards	Log-In Date
Received By (Signature) Meredith Edwards	
Case Number 46321	Sample Delivery Group No. MF1D18 — Mod. Ref. No. n/a

Remarks:

			EPA Sample #	Aqueous/ Water Sample pH	Corresponding Sample Tag #	Corresponding Assigned Lab #	Remarks: Condition of Sample Shipment, etc.
1. Custody Seal (s)	Present/Absent* Intact/Broken*	1	MF1D18	n/a	n/a	1620157 001,002,003	MS/MD CN Soil
		2	19			004	
2. Custody Seal Nos.	n/a	3	20			005	
	1	4	37	>12			CN water
3. Traffic Report/ Chain-of Custody Records or Packing Lists	Present/Absent*	5	38				
		6	39				
4. Airbill	Airbill/Sticker Present/Absent*	7					
5. Airbill No.	8095 2440 2173	8					
	n/a	9					
6. Sample Tags	Present/Absent*	10					
Sample Tag Numbers	Listed/Not Listed on Chain-of-Custody	11					
7. Sample Condition	Intact/Broken*/Leaking*	12					
8. Cooler Temperature Indicator Bottle	Present/Absent*	13					
9. Cooler Temperature	6	14					
10. Does information on TR/COCs and sample tags agree?	Yes/No*	15					
11. Date Received at Laboratory	7/19/2016	16					
12. Time Received	10:07	17					
Sample Transfer		18					
Fraction CN	Fraction	19					
Area # R331	Area #	20					
By	By	21					
On 7/19/2016	On	22					

ME 7/19/2016

* Contact SMO and attach record of resolution

Reviewed By Roxanne Olsa	Logbook No. Not Applicable
Date 7/20/16	Logbook Page No. Not Applicable

SAMPLE LOG-IN SHEET
FORM DC-1

Lab Name ALS Environmental	Page 1 of 1
Received By (Print Name) Meredith Edwards	Log-In Date 7/20/2016
Received By (Signature) Meredith Edwards	
Case Number 46321	Sample Delivery Group No. MF 1D18 — Mod. Ref. No. n/a

Remarks:

			EPA Sample #	Aqueous/ Water Sample pH	Corresponding Sample Tag #	Corresponding Assigned Lab #	Remarks: Condition of Sample Shipment, etc.
1. Custody Seal (s)	Present/Absent* Intact/Broken*	1	MF1D05	n/a	n/a	1620228 001	CN soil
		2	12			002	
2. Custody Seal Nos.	n/a	3	14			004	
		4	17			005	
3. Traffic Report/ Chain-of Custody Records or Packing Lists	Present/Absent*	5	31	>12			CN water
		6	32				
4. Airbill	Airbill/Sticker Present/Absent*	7	33				
5. Airbill No.	8095 2440 2130	8					
	n/a	9					
6. Sample Tags	Present/Absent*	10					
Sample Tag Numbers	Listed/Not Listed on Chain-of-Custody	11					
7. Sample Condition	Intact/Broken*/Leaking*	12					
8. Cooler Temperature Indicator Bottle	Present/Absent*	13					
9. Cooler Temperature	7	14					
10. Does information on TR/COCs and sample tags agree?	Yes/No*	15					
11. Date Received at Laboratory	7/20/2016	16					
12. Time Received	1002	17					
Sample Transfer		18					
Fraction CN	Fraction	19					
Area # R331	Area #	20					
By [signature]	By	21					
On 7/20/2016	On	22					

[signature] 7/20/2016

* Contact SMO and attach record of resolution

Reviewed By Roxanne Olsen		Logbook No. Not Applicable
Date 7/20/16		Logbook Page No. Not Applicable

SAMPLE LOG-IN SHEET
FORM DC-1

Lab Name ALS Environmental	Page 1 of 1
Received By (Print Name) Meredith Edwards	Log-In Date 7/22/2016
Received By (Signature) Meredith Edwards	
Case Number 46321	Sample Delivery Group No. MF1D18 — Mod. Ref. No. n/a

Remarks:

1. Custody Seal (s) — Present/Absent* Intact/Broken*
2. Custody Seal Nos. — n/a
3. Traffic Report/ Chain-of Custody Records or Packing Lists — Present/Absent*
4. Airbill — Airbill/Sticker Present/Absent*
5. Airbill No. — 7836 3555 3964 / n/a
6. Sample Tags — Present/Absent* Sample Tag Numbers — Listed/Not Listed on Chain-of-Custody
7. Sample Condition — Intact/Broken*/Leaking*
8. Cooler Temperature Indicator Bottle — Present/Absent*
9. Cooler Temperature — 5
10. Does information on TR/COCs and sample tags agree? — Yes/No*
11. Date Received at Laboratory — 7/22/2016
12. Time Received — 9:32

	EPA Sample #	Aqueous/ Water Sample pH	Corresponding Sample Tag #	Corresponding Assigned Lab #	Remarks: Condition of Sample Shipment, etc.
1	MF1D13	n/a	n/a	1620467 001	CN Soil
2	15			002	
3	16			003	
4	21			004	
5	22			005	
6	34	>12			CN Water
7	35				
8	40				
9	41				
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

MEE 7/22/2016

Sample Transfer

Fraction CN	Fraction
Area # R331	Area #
By MEE	By MEE 7/22/2016
On 7/22/2016	On

* Contact SMO and attach record of resolution

Reviewed By Roseanne Olson		Logbook No. Not Applicable
Date 7/22/16		Logbook Page No. Not Applicable

FORM DC-2

FULL INORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET

LAB NAME	ALS Environmental
LAB CODE	ALS
CONTRACT NO.	EPW14027
CASE NO.	46321 SDG NO. MF1D18
MA No.	N/A
SOW NO.	ISM02.3

All documents delivered in the Complete SDG File must be original documents where possible. (Reference - Exhibit B Section 2.4)

		PAGE NOs FROM	PAGE NOs TO	CHECK LAB	CHECK REGION
1.	Cover Page	1	1	✓	
2.	Traffic Report/Chain of Custody Record(s)	2	10	✓	
3.	Sample Log-In Sheet (DC-1)	11	13	✓	
4.	Inventory Sheet (DC-2)	14	16	✓	
5.	SDG Narrative	17	25	✓	
Inorganic Analysis					
ICP-AES					
6.	Inorganic Analysis Data Sheet (Form 1-IN)	N/A		✓	
7.	Initial and Continuing Calibration Verification (Form 2-IN)			✓	
8.	Blanks (Form 3-IN)			✓	
9.	ICP Interference Check Sample(Form 4-IN)			✓	
10.	Matrix Spike Sample Recovery(Form 5-IN)			✓	
11.	Post-Digestion Spike Sample Recovery(Form 5B-IN)			✓	
12.	Duplicates (Form 6-IN)			✓	
13.	Laboratory Control Sample(Form 7-IN)			✓	
14.	ICP-AES and ICP-MS Serial Dilutions(Form 8-IN)			✓	
15.	Method Detection Limit(Form 9-IN)			✓	
16.	ICP-AES Interelement Correction Factors (Form 10A-IN)	08/10/2016 DH		✓	
17.	ICP-AES Interelement Correction Factors (Form 10B-IN)			✓	
18.	Analysis Log (Form 12-IN)			✓	
19.	Initial Calibration (Form 15-IN)			✓	
20.	Initial Calibration Summary (Form 16-IN)			✓	
21.	ICP-AES Raw Data			✓	
22.	ICP-AES Preparation Log Books, Preparation Records, Analysis Records, and PE Instructions			✓ 56 105	

FORM DC-2
FULL INORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET

	PAGE NOs FROM	PAGE NOs TO	CHECK LAB	CHECK REGION
ICP-MS				
23. Inorganic Analysis Data Sheet (Form 1-IN)	N/A		✓	
24. Initial and Continuing Calibration Verification (Form 2-IN)			✓	
25. Blanks (Form 3-IN)			✓	
26. ICP Interference Check Sample(Form 4-IN)			✓	
27. Matrix Spike Sample Recovery(Form 5A-IN)			✓	
28. Post-Digestion/Distillation Spike Sample Recovery (Form 5B-IN)			✓	
29. Duplicates (Form 6-IN)			✓	
30. Laboratory Control Sample(Form 7-IN)			✓	
31. ICP-AES and ICP-MS Serial Dilutions(Form 8-IN)			✓	
32. Method Detection Limit(Form 9-IN)			✓	
33. ICP-MS Internal Standard Association (Form 11-IN)			✓	
34. Analysis Log (Form 12-IN)			✓	
35. ICP-MS Tune (Form 13-N)			✓	
36. ICP-MS Internal Standards Relative Intensity Summary (Form 14-IN)			✓	
37. Initial Calibration (Form 15-IN)			✓	
38. Initial Calibration Summary (Form 16-IN)			✓	
39. ICP-MS Raw Data			✓	
40. ICP-MS Preparation Log Books, Preparation Records, Analysis Records, and PE Instructions	08/10/2016 BH		✓	
Mercury				
41. Inorganic Analysis Data Sheet (Form 1-IN)			✓	
42. Initial and Continuing Calibration Verification (Form 2-IN)			✓	
43. Blanks (Form 3-IN)			✓	
44. Matrix Spike Sample Recovery(Form 5A-IN)			✓	
45. Duplicates (Form 6-IN)			✓	
46. Method Detection Limit(Form 9-IN)			✓	
47. Analysis Log (Form 12-IN)			✓	
48. Initial Calibration (Form 15-IN)			✓	
49. Initial Calibration Summary (Form 16-IN)			✓	
50. Mercury Raw Data			✓	
51. Mercury Preparation Log Books, Preparation Records, Analysis Records, and PE Instructions			✓	

FORM DC-2
FULL INORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET

	PAGE NOs FROM	PAGE NOs TO	CHECK LAB	CHECK REGION
Cyanide				
52. Inorganic Analysis Data Sheet (Form 1-IN)	26	37	✓	
53. Initial and Continuing Calibration Verification (Form 2-IN)	38	39	✓	
54. Blanks (Form 3-IN)	40	41	✓	
55. Matrix Spike Sample Recovery(Form 5A-IN)	42	42	✓	
56. Post-Digestion/Distillation Spike Sample Recovery (Form 5B-IN)	43	43	✓	
57. Duplicates (Form 6-IN)	44	44	✓	
58. Method Detection Limit(Form 9-IN)	45	45	✓	
59. Analysis Log (Form 12-IN)	46	47	✓	
60. Initial Calibration (Form 15-IN)	48	50	✓	
61. Initial Calibration Summary (Form 16-IN)	51	51	✓	
62. Cyanide Raw Data	52	55	✓	
63. Cyanide Preparation Log Books, Preparation Records, Analysis Records, and PE Instructions	56	69	✓	
Additional				
64. Percent Solids Determination Log	70	75	✓	
65. EPA Shipping/Receiving Documents				
Airbill (No. of Shipments 3)	76	78	✓	
Sample Tags	79	79	✓	
Sample Log-In Sheet (Lab)	N/A		✓	
66. Misc. Shipping/Receiving Records (list all individual records)				
Communication Logs	N/A		✓	
ALS SDG TR Cover Sheet	N/A		✓	
	N/A		✓	
67. Internal Lab Sample Transfer Records & Tracking Sheets (describe or list)				
ALS CoC	80	85	✓	
68. Other Records (describe or list)				
Communication Logs			✓	
E-mail Communications	86	92	✓	

69. Comments: N/A

Completed by: (CLP Lab) Desiree Hill (Signature) | Desiree Hill (Document Control) (Print Name & Title) | 08/10/2016 (Date)

Completed by: (USEPA) (Signature) | (Print Name & Title) | 56 107 (Date)

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www.alsglobal.com

SDG Administrative Narrative

Contract: EPW14027

Case: 46321

SDG: MFID18

WO No(s): 1620157, 1620228, 1620467

Cooler # and Temperatures of each (upon receipt)

Cooler Number C15-	N/A	Arrival temperature was	6	°C
Cooler Number C15-	N/A	Arrival temperature was	7	°C
Cooler Number C15-	N/A	Arrival temperature was	5	°C
Cooler Number C15-		Arrival temperature was		°C
Cooler Number C15-		Arrival temperature was		°C
Cooler Number C15-		Arrival temperature was		°C
Cooler Number C15-		Arrival temperature was		°C
Cooler Number C15-		Arrival temperature was		°C

08/10/2016 DH

Communications:

Any sample receiving issues with this SDG are fully documented through the email communications which are included as a portion of this SDG Narrative and immediately follow this page. Copies of each email communication are also located in the communication section of this datapackage. In addition, any analytical issues pertinent to a given fraction are fully documented by the analyst in the associated narrative for the applicable fraction.

Comments:

None

Signature: Desiree Hall
Document Control Officer

Date: 08/10/2016

Meredith D. Edwards

From: Roxanne Olson
Sent: Tuesday, July 19, 2016 2:56 PM
To: Meredith D. Edwards
Subject: FW: Region 06 | Case 46321 | Lab ALS | Issue Discrepancies with tags, jars, and/or COC | FINAL

For further information about ALS Environmental – Salt Lake City, the following link will lead you to our facility's webpage. Check us Out!

Scroll down for available PDF Downloads including: Industrial Hygiene Analytical Request Form; Environmental CoC; Statement of Qualifications; Salt Lake City Test Catalog and Fee Schedule; and much more.

WEB: www.alsglobal.com

Regards, Roxanne Olson 8/14/17

Roxanne Olson
Client Services Manager/Project Manager, Environmental
Salt Lake City

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F +1 801 268 9992 M +1 801 879 5889
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From: Dean, Whitlee [mailto:Whitlee.Dean@csra.com]
Sent: Tuesday, July 19, 2016 2:46 PM
To: Roxanne Olson <Roxanne.Olson@ALSGlobal.com>
Cc: Gannon, Nick <Gannon.Nick@epa.gov>; Flores, Raymond <flores.raymond@epa.gov>; Gorostiza, Sylvia <Gorostiza.Sylvia@epa.gov>; Humphrey, Marvelyn <humphrey.marvelyn@epa.gov>; Perez, Myra <perez.myra@epa.gov>
Subject: Region 06 | Case 46321 | Lab ALS | Issue Discrepancies with tags, jars, and/or COC | FINAL

Good afternoon Roxy,

Issue: The COC lists MF1D54 as the last sample; however, it was received as sample MF1D19. The laboratory has advised that they are logging the sample in as received as they believe it to be a typo. The same name is used for the station locations.
Resolution: Per Region 6, the correct sample ID is MF1D19. Please note the issue in the SDG Narrative and proceed with the analysis of the samples.

Please let me know if you have any questions or problems. To waive any defect(s) associated with this issue, please contact your Regional CLP COR.

Thanks,

WHITLEE DEAN
Environmental Coordinator-Regions 1, 6, and 9
CSRA LLC
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t: +1.703.461.2322 | Whitlee.Dean@csra.com
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From: Perez, Myra [mailto:perez.myra@epa.gov]
Sent: Tuesday, July 19, 2016 4:25 PM
To: Dean, Whitlee <Whitlee.Dean@csra.com>
Cc: Gannon, Nick <Gannon.Nick@epa.gov>; Flores, Raymond <flores.raymond@epa.gov>; Gorostiza, Sylvia <Gorostiza.Sylvia@epa.gov>; Humphrey, Marvelyn <humphrey.marvelyn@epa.gov>
Subject: RE: Region 06 | Case 46321 | Lab ALS | Issue Discrepancies with tags, jars, and/or COC - R6 response

Hello Whitlee – The sampler indicated that MF1D54 is a mistake. The correct sample number for that station location is MF1D19. The lab should note the issue in the SDG narrative and proceed with analysis.

Thank you.

MYRA PEREZ

Digitally signed by MYRA PEREZ
DN: c=US, o=U.S. Government, ou=USEPA, ou=Staff, cn=MYRA PEREZ, dnQualifier=0000009936
Date: 2017.08.15 12:30:02 -05'00'

Myra Perez
R6 CLP RSCC
281-983-2130

From: Dean, Whitlee [mailto:Whitlee.Dean@csra.com]
Sent: Tuesday, July 19, 2016 12:21 PM
To: Perez, Myra <perez.myra@epa.gov>
Cc: Gannon, Nick <Gannon.Nick@epa.gov>; Flores, Raymond <flores.raymond@epa.gov>
Subject: Region 06 | Case 46321 | Lab ALS | Issue Discrepancies with tags, jars, and/or COC

Good afternoon,

ALS is reporting the following issue. Please advise how the laboratory should proceed.

Issue: The COC lists MF1D54 as the last sample; however, it was received as sample MF1D19. The laboratory has advised that they are logging the sample in as received as they believe it to be a typo. The same name is used for the station locations.

Please let me know if you have any questions,
Thanks,

WHITLEE DEAN
Environmental Coordinator-Regions 1, 6, and 9
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From: Roxanne Olson [mailto:Roxanne.Olson@ALSGlobal.com]
Sent: Tuesday, July 19, 2016 1:15 PM
To: Dean, Whitlee <Whitlee.Dean@csra.com>
Subject: FW: Inorganic Case 46321

Whitlee:

See Mere's comment below about samples we received today from Case 46321.

For further information about ALS Environmental – Salt Lake City, the following link will lead you to our facility's webpage. Check us Out!

Scroll down for available PDF Downloads including: Industrial Hygiene Analytical Request Form; Environmental CoC; Statement of Qualifications; Salt Lake City Test Catalog and Fee Schedule; and much more.

WEB: www.alsglobal.com

Regards, Roxanne Olson 8/14/17

Roxanne Olson
Client Services Manager/Project Manager, Environmental
Salt Lake City

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F +1 801 268 9992 M +1 801 879 5889
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From: Meredith D. Edwards
Sent: Tuesday, July 19, 2016 11:12 AM
To: Roxanne Olson <Roxanne.Olson@ALSGlobal.com>
Subject: Inorganic Case 46321

Please advise Region 6 that the TR lists CLP ID MF1D54 as the last sample. However, it is received as MF1D19. I will be logging it is as received. They used the same name for the station locations so I am pretty sure it is a typo
Mere

Regards,

Meredith Edwards
Assistant Project Manager
Salt Lake City

Meredith Edwards 8/14/12

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Roxanne Olson

From: Dean, Whitlee <Whitlee.Dean@csra.com>
Sent: Wednesday, July 20, 2016 1:22 PM
To: Roxanne Olson
Cc: Gorostiza, Sylvia; Flores, Raymond; Humphrey, Marvelyn; Gannon, Nick; Perez, Myra
Subject: Region 06 | Case 46321 | Lab ALS | Issue Samples/analyses listed on COC but not received at laboratory | FINAL

Good afternoon Roxy,

Issue: CN sample MF1D13 is listed on the COC; however, the laboratory did not receive this sample. Please advise.
Resolution: Per Region 6, the laboratory should note the issue in the SDG Narrative and proceed with the analysis of the other samples.

Please let me know if you have any questions or problems. To waive any defect(s) associated with this issue, please contact your Regional CLP COR.
Thanks,

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From: Perez, Myra [mailto:perez.myra@epa.gov]
Sent: Wednesday, July 20, 2016 3:14 PM
To: Dean, Whitlee <Whitlee.Dean@csra.com>
Cc: Gorostiza, Sylvia <Gorostiza.Sylvia@epa.gov>; Flores, Raymond <flores.raymond@epa.gov>; Humphrey, Marvelyn <humphrey.marvelyn@epa.gov>; Gannon, Nick <Gannon.Nick@epa.gov>
Subject: RE: Region 06 | Case 46321 | Lab ALS | Issue Samples/analyses listed on COC but not received at laboratory - R6 response

Hello Whitlee – The lab will note the issue in the SDG narrative and proceed with analysis.

Take care.

Myra Perez
R6 CLP RSCC
281-983-2130

MYRA PEREZ

Digitally signed by MYRA PEREZ
DN: c=US, o=U.S. Government, ou=USEPA, ou=Staff, cn=MYRA PEREZ, dnQualifier=0000009936
Date: 2017.08.15 12:28:57 -05'00'

From: Dean, Whitlee [mailto:Whitlee.Dean@csra.com]
Sent: Wednesday, July 20, 2016 2:05 PM
To: Perez, Myra <perez.myra@epa.gov>

Cc: Gorostiza, Sylvia <Gorostiza.Sylvia@epa.gov>; Flores, Raymond <flores.raymond@epa.gov>; Humphrey, Marvelyn <humphrey.marvelyn@epa.gov>; Gannon, Nick <Gannon.Nick@epa.gov>
Subject: Region 06 | Case 46321 | Lab ALS | Issue Samples/analyses listed on COC but not received at laboratory

Good afternoon Myra,

ALS is reporting the following issue. Please advise how the laboratory should proceed.

Issue: CN sample MF1D13 is listed on the COC; however, the laboratory did not receive this sample. Please advise.

Please let me know if you have any questions,
Thanks,

WHITLEE DEAN
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From: Roxanne Olson [mailto:Roxanne.Olson@ALSGlobal.com]
Sent: Wednesday, July 20, 2016 2:48 PM
To: Dean, Whitlee <Whitlee.Dean@csra.com>
Subject: FW: Inorganic Case 46321

Whitlee:

Please see Mere's comment below about missing sample MF1D13.

Roxy

For further information about ALS Environmental – Salt Lake City, the following link will lead you to our facility's webpage. Check us Out!

Scroll down for available PDF Downloads including: Industrial Hygiene Analytical Request Form; Environmental CoC; Statement of Qualifications; Salt Lake City Test Catalog and Fee Schedule; and much more.

WEB: www.alsglobal.com

Regards, Roxanne Olson 8/14/17

Roxanne Olson
Client Services Manager/Project Manager, Environmental
Salt Lake City

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From: Meredith D. Edwards
Sent: Wednesday, July 20, 2016 11:46 AM
To: Roxanne Olson <Roxanne.Olson@ALSGlobal.com>
Subject: Inorganic Case 46321

Please advise Region 6 that I did not receive CN soil sample MF1D13. I am logging everything else in

Regards,

Meredith Edwards
Assistant Project Manager
Salt Lake City

Meredith Edwards 8/14/16

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SDG Narrative

Case:	46321	Contract #:	EPW14027
SDG:	MF1D18	EPA Lab ID:	ALS

General Information: The twelve soil samples in this SDG were analyzed by methodologies contained in ISM02.3. All concentration, analytical, and method qualifiers are defined in the SOW.

Target Analytes: The Target analyte for this SDG is cyanide.

Holding Times: All samples were prepared and analyzed within method required holding times.

Initial and Continuing Calibration: All initial and continuing calibration verification and blank analyses were performed within the designated frequency and recoveries of the verifications and concentrations of the blanks met method acceptance criteria.

Preparation Blanks: The absolute values of all analyte concentrations in the preparation blanks were lower than the Contract Required Quantitation Limits.

Matrix Spike Analysis: The matrix spike recovery was below acceptance criteria. Results were flagged accordingly. A post-distillation spike analysis was therefore analyzed.

Post-Distillation Spike Analysis: The post-distillation spike recovery met acceptance criteria.

Matrix Duplicate Analysis: The matrix duplicate result met method criteria.

Miscellaneous Comments: All calibration data is linear, please see raw data. Samples MF1D16 and MF1D22 were each less than 50% solids but greater than 30% solids. No weight adjustment was required.

Example Equations:

Method Micro-distillation: $C \times \frac{Vf}{W \times S} \times (1/1000) \times DF = Concentration\,(mg/Kg)$

Micro-distillation Example: $10\mu g/L \times \frac{6mL}{0.5g \times 1} \times (1/1000) \times 1 = 0.12\,mg/Kg$

Where,
C = Instrument value in µg/L (The average of all replicate integrations).
Vf = Final digestion volume (mL)
W = Initial digestion Weight (g)
DF = Dilution Factor
S = % Solids/100

FORM 1-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MF1D05

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D18

Matrix: Soil Lab Sample ID: 1620228001

% Solids: 80.3 Date Received: 07/20/2016

Analytical Method: Spectrophotometry

Concentration Units (ug/L, mg/L, mg/kg dry weight or ug): mg/kg

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
57-12-5	Cyanide	0.56	U*	07/27/2016	12:19

NOTE: hardness (total) is reported in mg/L

Comments:

FORM 1-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MF1D12

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D18

Matrix: Soil Lab Sample ID: 1620228002

% Solids: 57.9 Date Received: 07/20/2016

Analytical Method: Spectrophotometry

Concentration Units (ug/L, mg/L, mg/kg dry weight or ug): mg/kg

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
57-12-5	Cyanide	0.93	*	07/27/2016	12:19

NOTE: hardness (total) is reported in mg/L

Comments:

FORM 1-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MF1D13

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D18

Matrix: Soil Lab Sample ID: 1620467001

% Solids: 68.9 Date Received: 07/22/2016

Analytical Method: Spectrophotometry

Concentration Units (ug/L, mg/L, mg/kg dry weight or ug): mg/kg

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
57-12-5	Cyanide	0.18	J*	07/27/2016	12:23

NOTE: hardness (total) is reported in mg/L

Comments:

FORM 1-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MF1D14

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D18

Matrix: Soil Lab Sample ID: 1620228004

% Solids: 63.0 Date Received: 07/20/2016

Analytical Method: Spectrophotometry

Concentration Units (ug/L, mg/L, mg/kg dry weight or ug): mg/kg

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
57-12-5	Cyanide	0.73	U*	07/27/2016	12:20

NOTE: hardness (total) is reported in mg/L

Comments:

FORM 1-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MF1D15

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D18

Matrix: Soil Lab Sample ID: 1620467002

% Solids: 67.1 Date Received: 07/22/2016

Analytical Method: Spectrophotometry

Concentration Units (ug/L, mg/L, mg/kg dry weight or ug): mg/kg

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
57-12-5	Cyanide	0.10	J*	07/27/2016	12:23

NOTE: hardness (total) is reported in mg/L

Comments:

FORM 1-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MF1D16

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D18

Matrix: Soil Lab Sample ID: 1620467003

% Solids: 45.4 Date Received: 07/22/2016

Analytical Method: Spectrophotometry

Concentration Units (ug/L, mg/L, mg/kg dry weight or ug): mg/kg

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
57-12-5	Cyanide	1.1	U*	07/27/2016	12:24

NOTE: hardness (total) is reported in mg/L

Comments:

FORM 1-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MF1D17

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D18

Matrix: Soil Lab Sample ID: 1620228005

% Solids: 83.9 Date Received: 07/20/2016

Analytical Method: Spectrophotometry

Concentration Units (ug/L, mg/L, mg/kg dry weight or ug): mg/kg

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
57-12-5	Cyanide	0.034	J*	07/27/2016	12:20

NOTE: hardness (total) is reported in mg/L

Comments:

FORM 1-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MF1D18

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D18

Matrix: Soil Lab Sample ID: 1620157001

% Solids: 76.6 Date Received: 07/19/2016

Analytical Method: Spectrophotometry

Concentration Units (ug/L, mg/L, mg/kg dry weight or ug): mg/kg

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
57-12-5	Cyanide	0.35	J*	07/27/2016	12:12

NOTE: hardness (total) is reported in mg/L

Comments:

FORM 1-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MF1D19

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D18

Matrix: Soil Lab Sample ID: 1620157004

% Solids: 77.5 Date Received: 07/19/2016

Analytical Method: Spectrophotometry

Concentration Units (ug/L, mg/L, mg/kg dry weight or ug): mg/kg

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
57-12-5	Cyanide	0.067	J*	07/27/2016	12:16

NOTE: hardness (total) is reported in mg/L

Comments:

FORM 1-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MF1D20

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D18

Matrix: Soil Lab Sample ID: 1620157005

% Solids: 71.8 Date Received: 07/19/2016

Analytical Method: Spectrophotometry

Concentration Units (ug/L, mg/L, mg/kg dry weight or ug): mg/kg

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
57-12-5	Cyanide	0.62	*	07/27/2016	12:16

NOTE: hardness (total) is reported in mg/L

Comments:

FORM 1-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MF1D21

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D18

Matrix: Soil Lab Sample ID: 1620467004

% Solids: 65.4 Date Received: 07/22/2016

Analytical Method: Spectrophotometry

Concentration Units (ug/L, mg/L, mg/kg dry weight or ug): mg/kg

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
57-12-5	Cyanide	0.74	U*	07/27/2016	12:24

NOTE: hardness (total) is reported in mg/L

Comments:

FORM 1-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MF1D22

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D18

Matrix: Soil Lab Sample ID: 1620467005

% Solids: 45.6 Date Received: 07/22/2016

Analytical Method: Spectrophotometry

Concentration Units (ug/L, mg/L, mg/kg dry weight or ug): mg/kg

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
57-12-5	Cyanide	0.65	J*	07/27/2016	12:27

NOTE: hardness (total) is reported in mg/L

Comments:

FORM 2-IN
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D18

Initial Calibration Verification Source: EPA-ICV6(0400)

Continuing Calibration Verification Source: ALS-32873

Run Batch: 20160727002&3 Analytical Method: Spectrophotometry

Concentration Units: ug/L

	Initial Calibration Verification				Continuing Calibration Verification						
	ID: ICV				ID: CCV1				ID: CCV2		
Analyte	True	Found	%R	%RSD	True	Found	%R	%RSD	Found	%R	%RSD
Cyanide	99	90.6	92		200	197	99		194	97	

FORM 2-IN
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D18

Initial Calibration Verification Source:

Continuing Calibration Verification Source: ALS-32873

Run Batch: 20160727002&3 Analytical Method: Spectrophotometry

Concentration Units: ug/L

	Initial Calibration Verification				Continuing Calibration Verification						
	ID:				ID: CCV3				ID: CCV4		
Analyte	True	Found	%R	%RSD	True	Found	%R	%RSD	Found	%R	%RSD
Cyanide					200	200	100		193	96	

FORM 3-IN
BLANKS

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D18

Preparation Blank Matrix: Soil

Preparation Blank Concentration Units (ug/L, mg/L, mg/kg dry weight, or ug): mg/kg

Analytical Method: Spectrophotometry Preparation Batch: 173501

Run Batch: 20160727002&3 Preparation Method: Micro-Distillation

	Initial Calibration Blank (ug/L)		Continuing Calibration Blank (ug/L)						Preparation Blank/Leachate Extraction Blank	
Analyte	ID: ICB	Q	ID: CCB1	Q	ID: CCB2	Q	ID: CCB3	Q	ID: PBS1	Q
Cyanide	41.7	U	41.7	U	-3.4	J	41.7	U	0.50	U

FORM 3-IN
BLANKS

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D18

Preparation Blank Matrix:

Preparation Blank Concentration Units (ug/L, mg/L, mg/kg dry weight, or ug):

Analytical Method: Spectrophotometry Preparation Batch: 173501

Run Batch: 20160727002&3 Preparation Method: Micro-Distillation

	Initial Calibration Blank (ug/L)		Continuing Calibration Blank (ug/L)						Preparation Blank/Leachate Extraction Blank	
Analyte	ID:	Q	ID: CCB4	Q	ID:	Q	ID:	Q	ID:	Q
Cyanide			41.7	U						

FORM 5A-IN
MATRIX SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.
MF1D18S

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D18

Matrix: Soil Analytical Method: Spectrophotometry

% Solids: 76.6

Concentration Units (ug/L, mg/L or mg/kg dry weight): mg/kg

Analyte	Control Limit %R	Spiked Sample Result (SSR)	Q	Sample Result (SR)	Q	Spike Added (SA)	%R	Q
Cyanide	75-125	0.90		0.35	J	1.4	39	*

FORM 5B-IN
POST-DIGESTION/DISTILLATION SPIKE
SAMPLE RECOVERY

EPA SAMPLE NO.
MF1D18A

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D18

Matrix: Soil Analytical Method: Spectrophotometry

% Solids: 76.6

Concentration Units (ug/L, mg/L or mg/kg dry weight): mg/kg

Analyte	Control Limit %R	Spiked Sample Result (SSR)	Q	Sample Result (SR)	Q	Spike Added (SA)	%R	Q
Cyanide		1.2		0.35	J	0.71	119	

FORM 6-IN
DUPLICATES

EPA SAMPLE NO.
MF1D18D

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D18

Matrix: Soil Analytical Method: Spectrophotometry

% Solids: 76.6

Concentration Units (ug/L, mg/L or mg/kg dry weight): mg/kg

Analyte	Control Limit	Sample (S)	Q	Duplicate (D)	Q	RPD	Q
Cyanide		0.35	J	0.40	J	13	

FORM 9-IN
METHOD DETECTION LIMIT

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D18

Analytical Method: Spectrophotometry Instrument ID: WET01

Preparation Method: Micro-Distillation

Concentration Units (ug/L, ug or mg/kg): mg/kg

Analyte	Wavelength/Mass	MDL	Date Analyzed
Cyanide	570.00	0.024	05/10/2016

FORM 12-IN
ANALYSIS LOG

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D18

Instrument ID: WET01 Analytical Method: Spectrophotometry

Start Date: 07/27/2016 End Date: 07/27/2016

Run Batch: 20160727002&3

EPA Sample No.	D/F	Time	Analytes																									
			Cn																									
S0	1.0	1159	X																									
S01	1.0	1202	X																									
S02	1.0	1202	X																									
S03	1.0	1203	X																									
S04	1.0	1203	X																									
S05	1.0	1206	X																									
S06	1.0	1206	X																									
ICV	1.0	1207	X																									
ICB	1.0	1207	X																									
CCV1	1.0	1210	X																									
CCB1	1.0	1210	X																									
PBS	1.0	1211	X																									
MF1D18	1.0	1212	X																									
MF1D18S	1.0	1214	X																									
MF1D18D	1.0	1215	X																									
MF1D19	1.0	1216	X																									
MF1D20	1.0	1216	X																									
MF1D05	1.0	1219	X																									
MF1D12	1.0	1219	X																									
MF1D14	1.0	1220	X																									
MF1D17	1.0	1220	X																									
MF1D13	1.0	1223	X																									
MF1D15	1.0	1223	X																									
MF1D16	1.0	1224	X																									
MF1D21	1.0	1224	X																									
MF1D22	1.0	1227	X																									
CCV2	1.0	1227	X																									
CCB2	1.0	1228	X																									
CCV3	1.0	1251	X																									
CCB3	1.0	1254	X																									
MF1D18A	1.0	1255	X																									
CCV4	1.0	1255	X																									

FORM 12-IN
ANALYSIS LOG

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D18

Instrument ID: WET01 Analytical Method: Spectrophotometry

Start Date: 07/27/2016 End Date: 07/27/2016

Run Batch: 20160727002&3

EPA Sample No.	D/F	Time	Analytes																								
			Cn																								
CCB4	1.0	1256	X																								

FORM 15-IN
INITIAL CALIBRATION

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D18

Instrument ID: WET01 Start Date: 07/27/2016

Analytical Method: Spectrophotometry Run Batch: 20160727002&3

Concentration Units: ug/L

Analyte	True	Found	%D	True	Found	%D	True	Found	%D
Cyanide	0.0	-0.59		10.0	9.0	-10	50.0	48.0	-4

FORM 15-IN
INITIAL CALIBRATION

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D18

Instrument ID: WET01 Start Date: 07/27/2016

Analytical Method: Spectrophotometry Run Batch: 20160727002&3

Concentration Units: ug/L

Analyte	True	Found	%D	True	Found	%D	True	Found	%D
Cyanide	100	102	2	200	204	2	300	301	0

FORM 15-IN
INITIAL CALIBRATION

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D18

Instrument ID: WET01 Start Date: 07/27/2016

Analytical Method: Spectrophotometry Run Batch: 20160727002&3

Concentration Units: ug/L

Analyte	True	Found	%D	True	Found	%D	True	Found	%D
Cyanide	400	397	-1						

FORM 16-IN
INITIAL CALIBRATION SUMMARY

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D18

Instrument ID: WET01 Start Date: 07/27/2016

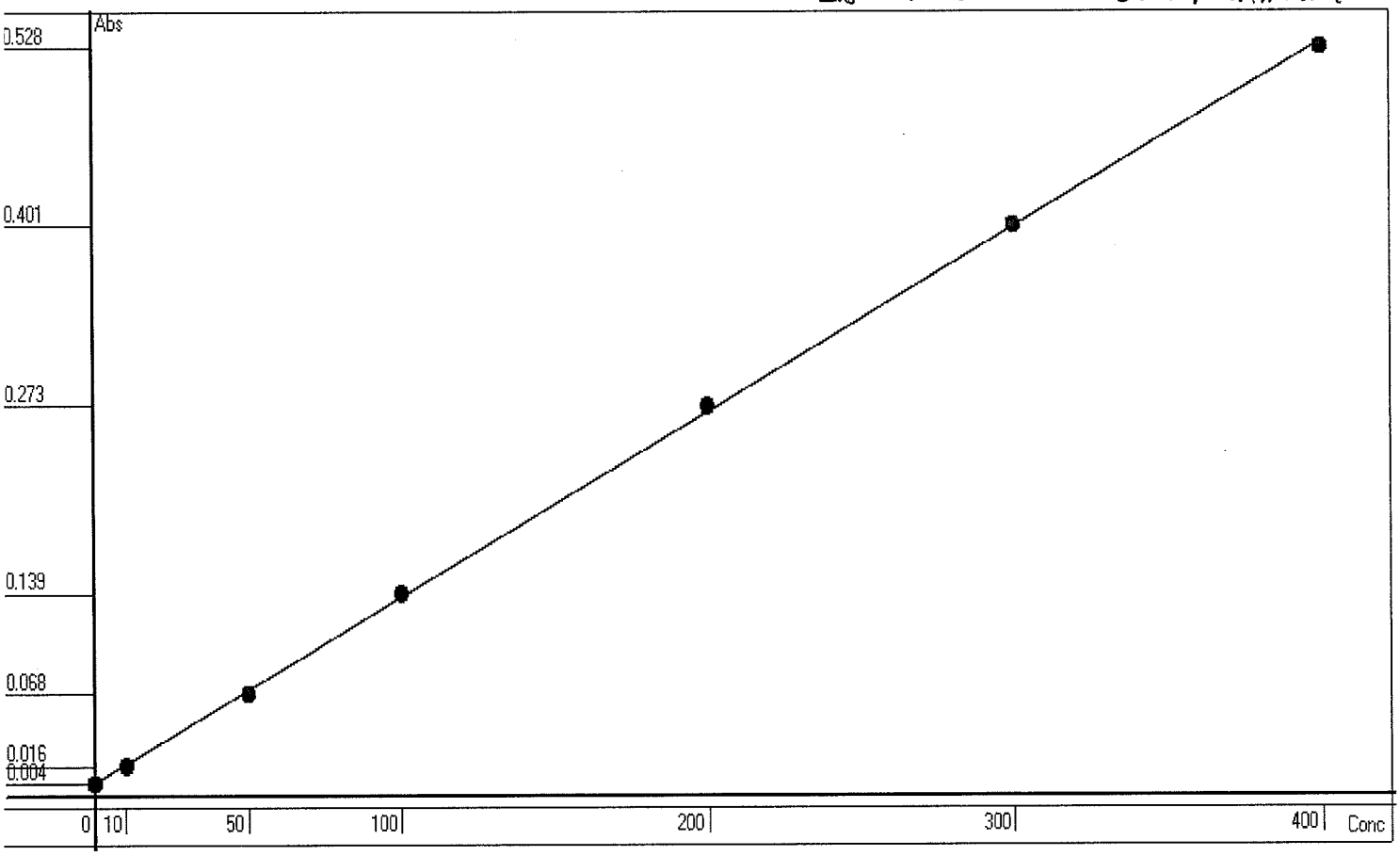
Analytical Method: Spectrophotometry Run Batch: 20160727002&3

Analyte	Corr. Coeff.	Slope	Intercept	Calib. Type	Weighting
Cyanide	0.9999	759	-3.46	LIN None	NONE

Calibrant Report - CYN2 -

Calib Lot #:010104 Exp Date:1/1/2025 User:Westco Scientific
Plan # : 20160727002 Description : [CN-46321-MF1D18] Unit

Workorders: 1620157, 1620228, 1620467
SDG: MF1D18 Case: 46321 HBN: 174392
Instrument ID: WET01 Christopher R Hannan 08/09/2016



Point	OD	Conc	Recalc Conc	% Error
1	0.0038	0	-0.5769	-57.69
2	0.0164	10	8.9872	-10.13
3	0.0678	50	48.0026	-3.99
4	0.1388	100	101.8954	1.90
5	0.2727	200	203.5328	1.77
6	0.4011	300	300.9954	0.33
7	0.5279	400	397.2435	-0.69

Conc= +759.0543*Abso -3.4613 R^2=0.9998

RBL
0.0098
0

Report Date 7/27/2016 Run Date 7/27/2016

CYN2 - CYANIDE - NEW EPA SOW

Type	: End Point
Direction	: Up
Unit	: µg/L
Model	: Linear
Unit Factor	: 1
Factor	: 1
Decimal	: 3
Slope	: 1
Intercept	: 0
Linearity Low	: -10
Linearity High	: 400
Filter 1	: 570
Fluidics	: Yes
Sample Blank	: Yes *

RBL 1	: 0.0098
Rbl Replicate	: 3
Use RBL	: Yes
Rgt Rate 1	: 0.0090
E.P. OD Limit	: 0.0030

	Code	Vol	Delay	Read	Rinse
Reagent 1	CNSP	89	108	0	0
Reagent 2 *	CNCL	21	36	0	0
Reagent 3	CNPY	210	0	576	0

Diluent	: NAOH
Sample Vol	: 210

	Concentration	OD		Concentration	OD
C1	0	0.0038	C5	200	0.2727
C2	10	0.0164	C6	300	0.4011
C3	50	0.0678	C7	400	0.5279
C4	100	0.1388	C8	-	-

Code	: CN
Description	: Cyanide
Lot#	: 010104
Exp Date	: 1/1/2025
User	: Westco Scientific
Cal Replicate	: 1

Report Date :07/27/2016 **Run Date :07/27/2016** **Operator : CRHANSEN** **Plan # :20160727002**

Plan Description : CN-46321-MF1D18

ALS Environmental

Method : CYN2 -Unit [µg/L] - CYANIDE - NEW EPA SOW

Smp#/[Dil Fact]	Sample ID	Conc	OD	%Recovery/RPD	Analysis Time
DIL-1	RBL	0.000	0.0107	0.00	11:58:02 AM
DIL-1	RBL	0.000	0.0135	0.00	11:58:20 AM
DIL-1	RBL	0.000	0.0089	0.00	11:59:14 AM
ST-1	Std-1	0.000	0.0038	0.00	11:59:32 AM
ST-2	Std-2	10.000	0.0164	0.00	12:02:14 PM
ST-3	Std-3	50.000	0.0678	0.00	12:02:32 PM
ST-4	Std-4	100.000	0.1388	0.00	12:03:26 PM
ST-5	Std-5	200.000	0.2727	0.00	12:03:44 PM
ST-6	Std-6	300.000	0.4011	0.00	12:06:26 PM
ST-7	Std-7	400.000	0.5279	0.00	12:06:44 PM
1	ICV	90.599	0.1239	0.00	12:07:38 PM
2	ICB	-1.879	0.0021	0.00	12:07:56 PM
3	CCV1	197.145	0.2643	0.00	12:10:42 PM
4	CCB1	-1.196	0.0030	0.00	12:10:58 PM
5	PBS I	1.765	0.0069	0.00	12:11:50 PM
6	MF1D18	24.587	0.0370	0.00	12:12:08 PM
7	MF1D18S	63.174	0.0878	0.00	12:14:51 PM
8	MF1D18D	28.078	0.0416	0.00	12:15:08 PM
9	MF1D19	5.100	0.0113	0.00	12:16:02 PM
10	MF1D20	43.480	0.0618	0.00	12:16:20 PM
11	MF1D05	0.658	0.0054	0.00	12:19:02 PM
12	MF1D12	49.548	0.0698	0.00	12:19:20 PM
13	MF1D14	-3.393	0.0001	0.00	12:20:14 PM
14	MF1D17	2.448	0.0078	0.00	12:20:32 PM
15	MF1D13	10.064	0.0178	0.00	12:23:14 PM
16	MF1D15	6.167	0.0127	0.00	12:23:32 PM
17	MF1D16	-26.183	-0.0299	0.00	12:24:26 PM
18	MF1D21	-10.019	-0.0086	0.00	12:24:44 PM
19	MF1D22	27.513	0.0408	0.00	12:27:26 PM
20	CCV2	193.730	0.2598	0.00	12:27:44 PM
21	CCB2	-3.397	0.0001	0.00	12:28:38 PM

Report Date :07/27/2016 **Run Date :7/27/2016** **Operator : CRHANSEN** **Plan # :20160727002**

Plan Description : CN-46321-MF1D18

ALS Environmental

Method : CYN2 -Unit [µg/L] - CYANIDE - NEW EPA SOW

Smp#/[Dil Fact]	Sample ID	Conc	OD	%Recovery/RPD	Analysis Time
DIL-1	RBL	0.000	0.0094	0.00	12:50:17 PM
DIL-1	RBL	0.000	0.0131	0.00	12:50:37 PM
DIL-1	RBL	0.000	0.0081	0.00	12:51:31 PM
1	CCV3	200.433	0.2686	0.00	12:51:50 PM
2	CCB3	-0.489	0.0039	0.00	12:54:43 PM
3	MF1D18A	84.195	0.1155	0.00	12:55:01 PM
4	CCV4	192.994	0.2588	0.00	12:55:55 PM
5	CCB4	-1.552	0.0025	0.00	12:56:13 PM

ISM02.3 CN in Soil by Micro-Distillation Electronic Physical Description Log

File Location: \\Alsltws013\INORGANIC\WaterLab\ISM02.3			File Name: CN-S-173501-MF1D18
HBN: 173501	Case: 46321	SDG: MF1D18	Cyanide in EPA-CLP soil
Workorder ID(s): 1620157, 1620228, 1620467			Preparer: Christopher R. Hansen

ISM02.3 Cyanide Soil Standards Preparation Description

Sample ID.	Solution used	Amount	Description of solution	Std. final volume	Std. final conc.
S0, ICB, CCBs, PBS	NA	NA	NA	50mL	0 µg/L cyanide
S01	CN INT WKG (32873)	0.1 mL	CN INT WKG = 5,000 µg/L CN^-		10 µg/L cyanide
S02		0.5 mL			50 µg/L cyanide
S03		1.0 mL			100 µg/L cyanide
S04, CCVs		2.0 mL			200 µg/L cyanide
S05		3.0 mL			300 µg/L cyanide
S06		4.0 mL			400 µg/L cyanide
ICV	EPA-ICV6-0400 (29902)	0.5 mL	CN CLP-ICV = 9900 µg/L CN		99 µg/L cyanide
MS	CN INT WKG (32873)	0.12mL	CN INT WKG = 5,000 µg/L CN^-	6mL	100 µg/L cyanide
MD	NA	NA	NA	6mL	NA

ISM02.3 Cyanide Soil Samples Preparation Description

	EPA Sample ID	Matrix	Method **	Prep Date and Time	Amount of Sample Used (g)	Final Volume of Samples (mL)	pH
Calibration Standards	S0	0.25N NaOH	Micro-Distillation	07/26/2016 10:28	NA	6 mL	NA
	S01						
	S02						
	S03						
	S04/CCVs						
	S05						
	S06						
	ICV						
	ICB/CCBs						
	PBS1						
	MF1D18	Soil			0.5533		
	MF1D18S				0.5473		
	MF1D18D				0.5451		
	MF1D19				0.5914		
	MF1D20				0.5897		
	MF1D05				0.5644		
	MF1D12				0.5490		
	MF1D14				0.5376		
	MF1D17				0.5104		
	MF1D13				0.5001		
	MF1D15				0.5548		
	MF1D16				0.5028		
	MF1D21				0.5192		
	MF1D22				0.5618		

Method Suumary: Samples weighed into micro-distillation sample tubes and QCs prepared as described above. 2mL of 0.25N NaOH added to all collector tubes with the M end facing up. Tubes capped with membranes and 0.75mL of the releasing solution added to each sample. Sample tubes immediately assembled with collector tubes and placed on the distillation unit for 30 minutes. Disillation unit is maintained at 120°C, as measured by an onboard temperature indicator. The tubes are broken down and the distillate collected into one tube after allowing the tubes to cool for at least 10 minutes. Distillate brought to 6mL total volume with 0.25N NaOH. Samples are ready for analysis.

Notes: None were required.

Analyte/Method: Cyanide in Soil ISM02.3 by Micro-Distillation	HBN #: 173501	SDG #: MF1D18	Case #: 46321	Samples Prepared by (name): Christopher R. Hansen
Workorder ID(s): 1620157, 1620228, 1620467	Sample ID(s): MF1D18, 19, 20; MF1D05, 12, 14, 17; MF1D13, 15, 16, 21, 22			Starting Date/Time: 07/26/2016 10:28

Procedure:

0.5 g to 0.6 g of each sample is transfered into a Lachat MicroDist sample tube. 5 mL of ASTM Type II water is added to each sample. 6 mL of each QC is transferred into a Lachat MicroDist sample tube. 0.75 mL of an acidic releasing agent is added to each sample and QC which is then quickly capped and placed on a Lachat MicroDist hotblock, protected from light by aluminum foil. Samples and QCs are distilled for 30 minutes on a hot block set to maintain temperature at 122 ± 2 ºC (Temp. Correction factor: -2ºC) Samples/QCs are removed from the hot block and the sample tube is removed from the collection tube within 4 seconds to prevent sample suck-back. The sample tube is discarded and the collection tubes are allowed to cool to room temperature. The distillate is brought to a final volume of 6 mL with 0.25N NaOH. (NOTE: Lachat MicroDist Tubes require set up prior to distillation.) After distillation cyanide is quantified by UV-Vis spectroscopy on a SmartChem discrete AA.

Equipment:

Balance: 105930 Pipettes: PL-214, WC#6 Other: LACHAT "Micro Dist' Hotblocks

Calibration and QC Stock Standards used:

STD	Std ID#	Expiration
Stock 1,000 µg/mL	**31750**	09/30/2016
Check Stock 9,900 µg/L	**29902**	10/16/2024
Stock Int. 5,000 µg/L	**32873**	08/02/2016

Calibration and QC Standards preparation in 0.25 N NaOH

STD ID	Spike amount (mL)	Std ID#	Final volume (mL)	Target (µg/L)
S0 /CCB / PBS	NONE	NONE	50	0
S01	0.1	32873	50	10
S02	0.5	32873	50	50
S03	1.0	32873	50	100
S04 / CCV	2.0	32873	50	200
S05	3.0	32873	50	300
S06	4.0	32873	50	400
ICV	0.5	29902	50	99
MS	0.12	32873	6	100

Sample(s) for MS and MD: MF1D18

Verification of Procedure

Verified By: Kristie Bitn

Date Verified: 08/09/2016

Reagents for Preparation:

ID	Log Book or Horizon ID	Expiration
0.25 N NaOH	32636	07/06/2018
	32765	07/19/2018
$MgCl_2$ Releasing Solution	848	09/03/2016

EPA-SOW Reporting Limit: 0.5 mg/kg

Distillation Hotblock Times and Temperatures

MD1: Time On	MD1: Time Off	Temp On (°C)	Temp Off (°C)
14:12	14:42	120	120
MD2: Time On	**MD2: Time Off**	**Temp On (°C)**	**Temp Off (°C)**
14:12	14:42	120	120

CONVERSION FACTOR: 1 µg/L = 0.012 mg/kg

(µg/L)(0.006 L/0.5g) = µg/g
(µg/g)(1mg/1000µg)(1000g/kg) = mg/kg

Comment(s):

Samples were reactive with the acidic releasing solution. All samples foamed when the solution was added. Samples MF1D12, MF1D13, MF1D16, MF1D21, and MF1D22 in particular overflowed the reaction cup the first time that releasing solution was added. These samples were reweighed with a minimum (~2.5mL) of water added. Releasing solution was added to these samples as quickly as was feasible to prevent overflow and sample loss.

Batch Worklist

Batch: EWC/ 6522 **Created:** 7/25/2016 16:23 **Instrument:** **HBN:** 173501

Rule: ISM02.3 Cn Micro Dist, Prep **Analyst:** C. Hansen **Status:** NA

Workorder: 1620157 % solids OK **SDG:** MF1D18 **Case:** 46321 weighed 07/26/2016 10:28 Balance: 105930 CH

Workorder: 1620228 " **SDG:** MF1D18 **Case:** 46321

Workorder: 1620467 " **SDG:** MF1D18 **Case:** 46321

Pos	Lab ID	Sample ID	Prep Initial	Prep Final	Dust Weight	Type	Mx	Container	Procedure	Mgr	Expire Date	Due Date	Run Date
1	509807	S0				STB	3		I23CN...3P	6118	8/6/2016	7/25/2016	
2	509808	S01				STD	3		I23CN...3P	6118	8/6/2016	7/25/2016	
3	509809	S02				STD	3		I23CN...3P	6118	8/6/2016	7/25/2016	
4	509810	S03				STD	3		I23CN...3P	6118	8/6/2016	7/25/2016	
5	509811	S04				STD	3		I23CN...3P	6118	8/6/2016	7/25/2016	
6	509812	S05				STD	3		I23CN...3P	6118	8/6/2016	7/25/2016	
7	509813	S06				STD	3		I23CN...3P	6118	8/6/2016	7/25/2016	
8	509814	ICV				ICV	3		I23CN...3P	6118	8/6/2016	7/25/2016	
9	509815	ICB				ICB	3		I23CN...3P	6118	8/6/2016	7/25/2016	
10	509816	CCV1				CCV	3		I23CN...3P	6118	8/6/2016	7/25/2016	
11	509817	CCB1				CCB	3		I23CN...3P	6118	8/6/2016	7/25/2016	
12	509818	PBS 1				PBS	4		I23CN...4P	6118	8/6/2016	7/25/2016	
13	1620157001	MF1D18		0.5469 g	0.5533 g	SAMPLE	4	1620157001-A	I23CN...4P	5936	7/31/2016	7/25/2016	
14	1620157002	MF1D18S	CH	0.5488 g	0.5473 g	MS	4	1620157002-A	I23CN...4P	5936	7/31/2016	7/25/2016	
15	1620157003	MF1D18D	07/26/16	0.5451 g		MD	4	1620157003-A	I23CN...4P	5936	7/31/2016	7/25/2016	
16	1620157004	MF1D19		0.5914 g		SAMPLE	4	1620157004-A	I23CN...4P	5936	7/31/2016	7/25/2016	
17	1620157005	MF1D20		0.5897 g		SAMPLE	4	1620157005-A	I23CN...4P	5936	7/31/2016	7/25/2016	
18	1620228001	MF1D05		0.5644 g		SAMPLE	4	1620228001-A	I23CN...4P	5936	8/1/2016	7/26/2016	
* 19	1620228002	MF1D12	CH 08/09/16	~~0.5169~~ g	* ~~0.5723~~ g	0.5490 g	SAMPLE	4	1620228002-A	I23CN...4P	5936	8/1/2016	7/26/2016
20	1620228004	MF1D14		0.5376 g		SAMPLE	4	1620228004-A	I23CN...4P	5936	8/1/2016	7/26/2016	
21	1620228005	MF1D17		0.5104 g		SAMPLE	4	1620228005-A	I23CN...4P	5936	8/1/2016	7/26/2016	
* 22	1620467001	MF1D13	CH 08/09/16	~~0.5487~~ g	0.5001 g	SAMPLE	4	1620467001-A	I23CN...4P	5936	8/3/2016	7/28/2016	
23	1620467002	MF1D15		0.5548 g		SAMPLE	4	1620467002-A	I23CN...4P	5936	8/3/2016	7/28/2016	
* 24	1620467003	MF1D16	CH 08/09/16	~~0.5679~~ g	* ~~0.5217~~ g	0.5028 g	SAMPLE	4	1620467003-A	I23CN...4P	5936	8/3/2016	7/28/2016
* 25	1620467004	MF1D21	CH 08/09/16	~~0.5813~~ g	0.5192 g		SAMPLE	4	1620467004-A	I23CN...4P	5936	8/3/2016	7/28/2016
* 26	1620467005	MF1D22	CH 08/09/16	~~0.5731~~ g	0.5618 g		SAMPLE	4	1620467005-A	I23CN...4P	5936	8/3/2016	7/28/2016

PDS: (50 µg/L in 2.5 mL) (50 µg/L)(0.0025 L)(1 L / 5000 µg) = 0.000025 L = 25 µL

* Highly reactive samples overflowed when releasing solution added. Reweighed with minimum water added. weights written farthest right were used. CH 07/26/2016

56 149

STANDARD REPORT

Stock Standard - CLPCN-ICV6

CLPCN-ICV6			Description - EPA-CLP CN ICV
Standard: 29902	**Created By:** C. Hansen		**Amount:** 250 mL
MFG: QATS Laboratory	**Create Date:** 10/16/2014		**Expires:** 10/16/2024
MFG Lot: EPA ICV6-0400	**Lab Lot:** CN ICV		**Usable:** Yes
Part ID:			

Pos.	Analyte	Name	Concentration
1	57-12-5	Cyanide	9900 ug/L

56 150

ALSSTANDARDS V2.3
Tue, 08/02/16 8:11 PM

: 00059

STANDARD REPORT

Working Standard - CN INT

CN INT		Description - CN INT 5000
Standard: 32873	**Created By:** C. Hansen	**Amount:** 50 mL
MFG: CRH	**Create Date:** 07/26/2016	**Expires:** 08/02/2016
MFG Lot:	**Lab Lot:** CN INT	**Usable:** Yes
Part ID:		

Pos.	Analyte	Name	Concentration
1	57-12-5	Cyanide	5000 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
31750	CN stock	CN stock	CN stock	0.25 mL	09/30/2016
32636	0.25N NaOH	20g NaOH per 2L DDI water	0.25N NaOH	9.75 mL	07/06/2018
32765	0.25N NaOH	20g NaOH per 2L DDI water	0.25N NaOH	40 mL	07/19/2018

56 151

STANDARD REPORT

Constituent

Stock Standard - CN stock

CN stock			Description - CN stock
Standard: 31750	**Created By:** C. Hansen		**Amount:** 120 mL
MFG: Ricca	**Create Date:** 5/10/2016		**Expires:** 9/30/2016
MFG Lot: 2603B34	**Lab Lot:** CN stock		**Usable:** Yes
Part ID: 2543-4			

Pos.	Analyte	Name	Concentration
1	57-12-5	Cyanide	1000 ug/mL

56 152

ALSSTANDARDS V2.3
Tue, 08/02/16 8:11 PM

: 00061

STANDARD REPORT

Constituent

Solvent Standard - 0.25N NaOH

0.25N NaOH			Description - 20g NaOH per 2L DDI water
Standard: 32636	**Created By:** C. Hansen		**Amount:** 2 L
MFG: MACRON	**Create Date:** 7/6/2016		**Expires:** 7/6/2018
MFG Lot: 68773	**Lab Lot:** 0.25N NaOH		**Usable:** Yes
Part ID: balance:105930			

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

STANDARD REPORT

Constituent

Solvent Standard - 0.25N NaOH

0.25N NaOH			Description - 20g NaOH per 2L DDI water
Standard: 32765	**Created By:** C. Hansen		**Amount:** 2 L
MFG: MACRON	**Create Date:** 7/19/2016		**Expires:** 7/19/2018
MFG Lot: 112044	**Lab Lot:** 0.25N NaOH		**Usable:** Yes
Part ID: balance:105930			

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

ALS - SLC Reagent Report

Reagent ID	Date Created	Expiration Date	Final Volume	Units
848	09/03/2015	09/03/2016		

Analyst: Brittney Austin

Reagent Description

Releasing solution for cyanide

Comments

77mL sulfuric acid = 139g; very exothermic reaction.

Chemical	Vendor	LotNo
ASTM TYPE II water	ALS	

Pipette Used	Volume Used	Units
Grad. Cyln.	444.0000	mL

Balance ID	Weight	Units

Chemical	Vendor	LotNo
Magnesium Chloride HexaHydrate	Calbiochem	D00127194

Pipette Used	Volume Used	Units

Balance ID	Weight	Units
102887	128.8009	g

Chemical	Vendor	LotNo
Sulfuric Acid, conc.	EMD	53232

Pipette Used	Volume Used	Units
dispenser	308.0000	mL

Balance ID	Weight	Units

56 155

Analysis of Cyanide in Soil by ISM02.3

File Location: \\Alsltws013\INORGANIC\WaterLab\ISM02.3

Analyst: Christopher R. Hansen

Instrument ID: Westco SmartChem (WET01)

Analysis Data: 20160727002, 20160727003

Date/Time: 07/27/2016 11:58

WorkOrder#	Sample IDs	Analyte/Matrix	HBN	SDG	CASE
1620157	MF1D18, 19, 20	Cyanide in Soil	174392	MF1D18	46321
1620228	MF1D05, 12, 14, 17				
1620467	MF1D13, 15, 16, 21, 22				

CONVERSION FACTOR: 1 µg/L = 0.012 mg/kg

(µg/L)(0.006 L/0.5g) = µg/g

(µg/g)(1mg/1000µg)(1000g/kg) = mg/kg

SOW-RL: 0.5 mg/kg

MDL: 0.0238 mg/kg

05/10/2016 - 05/10/2017

ANALYSIS REAGENTS:

Entry ID	Solution	Expiration
1379	Chloramine-T	07/28/2016
1227	Color Solution	10/18/2016
1343	Phosphate Buffer	06/27/2017

METHOD INFORMATION:

Prep Method: Micro-Distillation

SOP: SC-EP-CASC-CN

Preparation Date: 07/26/2016 10:28

Preparation HBN: 173501

Prepared By: Christopher R. Hansen

VERIFICATION OF PROCEDURE	
Verified By:	Kristie B. [illegible]
Date Verified:	08/09/2016

CALIBRATION:

Correlation R^2: 0.998

% Difference : See Raw data.

ANALYSIS PARAMETERS:

See Raw data.

Dilutions: None were required.

Comments: Sample data was flagged for matrix spike recovery outside control limits. A post digestion spike was therefore analyzed. MF1D18S was at 39% cyanide recovery. MF1D18A was at 119% cyanide recovery.

Batch Worklist

Batch: EWC/ 6548 **Created:** 8/9/2016 09:19 **Instrument:** **HBN:** 174392

Rule: ISM02.3 Cn MicroDist, Analysis **Analyst:** C. Hansen **Status:** WP

Workorder: 1620157 **SDG:** MF1D18 **Case:** 46321
Workorder: 1620228 **SDG:** MF1D18 **Case:** 46321
Workorder: 1620467 **SDG:** MF1D18 **Case:** 46321

Pos	Lab ID	Sample ID	Prep Initial	Prep Final	Dust Weight	Type	Mx	Container	Procedure	Mgr	Expire Date	Due Date	Run Date
1	509807	S0	6 mL	6 mL		STB	3		I23CN....3	6118	8/6/2016	8/11/2016	
2	509808	S01	6 mL	6 mL		STD	3		I23CN....3	6118	8/6/2016	8/11/2016	
3	509809	S02	6 mL	6 mL		STD	3		I23CN....3	6118	8/6/2016	8/11/2016	
4	509810	S03	6 mL	6 mL		STD	3		I23CN....3	6118	8/6/2016	8/11/2016	
5	509811	S04	6 mL	6 mL		STD	3		I23CN....3	6118	8/6/2016	8/11/2016	
6	509812	S05	6 mL	6 mL		STD	3		I23CN....3	6118	8/6/2016	8/11/2016	
7	509813	S06	6 mL	6 mL		STD	3		I23CN....3	6118	8/6/2016	8/11/2016	
8	509814	ICV	6 mL	6 mL		ICV	3		I23CN....3	6118	8/6/2016	8/11/2016	
9	509815	ICB	6 mL	6 mL		ICB	3		I23CN....3	6118	8/6/2016	8/11/2016	
10	509816	CCV1	6 mL	6 mL		CCV	3		I23CN....3	6118	8/6/2016	8/11/2016	
11	509817	CCB1	6 mL	6 mL		CCB	3		I23CN....3	6118	8/6/2016	8/11/2016	
12	509818	PBS1	.5 grams	6 mL		PBS	4		I23CN....4	6118	8/6/2016	8/11/2016	
13	1620157001	MF1D18	.5533 grams	6 mL		SAMPLE	4	1620157001-A	I23CN....4	5936	7/31/2016	8/11/2016	
14	1620157002	MF1D18S	.5473 grams	6 mL		MS	4	1620157002-A	I23CN....4	5936	7/31/2016	8/11/2016	
15	1620157003	MF1D18D	.5451 grams	6 mL		MD	4	1620157003-A	I23CN....4	5936	7/31/2016	8/11/2016	
16	1620157004	MF1D19	.5914 grams	6 mL		SAMPLE	4	1620157004-A	I23CN....4	5936	7/31/2016	8/11/2016	
17	1620157005	MF1D20	.5897 grams	6 mL		SAMPLE	4	1620157005-A	I23CN....4	5936	7/31/2016	8/11/2016	
18	1620228001	MF1D05	.5644 grams	6 mL		SAMPLE	4	1620228001-A	I23CN....4	5936	8/1/2016	8/11/2016	
19	1620228002	MF1D12	.549 grams	6 mL		SAMPLE	4	1620228002-A	I23CN....4	5936	8/1/2016	8/11/2016	
20	1620228004	MF1D14	.5376 grams	6 mL		SAMPLE	4	1620228004-A	I23CN....4	5936	8/1/2016	8/11/2016	
21	1620228005	MF1D17	.5104 grams	6 mL		SAMPLE	4	1620228005-A	I23CN....4	5936	8/1/2016	8/11/2016	
22	1620467001	MF1D13	.5001 grams	6 mL		SAMPLE	4	1620467001-A	I23CN....4	5936	8/3/2016	8/11/2016	
23	1620467002	MF1D15	.5548 grams	6 mL		SAMPLE	4	1620467002-A	I23CN....4	5936	8/3/2016	8/11/2016	
24	1620467003	MF1D16	.5028 grams	6 mL		SAMPLE	4	1620467003-A	I23CN....4	5936	8/3/2016	8/11/2016	
25	1620467004	MF1D21	.5192 grams	6 mL		SAMPLE	4	1620467004-A	I23CN....4	5936	8/3/2016	8/11/2016	
26	1620467005	MF1D22	.5618 grams	6 mL		SAMPLE	4	1620467005-A	I23CN....4	5936	8/3/2016	8/11/2016	

56 157

ALS - SLC Reagent Report

Reagent ID	Date Created	Expiration Date	Final Volume	Units
1379	07/27/2016	07/28/2016	25.0000	mL

Analyst: Christopher Hansen

Reagent Description

CN - Chloramine T

Comments

made at 09:30 - use within 24 hours

Chemical	Vendor	LotNo
Chloramine-T	Mallinckrodt	0614B21H11

Pipette Used	Volume Used	Units
	0.0000	mL

Balance ID	Weight	Units
105930	0.2495	g

56 158

ALS - SLC Reagent Report

Reagent ID	Date Created	Expiration Date	Final Volume	Units
1227	04/18/2016	10/18/2016	500.0000	mL

Analyst: Christopher Hansen

Reagent Description

CN - Pyridine Color Reagent

Comments

Chemical	Vendor	LotNo
Barbituric Acid 99%	Aldrich	07021HU

Pipette Used	Volume Used	Units

Balance ID	Weight	Units
102887	7.5026	g

Chemical	Vendor	LotNo
HCl conc.	Millipore	55177

Pipette Used	Volume Used	Units
dispenser	7.5000	mL

Balance ID	Weight	Units

Chemical	Vendor	LotNo
Pyradine	EM Science	53009

Pipette Used	Volume Used	Units
Grad. Cyln.	37.5000	mL

Balance ID	Weight	Units

56 159

ALS - SLC Reagent Report

Reagent ID	Date Created	Expiration Date	Final Volume	Units
1343	06/27/2016	06/27/2017	500.0000	mL

Analyst: Christopher Hansen

Reagent Description	Comments
CN - Phosphate Buffer	Contains 0.25mL of Westco Rinse Solution LOT# 168022

Chemical	Vendor	LotNo

Pipette Used	Volume Used	Units
	0.0000	mL

Balance ID	Weight	Units
	0.0000	g

Chemical	Vendor	LotNo
Sodium Dihydrogen Phosphate	Alfa Aesar	R22A024

Pipette Used	Volume Used	Units
	0.0000	mL

Balance ID	Weight	Units
105930	69.0038	g

56 160

00069

% Moistures & Solids

Analyst: IJO
Queue: EGRV
Batch: 5672
Instrument: GRAV03

Oven Start Time 07/25/2016 14:30 P.M. **Start Oven Temp:** 105° **Start Desiccator:** 07/26/2016 10:00 A.M.
Oven Finish Time 07/26/2016 10:00 A.M. **End Oven Temp:** 105° **End Desiccator:** 07/26/2016 11:30 A.M.

Workorder	Dish#	Lab Sample ID	Dish (g)	Dish + Soil (g)	Soil Weight (g)	Dish + DS (g)	Dry Soil (g)	% Solids	% Moistures
1620157	1	1620157001	1.2545	9.8395	8.5850	7.8267	6.5722	76.5545%	23.4455%
1620157	2	1620157003	1.2612	9.9315	8.6703	7.8922	6.6310	76.4795%	23.5205%
1620157	3	1620157004	1.2697	9.9142	8.6445	7.9682	6.6985	77.4886%	22.5114%
1620157	4	1620157005	1.2715	9.6866	8.4151	7.3158	6.0443	71.8268%	28.1732%

: 00070

% Moistures & Solids

Analyst: IJO
Queue: EGRV
Batch: 5673
Instrument: GRAV03

Oven Start Time 07/25/2016 14:30 P.M. **Start Oven Temp:** 105° **Start Desiccator:** 07/26/2016 10:00 A.M.
Oven Finish Time 07/26/2016 10:00 A.M. **End Oven Temp:** 105° **End Desiccator:** 07/26/2016 11:30 A.M.

Workorder	Dish#	Lab Sample ID	Dish (g)	Dish + Soil (g)	Soil Weight (g)	Dish + DS (g)	Dry Soil (g)	% Solids	% Moistures
1620228	1	1620228001	1.2622	9.6941	8.4319	8.0294	6.7672	80.2571%	19.7429%
1620228	2	1620228002	1.2627	9.7898	8.5271	6.1967	4.9340	57.8626%	42.1374%
1620228	3	509706	1.2581	9.7791	8.5210	6.3026	5.0445	59.2008%	40.7992%
1620228	4	1620228004	1.2647	9.6193	8.3546	6.5307	5.2660	63.0311%	36.9689%
1620228	5	1620228005	1.2606	9.8563	8.5957	8.4735	7.2129	83.9129%	16.0871%

: 00071

% Moistures & Solids

Analyst: IJO
Queue: EGRV
Batch: 5677
Instrument: GRAV03

Oven Start Time 07/25/2016 14:30 P.M. **Start Oven Temp:** 105° **Start Desiccator:** 07/26/2016 10:00 A.M.
Oven Finish Time 07/26/2016 10:00 A.M. **End Oven Temp:** 105° **End Desiccator:** 07/26/2016 11:30 A.M.

Workorder	Dish#	Lab Sample ID	Dish (g)	Dish + Soil (g)	Soil Weight (g)	Dish + DS (g)	Dry Soil (g)	% Solids	% Moistures
1620467	1	1620467001	1.3095	9.6899	8.3804	7.0827	5.7732	68.8893%	31.1107%
1620467	2	509721	1.3019	9.7784	8.4765	7.1997	5.8978	69.5782%	30.4218%
1620467	3	1620467002	1.2561	9.8915	8.6354	7.0481	5.7920	67.0727%	32.9273%
1620467	4	1620467003	1.2434	9.6392	8.3958	5.0533	3.8099	45.3786%	54.6214%
1620467	5	1620467004	1.2588	9.9387	8.6799	6.9319	5.6731	65.3590%	34.6410%
1620467	6	1620467005	1.2562	9.8920	8.6358	5.1978	3.9416	45.6426%	54.3574%

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: EPW14027	*Split:*	**Workorder ID:** 1620157	**Level:** EPACLP_PDF
Client: U. S. EPA Region 6 [46321/MF1D18]		**Account:** 8201	**Type:** 8ozGWM
Comments:			**Preservatives** COOL

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	Requested Analysis: ISM02.3 Cyanide, Soil
1	07/18/2016 16:05	MF1D18	1620157001		Soil/Solid/Sediment	A	1	A
2	07/18/2016 16:05	MF1D18S	1620157002	MS	Soil/Solid/Sediment	A	1	A
3	07/18/2016 16:05	MF1D18D	1620157003	MD	Soil/Solid/Sediment	A	1	A
4	07/18/2016 15:47	MF1D19	1620157004		Soil/Solid/Sediment	A	1	A
5	07/18/2016 15:20	MF1D20	1620157005		Soil/Solid/Sediment	A	1	A
6								
7								
8								
9								
10								

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Edwards, Meredith D.	07/19/2016 10:07	ALS Sample Receiving	Sample Login
Meredith Edwards	7/19/2016 15:44	4B	Storage
R-33-14B IJO	07/25/16 12:00	Alise J Ovalle	solid
Alise J Ovalle	07/25/16 16:00	R-33-14B IJO	Storage

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

56 164

Tue, 07/19/16 3:43 PM

ALSCOCV3.1

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: EPW14027 | **Split:** | **Workorder ID:** 1620228 | **Level:** EPACLP_PDF

Client: U. S. EPA Region 6 [46321/MF1D18] | **Account:** 8201 | **Type:** 8ozGWM

Comments:

Preservatives: COOL

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	Requested Analysis: ISM02.3 Cyanide, Soil
1	07/19/2016 12:55	MF1D05	1620228001		Soil/Solid/Sediment	A	1	A
2	07/19/2016 12:45	MF1D12	1620228002		Soil/Solid/Sediment	A	1	A
3	07/19/2016 14:55	MF1D14	1620228004		Soil/Solid/Sediment	A	1	A
4	07/19/2016 09:55	MF1D17	1620228005		Soil/Solid/Sediment	A	1	A
5								
6								
7								
8								
9								
10								

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Edwards, Meredith D.	07/20/2016 10:02	ALS Sample Receiving	Sample Login
Meredith Edwards	7/20/2016 10:02	ISC	Sorting
R-33-1 ISC IJO	07/25/16 12:00	Flue of Ovalle	Solid
Flue of Ovalle	07/25/16 16:00	R-33-1 ISC IJO	Storage

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

56 165

Wed, 07/20/16 11:06 AM

ALSCOCV3.1

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: EPW14027	***Split:***	**Workorder ID:** 1620467	**Level:** EPACLP_PDF
Client: U. S. EPA Region 6 [46321/MF1D18]		**Account:** 8201	**Type:** 8ozGWM
Comments:			**Preservatives** COOL

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	Requested Analysis: ISM02.3 Cyanide, Soil
1	07/21/2016 12:05	MF1D13	1620467001		Soil/Solid/Sediment	A	1	A
2	07/21/2016 11:10	MF1D15	1620467002		Soil/Solid/Sediment	A	1	A
3	07/21/2016 10:40	MF1D16	1620467003		Soil/Solid/Sediment	A	1	A
4	07/21/2016 11:15	MF1D21	1620467004		Soil/Solid/Sediment	A	1	A
5	07/21/2016 10:45	MF1D22	1620467005		Soil/Solid/Sediment	A	1	A
6								
7								
8								
9								
10								

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Edwards, Meredith D.	07/22/2016 09:32	ALS Sample Receiving	Sample Login
Meredith Edwards	7/22/2016 13:08	13C	Storage
R-33-1 13C IJO	07/25/16 12:00	Ilse J Ovalle	Solid
Ilse J Ovalle	07/25/16 16:00	R-33-1 13C IJO	Storage

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

56 166

Fri, 07/22/16 1:03 PM

ALSCOCV3.1

ORIGIN ID:CRSA (512) 239-1368
TCEQ/MC 102

12100 PARK 35 CIR BLDG D

AUSTIN, TX 787531808
UNITED STATES US

SHIP DATE: 18JUL16
ACTWGT: 59.00 LB MAN
CAD: /POS1704
DIMS: 23x14x14 IN

BILL SENDER

TO **MEREDITH EDWARDS**
ALS LAB GROUP
960 WEST LEVOY DR

SALT LAKE CITY UT 84123

(801) 266-7700 REF:
INV:
PO: DEPT:

Alt 7/19/2016
10:07

Part # 1562974-435 RIT2 APV EXP 05/17 ** #704404 07/18 544J1/SCBD/14E8

FedEx
Express

E

J162016070501uv

TRK# 0200 **8095 2440 2173**

TUE - 19 JUL 10:30A
PRIORITY OVERNIGHT

AX BTFA

84123
UT-US **SLC**

56 167

: 00076

ORIGIN ID:CRSA (512) 239-1368
TCEQ/MC 102

12100 PARK 35 CIR BLDG D

AUSTIN, TX 787531808
UNITED STATES US

SHIP DATE: 19JUL16
ACTWGT: 52.00 LB MAN
CAD: /POS1704
DIMS: 23x14x23 IN

BILL SENDER

TO **MEREDITH EDWARDS**
ALS LAB GROUP – SALT LAKE CITY
960 WEST LEVOY DR

SALT LAKE CITY UT 84123
(800) 000-0000
INV:
PO: REF:
DEPT:

8704404 07/19 544J1/5CBD/14E9

FedEx
Express

E

TRK# 0200 **8095 2440 2130**

WED – 20 JUL 10:30A
PRIORITY OVERNIGHT

AX BTFA

7/20/2014
10:02

84123
UT-US **SLC**

ORIGIN ID:CRSA (512) 239-2273
ADRRIENIE LOVE

12100 PARK 35 CIR MC-136

AUSTIN, TX 78753
UNITED STATES US

SHIP DATE: 21JUL16
ACTWGT: 56.30 LB
CAD: 006993943/SSFE1704
DIMS: 23x14x12 IN

BILL THIRD PARTY

TO **MEREDITH EDWARDS**

960 WEST LEVOY DR

SALT LAKE CITY UT 84123

(801) 266-7700 REF:
INV:
PO: DEPT:

AVE 7/22/2016
9:32

FedEx Express

E

J162016070501UY

TRK# 0201 **7836 3555 3964**

FRI - 22 JUL 10:30A
PRIORITY OVERNIGHT

AX BTFA

84123
UT-US **SLC**

SAMPLE TAG INFORMATION SHEET

There are no Sample Tags included with this SDG

Notations concerning the location of the Sample Tags are included in Forms DC-1,, DC-2 and in the SDG Administrative Narrative (if it is required).

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: EPW14027	***Split:***	**Workorder ID:** 1620157	**Level:** EPACLP_PDF
Client: U. S. EPA Region 6 [46321/MF1D18]		**Account:** 8201	**Type:** 8ozGWM
Comments:			**Preservatives** COOL

Requested Analysis

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	ISM02.3 Cyanide, Soil
1	07/18/2016 16:05	MF1D18	1620157001		Soil/Solid/Sediment	A	1	A
2	07/18/2016 16:05	MF1D18S	1620157002	MS	Soil/Solid/Sediment	A	1	A
3	07/18/2016 16:05	MF1D18D	1620157003	MD	Soil/Solid/Sediment	A	1	A
4	07/18/2016 15:47	MF1D19	1620157004		Soil/Solid/Sediment	A	1	A
5	07/18/2016 15:20	MF1D20	1620157005		Soil/Solid/Sediment	A	1	A
6								
7								
8								
9								
10								

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Edwards, Meredith D.	07/19/2016 10:07	ALS Sample Receiving	Sample Login
Meredith Edwards	7/19/2016 1544	4B	Storage
R-33-14B IJO	07/25/16 12:00	Alise J Ovalle	solid
Alise J Ovalle	07/25/16 16:00	R-33-14B IJO	Storage
~~R-33-1~~ CH 07/25/2016 R-33-1 (4B) CH	07/25/2016 18:15	wet chem lab CH	CN prep

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

56 171

Tue, 07/19/16 3:43 PM

ALSCOCV3.1

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: EPW14027	***Split:***	**Workorder ID:** 1620228	**Level:** EPACLP_PDF
Client: U. S. EPA Region 6 [46321/MF1D18]		**Account:** 8201	**Type:** 8ozGWM
Comments:			**Preservatives** COOL

Requested Analysis

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	ISM02.3 Cyanide, Soil
1	07/19/2016 12:55	MF1D05	1620228001		Soil/Solid/Sediment	A	1	A
2	07/19/2016 12:45	MF1D12	1620228002		Soil/Solid/Sediment	A	1	A
3	07/19/2016 14:55	MF1D14	1620228004		Soil/Solid/Sediment	A	1	A
4	07/19/2016 09:55	MF1D17	1620228005		Soil/Solid/Sediment	A	1	A
5								
6								
7								
8								
9								
10								

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Edwards, Meredith D.	07/20/2016 10:02	ALS Sample Receiving	Sample Login
[signature]	7/20/2016 1052	15C	[signature]
R-33-1 15C IJO	07/25/16 12:00	[signature]	solid
[signature]	07/25/16 16:00	R-33-1 15C IJO	storage
R-33-1 (15C) CH	07/25/2016 18:15	wet chem lab CH	CN prep

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

56 172

Wed, 07/20/16 11:06 AM

ALSCOCV3.1

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: EPW14027	***Split:***	**Workorder ID:** 1620467	**Level:** EPACLP_PDF
Client: U. S. EPA Region 6 [46321/MF1D18]		**Account:** 8201	**Type:** 8ozGWM
Comments:			**Preservatives** COOL

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	Requested Analysis: ISM02.3 Cyanide, Soil
1	07/21/2016 12:05	MF1D13	1620467001		Soil/Solid/Sediment	A	1	A
2	07/21/2016 11:10	MF1D15	1620467002		Soil/Solid/Sediment	A	1	A
3	07/21/2016 10:40	MF1D16	1620467003		Soil/Solid/Sediment	A	1	A
4	07/21/2016 11:15	MF1D21	1620467004		Soil/Solid/Sediment	A	1	A
5	07/21/2016 10:45	MF1D22	1620467005		Soil/Solid/Sediment	A	1	A
6								
7								
8								
9								
10								

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Edwards, Meredith D.	07/22/2016 09:32	ALS Sample Receiving	Sample Login
Meredith Edwards	7/22/2016 13:08	13C	Storage
R-33-1 13C IJO	07/25/16 12:00	Elise J Ovalle	Solid
Elise J Ovalle	07/25/16 16:00	R-33-1 13C IJO	Storage
R-33-1 (13C) CH	07/25/2016 18:00	wet chem lab CH	CN prep

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

56 173

Fri, 07/22/16 1:03 PM

ALSCOCV3.1

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: EPW14027	Split:	Workorder ID: 1620157	Level: EPACLP_PDF
Client: U. S. EPA Region 6 [46321/MF1D18]		Account: 8201	Type: 8ozGWM
Comments:			Preservatives: COOL

Requested Analysis: ISM02.3 Cyanide, Soil

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	ISM02.3 Cyanide, Soil
1	07/18/2016 16:05	MF1D18	1620157001		Soil/Solid/Sediment	A	1	A
2	07/18/2016 16:05	MF1D18S	1620157002	MS	Soil/Solid/Sediment	A	1	A
3	07/18/2016 16:05	MF1D18D	1620157003	MD	Soil/Solid/Sediment	A	1	A
4	07/18/2016 15:47	MF1D19	1620157004		Soil/Solid/Sediment	A	1	A
5	07/18/2016 15:20	MF1D20	1620157005		Soil/Solid/Sediment	A	1	A
6								
7								
8								
9								
10								

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Edwards, Meredith D.	07/19/2016 10:07	ALS Sample Receiving	Sample Login
[signature]	7/19/2016 15:44	4B	Storage
R-33-1 4B IJO	07/25/16 12:00	[signature]	solid
[signature]	07/25/16 16:00	R-33-1 4B IJO	Storage
~~R-40~~ CH 07/25/2016 R-33-1 (4B) CH	07/25/2016 18:15	wet chem lab CH	CN prep

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: cyanide soil

Prepared / Analyzed by: CH / CH

Lab Notebook No.: HBN: 174392

Date / Time: 07/25/2016 10:28

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
wet chem lab CH	07/25/2016 15:07	R-403-1 CH (44)	storage
R-403-1 (44) CH	07/27/2016 08:54	wet chem lab CH	CN analysis
wet chem lab CH	08/09/2016 09:55	cyanide waste CH	Disposal

CH 08/09/2016

56 174

Tue, 07/19/16 3:43 PM

ALSCOCV3.1

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: EPW14027	Split:	Workorder ID: 1620228	Level: EPACLP_PDF
Client: U. S. EPA Region 6 [46321/MF1D18]		Account: 8201	Type: 8ozGWM
Comments:			Preservatives: COOL

Requested Analysis: ISM02.3 Cyanide, Soil

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	ISM02.3 Cyanide, Soil
1	07/19/2016 12:55	MF1D05	1620228001		Soil/Solid/Sediment	A	1	A
2	07/19/2016 12:45	MF1D12	1620228002		Soil/Solid/Sediment	A	1	A
3	07/19/2016 14:55	MF1D14	1620228004		Soil/Solid/Sediment	A	1	A
4	07/19/2016 09:55	MF1D17	1620228005		Soil/Solid/Sediment	A	1	A
5								
6								
7								
8								
9								
10								

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Edwards, Meredith D.	07/20/2016 10:02	ALS Sample Receiving	Sample Login
[signature]	[illegible]	15C	[signature]
R-33-1 15C IJO	07/25/16 12:00	[signature]	solid
[signature]	07/25/16 16:00	R-33-1 15C IJO	storage
R-33-1 (15C) CH	07/25/2016 18:15	wet chem lab CH	CN prep

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: cyanide soil

Lab Notebook No.: HBN: 174392

Prepared / Analyzed by: CH / CH

Date / Time: 07/25/2016 10:28

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
wet chem lab CH	07/26/2016 15:07	R-403-1 (44) CH	storage
R-403-1 (44) CH	07/27/2016 08:54	wet chem lab CH	CN analysis
wet chem lab CH	08/09/2016 09:55	cyanide waste CH	Disposal

CH 08/09/2016

56 175

Wed, 07/20/16 11:06 AM

ALSCOCV3.1

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: EPW14027	Split:	Workorder ID: 1620467	Level: EPACLP_PDF
Client: U. S. EPA Region 6 [46321/MF1D18]		Account: 8201	Type: 8ozGWM
Comments:			Preservatives: COOL

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	Requested Analysis: ISM02.3 Cyanide, Soil
1	07/21/2016 12:05	MF1D13	1620467001		Soil/Solid/Sediment	A	1	A
2	07/21/2016 11:10	MF1D15	1620467002		Soil/Solid/Sediment	A	1	A
3	07/21/2016 10:40	MF1D16	1620467003		Soil/Solid/Sediment	A	1	A
4	07/21/2016 11:15	MF1D21	1620467004		Soil/Solid/Sediment	A	1	A
5	07/21/2016 10:45	MF1D22	1620467005		Soil/Solid/Sediment	A	1	A
6								
7								
8								
9								
10								

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Edwards, Meredith D.	07/22/2016 09:32	ALS Sample Receiving	Sample Login
Meredith Edwards	7/22/2016 13:08	13C	Storage
R-33-1 13C IJO	07/25/16 12:00	Jose J Ovalle	Solid
Jose J Ovalle	07/25/16 16:00	R-33-1 13C IJO	Storage
R-33-1 (13C) CH	07/25/2016 18:00	wet chem lab CH	CN prep

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: cyanide soil

Lab Notebook No.: HBN: 174392

Prepared / Analyzed by: CH / CH

Date / Time: 07/25/2016 10:28

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
wet chem lab CH	07/26/2016 15:07	R-403-1 (44) CH	storage
R-403-1 (44) CH	07/27/2016 08:54	wet chem lab CH	CN analysis
wet chem lab CH	08/09/2016 09:55	cyanide waste CH	Disposal

CH 08/09/2016

56 176

Fri, 07/22/16 1:03 PM

ALSCOCV3.1

Meredith D. Edwards

From: Roxanne Olson
Sent: Tuesday, July 19, 2016 2:56 PM
To: Meredith D. Edwards
Subject: FW: Region 06 | Case 46321 | Lab ALS | Issue Discrepancies with tags, jars, and/or COC | FINAL

For further information about ALS Environmental - Salt Lake City, the following link will lead you to our facility's webpage. Check us Out!

Scroll down for available PDF Downloads including: Industrial Hygiene Analytical Request Form; Environmental CoC; Statement of Qualifications; Salt Lake City Test Catalog and Fee Schedule; and much more.

WEB: www.alsglobal.com

Regards, Roxanne Olson 8/14/17

Roxanne Olson
Client Services Manager/Project Manager, Environmental
Salt Lake City

T +1 801 266 7700 D +1 801 904 4314
F +1 801 268 9992 M +1 801 879 5889
roxanne.olson@alsglobal.com
960 West LeVoy Drive
Salt Lake City, UT 84123

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From: Dean, Whitlee [mailto:Whitlee.Dean@csra.com]
Sent: Tuesday, July 19, 2016 2:46 PM
To: Roxanne Olson <Roxanne.Olson@ALSGlobal.com>
Cc: Gannon, Nick <Gannon.Nick@epa.gov>; Flores, Raymond <flores.raymond@epa.gov>; Gorostiza, Sylvia <Gorostiza.Sylvia@epa.gov>; Humphrey, Marvelyn <humphrey.marvelyn@epa.gov>; Perez, Myra <perez.myra@epa.gov>
Subject: Region 06 | Case 46321 | Lab ALS | Issue Discrepancies with tags, jars, and/or COC | FINAL

Good afternoon Roxy,

Issue: The COC lists MF1D54 as the last sample; however, it was received as sample MF1D19. The laboratory has advised that they are logging the sample in as received as they believe it to be a typo. The same name is used for the station locations.
Resolution: Per Region 6, the correct sample ID is MF1D19. Please note the issue in the SDG Narrative and proceed with the analysis of the samples.

Please let me know if you have any questions or problems. To waive any defect(s) associated with this issue, please contact your Regional CLP COR.

Thanks,

WHITLEE DEAN
Environmental Coordinator-Regions 1, 6, and 9
CSRA LLC
6361 Walker Lane, Alexandria, VA 22310
t: +1.703.461.2322 | Whitlee.Dean@csra.com
www.csra.com
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From: Perez, Myra [mailto:perez.myra@epa.gov]
Sent: Tuesday, July 19, 2016 4:25 PM
To: Dean, Whitlee <Whitlee.Dean@csra.com>
Cc: Gannon, Nick <Gannon.Nick@epa.gov>; Flores, Raymond <flores.raymond@epa.gov>; Gorostiza, Sylvia <Gorostiza.Sylvia@epa.gov>; Humphrey, Marvelyn <humphrey.marvelyn@epa.gov>
Subject: RE: Region 06 | Case 46321 | Lab ALS | Issue Discrepancies with tags, jars, and/or COC - R6 response

Hello Whitlee – The sampler indicated that MF1D54 is a mistake. The correct sample number for that station location is MF1D19. The lab should note the issue in the SDG narrative and proceed with analysis.

Thank you.

Myra Perez
R6 CLP RSCC
281-983-2130

MYRA PEREZ

Digitally signed by MYRA PEREZ
DN: c=US, o=U.S. Government, ou=USEPA, ou=Staff, cn=MYRA PEREZ, dnQualifier=0000009936
Date: 2017.08.15 12:27:26 -05'00'

From: Dean, Whitlee [mailto:Whitlee.Dean@csra.com]
Sent: Tuesday, July 19, 2016 12:21 PM
To: Perez, Myra <perez.myra@epa.gov>
Cc: Gannon, Nick <Gannon.Nick@epa.gov>; Flores, Raymond <flores.raymond@epa.gov>
Subject: Region 06 | Case 46321 | Lab ALS | Issue Discrepancies with tags, jars, and/or COC

Good afternoon,

ALS is reporting the following issue. Please advise how the laboratory should proceed.

Issue: The COC lists MF1D54 as the last sample; however, it was received as sample MF1D19. The laboratory has advised that they are logging the sample in as received as they believe it to be a typo. The same name is used for the station locations.

Please let me know if you have any questions,
Thanks,

WHITLEE DEAN
Environmental Coordinator-Regions 1, 6, and 9
CSRA LLC
6361 Walker Lane, Alexandria, VA 22310
t: +1.703.461.2322 | Whitlee.Dean@csra.com

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From: Roxanne Olson [mailto:Roxanne.Olson@ALSGlobal.com]
Sent: Tuesday, July 19, 2016 1:15 PM
To: Dean, Whitlee <Whitlee.Dean@csra.com>
Subject: FW: Inorganic Case 46321

Whitlee:

See Mere's comment below about samples we received today from Case 46321.

For further information about ALS Environmental - Salt Lake City, the following link will lead you to our facility's webpage. Check us Out!

Scroll down for available PDF Downloads including: Industrial Hygiene Analytical Request Form; Environmental CoC; Statement of Qualifications; Salt Lake City Test Catalog and Fee Schedule; and much more.

WEB: www.alsglobal.com

Regards, Roxanne Olson 8/14/17

Roxanne Olson
Client Services Manager/Project Manager, Environmental
Salt Lake City

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F +1 801 268 9992 M +1 801 879 5889
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From: Meredith D. Edwards
Sent: Tuesday, July 19, 2016 11:12 AM
To: Roxanne Olson <Roxanne.Olson@ALSGlobal.com>
Subject: Inorganic Case 46321

Please advise Region 6 that the TR lists CLP ID MF1D54 as the last sample. However, it is received as MF1D19. I will be logging it is as received. They used the same name for the station locations so I am pretty sure it is a typo
Mere

Regards,

Meredith Edwards
Assistant Project Manager
Salt Lake City

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F +1 801 268 9992 M +1 801 879 0185
Meredith.d.edwards@alsglobal.com
960 West LeVoy Drive
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ALS Group: Click here to report this email as spam.

Roxanne Olson

From: Dean, Whitlee <Whitlee.Dean@csra.com>
Sent: Wednesday, July 20, 2016 1:22 PM
To: Roxanne Olson
Cc: Gorostiza, Sylvia; Flores, Raymond; Humphrey, Marvelyn; Gannon, Nick; Perez, Myra
Subject: Region 06 | Case 46321 | Lab ALS | Issue Samples/analyses listed on COC but not received at laboratory | FINAL

Good afternoon Roxy,

Issue: CN sample MF1D13 is listed on the COC; however, the laboratory did not receive this sample. Please advise.
Resolution: Per Region 6, the laboratory should note the issue in the SDG Narrative and proceed with the analysis of the other samples.

Please let me know if you have any questions or problems. To waive any defect(s) associated with this issue, please contact your Regional CLP COR.
Thanks,

WHITLEE DEAN
Environmental Coordinator-Regions 1, 6, and 9
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t: +1.703.461.2322 | Whitlee.Dean@csra.com
www.csra.com
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From: Perez, Myra [mailto:perez.myra@epa.gov]
Sent: Wednesday, July 20, 2016 3:14 PM
To: Dean, Whitlee <Whitlee.Dean@csra.com>
Cc: Gorostiza, Sylvia <Gorostiza.Sylvia@epa.gov>; Flores, Raymond <flores.raymond@epa.gov>; Humphrey, Marvelyn <humphrey.marvelyn@epa.gov>; Gannon, Nick <Gannon.Nick@epa.gov>
Subject: RE: Region 06 | Case 46321 | Lab ALS | Issue Samples/analyses listed on COC but not received at laboratory - R6 response

Hello Whitlee – The lab will note the issue in the SDG narrative and proceed with analysis.

Take care.

Myra Perez
R6 CLP RSCC
281-983-2130

MYRA PEREZ

Digitally signed by MYRA PEREZ
DN: c=US, o=U.S. Government, ou=USEPA, ou=Staff, cn=MYRA PEREZ, dnQualifier=0000009936
Date: 2017.08.15 12:25:47 -05'00'

From: Dean, Whitlee [mailto:Whitlee.Dean@csra.com]
Sent: Wednesday, July 20, 2016 2:05 PM
To: Perez, Myra <perez.myra@epa.gov>

Cc: Gorostiza, Sylvia <Gorostiza.Sylvia@epa.gov>; Flores, Raymond <flores.raymond@epa.gov>; Humphrey, Marvelyn <humphrey.marvelyn@epa.gov>; Gannon, Nick <Gannon.Nick@epa.gov>
Subject: Region 06 | Case 46321 | Lab ALS | Issue Samples/analyses listed on COC but not received at laboratory

Good afternoon Myra,

ALS is reporting the following issue. Please advise how the laboratory should proceed.

Issue: CN sample MF1D13 is listed on the COC; however, the laboratory did not receive this sample. Please advise.

Please let me know if you have any questions,
Thanks,

WHITLEE DEAN
Environmental Coordinator-Regions 1, 6, and 9
CSRA LLC
6361 Walker Lane, Alexandria, VA 22310
t: +1.703.461.2322 | Whitlee.Dean@csra.com
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From: Roxanne Olson [mailto:Roxanne.Olson@ALSGlobal.com]
Sent: Wednesday, July 20, 2016 2:48 PM
To: Dean, Whitlee <Whitlee.Dean@csra.com>
Subject: FW: Inorganic Case 46321

Whitlee:

Please see Mere's comment below about missing sample MF1D13.

Roxy

For further information about ALS Environmental – Salt Lake City, the following link will lead you to our facility's webpage. Check us Out!

Scroll down for available PDF Downloads including: Industrial Hygiene Analytical Request Form; Environmental CoC; Statement of Qualifications; Salt Lake City Test Catalog and Fee Schedule; and much more.

WEB: www.alsglobal.com

Regards, Roxanne Olson 8/14/17

Roxanne Olson
Client Services Manager/Project Manager, Environmental
Salt Lake City

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From: Meredith D. Edwards
Sent: Wednesday, July 20, 2016 11:46 AM
To: Roxanne Olson <Roxanne.Olson@ALSGlobal.com>
Subject: Inorganic Case 46321

Please advise Region 6 that I did not receive CN soil sample MF1D13. I am logging everything else in

Regards,

Meredith Edwards
Assistant Project Manager
Salt Lake City

Meredith Edwards 8/14/17

T +1 801 266 7700 D +1 801 904 4296
F +1 801 268 9992 M +1 801 879 0185
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SDG COVER PAGE

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D37

SOW No.: ISM02.3

EPA Sample No.	Lab Sample ID	Analysis Method ICP-AES	ICP-MS	Mercury	Cyanide
MF1D27	1620335001				X
MF1D29	1620335002				X
MF1D30	1620335003				X
MF1D31	1620230001				X
MF1D32	1620230002				X
MF1D33	1620230003				X
MF1D34	1620468001				X
MF1D35	1620468002				X
MF1D37	1620159001				X
MF1D37D	1620159003				X
MF1D37S	1620159002				X
MF1D38	1620159004				X
MF1D39	1620159005				X
MF1D40	1620468003				X
MF1D41	1620468004				X

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the SDG Narrative. Release of the data contained in this hardcopy data package and in the electronic data submitted has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: /S/ Roxanne Olson Name: Roxanne Olson

Date: 08/09/2016 Title: Project Manager

(/S/ is an electronic signature that complies with 21 CFR Part 11)

Sample Delivery Group (SDG)
Cover Sheet

SDG Number: MF1D37

☐ ICPAES ☐ ICPMS ☐ HG ☒ CN

Laboratory Name: ALS Laboratory Group (SLC)

Laboratory Code: ALS

Contract No.: EPW14027

Case No.: 46321

Analysis Price: N/A

SDG Turnaround: 21

Modified Analysis Requested: NO

Program: ISM02.3

Modification Reference No.: N/A

EPA Sample Numbers in SDG (Listed in Numerical Order)

1) MF1D27	7) MF1D34	13) MF1D41	19)
2) MF1D29	8) MF1D35	14)	20)
3) MF1D30	9) MF1D37	15)	21)
4) MF1D31	10) MF1D38	16)	22)
5) MF1D32	11) MF1D39	17)	23)
6) MF1D33	12) MF1D40	18)	24)

MF1D37

First Sample in SDG

MF1D41

Last Sample in SDG

07/19/16

First Sample Receipt Date

07/22/16

Last Sample Receipt Date

Note: *There are a maximum of 20 field samples (excluding PE samples) in an SDG. Attach the TR/COC records to this form in alphanumeric order (the order listed above on this form).*

Signature: /S/ Roxanne Olson

Date: 7/20/2016 8:13:49 AM

(/S/ is an electronic signature that complies with 21 CFR Part 11)

EPA Sample Receipt

Client: U. S. EPA Region 6 **Contract:** EPW14027 **Case: 46321** **SDG: MF1D37** **Mod:** None

Due to Client: Fri, Aug 12, 2016 **TAT:** 21 **Date Reported:** Not Reported **Status: CLOSED**

Workorder Information **Program:** ISM02.3 **Region:** 6 **EDD Level:** 3

Work Order	Received	PR	Fractions
1620159	07/19/16 10:07 AM	No	Cyanide
1620230	07/20/16 10:02 AM	No	Cyanide
1620335	07/21/16 8:56 AM	No	Cyanide
1620468	07/22/16 9:23 AM	No	Cyanide

Sample Information

Lab ID	Client ID	Type	Matrix	ICPAES	ICPMS	HG	CN
1620335001	MF1D27	SAMPLE	Water	☐	☐	☐	☒
1620335002	MF1D29	SAMPLE	Water	☐	☐	☐	☒
1620335003	MF1D30	SAMPLE	Water	☐	☐	☐	☒
1620230001	MF1D31	SAMPLE	Water	☐	☐	☐	☒
1620230002	MF1D32	SAMPLE	Water	☐	☐	☐	☒
1620230003	MF1D33	SAMPLE	Water	☐	☐	☐	☒
1620468001	MF1D34	SAMPLE	Water	☐	☐	☐	☒
1620468002	MF1D35	SAMPLE	Water	☐	☐	☐	☒
1620159001	MF1D37	SAMPLE	Water	☐	☐	☐	☒
1620159003	MF1D37D	MD	Water	☐	☐	☐	☒
1620159002	MF1D37S	MS	Water	☐	☐	☐	☒
1620159004	MF1D38	SAMPLE	Water	☐	☐	☐	☒
1620159005	MF1D39	SAMPLE	Water	☐	☐	☐	☒
1620468003	MF1D40	SAMPLE	Water	☐	☐	☐	☒
1620468004	MF1D41	SAMPLE	Water	☐	☐	☐	☒

Field Samples: 13 **MS: 1** **MSD:** 0 **MD: 1** **PE:** 0

Report Parameters = SDG:MF1D37 Case:<NULL> Region:<NULL>
Mod:<NULL> Workorder:<NULL> BeginDate:<NULL> EndDate:<NULL>
OpenSummary:No SortBy:Case

Sample Delivery Group (SDG)
Cover Sheet

SDG Number: MF1D37

☐ ICPAES ☐ ICPMS ☐ HG ☒ CN

Laboratory Name: ALS Laboratory Group (SLC)

Laboratory Code: ALS

Contract No.: EPW14027

Case No.: 46321

Analysis Price: N/A

SDG Turnaround: 21

Modified Analysis Requested: NO

Program: ISM02.3

Modification Reference No.: N/A

EPA Sample Numbers in SDG (Listed in Numerical Order)

1) MF1D27	7) MF1D34	13) MF1D41	19)
2) MF1D29	8) MF1D35	14)	20)
3) MF1D30	9) MF1D37	15)	21)
4) MF1D31	10) MF1D38	16)	22)
5) MF1D32	11) MF1D39	17)	23)
6) MF1D33	12) MF1D40	18)	24)

MF1D37

First Sample in SDG

MF1D41

Last Sample in SDG

07/19/16

First Sample Receipt Date

07/22/16

Last Sample Receipt Date

Note: *There are a maximum of 20 field samples (excluding PE samples) in an SDG. Attach the TR/COC records to this form in alphanumeric order (the order listed above on this form).*

Signature: /S/ Roxanne Olson

Date: 7/20/2016 8:13:49 AM

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EPA Sample Receipt

Client: U. S. EPA Region 6 **Contract:** EPW14027 **Case: 46321** **SDG: MF1D37** **Mod:** None

Due to Client: Fri, Aug 12, 2016 **TAT:** 21 **Date Reported:** Not Reported **Status: CLOSED**

Workorder Information **Program:** ISM02.3 **Region:** 6 **EDD Level:** 3

Work Order	Received	PR	Fractions
1620159	07/19/16 10:07 AM	No	Cyanide
1620230	07/20/16 10:02 AM	No	Cyanide
1620335	07/21/16 8:56 AM	No	Cyanide
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Sample Information

Lab ID	Client ID	Type	Matrix	ICPAES	ICPMS	HG	CN
1620335001	MF1D27	SAMPLE	Water	☐	☐	☐	☒
1620335002	MF1D29	SAMPLE	Water	☐	☐	☐	☒
1620335003	MF1D30	SAMPLE	Water	☐	☐	☐	☒
1620230001	MF1D31	SAMPLE	Water	☐	☐	☐	☒
1620230002	MF1D32	SAMPLE	Water	☐	☐	☐	☒
1620230003	MF1D33	SAMPLE	Water	☐	☐	☐	☒
1620468001	MF1D34	SAMPLE	Water	☐	☐	☐	☒
1620468002	MF1D35	SAMPLE	Water	☐	☐	☐	☒
1620159001	MF1D37	SAMPLE	Water	☐	☐	☐	☒
1620159003	MF1D37D	MD	Water	☐	☐	☐	☒
1620159002	MF1D37S	MS	Water	☐	☐	☐	☒
1620159004	MF1D38	SAMPLE	Water	☐	☐	☐	☒
1620159005	MF1D39	SAMPLE	Water	☐	☐	☐	☒
1620468003	MF1D40	SAMPLE	Water	☐	☐	☐	☒
1620468004	MF1D41	SAMPLE	Water	☐	☐	☐	☒

Field Samples: 13 **MS: 1** **MSD:** 0 **MD: 1** **PE:** 0

Report Parameters = SDG:MF1D37 Case:<NULL> Region:<NULL>
Mod:<NULL> Workorder:<NULL> BeginDate:<NULL> EndDate:<NULL>
OpenSummary:No SortBy:Case

Sample Delivery Group (SDG)
Cover Sheet

SDG Number: MF1D37

☐ ICPAES ☐ ICPMS ☐ HG ☒ CN

Laboratory Name: ALS Laboratory Group (SLC)

Laboratory Code: ALS

Contract No.: EPW14027

Case No.: 46321

Analysis Price: N/A

SDG Turnaround: 21

Modified Analysis Requested: NO

Program: ISM02.3

Modification Reference No.: N/A

EPA Sample Numbers in SDG (Listed in Numerical Order)

1) MF1D27	7) MF1D34	13) MF1D41	19)
2) MF1D29	8) MF1D35	14)	20)
3) MF1D30	9) MF1D37	15)	21)
4) MF1D31	10) MF1D38	16)	22)
5) MF1D32	11) MF1D39	17)	23)
6) MF1D33	12) MF1D40	18)	24)

MF1D37

First Sample in SDG

MF1D41

Last Sample in SDG

07/19/16

First Sample Receipt Date

07/22/16

Last Sample Receipt Date

Note: *There are a maximum of 20 field samples (excluding PE samples) in an SDG. Attach the TR/COC records to this form in alphanumeric order (the order listed above on this form).*

Signature: /S/ Roxanne Olson

Date: 7/20/2016 8:13:49 AM

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EPA Sample Receipt

Client: U. S. EPA Region 6 **Contract:** EPW14027 **Case: 46321** **SDG: MF1D37** **Mod:** None

Due to Client: Fri, Aug 12, 2016 **TAT:** 21 **Date Reported:** Not Reported **Status: CLOSED**

Workorder Information **Program:** ISM02.3 **Region:** 6 **EDD Level:** 3

Work Order	Received	PR	Fractions
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Sample Information

Lab ID	Client ID	Type	Matrix	ICPAES	ICPMS	HG	CN
1620335001	MF1D27	SAMPLE	Water	☐	☐	☐	☒
1620335002	MF1D29	SAMPLE	Water	☐	☐	☐	☒
1620335003	MF1D30	SAMPLE	Water	☐	☐	☐	☒
1620230001	MF1D31	SAMPLE	Water	☐	☐	☐	☒
1620230002	MF1D32	SAMPLE	Water	☐	☐	☐	☒
1620230003	MF1D33	SAMPLE	Water	☐	☐	☐	☒
1620468001	MF1D34	SAMPLE	Water	☐	☐	☐	☒
1620468002	MF1D35	SAMPLE	Water	☐	☐	☐	☒
1620159001	MF1D37	SAMPLE	Water	☐	☐	☐	☒
1620159003	MF1D37D	MD	Water	☐	☐	☐	☒
1620159002	MF1D37S	MS	Water	☐	☐	☐	☒
1620159004	MF1D38	SAMPLE	Water	☐	☐	☐	☒
1620159005	MF1D39	SAMPLE	Water	☐	☐	☐	☒
1620468003	MF1D40	SAMPLE	Water	☐	☐	☐	☒
1620468004	MF1D41	SAMPLE	Water	☐	☐	☐	☒

Field Samples: 13 **MS: 1** **MSD:** 0 **MD: 1** **PE:** 0

Report Parameters = SDG:MF1D37 Case:<NULL> Region:<NULL>
Mod:<NULL> Workorder:<NULL> BeginDate:<NULL> EndDate:<NULL>
OpenSummary:No SortBy:Case

Sample Delivery Group (SDG)
Cover Sheet

SDG Number: MF1D37

☐ ICPAES ☐ ICPMS ☐ HG ☒ CN

Laboratory Name: ALS Laboratory Group (SLC)

Laboratory Code: ALS

Contract No.: EPW14027

Case No.: 46321

Analysis Price: N/A

SDG Turnaround: 21

Modified Analysis Requested: NO

Program: ISM02.3

Modification Reference No.: N/A

EPA Sample Numbers in SDG (Listed in Numerical Order)

1) MF1D27	7) MF1D34	13) MF1D41	19)
2) MF1D29	8) MF1D35	14)	20)
3) MF1D30	9) MF1D37	15)	21)
4) MF1D31	10) MF1D38	16)	22)
5) MF1D32	11) MF1D39	17)	23)
6) MF1D33	12) MF1D40	18)	24)

MF1D37

First Sample in SDG

MF1D41

Last Sample in SDG

07/19/16

First Sample Receipt Date

07/22/16

Last Sample Receipt Date

Note: *There are a maximum of 20 field samples (excluding PE samples) in an SDG. Attach the TR/COC records to this form in alphanumeric order (the order listed above on this form).*

Signature: /S/ Roxanne Olson

Date: 7/20/2016 8:13:49 AM

(/S/ is an electronic signature that complies with 21 CFR Part 11)

EPA Sample Receipt

Client: U. S. EPA Region 6 **Contract:** EPW14027 **Case: 46321** **SDG: MF1D37** **Mod:** None

Due to Client: Fri, Aug 12, 2016 **TAT:** 21 **Date Reported:** Not Reported **Status: CLOSED**

Workorder Information **Program:** ISM02.3 **Region:** 6 **EDD Level:** 3

Work Order	Received	PR	Fractions
1620159	07/19/16 10:07 AM	No	Cyanide
1620230	07/20/16 10:02 AM	No	Cyanide
1620335	07/21/16 8:56 AM	No	Cyanide
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Sample Information

Lab ID	Client ID	Type	Matrix	ICPAES	ICPMS	HG	CN
1620335001	MF1D27	SAMPLE	Water	☐	☐	☐	☒
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1620335003	MF1D30	SAMPLE	Water	☐	☐	☐	☒
1620230001	MF1D31	SAMPLE	Water	☐	☐	☐	☒
1620230002	MF1D32	SAMPLE	Water	☐	☐	☐	☒
1620230003	MF1D33	SAMPLE	Water	☐	☐	☐	☒
1620468001	MF1D34	SAMPLE	Water	☐	☐	☐	☒
1620468002	MF1D35	SAMPLE	Water	☐	☐	☐	☒
1620159001	MF1D37	SAMPLE	Water	☐	☐	☐	☒
1620159003	MF1D37D	MD	Water	☐	☐	☐	☒
1620159002	MF1D37S	MS	Water	☐	☐	☐	☒
1620159004	MF1D38	SAMPLE	Water	☐	☐	☐	☒
1620159005	MF1D39	SAMPLE	Water	☐	☐	☐	☒
1620468003	MF1D40	SAMPLE	Water	☐	☐	☐	☒
1620468004	MF1D41	SAMPLE	Water	☐	☐	☐	☒

Field Samples: 13 **MS: 1** **MSD:** 0 **MD: 1** **PE:** 0

Report Parameters = SDG:MF1D37 Case:<NULL> Region:<NULL>
Mod:<NULL> Workorder:<NULL> BeginDate:<NULL> EndDate:<NULL>
OpenSummary:No SortBy:Case

1620159

W

USEPA CLP COC (LAB COPY)

DateShipped: 7/18/2016
CarrierName: FedEx
AirbillNo: 809524402173

Copy original in SDG MF1D18

CHAIN OF CUSTODY RECORD

MF1D37

Case #: 46321
Cooler #: 1

No: 6-070816-132935-0001

Lab: ALS Laboratory Group - Salt Lake City
Lab Contact: Meredith Edwards
Lab Phone: 801-266-7700

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
MF1D18	MF1D18	Sediment/ Matthew Hubbard	Grab	CN(21)	1037 (None) (1)	SE-11	07/18/2016 16:05	
MF1D20	MF1D20	Sediment/ Stephen Ellis	Grab	CN(21)	1041 (None) (1)	SE-13	07/18/2016 15:20	
MF1D37	MF1D37	Surface Water/ Matthew Hubbard	Grab	CN(21)	1077 (NaOH pH >10) (1)	SW-11	07/18/2016 16:03	
MF1D38	MF1D38	Surface Water/ Stephen Ellis	Grab	CN(21)	1081 (NaOH pH >10) (1)	SW-12	07/18/2016 15:45	
MF1D39	MF1D39	Surface Water/ Stephen Ellis	Grab	CN(21)	1083 (NaOH pH >10) (1)	SW-13	07/18/2016 15:15	
MF1D19	MF1D54	Sediment/ Stephen Ellis	Grab	CN(21)	1114 (None) (1)	SE-12	07/18/2016 15:47	

7/19/2016

Sample(s) to be used for Lab QC: MF1D18 Tag 1037, MF1D37 Tag 1077

Shipment for Case Complete? N

Samples Transferred From Chain of Custody #

Analysis Key: CN=CLP Cyanide

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	[signature]	7/18/16/1757	Meredith Edwards DATAC	7/19/2016/1007	good

56 193

070816

1620230

USEPA CLP COC (LAB COPY)

DateShipped: 7/18/2016

CarrierName: FedEx

AirbillNo: 809524402130

copy original in SDG MF1018

CHAIN OF CUSTODY RECORD

MF1D37

Case #: 46321

Cooler #: 1

No: 6-071916-152450-0003

Lab: ALS Laboratory Group - Salt Lake City

Lab Contact: Meredith Edwards

Lab Phone: 801-266-7700

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
MF1D05	MF1D05	Soil/ Stephen Ellis	Grab	CN(21)	1011 (None) (1)	SO-06	07/19/2016 12:55	
MF1D12	MF1D12	Sediment/ Stephen Ellis	Grab	CN(21)	1025 (None) (1)	SE-05	07/19/2016 12:45	
MF1D13	MF1D13	Soil/ Stephen Ellis	Grab	CN(21)	1027 (None) (1)	SE-06	07/19/2016 15:10	
MF1D14	MF1D14	Sediment/ Stephen Ellis	Grab	CN(21)	1029 (None) (1)	SE-07	07/19/2016 14:55	
MF1D17	MF1D17	Sediment/ Matthew Hubbard	Grab	CN(21)	1035 (None) (1)	SE-10	07/19/2016 09:55	
MF1D31	MF1D31	Surface Water/ Stephen Ellis	Grab	CN(21)	1064 (NaOH pH >10) (1)	SW-05	07/19/2016 15:20	
MF1D32	MF1D32	Surface Water/ Stephen Ellis	Grab	CN(21)	1066 (NaOH pH >10) (1)	SW-06	07/19/2016 15:05	
MF1D33	MF1D33	Surface Water/ Stephen Ellis	Grab	CN(21)	1069 (NaOH pH >10) (1)	SW-07	07/19/2016 14:50	

Special Instructions:

Shipment for Case Complete? N

Samples Transferred From Chain of Custody #

Analysis Key: CN=CLP Cyanide

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	Adrienne Love	7/19/16 ~~18:30~~ 12-30	Meredith Edwards DATAC	7/20/2016/1012	good

56 194

1620335

USEPA CLP COC (LAB COPY)

DateShipped: 7/18/2016
CarrierName: FedEx
AirbillNo: 810257801911

CHAIN OF CUSTODY RECORD

MF 1D37

Case #: 46321
Cooler #: 1

No: 6-072016-154639-0005

Lab: ALS Laboratory Group - Salt Lake City
Lab Contact: Meredith Edwards
Lab Phone: 801-266-7700

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
MF1D27	MF1D27	Surface Water/ Stephen Ellis	Grab	CN(21)	1054 (NaOH pH >10) (1)	SW-01	07/20/2016 12:15	
MF1D29	MF1D29	Surface Water/ Stephen Ellis	Grab	CN(21)	1060 (NaOH pH >10) (1)	SW-03	07/20/2016 09:40	
MF1D30	MF1D30	Surface Water/ Stephen Ellis	Grab	CN(21)	1062 (NaOH pH >10) (1)	SW-04	07/20/2016 09:24	

Special Instructions: Samples MF1D02, MF1D03, MF1D04, and MF1D07 may have high concentrations.

Shipment for Case Complete? N

Samples Transferred From Chain of Custody #

Analysis Key: CN=CLP Cyanide

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	Adrienne Rose	7/20/16 16:00	Meredith Edwards DATAC	7/21/2016 8:00	good

56 195

000012

1620468

USEPA CLP COC (LAB COPY)

DateShipped: 7/18/2016

CarrierName: FedEx

AirbillNo: 810257801841

copy original in SDG MF1D18

CHAIN OF CUSTODY RECORD

MF1D37

Case #: 46321

Cooler #: 1

No: 6-072116-134031-0007

Lab: ALS Laboratory Group - Salt Lake City

Lab Contact: Meredith Edwards

Lab Phone: 801-266-7700

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
MF1D13	MF1D13	Sediment/ Stephen Ellis	Grab	CN(21)	1027 (None) (1)	SE-06	07/21/2016 12:05	
MF1D15	MF1D15	Sediment/ Stephen Ellis	Grab	CN(21)	1031 (None) (1)	SE-08	07/21/2016 11:10	
MF1D16	MF1D16	Sediment/ Stephen Ellis	Grab	CN(21)	1033 (None) (1)	SE-09	07/21/2016 10:40	
MF1D21	MF1D21	Sediment/ Stephen Ellis	Grab	CN(21)	1043 (None) (1)	SE-14	07/21/2016 11:15	
MF1D22	MF1D22	Sediment/ Stephen Ellis	Grab	CN(21)	1045 (None) (1)	SE-15	07/21/2016 10:45	
MF1D34	MF1D34	Surface Water/ Stephen Ellis	Grab	CN(21)	1071 (NaOH pH >10) (1)	SW-08	07/21/2016 11:00	
MF1D35	MF1D35	Surface Water/ Stephen Ellis	Grab	CN(21)	1073 (NaOH pH >10) (1)	SW-09	07/21/2016 10:30	
MF1D40	MF1D40	Surface Water/ Stephen Ellis	Grab	CN(21)	1085 (NaOH pH >10) (1)	SW-14	07/21/2016 11:05	
MF1D41	MF1D41	Surface Water/ Stephen Ellis	Grab	CN(21)	1087 (NaOH pH >10) (1)	SW-15	07/21/2016 10:35	

Shipment for Case Complete? N

Samples Transferred From Chain of Custody #

Special Instructions:

Analysis Key: CN=CLP Cyanide

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	Johnnie Love	7/21/16 14:00	Meredith Edwards DMPC	7/22/2016 9:32	good

56 196

000213

SAMPLE LOG-IN SHEET
FORM DC-1

Copy original in SDG MF 1D18

Lab Name ALS Environmental	Page 1 of 1
Received By (Print Name) Meredith Edwards	Log-In Date
Received By (Signature) Meredith Edwards	
Case Number 46321	Sample Delivery Group No. MF 1D37 — Mod. Ref. No. n/a

Remarks:

1. Custody Seal (s) — Present/Absent* (B); Intact/Broken* (B)
2. Custody Seal Nos. — n/a; 1
3. Traffic Report/ Chain-of Custody Records or Packing Lists — Present/Absent* (P)
4. Airbill — Airbill/Sticker Present/Absent* (B)
5. Airbill No. — 8895 2440 2173; n/a
6. Sample Tags — Present/Absent* (P); Sample Tag Numbers — Listed/Not Listed on Chain-of-Custody (P)
7. Sample Condition — Intact/Broken*/Leaking* (P)
8. Cooler Temperature Indicator Bottle — Present/Absent* (P)
9. Cooler Temperature — 6
10. Does information on TR/COCs and sample tags agree? — Yes/No* (P)
11. Date Received at Laboratory — 7/19/2016
12. Time Received — 10:07

	EPA Sample #	Aqueous/ Water Sample pH	Corresponding Sample Tag #	Corresponding Assigned Lab #	Remarks: Condition of Sample Shipment, etc.
1	MF 1D18	n/a	n/a		CN Soil
2	19				
3	20				
4	37	>12		16 20159 001,002,003	MS/MSD CN water
5	38			004	
6	39			005	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

MLE 7/19/2016

Sample Transfer	
Fraction CN	Fraction MLE
Area # R331	Area # 7/19/2016
By MLE	By
On 7/19/2016	On

* Contact SMO and attach record of resolution

Reviewed By Joanne Olson	Logbook No. Not Applicable
Date 7/20/16	Logbook Page No. Not Applicable

SAMPLE LOG-IN SHEET
FORM DC-1

Copy original in SDG MF 1018

Lab Name ALS Environmental	Page 1 of 1
Received By (Print Name) Meredith Edwards	Log-In Date 7/20/2016
Received By (Signature) Meredith Edwards	
Case Number 46021	Sample Delivery Group No. MF 1037 — Mod. Ref. No. N/a

Remarks:

			EPA Sample #	Aqueous/ Water Sample pH	Corresponding Sample Tag #	Corresponding Assigned Lab #	Remarks: Condition of Sample Shipment, etc.
1. Custody Seal (s)	Present/Absent* Intact/Broken*	1	MF1005	N/a	N/a		Cold soil
		2	12				
2. Custody Seal Nos.	N/a	3	14				
		4	17				
3. Traffic Report/ Chain-of Custody Records or Packing Lists	Present/Absent*	5	31	>12		1620230 001	Cold water
		6	32			002	
4. Airbill	Airbill/Sticker Present/Absent*	7	33			003	
5. Airbill No.	8095 2440 2130	8					
	N/a	9					
6. Sample Tags	Present/Absent*	10					
Sample Tag Numbers	Listed/Not Listed on Chain-of-Custody	11					
7. Sample Condition	Intact/Broken*/Leaking*	12					
8. Cooler Temperature Indicator Bottle	Present/Absent*	13					
9. Cooler Temperature	7°	14					
10. Does information on TR/COCs and sample tags agree?	Yes/No*	15					
11. Date Received at Laboratory	7/20/2016	16					
12. Time Received	1012	17					
Sample Transfer		18					
Fraction CN	Fraction	19					
Area # R331	Area #	20					
By MW	By	21					
On 7/20/2016	On	22					

MW 7/20/2016

* Contact SMO and attach record of resolution

Reviewed By	Roxanne Olson		Logbook No. Not Applicable
Date	7/20/16		Logbook Page No. Not Applicable

: 00015

SAMPLE LOG-IN SHEET
FORM DC-1

Copy original in SDG MF 1D00

Lab Name ALS Environmental

Page 1 of 1

Received By (Print Name) Meredith Edwards

Log-In Date

Received By (Signature) Meredith Edwards

Case Number 46321

Sample Delivery Group No. MF1D37

Mod. Ref. No. N/A

Remarks:

1. Custody Seal (s) Present/Absent* Intact/Broken*
2. Custody Seal Nos. N/A / 1
3. Traffic Report/ Chain-of Custody Records or Packing Lists Present/Absent*
4. Airbill Airbill/Sticker Present/Absent*
5. Airbill No. 8102 5780 1911 / N/A
6. Sample Tags Present/Absent* Sample Tag Numbers Listed/Not Listed on Chain-of-Custody
7. Sample Condition Intact/Broken*/Leaking*
8. Cooler Temperature Indicator Bottle Present/Absent*
9. Cooler Temperature 4°
10. Does information on TR/COCs and sample tags agree? Yes/No*
11. Date Received at Laboratory 7/21/2016
12. Time Received 8:20

	EPA Sample #	Aqueous/ Water Sample pH	Corresponding Sample Tag #	Corresponding Assigned Lab #	Remarks: Condition of Sample Shipment, etc.
1	MF 1D00	N/A	N/A		Cal Soil
2	01				
3	02				
4	03				
5	04				
6	06				
7	07				
8	08				
9	09				Tag not should refer Cal
10	10				Cal Soil
11	11				
12	27	>12		1620735001	Cal water
13	29			002	
14	30			003	
15					
16					
17					
18					
19					
20					
21					
22					

MW 7/21/2016

Sample Transfer

Fraction	Fraction
Area # R331	Area #
By MW	By
On 7/21/2016	On

MW 7/21/2016

* Contact SMO and attach record of resolution

Reviewed By Joanne Olsen

Date 7/21/16

Logbook No. Not Applicable

Logbook Page No. Not Applicable

56 199

SAMPLE LOG-IN SHEET
FORM DC-1

Copy original in SDG MF1D18

Lab Name ALS Environmental

Page 1 of 1

Received By (Print Name) Meredith Edwards

Log-In Date 7/22/2016

Received By (Signature) Meredith Edwards

Case Number 46321

Sample Delivery Group No. MF1D37

Mod. Ref. No. n/a

Remarks:

1. Custody Seal (s) Present/Absent* Intact/Broken*
2. Custody Seal Nos. n/a
3. Traffic Report/ Chain-of Custody Records or Packing Lists Present/Absent*
4. Airbill Airbill/Sticker Present/Absent*
5. Airbill No. 7836 3555 3364 n/a
6. Sample Tags Present/Absent* Sample Tag Numbers Listed/Not Listed on Chain-of-Custody
7. Sample Condition Intact/Broken*/Leaking*
8. Cooler Temperature Indicator Bottle Present/Absent*
9. Cooler Temperature 5
10. Does information on TR/COCs and sample tags agree? Yes/No*
11. Date Received at Laboratory 7/22/2016
12. Time Received 9:32

	EPA Sample #	Aqueous/ Water Sample pH	Corresponding Sample Tag #	Corresponding Assigned Lab #	Remarks: Condition of Sample Shipment, etc.
1	MF1D13	n/a	n/a		CN Soil
2	15				
3	16				
4	21				
5	22				
6	34	>12		1602046800 1	CN Water
7	35			002	
8	40			003	
9	41			004	
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

MF 7/22/2016

Sample Transfer

Fraction	Fraction
Area #	Area #
By	By
On	On

CN
R331
MF
7/22/2016

* Contact SMO and attach record of resolution

Reviewed By Joanne Olsa

Date 7/22/16

Logbook No. Not Applicable

Logbook Page No. Not Applicable

FORM DC-2

FULL INORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET

LAB NAME	ALS Environmental		
LAB CODE	ALS		
CONTRACT NO.	EPW14027		
CASE NO.	40321	SDG NO.	MF1D37
MA No.	N/A		
SOW NO.	ISM02.3		

All documents delivered in the Complete SDG File must be original documents where possible. (Reference - Exhibit B Section 2.4)

		PAGE NOs FROM	PAGE NOs TO	CHECK LAB	CHECK REGION
1.	Cover Page	1	1	✓	
2.	Traffic Report/Chain of Custody Record(s)	2	13	✓	
3.	Sample Log-In Sheet (DC-1)	14	17	✓	
4.	Inventory Sheet (DC-2)	18	20	✓	
5.	SDG Narrative	21	22	✓	
Inorganic Analysis					
ICP-AES					
6.	Inorganic Analysis Data Sheet (Form 1-IN)	N/A		✓	
7.	Initial and Continuing Calibration Verification (Form 2-IN)			✓	
8.	Blanks (Form 3-IN)			✓	
9.	ICP Interference Check Sample(Form 4-IN)			✓	
10.	Matrix Spike Sample Recovery(Form 5-IN)			✓	
11.	Post-Digestion Spike Sample Recovery(Form 5B-IN)			✓	
12.	Duplicates (Form 6-IN)			✓	
13.	Laboratory Control Sample(Form 7-IN)			✓	
14.	ICP-AES and ICP-MS Serial Dilutions(Form 8-IN)			✓	
15.	Method Detection Limit(Form 9-IN)			✓	
16.	ICP-AES Interelement Correction Factors (Form 10A-IN)			✓	
17.	ICP-AES Interelement Correction Factors (Form 10B-IN)			✓	
18.	Analysis Log (Form 12-IN)			✓	
19.	Initial Calibration (Form 15-IN)			✓	
20.	Initial Calibration Summary (Form 16-IN)			✓	
21.	ICP-AES Raw Data			✓	
22.	ICP-AES Preparation Log Books, Preparation Records, Analysis Records, and PE Instructions			✓	

08/10/2016

56 201

FORM DC-2
FULL INORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET

	PAGE NOs FROM	PAGE NOs TO	CHECK LAB	CHECK REGION
ICP-MS				
23. Inorganic Analysis Data Sheet (Form 1-IN)	N/A		✓	
24. Initial and Continuing Calibration Verification (Form 2-IN)			✓	
25. Blanks (Form 3-IN)			✓	
26. ICP Interference Check Sample(Form 4-IN)			✓	
27. Matrix Spike Sample Recovery(Form 5A-IN)			✓	
28. Post-Digestion/Distillation Spike Sample Recovery (Form 5B-IN)			✓	
29. Duplicates (Form 6-IN)			✓	
30. Laboratory Control Sample(Form 7-IN)			✓	
31. ICP-AES and ICP-MS Serial Dilutions(Form 8-IN)			✓	
32. Method Detection Limit(Form 9-IN)			✓	
33. ICP-MS Internal Standard Association (Form 11-IN)			✓	
34. Analysis Log (Form 12-IN)			✓	
35. ICP-MS Tune (Form 13-N)			✓	
36. ICP-MS Internal Standards Relative Intensity Summary (Form 14-IN)			✓	
37. Initial Calibration (Form 15-IN)			✓	
38. Initial Calibration Summary (Form 16-IN)			✓	
39. ICP-MS Raw Data			✓	
40. ICP-MS Preparation Log Books, Preparation Records, Analysis Records, and PE Instructions	08/10/2016 BF		✓	
Mercury				
41. Inorganic Analysis Data Sheet (Form 1-IN)			✓	
42. Initial and Continuing Calibration Verification (Form 2-IN)			✓	
43. Blanks (Form 3-IN)			✓	
44. Matrix Spike Sample Recovery(Form 5A-IN)			✓	
45. Duplicates (Form 6-IN)			✓	
46. Method Detection Limit(Form 9-IN)			✓	
47. Analysis Log (Form 12-IN)			✓	
48. Initial Calibration (Form 15-IN)			✓	
49. Initial Calibration Summary (Form 16-IN)			✓	
50. Mercury Raw Data			✓	
51. Mercury Preparation Log Books, Preparation Records, Analysis Records, and PE Instructions	✓		✓	

FORM DC-2
FULL INORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET

	PAGE NOs FROM	PAGE NOs TO	CHECK LAB	CHECK REGION
Cyanide				
52. Inorganic Analysis Data Sheet (Form 1-IN)	23	35	✓	
53. Initial and Continuing Calibration Verification (Form 2-IN)	36	36	✓	
54. Blanks (Form 3-IN)	37	37	✓	
55. Matrix Spike Sample Recovery(Form 5A-IN)	38	38	✓	
56. Post-Digestion/Distillation Spike Sample Recovery (Form 5B-IN)	N/A		✓	
57. Duplicates (Form 6-IN)	39	39	✓	
58. Method Detection Limit(Form 9-IN)	40	40	✓	
59. Analysis Log (Form 12-IN)	41	41	✓	
60. Initial Calibration (Form 15-IN)	42	44	✓	
61. Initial Calibration Summary (Form 16-IN)	45	45	✓	
62. Cyanide Raw Data	46	49	✓	
63. Cyanide Preparation Log Books, Preparation Records, Analysis Records, and PE Instructions	50	65	✓	
Additional				
64. Percent Solids Determination Log	N/A		✓	
65. EPA Shipping/Receiving Documents				
Airbill (No. of Shipments 4)	66	69	✓	
Sample Tags	70	70	✓	
Sample Log-In Sheet (Lab)	N/A		✓	
66. Misc. Shipping/Receiving Records (list all individual records)				
Communication Logs	N/A		✓	
ALS SDG TR Cover Sheet	N/A		✓	
	N/A		✓	
67. Internal Lab Sample Transfer Records & Tracking Sheets (describe or list)				
ALS CoC	71	78	✓	
68. Other Records (describe or list)				
Communication Logs	N/A		✓	
E-mail Communications	N/A		✓	

69. Comments: N/A

Completed by: (CLP Lab) Desiree Hill (Signature) — Desiree Hill (Document Control) (Print Name & Title) — 08/10/2016 (Date)

Completed by: (USEPA) (Signature) — (Print Name & Title) — 56 203 (Date)

960 W. LeVoy Drive
Salt Lake City, UT 84123
T: +1 801 266 7700
F: +1 801 268 9992
www.alsglobal.com

SDG Administrative Narrative

Contract: EPW14027

Case: 46321

SDG: MF1D37

WO No(s): 1620159, 1620230, 1620335, & 1620468

Cooler # and Temperatures of each (upon receipt)

Cooler Number C15-	N/A	Arrival temperature was	6	°C
Cooler Number C15-	N/A	Arrival temperature was	7	°C
Cooler Number C15-	N/A	Arrival temperature was	7	°C
Cooler Number C15-	N/A	Arrival temperature was	5	°C
Cooler Number C15-		Arrival temperature was		°C
Cooler Number C15-		Arrival temperature was		°C
Cooler Number C15-		Arrival temperature was		°C
Cooler Number C15-		Arrival temperature was		°C

08/10/2016
DH

Communications:

The sample receipt for this Case/SDG is compliant with EPA CLP SOW requirements.

Comments:

None

Signature: Dennis Hill
Document Control Officer

Date: 08/10/2016

SDG Narrative

Case:	46321	**Contract #:**	EPW14027
SDG:	MF1D37	**EPA Lab ID:**	ALS

General Information: The thirteen samples in this SDG was analyzed by methodology contained in ISM02.3. All concentration, analytical, and method qualifiers are defined in the SOW.

Target Analytes: The target analyte for this SDG is cyanide.

Holding Times: All samples were prepared and analyzed within method required holding times.

Initial and Continuing Calibration: All initial and continuing calibration verification and blank analyses were performed within the designated frequency and recoveries of the verifications and concentrations of the blanks met method acceptance criteria.

Preparation Blanks: The absolute value of the analyte concentration in the preparation blank was lower than the Contract Required Quantitation Limit.

Matrix Spike Analysis: The matrix spike recovery met method acceptance criteria.

Matrix Duplicate Analysis: The matrix duplicate result met method acceptance criteria.

Miscellaneous Comments: All calibration data is linear, please see raw data.

Example Equations:

Method Micro-distillation: $C \times \frac{Vf}{Vi} \times DF = Concentration(\mu g/L)$

Micro-distillation Example: $10\ \mu g/L \times \frac{6\ mL}{6\ mL} \times 1 = 10\ \mu g/L$

C = Instrument value in µg/L (The average of all replicate integrations).
Vf = Final digestion volume (mL)
Vi = Initial Volume (mL)
DF = Dilution Factor

FORM 1-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MF1D27

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D37

Matrix: Water Lab Sample ID: 1620335001

% Solids: Date Received: 07/21/2016

Analytical Method: Spectrophotometry

Concentration Units (ug/L, mg/L, mg/kg dry weight or ug): ug/L

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
57-12-5	Cyanide	10.0	U	07/28/2016	13:17

NOTE: hardness (total) is reported in mg/L

Comments:

FORM 1-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MF1D29

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D37

Matrix: Water Lab Sample ID: 1620335002

% Solids: Date Received: 07/21/2016

Analytical Method: Spectrophotometry

Concentration Units (ug/L, mg/L, mg/kg dry weight or ug): ug/L

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
57-12-5	Cyanide	10.0	U	07/28/2016	13:20

NOTE: hardness (total) is reported in mg/L

Comments:

FORM 1-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MF1D30

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D37

Matrix: Water Lab Sample ID: 1620335003

% Solids: Date Received: 07/21/2016

Analytical Method: Spectrophotometry

Concentration Units (ug/L, mg/L, mg/kg dry weight or ug): ug/L

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
57-12-5	Cyanide	10.0	U	07/28/2016	13:20

NOTE: hardness (total) is reported in mg/L

Comments:

FORM 1-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MF1D31

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D37

Matrix: Water Lab Sample ID: 1620230001

% Solids: Date Received: 07/20/2016

Analytical Method: Spectrophotometry

Concentration Units (ug/L, mg/L, mg/kg dry weight or ug): ug/L

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
57-12-5	Cyanide	10.0	U	07/28/2016	13:16

NOTE: hardness (total) is reported in mg/L

Comments:

FORM 1-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MF1D32

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D37

Matrix: Water Lab Sample ID: 1620230002

% Solids: Date Received: 07/20/2016

Analytical Method: Spectrophotometry

Concentration Units (ug/L, mg/L, mg/kg dry weight or ug): ug/L

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
57-12-5	Cyanide	10.0	U	07/28/2016	13:16

NOTE: hardness (total) is reported in mg/L

Comments:

56 210

FORM 1-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MF1D33

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D37

Matrix: Water Lab Sample ID: 1620230003

% Solids: Date Received: 07/20/2016

Analytical Method: Spectrophotometry

Concentration Units (ug/L, mg/L, mg/kg dry weight or ug): ug/L

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
57-12-5	Cyanide	10.0	U	07/28/2016	13:17

NOTE: hardness (total) is reported in mg/L

Comments:

FORM 1-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MF1D34

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D37

Matrix: Water Lab Sample ID: 1620468001

% Solids: Date Received: 07/22/2016

Analytical Method: Spectrophotometry

Concentration Units (ug/L, mg/L, mg/kg dry weight or ug): ug/L

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
57-12-5	Cyanide	10.0	U	07/28/2016	13:21

NOTE: hardness (total) is reported in mg/L

Comments:

FORM 1-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MF1D35

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D37

Matrix: Water Lab Sample ID: 1620468002

% Solids: Date Received: 07/22/2016

Analytical Method: Spectrophotometry

Concentration Units (ug/L, mg/L, mg/kg dry weight or ug): ug/L

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
57-12-5	Cyanide	10.0	U	07/28/2016	13:21

NOTE: hardness (total) is reported in mg/L

Comments:

FORM 1-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MF1D37

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D37

Matrix: Water Lab Sample ID: 1620159001

% Solids: Date Received: 07/19/2016

Analytical Method: Spectrophotometry

Concentration Units (ug/L, mg/L, mg/kg dry weight or ug): ug/L

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
57-12-5	Cyanide	10.0	U	07/28/2016	13:09

NOTE: hardness (total) is reported in mg/L

Comments:

FORM 1-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MF1D38

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D37

Matrix: Water Lab Sample ID: 1620159004

% Solids: Date Received: 07/19/2016

Analytical Method: Spectrophotometry

Concentration Units (ug/L, mg/L, mg/kg dry weight or ug): ug/L

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
57-12-5	Cyanide	10.0	U	07/28/2016	13:13

NOTE: hardness (total) is reported in mg/L

Comments:

FORM 1-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MF1D39

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D37

Matrix: Water Lab Sample ID: 1620159005

% Solids: Date Received: 07/19/2016

Analytical Method: Spectrophotometry

Concentration Units (ug/L, mg/L, mg/kg dry weight or ug): ug/L

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
57-12-5	Cyanide	10.0	U	07/28/2016	13:13

NOTE: hardness (total) is reported in mg/L

Comments:

FORM 1-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MF1D40

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D37

Matrix: Water Lab Sample ID: 1620468003

% Solids: Date Received: 07/22/2016

Analytical Method: Spectrophotometry

Concentration Units (ug/L, mg/L, mg/kg dry weight or ug): ug/L

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
57-12-5	Cyanide	10.0	U	07/28/2016	13:24

NOTE: hardness (total) is reported in mg/L

Comments:

FORM 1-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MF1D41

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D37

Matrix: Water Lab Sample ID: 1620468004

% Solids: Date Received: 07/22/2016

Analytical Method: Spectrophotometry

Concentration Units (ug/L, mg/L, mg/kg dry weight or ug): ug/L

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
57-12-5	Cyanide	10.0	U	07/28/2016	13:24

NOTE: hardness (total) is reported in mg/L

Comments:

FORM 2-IN
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D37

Initial Calibration Verification Source: EPA-ICV6(0400)

Continuing Calibration Verification Source: ALS-32873

Run Batch: 20160728002W Analytical Method: Spectrophotometry

Concentration Units: ug/L

	Initial Calibration Verification				Continuing Calibration Verification						
	ID: ICV				ID: CCV1				ID: CCV2		
Analyte	True	Found	%R	%RSD	True	Found	%R	%RSD	Found	%R	%RSD
Cyanide	99	95.1	96		200	193	97		194	97	

FORM 3-IN
BLANKS

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D37

Preparation Blank Matrix: Water

Preparation Blank Concentration Units (ug/L, mg/L, mg/kg dry weight, or ug): ug/L

Analytical Method: Spectrophotometry Preparation Batch: 173500

Run Batch: 20160728002W Preparation Method: Micro-Distillation

Analyte	Initial Calibration Blank (ug/L)		Continuing Calibration Blank (ug/L)						Preparation Blank/Leachate Extraction Blank	
	ID: ICB	Q	ID: CCB1	Q	ID: CCB2	Q	ID:	Q	ID: PBW1	Q
Cyanide	10.0	U	10.0	U	10.0	U			10.0	U

FORM 5A-IN
MATRIX SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.
MF1D37S

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D37

Matrix: Water Analytical Method: Spectrophotometry

% Solids:

Concentration Units (ug/L, mg/L or mg/kg dry weight): ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	Q	Sample Result (SR)	Q	Spike Added (SA)	%R	Q
Cyanide	75-125	100		10.0	U	100	100	

FORM 6-IN
DUPLICATES

EPA SAMPLE NO.
MF1D37D

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D37

Matrix: Water Analytical Method: Spectrophotometry

% Solids:

Concentration Units (ug/L, mg/L or mg/kg dry weight): ug/L

Analyte	Control Limit	Sample (S)	Q	Duplicate (D)	Q	RPD	Q
Cyanide		10.0	U	10.0	U		

FORM 9-IN
METHOD DETECTION LIMIT

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D37

Analytical Method: Spectrophotometry Instrument ID: WET01

Preparation Method: Micro-Distillation

Concentration Units (ug/L, ug or mg/kg): ug/L

Analyte	Wavelength/Mass	MDL	Date Analyzed
Cyanide	570.00	4.7	05/11/2016

FORM 12-IN
ANALYSIS LOG

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D37

Instrument ID: WET01 Analytical Method: Spectrophotometry

Start Date: 07/28/2016 End Date: 07/28/2016

Run Batch: 20160728002W

EPA Sample No.	D/F	Time	Analytes																								
			Cn																								
S0	1.0	1256	X																								
S01	1.0	1259	X																								
S02	1.0	1259	X																								
S03	1.0	1300	X																								
S04	1.0	1300	X																								
S05	1.0	1303	X																								
S06	1.0	1303	X																								
ICV	1.0	1304	X																								
ICB	1.0	1305	X																								
CCV1	1.0	1307	X																								
CCB1	1.0	1308	X																								
PBW	1.0	1308	X																								
MF1D37	1.0	1309	X																								
MF1D37S	1.0	1311	X																								
MF1D37D	1.0	1312	X																								
MF1D38	1.0	1313	X																								
MF1D39	1.0	1313	X																								
MF1D31	1.0	1316	X																								
MF1D32	1.0	1316	X																								
MF1D33	1.0	1317	X																								
MF1D27	1.0	1317	X																								
MF1D29	1.0	1320	X																								
MF1D30	1.0	1320	X																								
MF1D34	1.0	1321	X																								
MF1D35	1.0	1321	X																								
MF1D40	1.0	1324	X																								
MF1D41	1.0	1324	X																								
ZZZZZZ	1.0	1325																									
ZZZZZZ	1.0	1326																									
CCV2	1.0	1328	X																								
CCB2	1.0	1329	X																								

FORM 15-IN
INITIAL CALIBRATION

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D37

Instrument ID: WET01 Start Date: 07/28/2016

Analytical Method: Spectrophotometry Run Batch: 20160728002W

Concentration Units: ug/L

Analyte	True	Found	%D	True	Found	%D	True	Found	%D
Cyanide	0.0	0.70		10.0	12.9	29	50.0	51.1	2

FORM 15-IN
INITIAL CALIBRATION

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D37

Instrument ID: WET01 Start Date: 07/28/2016

Analytical Method: Spectrophotometry Run Batch: 20160728002W

Concentration Units: ug/L

Analyte	True	Found	%D	True	Found	%D	True	Found	%D
Cyanide	100	99.7	0	200	196	-2	300	292	-3

FORM 15-IN
INITIAL CALIBRATION

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D37

Instrument ID: WET01 Start Date: 07/28/2016

Analytical Method: Spectrophotometry Run Batch: 20160728002W

Concentration Units: ug/L

Analyte	True	Found	%D	True	Found	%D	True	Found	%D
Cyanide	400	407	2						

FORM 16-IN
INITIAL CALIBRATION SUMMARY

Lab Name: ALS Environmental (SLC) Contract: EPW14027

Lab Code: ALS Case No.: 46321 MA No.: SDG No.: MF1D37

Instrument ID: WET01 Start Date: 07/28/2016

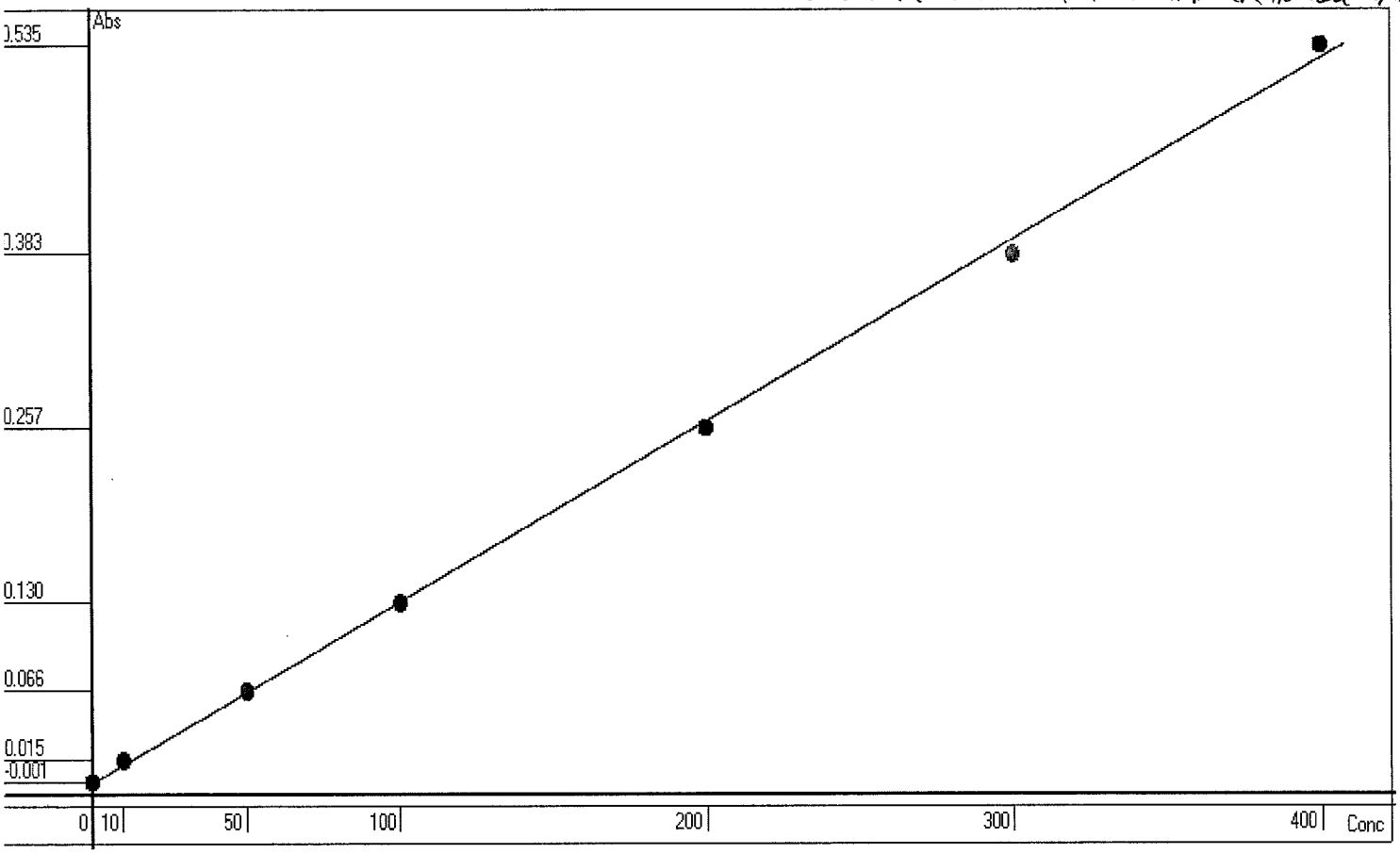
Analytical Method: Spectrophotometry Run Batch: 20160728002W

Analyte	Corr. Coeff.	Slope	Intercept	Calib. Type	Weighting
Cyanide	0.9995	760	1.13	LIN None	NONE

Calibrant Report - CYN2 -

Calib Lot #:010104 Exp Date:1/1/2025 User:Westco Scientific
Plan # : 20160728002 Description : [CN-46321-MF1D37] Unit

Workorders: 1620159, 1620230, 1620335, 1620468
SDG: MF1D37 Case: 46321 HBN: 174414
Instrument ID: WET01 Christopher R Hanson 08/09/2016



Point	OD	Conc	Recalc Conc	% Error
1	-0.0006	0	0.6712	67.12
2	0.0154	10	12.8276	28.28
3	0.0657	50	51.0441	2.09
4	0.1297	100	99.6696	-0.33
5	0.2568	200	196.2366	-1.88
6	0.3829	300	292.0439	-2.65
7	0.5346	400	407.3013	1.83

Conc= +759.7722*Abso +1.1271 R^2=0.9990

RBL
0.0088
0

Report Date 7/28/2016 Run Date 7/28/2016

: 00046

CYN2 - CYANIDE - NEW EPA SOW

Type	: End Point
Direction	: Up
Unit	: µg/L
Model	: Linear
Unit Factor	: 1
Factor	: 1
Decimal	: 3
Slope	: 1
Intercept	: 0
Linearity Low	: -10
Linearity High	: 400
Filter 1	: 570
Fluidics	: Yes
Sample Blank	: Yes *

RBL 1	: 0.0089
Rbl Replicate	: 3
Use RBL	: Yes
Rgt Rate 1	: 0.0075
E.P. OD Limit	: 0.0030

	Code	Vol	Delay	Read	Rinse
Reagent 1	CNSP	89	108	0	0
Reagent 2 *	CNCL	21	36	0	0
Reagent 3	CNPY	210	0	576	0

Diluent	: NAOH
Sample Vol	: 210

	Concentration	OD		Concentration	OD
C1	0	-0.0006	C5	200	0.2568
C2	10	0.0154	C6	300	0.3829
C3	50	0.0657	C7	400	0.5346
C4	100	0.1297	C8	-	-

Code	: CN
Description	: Cyanide
Lot#	: 010104
Exp Date	: 1/1/2025
User	: Westco Scientific
Cal Replicate	: 1

Report Date :07/28/2016 **Run Date :07/28/2016** **Operator : CRHANSEN** **Plan # :20160728002**

56 230

Plan Description : CN-46321-MF1D37

: 00047

ALS Environmental

Method : CYN2 -Unit [µg/L] - CYANIDE - NEW EPA SOW

Smp#/[Dil Fact]	Sample ID	Conc	OD	%Recovery/RPD	Analysis Time
DIL-1	RBL	0.000	0.0067	0.00	12:55:09 PM
DIL-1	RBL	0.000	0.0087	0.00	12:55:27 PM
DIL-1	RBL	0.000	0.0090	0.00	12:56:21 PM
ST-1	Std-1	0.000	-0.0006	0.00	12:56:39 PM
ST-2	Std-2	10.000	0.0154	0.00	12:59:21 PM
ST-3	Std-3	50.000	0.0657	0.00	12:59:39 PM
ST-4	Std-4	100.000	0.1297	0.00	1:00:33 PM
ST-5	Std-5	200.000	0.2568	0.00	1:00:51 PM
ST-6	Std-6	300.000	0.3829	0.00	1:03:33 PM
ST-7	Std-7	400.000	0.5346	0.00	1:03:51 PM
1	ICV	95.064	0.1236	0.00	1:04:45 PM
2	ICB	2.448	0.0017	0.00	1:05:03 PM
3	CCV1	193.379	0.2530	0.00	1:07:45 PM
4	CCB1	1.460	0.0004	0.00	1:08:03 PM
5	PBW1	0.701	-0.0006	0.00	1:08:57 PM
6	MF1D37	1.688	0.0007	0.00	1:09:15 PM
7	MF1D37S	100.459	0.1307	0.00	1:11:57 PM
8	MF1D37D	1.840	0.0009	0.00	1:12:15 PM
9	MF1D38	2.220	0.0014	0.00	1:13:10 PM
10	MF1D39	3.360	0.0029	0.00	1:13:27 PM
11	MF1D31	3.436	0.0030	0.00	1:16:09 PM
12	MF1D32	3.284	0.0028	0.00	1:16:27 PM
13	MF1D33	2.372	0.0016	0.00	1:17:21 PM
14	MF1D27	1.233	0.0001	0.00	1:17:39 PM
15	MF1D29	4.196	0.0040	0.00	1:20:21 PM
16	MF1D30	1.233	0.0001	0.00	1:20:39 PM
17	MF1D34	2.448	0.0017	0.00	1:21:33 PM
18	MF1D35	3.588	0.0032	0.00	1:21:51 PM
19	MF1D40	2.448	0.0017	0.00	1:24:33 PM
20	MF1D41	-2.187	-0.0044	0.00	1:24:51 PM
21	PBS	0.777	-0.0005	0.00	1:25:45 PM
22	MF1D01	6.475	0.0070	0.00	1:26:03 PM

CH 08/09/2016

Data not part of SDG: MF1D37

Report Date :07/28/2016 Run Date :7/28/2016 Operator : CRHANSEN Plan # :20160728002

Plan Description : CN-46321-MF1D37

ALS Environmental

Method : CYN2 -Unit [µg/L] - CYANIDE - NEW EPA SOW

Smp#/[Dil Fact]	Sample ID	Conc	OD	%Recovery/RPD	Analysis Time
23	**CCV2**	**193.835**	**0.2536**	**0.00**	**1:28:51 PM**
24	**CCB2**	**2.828**	**0.0022**	**0.00**	**1:29:09 PM**

Report Date :07/28/2016 **Run Date :7/28/2016** **Operator : CRHANSEN** **Plan # :20160728002**

56 232

Plan Description : CN-46321-MF1D37

ISM02.3 CN in Water by Micro-Distillation Electronic Physical Description Log

File Location: \\Alsltws013\INORGANIC\WaterLab\ISM02.3			File Name: CN-W-173500-MF1D37
HBN: 173500	Case: 46321	SDG: MF1D37	Cyanide in EPA-CLP water
Workorder ID(s): 1620159, 1620230, 1620335, 1620468			Preparer: Christopher R. Hansen

ISM02.3 Cyanide Water Standards Preparation Description

Sample ID.	Solution used	Amount	Description of solution	Std. final volume	Std. final conc.
S0, ICB, CCBs, PBW	NA	NA	NA	50mL	0 µg/L cyanide
S01	CN INT WKG (32873)	0.1 mL	CN INT WKG = 5,000 µg/L CN^-		10 µg/L cyanide
S02		0.5 mL			50 µg/L cyanide
S03		1.0 mL			100 µg/L cyanide
S04, CCVs		2.0 mL			200 µg/L cyanide
S05		3.0 mL			300 µg/L cyanide
S06		4.0 mL			400 µg/L cyanide
ICV	EPA-ICV6-0400 (29902)	0.5 mL	CN CLP-ICV = 9900 µg/L CN		99 µg/L cyanide
MS	CN INT WKG (32873)	0.12mL	CN INT WKG = 5,000 µg/L CN^-	6mL	100 µg/L cyanide
MD	NA	NA	NA	6mL	NA

ISM02.3 Cyanide Water Samples Preparation Description

	EPA Sample ID	Matrix	Method **	Prep Date and Time	Amount of Sample Used (mL)	Final Volume of Samples (mL)	pH
Calibration Standards	S0	0.25N NaOH	Micro-Distillation	07/27/2016 14:15	6mL	6mL	NA
	S01						
	S02						
	S03						
	S04/CCVs						
	S05						
	ICV						
	ICB/CCBs						
	PBW1						
	MF1D37	Water			6		>10
	MF1D37S				6		
	MF1D37D				6		
	MF1D38				6		
	MF1D39				6		
	MF1D31				6		
	MF1D32				6		
	MF1D33				6		
	MF1D27				6		
	MF1D29				6		
	MF1D30				6		
	MF1D34				6		
	MF1D35				6		
	MF1D40				6		
	MF1D41				6		

Method Summary: Samples tested for sulfides, oxidizing agents and pH prior to aliquoting for analysis. Samples pipetted into sample tubes. QCs prepared as described above. 2mL of 0.25N NaOH added to all collector tubes with the M end facing up. Tubes capped with membranes and 0.75mL of the releasing solution added to each sample. Sample tubes immediately assembled with collector tubes and placed on the distillation unit for 30 minutes. Disillation unit is maintained at 120ºC, as measured by an onboard temperature indicator. The tubes are broken down and the distillate collected into one tube after allowing the tubes to cool for at least 10 minutes. Distillate brought to 6mL total volume with 0.25N NaOH. Samples are ready for analysis.

Notes: None were required.

Analyte/Method: Cyanide in Water ISM02.3 by Micro-Distillation	HBN #: 173500	SDG #: MFD137	Case #: 46321	Samples Prepared by (name): Christopher R. Hansen
Workorder ID(s): 1620159, 1620230, 1620335, 1620468	Sample ID(s): MF1D37-39; MF1D31-33; MFD127, 29, 30; MFD134, 35, 40			Starting Date/Time: 07/27/2016 14:15

Procedure:

Each field sample is tested for pH >12, oxidizing agents(KI paper), and sulfides(Pb-Ac paper). N/A for PE

pH <12 = N/A Positive KI test = N/A Positive PbAc test = N/A

6 mL of each sample and QC is transferred into a Lachat MicroDist sample tube. 0.75 mL of an acidic releasing agent is added to each sample and QC which is then quickly capped and placed on a Lachat MicroDist hotblock, protected from light by aluminum foil. Samples and QCs are distilled for 30 minutes on a hot block set to maintain temperature at 122 ± 2 ºC (Temp. Correction factor: -2ºC) Samples/QCs are removed from the hot block and the sample tube is removed from the collection tube within 4 seconds to prevent sample suck-back. The sample tube is discarded and the collection tubes are allowed to cool to room temperature. The distillate is brought to a final volume of 6 mL with 0.25N NaOH. (NOTE: Lachat MicroDist Tubes require set up prior to distillation.) After distillation cyanide is quantified by UV-Vis spectroscopy on a SmartChem discrete AA.

Equipment:

Balance: N/A Pipettes: Pl-214, WC#6 Test Strips: pH, KI, and Pb-Ac

Calibration and QC Stock Standards used:

STD	Std ID#	Expiration
Stock 1,000 µg/mL	**31750**	09/30/2016
Check Stock 9,900 µg/L	**29902**	10/16/2024
Stock Int. 5,000 µg/L	**32873**	08/02/2016

Calibration and QC Standards preparation in 0.25 N NaOH

STD ID	Spike amount (mL)	Std ID#	Final volume (mL)	Target (µg/L)
S0 /CCB / PBW	NONE	NONE	50	0
S01	0.1	32873	50	10
S02	0.5	32873	50	50
S03	1.0	32873	50	100
S04 / CCV	2.0	32873	50	200
S05	3.0	32873	50	300
S06	4.0	32873	50	400
ICV	0.5	29902	50	99
MS	0.12	32873	6	100

Sample(s) for MS and MD: MX2467

Verification of Procedure

Verified By: KB

Date Verified: 08/09/2016

Reagents for Preparation and Analysis:

ID	Log Book or Horizon ID	Expiration
0.25 N NaOH	32636	07/06/2018
	32765	07/19/2018
$MgCl_2$ Releasing Solution	848	09/03/2016

EPA-SOW Reporting Limit: 10 µg/L

Distillation Hotblock Times and Temperatures

MD1: Time On	MD1: Time Off	Temp On (°C)	Temp Off (°C)
15:33	16:03	119	120
MD2: Time On	**MD2: Time Off**	**Temp On (°C)**	**Temp Off (°C)**
15:33	16:03	120	120

CONVERSION FACTOR: No converstion Required

Instrument results are in µg/L

Comment(s):

None were required.

Batch Worklist

Batch: EWC/ 6521 | Created: 7/25/2016 16:20 | Instrument: | HBN: 173500

Rule: ISM02.3 Cn Micro Dist, Prep | Analyst: C. Hansen | Status: NA

Workorder: 1620159 SDG: MF1D37 Case: 46321
Workorder: 1620230 SDG: MF1D37 Case: 46321
Workorder: 1620335 SDG: MF1D37 Case: 46321
Workorder: 1620468 SDG: MF1D37 Case: 46321

Start 07/27/16 14:15

Pos	Lab ID	Sample ID	Prep Initial	Prep Final	Dust Weight	Type	Mx	Container	Procedure	Mgr	Expire Date	Due Date	Run Date
1	509793	S0				STB	3		I23CN...3P	6118	8/6/2016	7/25/2016	
2	509794	S01				STD	3		I23CN...3P	6118	8/6/2016	7/25/2016	
3	509795	S02				STD	3		I23CN...3P	6118	8/6/2016	7/25/2016	
4	509796	S03				STD	3		I23CN...3P	6118	8/6/2016	7/25/2016	
5	509797	S04				STD	3		I23CN...3P	6118	8/6/2016	7/25/2016	
6	509798	S05				STD	3		I23CN...3P	6118	8/6/2016	7/25/2016	
7	509799	S06				STD	3		I23CN...3P	6118	8/6/2016	7/25/2016	
8	509800	ICV				ICV	3		I23CN...3P	6118	8/6/2016	7/25/2016	
9	509801	ICB				ICB	3		I23CN...3P	6118	8/6/2016	7/25/2016	
10	509802	CCV1				CCV	3		I23CN...3P	6118	8/6/2016	7/25/2016	
11	509803	CCB1				CCB	3		I23CN...3P	6118	8/6/2016	7/25/2016	
12	509819	PBW1				PBW	3		I23CN...3P	6118	8/6/2016	7/25/2016	
13	1620159001	MF1D37				SAMPLE	3	1620159001-A	I23CN...3P	5936	7/31/2016	7/25/2016	
14	1620159002	MF1D37S				MS	3	1620159002-A	I23CN...3P	5936	7/31/2016	7/25/2016	
15	1620159003	MF1D37D				MD	3	1620159003-A	I23CN...3P	5936	7/31/2016	7/25/2016	
16	1620159004	MF1D38				SAMPLE	3	1620159004-A	I23CN...3P	5936	7/31/2016	7/25/2016	
17	1620159005	MF1D39				SAMPLE	3	1620159005-A	I23CN...3P	5936	7/31/2016	7/25/2016	
18	1620230001	MF1D31				SAMPLE	3	1620230001-A	I23CN...3P	5936	8/1/2016	7/26/2016	
19	1620230002	MF1D32				SAMPLE	3	1620230002-A	I23CN...3P	5936	8/1/2016	7/26/2016	
20	1620230003	MF1D33				SAMPLE	3	1620230003-A	I23CN...3P	5936	8/1/2016	7/26/2016	
21	1620335001	MF1D27				SAMPLE	3	1620335001-A	I23CN...3P	5936	8/2/2016	7/27/2016	
22	1620335002	MF1D29				SAMPLE	3	1620335002-A	I23CN...3P	5936	8/2/2016	7/27/2016	
23	1620335003	MF1D30				SAMPLE	3	1620335003-A	I23CN...3P	5936	8/2/2016	7/27/2016	
24	1620468001	MF1D34				SAMPLE	3	1620468001-A	I23CN...3P	5936	8/3/2016	7/28/2016	
25	1620468002	MF1D35				SAMPLE	3	1620468002-A	I23CN...3P	5936	8/3/2016	7/28/2016	
26	1620468003	MF1D40				SAMPLE	3	1620468003-A	I23CN...3P	5936	8/3/2016	7/28/2016	

56.235

Batch Worklist

Pos	Lab ID	Sample ID	Prep Initial	Prep Final	Dust Weight	Type	Mx	Container	Procedure	Mgr	Expire Date	Due Date	Run Date
27	1620468004	MF1D41				SAMPLE	3	1620468004-A	I23CN...3P	5936	8/3/2016	7/28/2016	

56 236

STANDARD REPORT

Stock Standard - CLPCN-ICV6

CLPCN-ICV6		Description - EPA-CLP CN ICV
Standard: 29902	**Created By:** C. Hansen	**Amount:** 250 mL
MFG: QATS Laboratory	**Create Date:** 10/16/2014	**Expires:** 10/16/2024
MFG Lot: EPA ICV6-0400	**Lab Lot:** CN ICV	**Usable:** Yes
Part ID:		

Pos.	Analyte	Name	Concentration
1	57-12-5	Cyanide	9900 ug/L

56 237

ALSSTANDARDS V2.3
Tue, 08/02/16 8:11 PM

: 000054

STANDARD REPORT

Working Standard - CN INT

CN INT		Description - CN INT 5000
Standard: 32873	**Created By:** C. Hansen	**Amount:** 50 mL
MFG: CRH	**Create Date:** 07/26/2016	**Expires:** 08/02/2016
MFG Lot:	**Lab Lot:** CN INT	**Usable:** Yes
Part ID:		

Pos.	Analyte	Name	Concentration
1	57-12-5	Cyanide	5000 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
31750	CN stock	CN stock	CN stock	0.25 mL	09/30/2016
32636	0.25N NaOH	20g NaOH per 2L DDI water	0.25N NaOH	9.75 mL	07/06/2018
32765	0.25N NaOH	20g NaOH per 2L DDI water	0.25N NaOH	40 mL	07/19/2018

STANDARD REPORT

Constituent

Stock Standard - CN stock

CN stock			Description - CN stock
Standard: 31750	**Created By:** C. Hansen		**Amount:** 120 mL
MFG: Ricca	**Create Date:** 5/10/2016		**Expires:** 9/30/2016
MFG Lot: 2603B34	**Lab Lot:** CN stock		**Usable:** Yes
Part ID: 2543-4			

Pos.	Analyte	Name	Concentration
1	57-12-5	Cyanide	1000 ug/mL

STANDARD REPORT

Constituent

Solvent Standard - 0.25N NaOH

0.25N NaOH			Description - 20g NaOH per 2L DDI water
Standard: 32636	**Created By:** C. Hansen		**Amount:** 2 L
MFG: MACRON	**Create Date:** 7/6/2016		**Expires:** 7/6/2018
MFG Lot: 68773	**Lab Lot:** 0.25N NaOH		**Usable:** Yes
Part ID: balance:105930			

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

STANDARD REPORT

Constituent

Solvent Standard - 0.25N NaOH

0.25N NaOH			Description - 20g NaOH per 2L DDI water
Standard: 32765	**Created By:** C. Hansen		**Amount:** 2 L
MFG: MACRON	**Create Date:** 7/19/2016		**Expires:** 7/19/2018
MFG Lot: 112044	**Lab Lot:** 0.25N NaOH		**Usable:** Yes
Part ID: balance:105930			

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

56 241

ALSSTANDARDS V2.3
Tue, 08/02/16 8:11 PM

: 00058

ALS - SLC Reagent Report

Reagent ID	Date Created	Expiration Date	Final Volume	Units
848	09/03/2015	09/03/2016		

Analyst: Brittney Austin

Reagent Description

Releasing solution for cyanide

Comments

77mL sulfuric acid = 139g; very exothermic reaction.

Chemical	Vendor	LotNo
ASTM TYPE II water	ALS	

Pipette Used	Volume Used	Units
Grad. Cyln.	444.0000	mL

Balance ID	Weight	Units

Chemical	Vendor	LotNo
Magnesium Chloride HexaHydrate	Calbiochem	D00127194

Pipette Used	Volume Used	Units

Balance ID	Weight	Units
102887	128.8009	g

Chemical	Vendor	LotNo
Sulfuric Acid, conc.	EMD	53232

Pipette Used	Volume Used	Units
dispenser	308.0000	mL

Balance ID	Weight	Units

56 242

Analysis of Cyanide in Water by ISM02.3

File Location: \\Alsltws013\INORGANIC\WaterLab\ISM02.3
Analyst: Christopher R. Hansen

Instrument ID: Westco SmartChem (WET01)
Analysis Data: 20160728002
Date/Time: 07/28/2016 12:55

WorkOrder#	Sample IDs	Analyte/Matrix	HBN	SDG	CASE
1620159	MF1D37, 38, 39	Cyanide in Water	171868	MX2464	46232
1620230	MF1D31, 32, 33				
1620335	MF1D27, 29, 30				
1620468	MF1D34, 35, 40, 41				

CONVERSION FACTOR: No conversion factor for waters.
Results are analyzed and reported as µg/L

SOW-RL: 10 µg/L

MDL: 4.68 µg/L
05/11/2016 - 05/11/2017

ANALYSIS REAGENTS:

Entry ID	Solution	Expiration
1387	Chloramine-T	07/29/2016
1227	Color Solution	10/18/2016
1343	Phosphate Buffer	06/27/2017

METHOD INFORMATION:

Prep Method: Micro-Distillation
SOP: SC-EP-CASC-CN
Preparation Date: 07/27/2016 14:15
Preparation HBN: 173500
Prepared By: Christopher R. Hansen

VERIFICATION OF PROCEDURE	
Verified By:	Kristy Bitner
Date Verified:	08/10/2016

CALIBRATION:
Correlation R^2: 0.9990
% Difference : See Raw data.

ANALYSIS PARAMETERS:
See Raw data.

Dilutions: None were required.

Comments: None were required.

Batch Worklist

Batch: EWC/ 6549 **Created:** 8/9/2016 11:33 **Instrument:** **HBN:** 174414
Rule: ISM02.3 Cn MicroDist, Analysis **Analyst:** C. Hansen **Status:** WP

Workorder: 1620159 **SDG:** MF1D37 **Case:** 46321
Workorder: 1620230 **SDG:** MF1D37 **Case:** 46321
Workorder: 1620335 **SDG:** MF1D37 **Case:** 46321
Workorder: 1620468 **SDG:** MF1D37 **Case:** 46321

Pos	Lab ID	Sample ID	Prep Initial	Prep Final	Dust Weight	Type	Mx	Container	Procedure	Mgr	Expire Date	Due Date	Run Date
1	509793	S0	6 mL	6 mL		STB	3		I23CN....3	6118	8/6/2016	8/11/2016	
2	509794	S01	6 mL	6 mL		STD	3		I23CN....3	6118	8/6/2016	8/11/2016	
3	509795	S02	6 mL	6 mL		STD	3		I23CN....3	6118	8/6/2016	8/11/2016	
4	509796	S03	6 mL	6 mL		STD	3		I23CN....3	6118	8/6/2016	8/11/2016	
5	509797	S04	6 mL	6 mL		STD	3		I23CN....3	6118	8/6/2016	8/11/2016	
6	509798	S05	6 mL	6 mL		STD	3		I23CN....3	6118	8/6/2016	8/11/2016	
7	509799	S06	6 mL	6 mL		STD	3		I23CN....3	6118	8/6/2016	8/11/2016	
8	509800	ICV	6 mL	6 mL		ICV	3		I23CN....3	6118	8/6/2016	8/11/2016	
9	509801	ICB	6 mL	6 mL		ICB	3		I23CN....3	6118	8/6/2016	8/11/2016	
10	509802	CCV1	6 mL	6 mL		CCV	3		I23CN....3	6118	8/6/2016	8/11/2016	
11	509803	CCB1	6 mL	6 mL		CCB	3		I23CN....3	6118	8/6/2016	8/11/2016	
12	509819	PBW1	6 mL	6 mL		PBW	3		I23CN....3	6118	8/6/2016	8/11/2016	
13	1620159001	MF1D37	6 mL	6 mL		SAMPLE	3	1620159001-A	I23CN....3	5936	7/31/2016	8/11/2016	
14	1620159002	MF1D37S	6 mL	6 mL		MS	3	1620159002-A	I23CN....3	5936	7/31/2016	8/11/2016	
15	1620159003	MF1D37D	6 mL	6 mL		MD	3	1620159003-A	I23CN....3	5936	7/31/2016	8/11/2016	
16	1620159004	MF1D38	6 mL	6 mL		SAMPLE	3	1620159004-A	I23CN....3	5936	7/31/2016	8/11/2016	
17	1620159005	MF1D39	6 mL	6 mL		SAMPLE	3	1620159005-A	I23CN....3	5936	7/31/2016	8/11/2016	
18	1620230001	MF1D31	6 mL	6 mL		SAMPLE	3	1620230001-A	I23CN....3	5936	8/1/2016	8/11/2016	
19	1620230002	MF1D32	6 mL	6 mL		SAMPLE	3	1620230002-A	I23CN....3	5936	8/1/2016	8/11/2016	
20	1620230003	MF1D33	6 mL	6 mL		SAMPLE	3	1620230003-A	I23CN....3	5936	8/1/2016	8/11/2016	
21	1620335001	MF1D27	6 mL	6 mL		SAMPLE	3	1620335001-A	I23CN....3	5936	8/2/2016	8/11/2016	
22	1620335002	MF1D29	6 mL	6 mL		SAMPLE	3	1620335002-A	I23CN....3	5936	8/2/2016	8/11/2016	
23	1620335003	MF1D30	6 mL	6 mL		SAMPLE	3	1620335003-A	I23CN....3	5936	8/2/2016	8/11/2016	
24	1620468001	MF1D34	6 mL	6 mL		SAMPLE	3	1620468001-A	I23CN....3	5936	8/3/2016	8/11/2016	
25	1620468002	MF1D35	6 mL	6 mL		SAMPLE	3	1620468002-A	I23CN....3	5936	8/3/2016	8/11/2016	
26	1620468003	MF1D40	6 mL	6 mL		SAMPLE	3	1620468003-A	I23CN....3	5936	8/3/2016	8/11/2016	

56 244

Batch Worklist

Pos	Lab ID	Sample ID	Prep Initial	Prep Final	Dust Weight	Type	Mx	Container	Procedure	Mgr	Expire Date	Due Date	Run Date
27	1620468004	MF1D41	6 mL	6 mL		SAMPLE	3	1620468004-A	I23CN....3	5936	8/3/2016	8/11/2016	

56 245

ALS - SLC Reagent Report

Reagent ID	Date Created	Expiration Date	Final Volume	Units
1387	07/28/2016	07/29/2016	25.0000	mL

Analyst: Christopher Hansen

Reagent Description	Comments
CN - Chloramine T	made at 09:38 - use within 24 hours

Chemical	Vendor	LotNo
Chloramine-T	Mallinckrodt	0614B21H11

Pipette Used	Volume Used	Units
	0.0000	mL

Balance ID	Weight	Units
105930	0.2496	g

56 246

ALS - SLC Reagent Report

Reagent ID	Date Created	Expiration Date	Final Volume	Units
1227	04/18/2016	10/18/2016	500.0000	mL

Analyst: Christopher Hansen

Reagent Description

CN - Pyridine Color Reagent

Comments

Chemical	Vendor	LotNo
Barbituric Acid 99%	Aldrich	07021HU

Pipette Used	Volume Used	Units

Balance ID	Weight	Units
102887	7.5026	g

Chemical	Vendor	LotNo
HCl conc.	Millipore	55177

Pipette Used	Volume Used	Units
dispenser	7.5000	mL

Balance ID	Weight	Units

Chemical	Vendor	LotNo
Pyradine	EM Science	53009

Pipette Used	Volume Used	Units
Grad. Cyln.	37.5000	mL

Balance ID	Weight	Units

56 247

ALS - SLC Reagent Report

Reagent ID	Date Created	Expiration Date	Final Volume	Units
1343	06/27/2016	06/27/2017	500.0000	mL

Analyst: Christopher Hansen

Reagent Description	Comments
CN - Phosphate Buffer	Contains 0.25mL of Westco Rinse Solution LOT# 168022

Chemical	Vendor	LotNo

Pipette Used	Volume Used	Units
	0.0000	mL

Balance ID	Weight	Units
	0.0000	g

Chemical	Vendor	LotNo
Sodium Dihydrogen Phosphate	Alfa Aesar	R22A024

Pipette Used	Volume Used	Units
	0.0000	mL

Balance ID	Weight	Units
105930	69.0038	g

56 248

Copy original in SDG MF1038
ME 7/19/2016

ORIGIN ID:CRSA (512) 239-1368
TCEQ/MC 102

12100 PARK 35 CIR BLDG D

AUSTIN, TX 787531808
UNITED STATES US

SHIP DATE: 18JUL16
ACTWGT: 59.00 LB MAN
CAD: /POS1704
DIMS: 23x14x14 IN

BILL SENDER

Part # 156297V-435 RIT2 APV EXP 05/17 ** #704404 07/18 544J1/SCBD/J4EB

TO **MEREDITH EDWARDS**
ALS LAB GROUP
960 WEST LEVOY DR

ME 7/19/2016
10:07

SALT LAKE CITY UT 84123

(801) 266-7700 REF:
INV:
PO: DEPT:

FedEx
Express

E

J162016070501av

TUE - 19 JUL 10:30A
PRIORITY OVERNIGHT

TRK# 0200 **8095 2440 2173**

AX BTFA

84123
UT-US **SLC**

56 249

: 00066

Copy original in SDG MF 1018

ORIGIN ID:CRSA (512) 239-1368
TCEQ/MC 102

12100 PARK 35 CIR BLDG D

AUSTIN, TX 787531808
UNITED STATES US

SHIP DATE: 19JUL16
ACTWGT: 52.00 LB MAN
CAD: /POS1704
DIMS: 23x14x23 IN

BILL SENDER

Part # 156297V-435 FIT 2 APV EXP 05/17

TO **MEREDITH EDWARDS**
ALS LAB GROUP – SALT LAKE CITY
960 WEST LEVOY DR

SALT LAKE CITY UT 84123

(800) 000-0000
INV:
PO:
REF:
DEPT:

FedEx Express

E

TRK# 0200 **8095 2440 2130**

WED – 20 JUL 10:30A
PRIORITY OVERNIGHT

AX BTFA

7/20/2016
10:02

84123
UT-US **SLC**

56 250

: 00067

FedEx Express Package US Airbill

FedEx Tracking Number 8102 5780 1911

Form ID No. 0200

To CLP Lab

Recipient's Copy

1 From

Date [redacted]

Sender's Name Adrienne Love Phone 512 239 2273

Company TCEQ

Address 12100 Park 35 Circle MC-136 Dept/Floor/Suite/Room

City Austin State TX ZIP 78753

2 Your Internal Billing Reference 16-60612/4441/70363

3 To

Recipient's Name Meredith Edwards Phone 801 2667700

Company ALS Laboratory Group - Salt Lake City

Address 960 West Le Voy Dr. Dept/Floor/Suite/Room

We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address

Use this line for the HOLD location address or for continuation of your shipping address.

City Salt Lake City State UT ZIP 84123

☐ Hold Weekday FedEx location address REQUIRED. NOT available for FedEx First Overnight.

☐ Hold Saturday FedEx location address REQUIRED. Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.

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NC 7/21/2016 8:56

4 Express Package Service * To most locations. *Packages up to 150 lbs.* For packages over 150 lbs., use the FedEx Express Freight US Airbill.

Next Business Day

☐ FedEx First Overnight — Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless Saturday Delivery is selected.

☒ FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless Saturday Delivery is selected.

☐ FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available.

2 or 3 Business Days

☐ FedEx 2Day A.M. — Second business morning.* Saturday Delivery NOT available.

☐ FedEx 2Day — Second business afternoon.* Thursday shipments will be delivered on Monday unless Saturday Delivery is selected.

☐ FedEx Express Saver — Third business day.* Saturday Delivery NOT available.

5 Packaging * Declared value limit $500.

☐ FedEx Envelope* ☐ FedEx Pak* ☐ FedEx Box ☐ FedEx Tube ☒ Other

6 Special Handling and Delivery Signature Options Fees may apply. See the FedEx Service Guide.

☐ Saturday Delivery — NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

☒ No Signature Required — Package may be left without obtaining a signature for delivery.

☐ Direct Signature — Someone at recipient's address may sign for delivery.

☐ Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only.

Does this shipment contain dangerous goods? One box must be checked.

☒ No ☐ Yes As per attached Shipper's Declaration. ☐ Yes Shipper's Declaration not required. ☐ Dry Ice Dry ice, 9, UN 1845 _____ x _____ kg

Restrictions apply for dangerous goods — see the current FedEx Service Guide. ☐ Cargo Aircraft Only

7 Payment *Bill to:*

Enter FedEx Acct. No. or Credit Card No. below. Obtain recip. Acct. No. ☐

☒ Sender Acct. No. in Section 1 will be billed. ☐ Recipient ☐ Third Party ☐ Credit Card ☐ Cash/Check

[redacted]

Total Packages _____ Total Weight _____ lbs. [redacted] Credit Card Auth. _____

†Our liability is limited to US$100 unless you declare a higher value. See the current FedEx Service Guide for details.

644

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56 251

00068

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ORIGIN ID:CRSA (512) 239-2273
ADRRIENIE LOVE

12100 PARK 35 CIR MC-136

AUSTIN, TX 78753
UNITED STATES US

SHIP DATE: 21JUL16
ACTWGT: 56.30 LB
CAD: 006993943/SSFE1704
DIMS: 23x14x12 IN

BILL THIRD PARTY

TO **MEREDITH EDWARDS**

960 WEST LEVOY DR

SALT LAKE CITY UT 84123

(801) 266-7700 REF:
INV:
PO: DEPT:

AVC 7/22/2016
9:32

FedEx Express

E

J162016070501uv

TRK# 0201 **7836 3555 3964**

FRI - 22 JUL 10:30A
PRIORITY OVERNIGHT

AX BTFA

84123
UT-US **SLC**

56 252

: 00069

SAMPLE TAG INFORMATION SHEET

There are no Sample Tags included with this SDG

Notations concerning the location of the Sample Tags are included in Forms DC-1,, DC-2 and in the SDG Administrative Narrative (if it is required).

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: EPW14027 | **Split:** | **Workorder ID:** 1620159 | **Level:** EPACLP_PDF

Client: U. S. EPA Region 6 [46321/MF1D37] | **Account:** 8201 | **Type:** 1000Poly

Comments:

Preservatives: NaOH,4C

Requested Analysis: ISM02.3 Cyanide, Water

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	ISM02.3 Cyanide, Water
1	07/18/2016 16:03	MF1D37	1620159001		Water	A	1	A
2	07/18/2016 16:03	MF1D37S	1620159002	MS	Water	A	1	A
3	07/18/2016 16:03	MF1D37D	1620159003	MD	Water	A	1	A
4	07/18/2016 15:45	MF1D38	1620159004		Water	A	1	A
5	07/18/2016 15:15	MF1D39	1620159005		Water	A	1	A
6								
7								
8								
9								
10								

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Edwards, Meredith D.	07/19/2016 10:07	ALS Sample Receiving	Sample Login
[signature]	7/19/2016 1553	15C	Storage
R-33-1 (15C) CH	07/25/2016 18:00	wet chem lab CH	CN prep

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

56 254

Tue, 07/19/16 3:50 PM

ALSCOCV3.1

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: EPW14027 | **Split:** | **Workorder ID:** 1620230 | **Level:** EPACLP_PDF

Client: U. S. EPA Region 6 [46321/MF1D37] | **Account:** 8201 | **Type:** 1000Poly

Comments:

Preservatives: NaOH,4C

Requested Analysis: ISM02.3 Cyanide, Water

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	ISM02.3 Cyanide, Water
1	07/19/2016 15:20	MF1D31	1620230001		Water	A	1	A
2	07/19/2016 15:05	MF1D32	1620230002		Water	A	1	A
3	07/19/2016 14:50	MF1D33	1620230003		Water	A	1	A
4								
5								
6								
7								
8								
9								
10								

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Edwards, Meredith D.	07/20/2016 10:02	ALS Sample Receiving	Sample Login
Meredith Edwards	7/20/2016 1054	ISC	Storage
R-33-1 (ISC) CH	07/25/2016 18:00	wet chem lab CH	CN prep

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

56 255

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: EPW14027	Split:	Workorder ID: 1620335	Level: EPACLP_PDF
Client: U. S. EPA Region 6 [46321/MF1D37]		Account: 8201	Type: 1000Poly
Comments:			Preservatives: NaOH,4C

Requested Analysis: ISM02.3 Cyanide, Water

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	ISM02.3 Cyanide, Water
1	07/20/2016 12:15	MF1D27	1620335001		Water	A	1	A
2	07/20/2016 09:40	MF1D29	1620335002		Water	A	1	A
3	07/20/2016 09:24	MF1D30	1620335003		Water	A	1	A
4								
5								
6								
7								
8								
9								
10								

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Edwards, Meredith D.	07/21/2016 08:56	ALS Sample Receiving	Sample Login
Meredith Edwards	7/21/2016 10:13	15C	Storage
R-33-1 (15C) CH	07/25/2016 18:00	wet chem lab CH	CN prep

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

56 256

Thu, 07/21/16 10:11 AM

ALSCOCV3.1

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: EPW14027	Split:	Workorder ID: 1620468	Level: EPACLP_PDF
Client: U. S. EPA Region 6 [46321/MF1D37]		Account: 8201	Type: 1000Poly
Comments:			Preservatives: NaOH;4C

Requested Analysis: ISM02.3 Cyanide, Water

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	ISM02.3 Cyanide, Water
1	07/21/2016 11:00	MF1D34	1620468001		Water	A	1	A
2	07/21/2016 10:30	MF1D35	1620468002		Water	A	1	A
3	07/21/2016 11:05	MF1D40	1620468003		Water	A	1	A
4	07/21/2016 10:35	MF1D41	1620468004		Water	A	1	A
5								
6								
7								
8								
9								
10								

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Edwards, Meredith D.	07/22/2016 09:23	ALS Sample Receiving	Sample Login
Meredith Edwards	7/22/2016 1310	13B	Storage
R-33-1 (13B) CH	07/25/2016 18:00	wet chem lab CH	CN prep

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

56 257

Fri, 07/22/16 1:06 PM

ALSCOCV3.1

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: EPW14027 | Split: | Workorder ID: 1620159 | Level: EPACLP_PDF

Client: U. S. EPA Region 6 [46321/MF1D37] | Account: 8201 | Type: 1000Poly

Comments:

Preservatives: NaOH,4C

Requested Analysis: ISM02.3 Cyanide, Water

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	ISM02.3 Cyanide, Water
1	07/18/2016 16:03	MF1D37	1620159001		Water	A	1	A
2	07/18/2016 16:03	MF1D37S	1620159002	MS	Water	A	1	A
3	07/18/2016 16:03	MF1D37D	1620159003	MD	Water	A	1	A
4	07/18/2016 15:45	MF1D38	1620159004		Water	A	1	A
5	07/18/2016 15:15	MF1D39	1620159005		Water	A	1	A
6								
7								
8								
9								
10								

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Edwards, Meredith D.	07/19/2016 10:07	ALS Sample Receiving	Sample Login
Meredith Edwards	7/19/2016 1553	ISC	Storage
R-33-1 (ISC) CH	07/25/2016 18:00	wet chem lab CH	CN prep

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: cyanide water

Prepared / Analyzed by: CH / CH

Lab Notebook No.: HBN: 174414

Date / Time: ~~08/~~ 07/27/2016 14:15 CH 08/09/2016

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
wet chem lab CH	07/27/2016 16:25	R-403-1 (43) CH	storage
R-403-1 (43) CH	07/28/2016 09:28	wet chem lab CH	CN analysis
wet chem lab CH	08/09/2016 12:49	cyanide waste CH	Disposal

CH 08/09/2016

56 258

00075

Tue, 07/19/16 3:50 PM

ALSCOCV3.1

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: EPW14027	Split:	Workorder ID: 1620230	Level: EPACLP_PDF
Client: U. S. EPA Region 6 [46321/MF1D37]		Account: 8201	Type: 1000Poly
Comments:			Preservatives: NaOH.4C

Requested Analysis: ISM02.3 Cyanide, Water

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	ISM02.3 Cyanide, Water
1	07/19/2016 15:20	MF1D31	1620230001		Water	A	1	A
2	07/19/2016 15:05	MF1D32	1620230002		Water	A	1	A
3	07/19/2016 14:50	MF1D33	1620230003		Water	A	1	A
4								
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7								
8								
9								
10								

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Edwards, Meredith D.	07/20/2016 10:02	ALS Sample Receiving	Sample Login
Meredith Edwards	7/20/2016 1054	ISC	Storage
R-33-1 (ISC) CH	07/25/2016 18:00	wet chem lab CH	CN prep

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: Cyanide water

Lab Notebook No.: HBN: 174414

Prepared / Analyzed by: CH / CH

Date / Time: 07/27/2016 14:15

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
wet chem lab CH	07/27/2016 16:25	R-403-1 (43) CH	storage
R-403-1 (43) CH	07/28/2016 09:28	wet chem lab CH	CN analysis
wet chem lab CH	08/09/2016 12:49	cyanide waste CH	Disposal

CH 08/09/2016

56 259

00075

Wed, 07/20/16 10:52 AM

ALSCOCV3.1

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: EPW14027	Split:	Workorder ID: 1620335	Level: EPACLP_PDF	Requested Analysis
Client: U. S. EPA Region 6 [46321/MF1D37]		Account: 8201	Type: 1000Poly	
Comments:			Preservatives: NaOH;4C	

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	SM02-3 Cyanide, Water
1	07/20/2016 12:15	MF1D27	1620335001		Water	A	1	A
2	07/20/2016 09:40	MF1D29	1620335002		Water	A	1	A
3	07/20/2016 09:24	MF1D30	1620335003		Water	A	1	A
4								
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7								
8								
9								
10								

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Edwards, Meredith D.	07/21/2016 08:56	ALS Sample Receiving	Sample Login
Meredith Edwards	7/21/2016 1013	15C	storage
R-33-1 (15C) CH	07/25/2016 18:00	wet chem lab CH	CN prep

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: cyanide water

Prepared / Analyzed by: CH / CH

Lab Notebook No.: HBN: 174414

Date / Time: 07/27/2016 14:15

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
wet chem lab CH	07/27/2016 16:25	R-403-1 (43) CH	storage
R-403-1 (43) CH	07/28/2016 09:28	wet chem lab CH	CN analysis
wet chem lab CH	08/09/2016	cyanide waste CH	Disposal

CH 08/09/2016

56 260

Thu, 07/21/16 10:11 AM

ALSCOCV3.1

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: EPW14027	Split:	Workorder ID: 1620468	Level: EPACLP_PDF	Requested Analysis
Client: U. S. EPA Region 6 [46321/MF1D37]		Account: 8201	Type: 1000Poly	
Comments:			Preservatives: NaOH,4C	

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	SM02.3 Cyanide, Water
1	07/21/2016 11:00	MF1D34	1620468001		Water	A	1	A
2	07/21/2016 10:30	MF1D35	1620468002		Water	A	1	A
3	07/21/2016 11:05	MF1D40	1620468003		Water	A	1	A
4	07/21/2016 10:35	MF1D41	1620468004		Water	A	1	A
5								
6								
7								
8								
9								
10								

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Edwards, Meredith D.	07/22/2016 09:23	ALS Sample Receiving	Sample Login
Meredith Edwards	7/22/2016 1310	13B	Storage
R-331 (13B) CH	07/25/2016 18:00	wet chem lab CH	CN prep

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
wet chem lab CH	07/27/2016 16:25	R-403-1 CH (43)	storage
R-403-1 (43) CH	07/28/2016 09:28	wet chem lab CH	CN analysis
wet chem lab CH	08/09/2016 12:49	cyanide waste CH	Disposal

CH 08/09/2016

56 261