

SEPTEMBER 10, 2015

SOUTHWEST RESEARCH INSTITUTE®

8220 CULEBRA RD. 78238-5166 • P.O. DRAWER 28510 78228-0510 • SAN ANTONIO, TEXAS, USA • (210) 684-5111 • WWW.SWRI.ORG

Chemistry and Chemical Engineering Division
Department of Analytical and Environmental Chemistry

September 10, 2015

CH2M Hill Plateau Remediation Company
2420 Stevens Center Place
Mail Stop H8-41
Richland, WA 99352

Attn: David Todak

Subject: SAF No: F15-048
SDG Number: ~~579671~~ 579641 *Dayes 10/6/15*
SwRI Project Number: 20859.01.00X
SwRI Task Order Number: 150807-13
SwRI Sample Receipt Number: 55929
Samples Received: 08.07.15
Fraction: Wetchem Analysis by Method 9056

Dear Mr. Todak:

Please find the enclosed results for the eight (8) samples received on the above referenced date. If you should have any questions, please do not hesitate to call me at (210) 522-3242 or radonna.spies@swri.org.

Sincerely,

Radonna Spies
Radonna Spies
Group Leader

APPROVED:

Michael J. Dammann

mj Michael J. Dammann
Director

RS: aa
Encl



DETROIT, MICHIGAN (248) 353-2550 • HOUSTON, TEXAS (713) 977-1377 • WASHINGTON, DC (301) 881-0226

**SOUTHWEST RESEARCH INSTITUTE
CLIENT: CH2M Hill Plateau Remediation
Company
TASK ORDER(s): 150807-13
SRR: 55929
SDG: 579641
CASE: F15-048
VTSR: 08.07.15
PROJECT#: 20859.01.00X**

NARRATIVE

SEPTEMBER 10, 2015

Client: CH2M Hill Plateau Remediation Company

SDG: 579641

SwRI Project Number: 20933.01.006

SwRI Task Order Number: 150807-13

000002

Formic Acid

Soil samples were extracted at a 1:10 ratio using deionized water and were analyzed using a modified EPA 9056 within 24 hours of extraction. The standards were prepared and analyzed as formate. Sample results were converted to formic acid by applying the gravimetric factor of (FW formic acid / FW formate = 46/45 = 1.02). Instrument QC (ICV/CCVs and ICB/CCBs) are reported in the data package as formate. Results are reported on a dry-weight basis.

All samples were analyzed within the 28-day holding time and within 48 hours of extraction.

All ICV/CCVs were within 90-110% of the true values. The ICV/CCBs were below the instrument reporting limit of 0.1 mg/L formate. The procedure blank was less than the MDL and the laboratory control limits were within 20% of the true value. The sample and sample duplicate were non-detects; therefore, the RPD was 0%. The matrix spike was within 75-125% recovery.

"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 above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the laboratory manager or his/her designee, as verified by the following signature. This report shall not be reproduced except in full without the written approval of SwRI."



Group Leader

09/04/15

Date

SEPTEMBER 10, 2015

000003

**SOUTHWEST RESEARCH INSTITUTE
CLIENT: CH2M Hill Plateau Remediation
Company
TASK ORDER(s): 150807-13
SRR: 55929
SDG: 579641
CASE: F15-048
VTSR: 08.07.15
PROJECT#: 20859.01.00X**

**SAMPLE RECEIPT, TASK ORDER
&
CHAIN OF CUSTODY**

SEPTEMBER 10, 2015

000004

Sample Receipt

Southwest Research Institute

VTSR: 08/07/15

Time: 08:30:00

Project: 20859.01.00X

Sample Receipt Number: 55929

Revision: 1

Manager: SPIES, RADONNA

Case #: 303757

This Receipt was Revised 09/09/2015

Logged in by: SDOUGLAS

Client: CH2M Hill Plateau Remediation Company

Creation Date: 08/07/15

Notes

Samples were received intact. (wet ice)

Fed Ex Tracking #:

774217453831 - 1.2 °C

774226406510 - 1.5 °C

774225375842 - 1.5 °C

Parameters: Analysis/located on Task Order.

See chain-of-custody as part of the SRR system for more information.

Phases:

001 - admin

006 - wetchem

REVISION 1, DRmz 09/09/15: SRR revised to change the project number to 20859.01.00X from 20933.01.006. At the time project 20859 was provided to the labs, all work associated with the samples under Sample Receipt 55929 was all complete. Majority of the data will still reference 20933.

Background CPM: <100 cpm
Container Wipe CPM: <100 cpm
Total CPM: <100

System ID	Customer ID	CED	Matrix	Containers	Special Reqs.
579621	B32D16	08/06/15	Soil	1	
579622	B32D19	08/06/15	Soil	1	
579623	B32D22	08/06/15	Soil	1	
579624	B32D25	08/06/15	Soil	1	
579625	B32D28	08/06/15	Soil	1	
579626	B32D31	08/06/15	Soil	1	
579627	B32D34	08/06/15	Soil	1	
579628	B32D37	08/06/15	Soil	1	
579629	B32D40	08/06/15	Soil	1	
579630	B32D43	08/06/15	Soil	1	
579631	B32D46	08/06/15	Soil	1	
579632	B32D49	08/06/15	Soil	1	
579633	B32D52	08/06/15	Soil	1	
579634	B32D55	08/06/15	Soil	1	
579635	B32D58	08/06/15	Soil	1	
579636	B32D61	08/06/15	Soil	1	
579637	B32D64	08/06/15	Soil	1	
579638	B32D67	08/06/15	Soil	1	
579639	B32D70	08/06/15	Soil	1	
579640	B32D73	08/06/15	Soil	1	
579641	B32D76	08/06/15	Soil	1	
579642	B32DK9	08/06/15	Soil	1	
579643	B32DL0	08/06/15	Soil	1	
579644	B32F19	08/06/15	Soil	1	
579645	B32F22	08/06/15	Soil	1	

55929 CH2M Hill Plateau Remediation

SEPTEMBER 10, 2015

000005

Sample Receipt

Southwest Research Institute

VTSR: 08/07/15

Time: 08:30:00

Project: 20859.01.00X

Sample Receipt Number: 55929

Revision: 1

Manager: SPIES, RADONNA

Case #: 303757

This Receipt was Revised 09/09/2015

Logged in by: SDOUGLAS

Client: CH2M Hill Plateau Remediation Company

Creation Date: 08/07/15

System ID	Customer ID	CED	Matrix	Containers	Special Reqs.
579646	B32F25	08/06/15	Soil	1	
579647	B32F28	08/06/15	Soil	1	
579648	B32F31	08/06/15	Soil	1	

Containers: 28

Samples: 28

These documents are associated with this receipt: 184038[COC for SRR 55929], 184039[SRR Paperwork for SRR 55929]

Thermometer: 021056

Temperature: 1.2

55929 CH2M Hill Plateau Remediation

SDG: 579641
VTSR: 08/07/15
CASE: F15-048

SRR #'s: 55929
Client(s): CH2M Hill Plateau Remediation Company

Project(s): 20859.01.00X
Manager(s): SPIES, RADONNA
To Client: 09/03/15

Instructions

CH2M Hill Plateau Remediation Company (CHPRC) SAF No.: F15-048. COA 303757

SDG is 579641. SDG IS CLOSED.

30-day TAT. Using 27-day TAT for Report/EDD
FINAL DATA/HARDCOPY IS DUE TO THE CLIENT ON 09/06/15.

28 overall SOIL samples (28 containers) were received on 08/07/15.
OUT of the 28 samples, ONLY 8 are listed on this Task Order. SEE ALSO TASK ORDER # 150807-12.

MS/MSD _ Select a sample with sufficient volume.

9056 _ Anions _ Formate

See Section 4.3.3 Detection Limits
See Section 4.3.4 Reporting Limits
See Section 6.3.3 Quality Control (QC)
See Section 7.2.3 Final Data Package Requirements

Qualifier flags shall be based on those defined in the most current version of CP-15383, Common Requirements of the Format for Electronic Analytical Data (FEAD), (available at: <http://www.hanford.gov/docs/epp/library/programdocs/CP-15383.pdf>) (FEAD). Additional flags may also be applied as long as their use has been approved by both the Contractor and POC.
See Section 7.3 Electronic Data Deliverables

Contact:
David Todak, David_Todak@rl.gov
Office: 509-376-6427, Cell: 509 947-1305
CHPRC Sample Management Office

REVISION 1, DRmz 09/09/15: SRR revised to change the project number to 20859.01.00X from 20933.01.006. At the time project 20859 was provided to the labs, all work associated with the samples under Sample Receipt 55929 was all complete. Majority of the data will still reference 20933.

Documents Related to this task order: 184038[COC for SRR 55929], 184039[SRR Paperwork for SRR 55929]

Deliverables --> Hard Copy: no EDD: -YES- PDF: -YES-

Test: IC-9056 Holding: 28 days from CED

Section: WETCHEM

IC Method 9056 - Formate

Cnt: 8

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
579641		1	Soil	B32D76	06 Aug 15	03 Sep 15
579642		1	Soil	B32DK9	06 Aug 15	03 Sep 15
579643		1	Soil	B32DL0	06 Aug 15	03 Sep 15
579644		1	Soil	B32F19	06 Aug 15	03 Sep 15
579645		1	Soil	B32F22	06 Aug 15	03 Sep 15
579646		1	Soil	B32F25	06 Aug 15	03 Sep 15
579647		1	Soil	B32F28	06 Aug 15	03 Sep 15
579648		1	Soil	B32F31	06 Aug 15	03 Sep 15

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F15-048-061	PAGE 1 OF 1
COLLECTOR F.M. Hall/CHPRC		COMPANY CONTACT TODAK, D	TELEPHONE NO. 376-6427	PROJECT COORDINATOR TODAK, D	PRICE CODE 8H	DATA TURNAROUND 30 Days / 30 Days
SAMPLING LOCATION FS-1 Closure Confirmation: 1-20		PROJECT DESIGNATION FS-1 Outdoor Container Storage Area - Soil Samples		SAF NO. F15-048	AIR QUALITY <input type="checkbox"/>	
ICE CHEST NO. 6005-440		FIELD LOGBOOK NO. HNF-N-507- <u>31-62</u>	ACTUAL SAMPLE DEPTH 0-12"	COA 303757	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO Southwest Research Institute		OFFSITE PROPERTY NO. 5859		BILL OF LADING/AIR BILL NO. 7742 1745 3831		
MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	PRESERVATION Cool <=6C	HOLDING TIME 28 Days/48 Hours	TYPE OF CONTAINER G/P	NO. OF CONTAINER(S) 1	VOLUME 250mL
	SPECIAL HANDLING AND/OR STORAGE N/A	SAMPLE ANALYSIS 9056_ANIONS_ IC: COMMON (Add-on) {Formate};				
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME			
B32D76	SOIL	AUG 05 2015	1020	✓		

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME AUG 05 2015 1140	RECEIVED BY/STORED IN CHPRC	DATE/TIME AUG 05 2015 1140	TRVL-15-136 Client: CH2M Hill Plateau Remediation Company SwRI SRR #55929 SwRI Project # 20933.01.006 Case: 303757 VTSR: 08/07/15 08:30 Sample(s) Received: Intact Battery Check: Y Background Check: <100 cpm (Lab 103) Cooler/Container Wipe: <100 cpm Temp.: 1.2 °C (wet ice) / SN # 021056 Total cpm-mR/h (samples): <100 cpm; <0.5 mR/hr Wipe Frisk Description: Cooler(s) - 3 (see Radioactive Material Receiving Form for more information)
RELINQUISHED BY/REMOVED FROM E.L. Kauer	DATE/TIME AUG 05 2015 1400	RECEIVED BY/STORED IN FEDEX	DATE/TIME	
RELINQUISHED BY/REMOVED FROM FEDEX	DATE/TIME 8/7/15 0830	RECEIVED BY/STORED IN	DATE/TIME 8/7/15 0830	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY <i>Pat O'Connell / ART ARGUERO</i>	TITLE SENIOR TECHNICIAN	DATE/TIME 08.7.15/0845
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

000007

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F15-048-064	PAGE 1 OF 1
COLLECTOR F.M. Hall/CHPRC		COMPANY CONTACT TODAK, D	TELEPHONE NO. 376-6427	PROJECT COORDINATOR TODAK, D	PRICE CODE 8H
SAMPLING LOCATION FS-1 Closure Confirmation: Optional 1		PROJECT DESIGNATION FS-1 Outdoor Container Storage Area - Soil Samples		SAF NO. F15-048	DATA TURNAROUND 30 Days / 30 Days
ICE CHEST NO. 625-426		FIELD LOGBOOK NO. HNF-N-507-31-71	ACTUAL SAMPLE DEPTH 0-12"	COA 303757	METHOD OF SHIPMENT FEDERAL EXPRESS
SHIPPED TO Southwest Research Institute		OFFSITE PROPERTY NO. 5869		BILL OF LADING/AIR BILL NO. 7742 2640 6510	

MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	PRESERVATION	Cool <=6C
	SPECIAL HANDLING AND/OR STORAGE	HOLDING TIME	28 Days/48 Hours
		TYPE OF CONTAINER	G/P
		NO. OF CONTAINER(S)	1
		VOLUME	250mL
	SAMPLE ANALYSIS	9056_ANIONS IC: COMMON (Add-on) {Formate};	

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B32DK9	SOIL	AUG 06 2015	1033 ✓

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	RECEIVED BY/STORED IN E.L. Kauer	TRVL-15-136 Client: CH2M Hill Plateau Remediation Company SwRI SRR #55929 SwRI Project # 20933.01.006 Case: 303757 VTSR: 08/07/15 08:30 Sample(s) Received: Intact Battery Check: Y Background Check: <100 cpm (Lab 103) Cooler/Container Wipe: <100 cpm Temp.: 1.2 °C (wet ice) / SN # 021056 Total cpm-mR/h (samples): <100 cpm; <0.5 mR/hr Wipe Frisk Description: Cooler(s) - 3 (see Radioactive Material Receiving Form for more information)
DATE/TIME AUG 06 2015 1110	DATE/TIME AUG 06 2015 1110	
RELINQUISHED BY/REMOVED FROM E.L. Kauer	RECEIVED BY/STORED IN CHPRC	
DATE/TIME AUG 06 2015 1400	DATE/TIME AUG 06 2015 1400	
RELINQUISHED BY/REMOVED FROM FEDEX	RECEIVED BY/STORED IN FEDEX	
DATE/TIME 8/7/15 0830	DATE/TIME 8/7/15 0830	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	

LABORATORY SECTION	RECEIVED BY Ant Arguello / ANT ARGUELLO	TITLE SENSOR TECHNICIAN	DATE/TIME 080715/0845
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

000008

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F15-048-065	PAGE 1 OF 1
COLLECTOR F.M. Hall/CHPRC		COMPANY CONTACT TODAK, D		PROJECT COORDINATOR TODAK, D	
SAMPLING LOCATION FS-1 Closure Confirmation: Optional 2		PROJECT DESIGNATION FS-1 Outdoor Container Storage Area - Soil Samples		PRICE CODE 8H DATA TURNAROUND 30 Days / 30 Days	
ICE CHEST NO. GWS-426		FIELD LOGBOOK NO. HNF-N-507-31-71		SAF NO. F15-048	
SHIPPED TO Southwest Research Institute		ACTUAL SAMPLE DEPTH 0-12"		COA 303757	
MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other		OFFSITE PROPERTY NO. 5869		BILL OF LADING/AIR BILL NO. 7742 2640 6510	
POSSIBLE SAMPLE HAZARDS/ REMARKS *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.		PRESERVATION Cool <=6C		METHOD OF SHIPMENT FEDERAL EXPRESS ORIGINAL	
SPECIAL HANDLING AND/OR STORAGE		HOLDING TIME 28 Days/48 Hours			
		TYPE OF CONTAINER G/P			
		NO. OF CONTAINER(S) 1			
		VOLUME 250mL			
		SAMPLE ANALYSIS 9056_ANIONS_ IC: COMMON (Add-on) {Formate};			
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME		
B32DL0	SOIL	AUG 06 2015	1045	✓	

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME AUG 06 2015 1110	RECEIVED BY/STORED IN E.L. Kauer	DATE/TIME AUG 06 2015 1100	TRVL-15-136	
RELINQUISHED BY/REMOVED FROM E.L. Kauer	DATE/TIME AUG 06 2015	RECEIVED BY/STORED IN CHPRC	DATE/TIME AUG 06 2015	Client: CH2M Hill Plateau Remediation Company SwRI SRR #55929 SwRI Project # 20933.01.006 Case: 303757 VTSR: 08/07/15 08:30 Sample(s) Received: Intact Battery Check: Y Background Check: <100 cpm (Lab 103) Cooler/Container Wipe: <100 cpm Temp.: 1.2 °C (wet ice) / SN # 021056 Total cpm-mR/h (samples): <100 cpm; <0.5 mR/hr Wipe Frisk Description: Cooler(s) - 3 (see Radioactive Material Receiving Form for more information)	
RELINQUISHED BY/REMOVED FROM FEDEX	DATE/TIME 8/7/15	RECEIVED BY/STORED IN FEDEX	DATE/TIME AUG 06 2015		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
LABORATORY SECTION	RECEIVED BY Art Arguello	TITLE SENIOR TECHNICIAN	DATE/TIME 08-07-15/0845		
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME		

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F15-048-070	PAGE 1 OF 1
COLLECTOR F.M. Hall/CHPRC	COMPANY CONTACT TODAK, D	TELEPHONE NO. 376-6427	PROJECT COORDINATOR TODAK, D	PRICE CODE 8H	DATA TURNAROUND 30 Days / 30 Days
SAMPLING LOCATION FS-1 Closure Confirmation: Optional 3	PROJECT DESIGNATION FS-1 Outdoor Container Storage Area - Soil Samples	SAF NO. F15-048	AIR QUALITY <input type="checkbox"/>	METHOD OF SHIPMENT FEDERAL EXPRESS ORIGINAL	
ICE CHEST NO. GWS-426	FIELD LOGBOOK NO. HNF-N-507- <u>31.71</u>	ACTUAL SAMPLE DEPTH 0-12"	COA 303757	BILL OF LADING/AIR BILL NO. 7742 2640 6510	
SHIPPED TO Southwest Research Institute	OFFSITE PROPERTY NO. 5869				

MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	PRESERVATION	Cool <=6C
	SPECIAL HANDLING AND/OR STORAGE	HOLDING TIME	28 Days/48 Hours
		TYPE OF CONTAINER	G/P
		NO. OF CONTAINER(S)	1
		VOLUME	250mL
	SAMPLE ANALYSIS	9056_ANIONS_ IC: COMMON (Add-on) (Formate);	
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B32F19	SOIL	AUG 06 2015	1006 ✓

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME AUG 06 2015 1110	RECEIVED BY/STORED IN E.L. Kauer
RELINQUISHED BY/REMOVED FROM E.L. Kauer	DATE/TIME AUG 06 2015 1400	RECEIVED BY/STORED IN CHPRC
RELINQUISHED BY/REMOVED FROM CHPRC	DATE/TIME AUG 06 2015 1400	RECEIVED BY/STORED IN FEDEX
RELINQUISHED BY/REMOVED FROM Fed Ex	DATE/TIME 8/7/15 0830	RECEIVED BY/STORED IN [Signature]
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN

Client: CH2M Hill Plateau Remediation Company SwRI SRR #55929
 SwRI Project # 20933.01.006 Case: 303757
 VTSR: 08/07/15 08:30 Sample(s) Received: Intact
 Battery Check: Y Background Check: <100 cpm (Lab 103)
 Cooler/Container Wipe: <100 cpm Temp.: 1.2 °C (wet ice) / SN # 021056
 Total cpm-mR/h (samples): <100 cpm; <0.5 mR/hr Wipe Frisk Description: Cooler(s) - 3
 (see Radioactive Material Receiving Form for more information)

LABORATORY SECTION	RECEIVED BY <i>[Signature]</i>	TITLE SENIOR TECHNICIAN	DATE/TIME 08.07.15/0845
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

000010

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F15-048-073	PAGE 1 OF 1
COLLECTOR F.M. Hall/CHPRC		COMPANY CONTACT TODAK, D	TELEPHONE NO. 376-6427	PROJECT COORDINATOR TODAK, D	PRICE CODE 8H
SAMPLING LOCATION FS-1 Closure Confirmation: Optional 4		PROJECT DESIGNATION FS-1 Outdoor Container Storage Area - Soil Samples		SAF NO. F15-048	DATA TURNAROUND 30 Days / 30 Days
ICE CHEST NO. GWS-426		FIELD LOGBOOK NO. HNF-N-507-31.71	ACTUAL SAMPLE DEPTH 0-12"	COA 303757	AIR QUALITY <input type="checkbox"/>
SHIPPED TO Southwest Research Institute		OFFSITE PROPERTY NO. 5869		METHOD OF SHIPMENT FEDERAL EXPRESS	
MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other		PRESERVATION Cool <=6C		BILL OF LADING/AIR BILL NO. 7742 26406510	
POSSIBLE SAMPLE HAZARDS/ REMARKS *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.		HOLDING TIME 28 Days/48 Hours			
		TYPE OF CONTAINER G/P			
		NO. OF CONTAINER(S) 1			
		VOLUME 250mL			
SPECIAL HANDLING AND/OR STORAGE		SAMPLE ANALYSIS 9056_ANIONS_ IC: COMMON (Add-on) {Formate};			
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME		
B32F22	SOIL	AUG 06 2015	0928	✓	

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME AUG 06 2015 1110	RECEIVED BY/STORED IN E.L. Kauer	DATE/TIME AUG 06 2015 1110	TRVL-15-136	
RELINQUISHED BY/REMOVED FROM E.L. Kauer	DATE/TIME AUG 06 2015 1110	RECEIVED BY/STORED IN CHPRC	DATE/TIME AUG 06 2015		
RELINQUISHED BY/REMOVED FROM FedEx	DATE/TIME 8/7/15 0830	RECEIVED BY/STORED IN FEDEX	DATE/TIME 8/7/15 0830		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
LABORATORY SECTION	RECEIVED BY ART ARGUELLO	TITLE SENIOR TECHNICIAN	DATE/TIME 08.07.15/0845		
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME		

000011

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F15-048-076	PAGE 1 OF 1
COLLECTOR F.M. Hall/CHPRC	COMPANY CONTACT TODAK, D	TELEPHONE NO. 376-6427	PROJECT COORDINATOR TODAK, D	PRICE CODE 8H	DATA TURNAROUND 30 Days / 30 Days
SAMPLING LOCATION FS-1 Closure Confirmation: Optional 5	PROJECT DESIGNATION FS-1 Outdoor Container Storage Area - Soil Samples	SAF NO. F15-048	AIR QUALITY <input type="checkbox"/>	METHOD OF SHIPMENT FEDERAL EXPRESS	
ICE CHEST NO. 625-320	FIELD LOGBOOK NO. HNF-N-507-31-71	ACTUAL SAMPLE DEPTH 0-12"	COA 303757	ORIGINAL	
SHIPPED TO Southwest Research Institute	OFFSITE PROPERTY NO. 5868	BILL OF LADING/AIR BILL NO. 7742 2537 5842			

MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	PRESERVATION Cool <=6C		
		HOLDING TIME 28 Days/48 Hours		
		TYPE OF CONTAINER G/P		
		NO. OF CONTAINER(S) 1		
		VOLUME 250mL		
SPECIAL HANDLING AND/OR STORAGE		SAMPLE ANALYSIS 9056_ANIONS, IC: COMMON (Add-on) (Formate);		
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32F25	SOIL	AUG 06 2015	0750	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME AUG 06 2015 0930	RECEIVED BY/STORED IN E.L. Kauer	DATE/TIME AUG 06 2015 0930	TRVL-15-136 Client: CH2M Hill Plateau Remediation Company SwRI SRR #55929 SwRI Project # 20933.01.006 Case: 303757 VTSR: 08/07/15 08:30 Sample(s) Received: Intact Battery Check: Y Background Check: <100 cpm (Lab 103) Cooler/Container Wipe: <100 cpm Temp.: 1.2 °C (wet ice) / SN # 021056 Total cpm-mR/h (samples): <100 cpm; <0.5 mR/hr Wipe Frisk Description: Cooler(s) - 3 (see Radioactive Material Receiving Form for more information)
RELINQUISHED BY/REMOVED FROM E.L. Kauer	DATE/TIME AUG 06 2015 1400	RECEIVED BY/STORED IN CHPRC	DATE/TIME	
RELINQUISHED BY/REMOVED FROM FEDEX	DATE/TIME 8/7/15 0830	RECEIVED BY/STORED IN FEDEX	DATE/TIME 8/7/15 0830	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY Art Arguella / ART ARGUELLO	TITLE Senior Technician	DATE/TIME 08.07.15/0845
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

000012

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F15-048-079	PAGE 1 OF 1
COLLECTOR F.M. Hall/CHPRC		COMPANY CONTACT TODAK, D	TELEPHONE NO. 376-6427	PROJECT COORDINATOR TODAK, D	PRICE CODE 8H
SAMPLING LOCATION FS-1 Closure Confirmation: Optional 6		PROJECT DESIGNATION FS-1 Outdoor Container Storage Area - Soil Samples		SAF NO. F15-048	DATA TURNAROUND 30 Days / 30 Days
ICE CHEST NO. GWS-320		FIELD LOGBOOK NO. HNF-N-507-31-67	ACTUAL SAMPLE DEPTH 0-12"	COA 303757	AIR QUALITY <input type="checkbox"/>
SHIPPED TO Southwest Research Institute		OFFSITE PROPERTY NO. 5868	BILL OF LADING/AIR BILL NO. 7742 25375842		
MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other		POSSIBLE SAMPLE HAZARDS/ REMARKS *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.		PRESERVATION Cool <=6C	
		HOLDING TIME 28 Days/48 Hours		TYPE OF CONTAINER G/P	
		NO. OF CONTAINER(S) 1		VOLUME 250mL	
		SPECIAL HANDLING AND/OR STORAGE		SAMPLE ANALYSIS 9056 ANIONS IC: COMMON (Add-on) {Formate};	

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32F28	SOIL	AUG 05 2015	1306	✓

CHAIN OF POSSESSION	SIGN/ PRINT NAMES
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	RECEIVED BY/STORED IN SSU-1
DATE/TIME AUG 05 2015 1412	DATE/TIME AUG 05 2015 1412
RELINQUISHED BY/REMOVED FROM SSU-1	RECEIVED BY/STORED IN CHPRC
DATE/TIME AUG 06 2015 0805	DATE/TIME AUG 06 2015 0805
RELINQUISHED BY/REMOVED FROM E.L. Kauer	RECEIVED BY/STORED IN FEDEX
DATE/TIME AUG 06 2015 1400	DATE/TIME
RELINQUISHED BY/REMOVED FROM CHPRC	RECEIVED BY/STORED IN
DATE/TIME 8/7/15 0830	DATE/TIME 8/7/15 0830
RELINQUISHED BY/REMOVED FROM FedEx	RECEIVED BY/STORED IN
DATE/TIME	DATE/TIME
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN
DATE/TIME	DATE/TIME
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN
DATE/TIME	DATE/TIME

SPECIAL INSTRUCTIONS
TRVL-15-136

Client: CH2M Hill Plateau Remediation Company SwRI SRR #55929
SwRI Project # 20933.01.006 Case: 303757
VTSR: 08/07/15 08:30 Sample(s) Received: Intact
Battery Check: Y Background Check: <100 cpm (Lab 103)
Cooler/Container Wipe: <100 cpm Temp.: 1.2 °C (wet ice) / SN # 021056
Total cpm-mR/h (samples): <100 cpm; <0.5 mR/hr Wipe Frisk Description: Cooler(s) - 3
(see Radioactive Material Receiving Form for more information)

LABORATORY SECTION	RECEIVED BY <i>[Signature]</i> ARGUECO	TITLE Senior Technician	DATE/TIME 08-07-15/0845
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

000013

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F15-048-082	PAGE 1 OF 1
COLLECTOR F.M. Hall/CHPRC		COMPANY CONTACT TODAK, D	TELEPHONE NO. 376-6427	PROJECT COORDINATOR TODAK, D	PRICE CODE 8H
SAMPLING LOCATION FS-1 Closure Confirmation: Optional 7		PROJECT DESIGNATION FS-1 Outdoor Container Storage Area - Soil Samples		SAF NO. F15-048	DATA TURNAROUND 30 Days / 30 Days
ICE CHEST NO. GWS-440		FIELD LOGBOOK NO. HNF-N-507-31-67	ACTUAL SAMPLE DEPTH 0-12"	COA 303757	AIR QUALITY <input type="checkbox"/>
SHIPPED TO Southwest Research Institute		OFFSITE PROPERTY NO. 5859		BILL OF LADING/AIR BILL NO. 7742 1745 3831	
MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other		PRESERVATION Cool <=6C		HOLDING TIME 28 Days/48 Hours	
POSSIBLE SAMPLE HAZARDS/ REMARKS *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.		TYPE OF CONTAINER G/P		NO. OF CONTAINER(S) 1	
SPECIAL HANDLING AND/OR STORAGE		VOLUME 250mL		SAMPLE ANALYSIS 9056 ANIONS, IC: COMMON (Add-on) {Formate};	

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B32F31	SOIL	AUG 05 2015	1105	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM F.M. Hall/CHPRC	DATE/TIME AUG 05 2015 1140	RECEIVED BY/STORED IN E.L. Kauer	DATE/TIME AUG 05 2015 1140	TRVL-15-136	
RELINQUISHED BY/REMOVED FROM E.L. Kauer	DATE/TIME AUG 05 2015 1400	RECEIVED BY/STORED IN CHPRC	DATE/TIME	Client: CH2M Hill Plateau Remediation Company SwRI SRR #55929 SwRI Project # 20933.01.006 Case: 303757 VTSR: 08/07/15 08:30 Sample(s) Received: Intact Battery Check: Y Background Check: <100 cpm (Lab 103) Cooler/Container Wipe: <100 cpm Temp.: 1.2 °C (wet ice) / SN # 021056 Total cpm-mR/h (samples): <100 cpm; <0.5 mR/hr Wipe Frisk Description: Cooler(s) - 3 (see Radioactive Material Receiving Form for more information)	
RELINQUISHED BY/REMOVED FROM FedEx	DATE/TIME 8/7/15 0830	RECEIVED BY/STORED IN FEDEX	DATE/TIME 8/7/15 0830		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		

LABORATORY SECTION	RECEIVED BY <i>Art Arguella</i> / ART ARGUELLO	TITLE SENIOR TECHNICIAN	DATE/TIME 8.7.15/0845
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

000014

SEPTEMBER 10, 2015

000015

Southwest Research Institute

Traffic Report

Sample Custodian Signature: _____



- 1. Custody Seal Present
- 2. Chain of Custody Present
- 3. Sample Tags Not Present
Sample Tag Numbers Not on COC
- 4. SMO Forms Not Present

Client: CH2M Hill Plateau Remediation Company

Project: 20933.01.006

Case: 303757 / SDG: _____

Sample Receipt: 55929

Airbill: 774217453831, 774226406510, 774225375842

Custody Seal #(s): N/A

Date Received	Time Received	COC Record	SMO Sample #	Corresponding		Traffic Rpt, Tags, COC Agree	Sample Condition
				Sample Tag #	SwRI #		
08/07/15	08:30:00	F15-048-001	B32D16	N/A	579621	YES	Intact
08/07/15	08:30:00	F15-048-004	B32D19	N/A	579622	YES	Intact
08/07/15	08:30:00	F15-048-007	B32D22	N/A	579623	YES	Intact
08/07/15	08:30:00	F15-048-010	B32D25	N/A	579624	YES	Intact
08/07/15	08:30:00	F15-048-013	B32D28	N/A	579625	YES	Intact
08/07/15	08:30:00	F15-048-016	B32D31	N/A	579626	YES	Intact
08/07/15	08:30:00	F15-048-019	B32D34	N/A	579627	YES	Intact
08/07/15	08:30:00	F15-048-022	B32D37	N/A	579628	YES	Intact
08/07/15	08:30:00	F15-048-025	B32D40	N/A	579629	YES	Intact
08/07/15	08:30:00	F15-048-028	B32D43	N/A	579630	YES	Intact
08/07/15	08:30:00	F15-048-031	B32D46	N/A	579631	YES	Intact
08/07/15	08:30:00	F15-048-034	B32D49	N/A	579632	YES	Intact
08/07/15	08:30:00	F15-048-037	B32D52	N/A	579633	YES	Intact
08/07/15	08:30:00	F15-048-040	B32D55	N/A	579634	YES	Intact
08/07/15	08:30:00	F15-048-043	B32D58	N/A	579635	YES	Intact
08/07/15	08:30:00	F15-048-046	B32D61	N/A	579636	YES	Intact
08/07/15	08:30:00	F15-048-049	B32D64	N/A	579637	YES	Intact
08/07/15	08:30:00	F15-048-052	B32D67	N/A	579638	YES	Intact
08/07/15	08:30:00	F15-048-055	B32D70	N/A	579639	YES	Intact
08/07/15	08:30:00	F15-048-058	B32D73	N/A	579640	YES	Intact
08/07/15	08:30:00	F15-048-061	B32D76	N/A	579641	YES	Intact
08/07/15	08:30:00	F15-048-064	B32DK9	N/A	579642	YES	Intact
08/07/15	08:30:00	F15-048-065	B32DLO	N/A	579643	YES	Intact
08/07/15	08:30:00	F15-048-070	B32F19	N/A	579644	YES	Intact
08/07/15	08:30:00	F15-048-073	B32F22	N/A	579645	YES	Intact
08/07/15	08:30:00	F15-048-076	B32F25	N/A	579646	YES	Intact
08/07/15	08:30:00	F15-048-079	B32F28	N/A	579647	YES	Intact
08/07/15	08:30:00	F15-048-082	B32F31	N/A	579648	YES	Intact

SAMPLE LOG-IN SHEET

Lab Name Southwest Research Institute		Page 1 of 2		
Received By (Print Name) STEVEN DOUGLAS		Log-in Date 08/07/2015		
Received By (Signature) <i>[Signature]</i>				
Case Number 303757	Sample Delivery Group No. MA	SAS Number MA		
Remarks: 20933.01.006		Remarks: Condition of Sample Shipment, etc		
	EPA Sample #	Corresponding Sample Tag #	Assigned Lab #	
1. Custody Seal(s)	<input checked="" type="checkbox"/> Present / <input type="checkbox"/> Absent* <input checked="" type="checkbox"/> Intact / <input type="checkbox"/> Broken	B32D16	N/A 579621	Intact
2. Custody Seal Nos.	N/A	B32D19	N/A 579622	Intact
		B32D22	N/A 579623	Intact
3. Chain-of-Custody Records	<input checked="" type="checkbox"/> Present / <input type="checkbox"/> Absent*	B32D25	N/A 579624	Intact
4. Traffic Reports or Packing Lists	Present <input checked="" type="checkbox"/> Absent	B32D28	N/A 579625	Intact
5. Airbill	Airbill/Sticker <input checked="" type="checkbox"/> Present / <input type="checkbox"/> Absent*	B32D31	N/A 579626	Intact
		B32D34	N/A 579627	Intact
6. Airbill No	774217453831, 774226406510, 774225375842	B32D37	N/A 579628	Intact
7. Sample Tags	Present <input checked="" type="checkbox"/> Absent	B32D40	N/A 579629	Intact
Sample Tag Numbers	Listed <input checked="" type="checkbox"/> Not listed on Chain of Custody	B32D43	N/A 579630	Intact
		B32D46	N/A 579631	Intact
8. Sample Condition	Intact / Broken* / Leaking	B32D49	N/A 579632	Intact
9. Cooler Temperature	1.2C	B32D52	N/A 579633	Intact
10. Does Information on custody records, traffic reports, and sample tags agree?	<input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No*	B32D55	N/A 579634	Intact
		B32D58	N/A 579635	Intact
11. Date Received at Lab	08/07/2015	B32D61	N/A 579636	Intact
		B32D64	N/A 579637	Intact
12. Time Received	08:30:00	B32D67	N/A 579638	Intact
		B32D70	N/A 579639	Intact
Fraction NORG	Fraction	B32D73	N/A 579640	Intact
Area # R.13	Area #	B32D76	N/A 579641	Intact
By STEVEN DOUGLAS	By	B32DK9	N/A 579642	Intact
On 08/07/2015	On	B32DL0	N/A 579643	Intact

* Contact SMO and attach record of resolution

Reviewed By <i>[Signature]</i>	Logbook No. Sample Receipt (55929)
Date 08.11.15	Logbook Page No. 9174 <i>SEC 3, 4 OF 12</i>

SAMPLE LOG-IN SHEET

Lab Name Southwest Research Institute		Page 2 of 2	
Received By (Print Name) STEVEN		Log-in Date 08/07/2015	
Received By (Signature) <i>Steven Douglas</i>			
Case Number 303757	Sample Delivery Group No NA	SAS Number NA	
Remarks: 20933.01.006			
		Corresponding	
	EPA Sample #	Sample Tag #	Assigned Lab #
1. Custody Seal(s)	<input checked="" type="radio"/> Present <input type="radio"/> Absent* <input checked="" type="radio"/> Intact <input type="radio"/> Broken	B32F19	579644
2. Custody Seal Nos	N/A	B32F22	579645
		B32F25	579646
3. Chain-of Custody Records	<input checked="" type="radio"/> Present <input type="radio"/> Absent*	B32F28	579647
4. Traffic Reports or Packing Lists	<input type="radio"/> Present <input checked="" type="radio"/> Absent	B32F31	579648
5. Airbill	Airbill/Sticker <input checked="" type="radio"/> Present <input type="radio"/> Absent*		
6. Airbill No.	774217453831, 774226406510, 774225375842		
7. Sample Tags	<input type="radio"/> Present <input checked="" type="radio"/> Absent		
Sample Tag Numbers	Listed <input checked="" type="radio"/> Not listed on Chain of Custody		
8. Sample Condition	<input checked="" type="radio"/> Intact <input type="radio"/> Broken* / <input type="radio"/> Leaking		
9. Cooler Temperature	1.2C		
10. Does Information on custody records, traffic reports, and sample tags agree?	<input checked="" type="radio"/> Yes <input type="radio"/> No*		
11. Date Received at Lab	08/07/2015		
12. Time Received	08:30:00		
Sample Transfer			
Fraction IN 25	Fraction		
Area # R.13	Area #		
By STEVEN	By		
On DOUGLAS 08/07/2015	On		

* Contact SMO and attach record of resolution

Reviewed By <i>Ant Rosillo</i>	Logbook No Sample Receipt (55929)
Date 8.11.15	Logbook Page No 9174 SEC 3, 4 of 12

**SOUTHWEST RESEARCH INSTITUTE
CLIENT: CH2M Hill Plateau Remediation
Company
TASK ORDER(s): 150807-13
SRR: 55929
SDG: 579641
CASE: F15-048
VTSR: 08.07.15
PROJECT#: 20859.01.00X**

WETCHEM ANALYSIS

SOUTHWEST RESEARCH INSTITUTE
CLIENT: CH2M Hill Plateau Remediation
Company
TASK ORDER(s): 150807-13
SRR: 55929
SDG: 579641
CASE: F15-048
VTSR: 08.07.15
PROJECT#: 20859.01.00X

SAMPLE DATA

SEPTEMBER 10, 2015
SOUTHWEST RESEARCH INSTITUTE
 WetChem Report
 Cover Page

Client: CH2M Hill Plateau Remediation Company
 Task Order: 150807-13

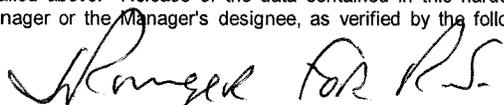
SDG: 579641
 SRR: 55929

Case: 303757
 Project: 20933.01.006

Client Sample ID	Lab Sample ID
B32D76	579641
B32D76D	579641D
B32D76MS	579641S
B32DK9	579642
B32DL0	579643
B32F19	579644
B32F22	579645
B32F25	579646
B32F28	579647
B32F31	579648

Comments:

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 above. Release of the data contained in this hardcopy data package and the electronic data submitted has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: 

Name: Radonna Spies

Date: 9/10/15

Title: Group Leader

Cover Page

SEPTEMBER 10, 2015
WetChem Report Form

B32D76

Inorganic Analyses Data Sheet

Type: Unknown

Client: CH2M Hill Plateau Remediation Company
Task Order: 150807-13
Lab ID: 579641
Result Units: mg/kg

SDG: 579641
SRR: 55929
Matrix: Soil
% Solids: 91.01

Case: 303757
Project: 20933.01.006
Receipt Date: 08/07/2015
Collection Date: 08/06/2015

CAS No.	Analyte	Result	Qual	M	RL	CRDL	DF	Prep Batch	Analysis Date/Time
64-18-6	Formic acid	0.977	U	IC1	0.977	0.977	1	20150903-A019	08/25/2015 18:59

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
J - Result is greater than or equal to the SwRI Reporting Limit (RL) and less than the Contract Required Detection Limit (CRDL)	RL - SwRI Reporting Limit	IC1 - Ion Chromatography DX 500/IC by 9056
U - Result is less than the SwRI Reporting Limit (RL)	CRDL - Contract Req. Det. Limit	NA - Not Applicable
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	
X - Analytical spike criteria was not met	M - Instrument	
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

SEPTEMBER 10, 2015
WetChem Report Form

B32DK9

Inorganic Analyses Data Sheet

Type: Unknown

Client: CH2M Hill Plateau Remediation Company
Task Order: 150807-13
Lab ID: 579642
Result Units: mg/kg

SDG: 579641
SRR: 55929
Matrix: Soil
% Solids: 97.30

Case: 303757
Project: 20933.01.006
Receipt Date: 08/07/2015
Collection Date: 08/06/2015

CAS No.	Analyte	Result	Qual	M	RL	CRDL	DF	Prep Batch	Analysis Date/Time
64-18-6	Formic acid	0.946	U	IC1	0.946	0.946	1	20150903-A019	08/25/2015 20:34

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
J - Result is greater than or equal to the SwRI Reporting Limit (RL) and less than the Contract Required Detection Limit (CRDL)	RL - SwRI Reporting Limit	IC1 - Ion Chromatography DX 500/IC by 9056
U - Result is less than the SwRI Reporting Limit (RL)	CRDL - Contract Req. Det. Limit	NA - Not Applicable
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	
X - Analytical spike criteria was not met	M - Instrument	
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

SEPTEMBER 10 2015
WetChem Report Form

B32DL0

Inorganic Analyses Data Sheet

Type: Unknown

Client: CH2M Hill Plateau Remediation Company
Task Order: 150807-13
Lab ID: 579643
Result Units: mg/kg

SDG: 579641
SRR: 55929
Matrix: Soil
% Solids: 94.58

Case: 303757
Project: 20933.01.006
Receipt Date: 08/07/2015
Collection Date: 08/06/2015

CAS No.	Analyte	Result	Qual	M	RL	CRDL	DF	Prep Batch	Analysis Date/Time
64-18-6	Formic acid	1.00	U	IC1	1.00	1.00	1	20150903-A019	08/25/2015 20:52

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
J - Result is greater than or equal to the SwRI Reporting Limit (RL) and less than the Contract Required Detection Limit (CRDL)	RL - SwRI Reporting Limit	IC1 - Ion Chromatography DX 500/IC by 9056
U - Result is less than the SwRI Reporting Limit (RL)	CRDL - Contract Req. Det. Limit	NA - Not Applicable
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	
X - Analytical spike criteria was not met	M - Instrument	
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

WetChem Report Form
 SEPTEMBER 10, 2015

B32F19

Inorganic Analyses Data Sheet

Type: Unknown

Client: CH2M Hill Plateau Remediation Company
 Task Order: 150807-13
 Lab ID: 579644
 Result Units: mg/kg

SDG: 579641
 SRR: 55929
 Matrix: Soil
 % Solids: 95.92

Case: 303757
 Project: 20933.01.006
 Receipt Date: 08/07/2015
 Collection Date: 08/06/2015

CAS No.	Analyte	Result	Qual	M	RL	CRDL	DF	Prep Batch	Analysis Date/Time
64-18-6	Formic acid	0.935	U	IC1	0.935	0.935	1	20150903-A019	08/25/2015 21:11

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
J - Result is greater than or equal to the SwRI Reporting Limit (RL) and less than the Contract Required Detection Limit (CRDL)	RL - SwRI Reporting Limit	IC1 - Ion Chromatography DX 500/IC by 9056
U - Result is less than the SwRI Reporting Limit (RL)	CRDL - Contract Req. Det. Limit	NA - Not Applicable
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	
X - Analytical spike criteria was not met	M - Instrument	
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

SEPTEMBER 10, 2015
WetChem Report Form

B32F22

Inorganic Analyses Data Sheet

Type: Unknown

Client: CH2M Hill Plateau Remediation Company
Task Order: 150807-13
Lab ID: 579645
Result Units: mg/kg

SDG: 579641
SRR: 55929
Matrix: Soil
% Solids: 91.00

Case: 303757
Project: 20933.01.006
Receipt Date: 08/07/2015
Collection Date: 08/06/2015

CAS No.	Analyte	Result	Qual	M	RL	CRDL	DF	Prep Batch	Analysis Date/Time
64-18-6	Formic acid	0.943	U	IC1	0.943	0.943	1	20150903-A019	08/25/2015 21:30

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
J - Result is greater than or equal to the SwRI Reporting Limit (RL) and less than the Contract Required Detection Limit (CRDL)	RL - SwRI Reporting Limit	IC1 - Ion Chromatography DX 500/IC by 9056
U - Result is less than the SwRI Reporting Limit (RL)	CRDL - Contract Req. Det. Limit	NA - Not Applicable
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	
X - Analytical spike criteria was not met	M - Instrument	
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

WetChem Report Form
 SEPTEMBER 10, 2015

B32F25

Inorganic Analyses Data Sheet

Type: Unknown

Client: CH2M Hill Plateau Remediation Company
 Task Order: 150807-13
 Lab ID: 579646
 Result Units: mg/kg

SDG: 579641
 SRR: 55929
 Matrix: Soil
 % Solids: 80.97

Case: 303757
 Project: 20933.01.006
 Receipt Date: 08/07/2015
 Collection Date: 08/06/2015

CAS No.	Analyte	Result	Qual	M	RL	CRDL	DF	Prep Batch	Analysis Date/Time
64-18-6	Formic acid	1.20	U	IC1	1.20	1.20	1	20150903-A019	08/25/2015 21:49

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
J - Result is greater than or equal to the SwRI Reporting Limit (RL) and less than the Contract Required Detection Limit (CRDL)	RL - SwRI Reporting Limit	IC1 - Ion Chromatography DX 500/IC by 9056
U - Result is less than the SwRI Reporting Limit (RL)	CRDL - Contract Req. Det. Limit	NA - Not Applicable
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	
X - Analytical spike criteria was not met	M - Instrument	
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

SEPTEMBER 10, 2015
WetChem Report Form

B32F28

Inorganic Analyses Data Sheet

Type: Unknown

Client: CH2M Hill Plateau Remediation Company
Task Order: 150807-13
Lab ID: 579647
Result Units: mg/kg

SDG: 579641
SRR: 55929
Matrix: Soil
% Solids: 96.61

Case: 303757
Project: 20933.01.006
Receipt Date: 08/07/2015
Collection Date: 08/06/2015

CAS No.	Analyte	Result	Qual	M	RL	CRDL	DF	Prep Batch	Analysis Date/Time
64-18-6	Formic acid	0.946	U	IC1	0.946	0.946	1	20150903-A019	08/25/2015 22:08

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
J - Result is greater than or equal to the SwRI Reporting Limit (RL) and less than the Contract Required Detection Limit (CRDL)	RL - SwRI Reporting Limit	IC1 - Ion Chromatography DX 500/IC by 9056
U - Result is less than the SwRI Reporting Limit (RL)	CRDL - Contract Req. Det. Limit	NA - Not Applicable
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	
X - Analytical spike criteria was not met	M - Instrument	
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

SEPTEMBER 10 2015
WetChem Report Form

B32F31

Inorganic Analyses Data Sheet

Type: Unknown

Client: CH2M Hill Plateau Remediation Company
Task Order: 150807-13
Lab ID: 579648
Result Units: mg/kg

SDG: 579641
SRR: 55929
Matrix: Soil
% Solids: 91.42

Case: 303757
Project: 20933.01.006
Receipt Date: 08/07/2015
Collection Date: 08/06/2015

CAS No.	Analyte	Result	Qual	M	RL	CRDL	DF	Prep Batch	Analysis Date/Time
64-18-6	Formic acid	1.07	U	IC1	1.07	1.07	1	20150903-A019	08/25/2015 22:26

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
J - Result is greater than or equal to the SwRI Reporting Limit (RL) and less than the Contract Required Detection Limit (CRDL)	RL - SwRI Reporting Limit	IC1 - Ion Chromatography DX 500/IC by 9056
U - Result is less than the SwRI Reporting Limit (RL)	CRDL - Contract Req. Det. Limit	NA - Not Applicable
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	
X - Analytical spike criteria was not met	M - Instrument	
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

Initial and Continuing Calibration Verification

Client: CH2M Hill Plateau Remediation Company
 Task Order: 150807-13
 Result Units: mg/L
 Associated Analytical Batches: 20150904-A004

SDG: 579641
 SRR: 55929
 Initial Calibration Source: See Raw Data
 Continuing Calibration Source: See Raw Data

Case: 303757
 Project: 20933.01.006

Analyte	Initial Calibration Verification				Continuing Calibration Verification						
	True	Found	%Rec	Limit	True	Found1	%Rec	Found2	%Rec	Limit	M
Formate	10.0	9.21	92.1%	90%-110%	10.0	9.27	92.7%	9.18	91.8%	90%-110%	IC1

<i>Instruments/Methods (M)</i>
IC1 - Ion Chromatography DX 500/IC by 9056
NA - Not Applicable

SEPTEMBER 10 2015

Low Level Check Standard

Client: CH2M Hill Plateau Remediation Company
 Task Order: 150807-13
 Result Units: mg/L
 Associated Analytical Batch: 20150904-A004

SDG: 579641
 SRR: 55929

Case: 303757
 Project: 20933.01.006

LLC Standards

Analyte	True	Found1	%Rec	Limit	M
Formate	0.100	0.118	118.0%	50%-150%	IC1

Instruments/Methods (M)
IC1 - Ion Chromatography DX 500/IC by 9056
NA - Not Applicable

Blanks

Client: CH2M Hill Plateau Remediation Company
 Task Order: 150807-13
 Preparation Blank Result Units: mg/Kg
 Initial/Continuing Blank Result Units: mg/L

SDG: 579641
 SRR: 55929
 Preparation Blank Matrix: Soil
 Associated Prep Batches: 20150903-A019

Case: 303757
 Project: 20933.01.006
 Associated Analytical Batches: 20150903-A006
 20150904-A004

Analyte	Preparation Blank		Initial Calibration Blank		Continuing Calibration Blank				M
	Result	Qual	Found	Qual	Found1	Qual	Found2	Qual	
Formate	0.852	U	0.100	U	0.100	U	0.100	U	IC1

Data Reporting Qualifiers (Qual)	Instruments/Methods (M)
J - Result is greater than or equal to the SwRI Reporting Limit (RL) and less than the Contract Required Detection Limit (CRDL)	IC1 - Ion Chromatography DX 500/IC by 9056 NA - Not Applicable
U - Result is less than the SwRI Reporting Limit (RL)	
N - Matrix spike and/or matrix spike duplicate criteria was not met	
X - Analytical spike criteria was not met	
E - Result is estimated due to interferences	
D - Result is reported from a dilution	
* - Duplicate criteria was not met	

Wet Chem Report Form VA
 SEPTEMBER 10, 2015

B32D76MS/MSD

Matrix Spike/Matrix Spike Duplicate Sample Recovery

Client: CH2M Hill Plateau Remediation Company
 Task Order: 150807-13
 Lab ID: 579641S
 Result Units: mg/Kg

SDG: 579641
 SRR: 55929
 Matrix: Soil
 % Solids: 91.01

Case: 303757
 Project: 20933.01.006

Analyte	Parent Sample Result	Qual	MS Result	MS Spike Added	MS %Rec	MSD Result	MSD Spike Added	MSD %Rec	%RPD	Control Limit %Rec	Control Limit %RPD	M	Note
Formic acid	0.977	U	88.1	94.4	93.3%	-	-	-	-	75%-125%	-	IC1	

Data Reporting Qualifiers (Qual)	Columns	Instruments/Methods (M)
J - Result is greater than or equal to the SwRI Reporting Limit (RL) and less than the Contract Required Detection Limit (CRDL)	M - Instrument	IC1 - Ion Chromatography DX 500/IC by 9056
U - Result is less than the SwRI Reporting Limit (RL)	MS - Matrix Spike	NA - Not Applicable
N - Matrix spike and/or matrix spike duplicate criteria was not met	MSD - Matrix Spike Duplicate	
X - Analytical spike criteria was not met	Q - Qualifier	
E - Result is estimated due to interferences	RPD - Relative Percent Difference	
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

SEPTEMBER 10 2015

B32D76D

Duplicates

Client: CH2M Hill Plateau Remediation Company
 Task Order: 150807-13
 Lab ID: 579641D
 Result Units: mg/Kg

SDG: 579641
 SRR: 55929
 Matrix: Soil
 % Solids: 91.01

Case: 303757
 Project: 20933.01.006

Analyte	Parent Sample Result	Qual	Duplicate Result	Qual	RPD	RPD Limit	Control Limit	M	Note
Formic acid	0.977	U	1.09	U	0.00%	20%	-	IC1	

Data Reporting Qualifiers (Qual)	Columns	Instruments/Method (M)
J - Result is greater than or equal to the SwRI Reporting Limit (RL) and less than the Contract Required Detection Limit (CRDL) U - Result is less than the SwRI Reporting Limit (RL) N - Matrix spike and/or matrix spike duplicate criteria was not met X - Analytical spike criteria was not met E - Result is estimated due to interferences D - Result is reported from a dilution * - Duplicate criteria was not met	M - Instrument RPD - Relative Percent Difference	IC1 - Ion Chromatography DX 500/IC by 9056 NA - Not Applicable

Form VI-IN

SEPTEMBER 10 2015

Laboratory Control Sample

Client: CH2M Hill Plateau Remediation Company
 Task Order: 150807-13
 Lab ID: LCS15J03JH2
 Result Units: mg/Kg

SDG: 579641
 SRR: 55929
 Matrix: Soil
 Associated Prep Batches: 20150903-A019

Case: 303757
 Project: 20933.01.006
 LCS Source:

Analyte	True	Found	Qual	%Rec.	Limit	M	Analysis Date/Time
Formic acid	1020	946		92.7%	90%-110%	IC1	08/25/2015 18:41

Instruments/Methods (M)
IC1 - Ion Chromatography DX 500/IC by 9056
NA - Not Applicable

Detection Limits

Client: CH2M Hill Plateau Remediation Company
Task Order: 150807-13
Result Units: mg/L

SDG: 579641
SRR: 55929
Instrument: Ion Chromatography DX 500

Case: 303757
Project: 20933.01.006

Analyte	RL	CRDL
Formate/Formic acid	0.100	0.100

Columns	
RL	- SwRI Reporting Limit
CRDL	- Contract Req. Det. Limit

Analysis Run Log

Client: CH2M Hill Plateau Remediation Company
 Task Order: 150807-13
 Analytical Batch: 20150904-A004
 Analysis Method: IC by 9056

SDG: 579641
 SRR: 55929
 Instrument: Ion Chromatography DX 500

Case: 303757
 Project: 20933.01.006
 Start Date: 08/25/2015
 End Date: 08/25/2015

Lab Sample ID	Client Sample ID	Time	DF	F O
ICV	ICV	16:10	1	X
ICB	ICB	16:29	1	X
LLC	NA	16:48	1	X
PB15J03JH6	NA	18:22	1	X
LCS15J03JH2	NA	18:41	1	X
579641	B32D76	18:59	1	X
579641D	B32D76D	19:18	1	X
579641S	B32D76MS	19:37	1	X
CCV	CCV	19:56	1	X
CCB	CCB	20:15	1	X
579642	B32DK9	20:34	1	X
579643	B32DL0	20:52	1	X
579644	B32F19	21:11	1	X
579645	B32F22	21:30	1	X
579646	B32F25	21:49	1	X
579647	B32F28	22:08	1	X
579648	B32F31	22:26	1	X
CCV2	CCV2	23:23	1	X
CCB2	CCB2	23:42	1	X

Analysis Run Log

Client: CH2M Hill Plateau Remediation Company
 Task Order: 150807-13
 Analytical Batch: 20150903-A006
 Analysis Method: %Solids

SDG: 579641
 SRR: 55929
 Instrument:

Case: 303757
 Project: 20933.01.006
 Start Date: 09/03/2015
 End Date: 09/03/2015

Lab Sample ID	Client Sample ID	Time	DF	FO
PB15J03JH2	NA	11:00	1	
579641	B32D76	11:00	1	
579641D	B32D76D	11:00	1	
579642	B32DK9	11:00	1	
579643	B32DL0	11:00	1	
579644	B32F19	11:00	1	
579645	B32F22	11:00	1	
579646	B32F25	11:00	1	
579647	B32F28	11:00	1	
579648	B32F31	11:00	1	

Preparation/Digestion Summary

Client: CH2M Hill Plateau Remediation Company
Task Order: 150807-13

SDG: 579641
SRR: 55929

Case: 303757
Project: 20933.01.006

Prep Batch	Method	Preparation Date
20150903-A017	%Solids	09/03/2015
20150903-A019	IC by 9056	09/03/2015

Digestion Log

010022

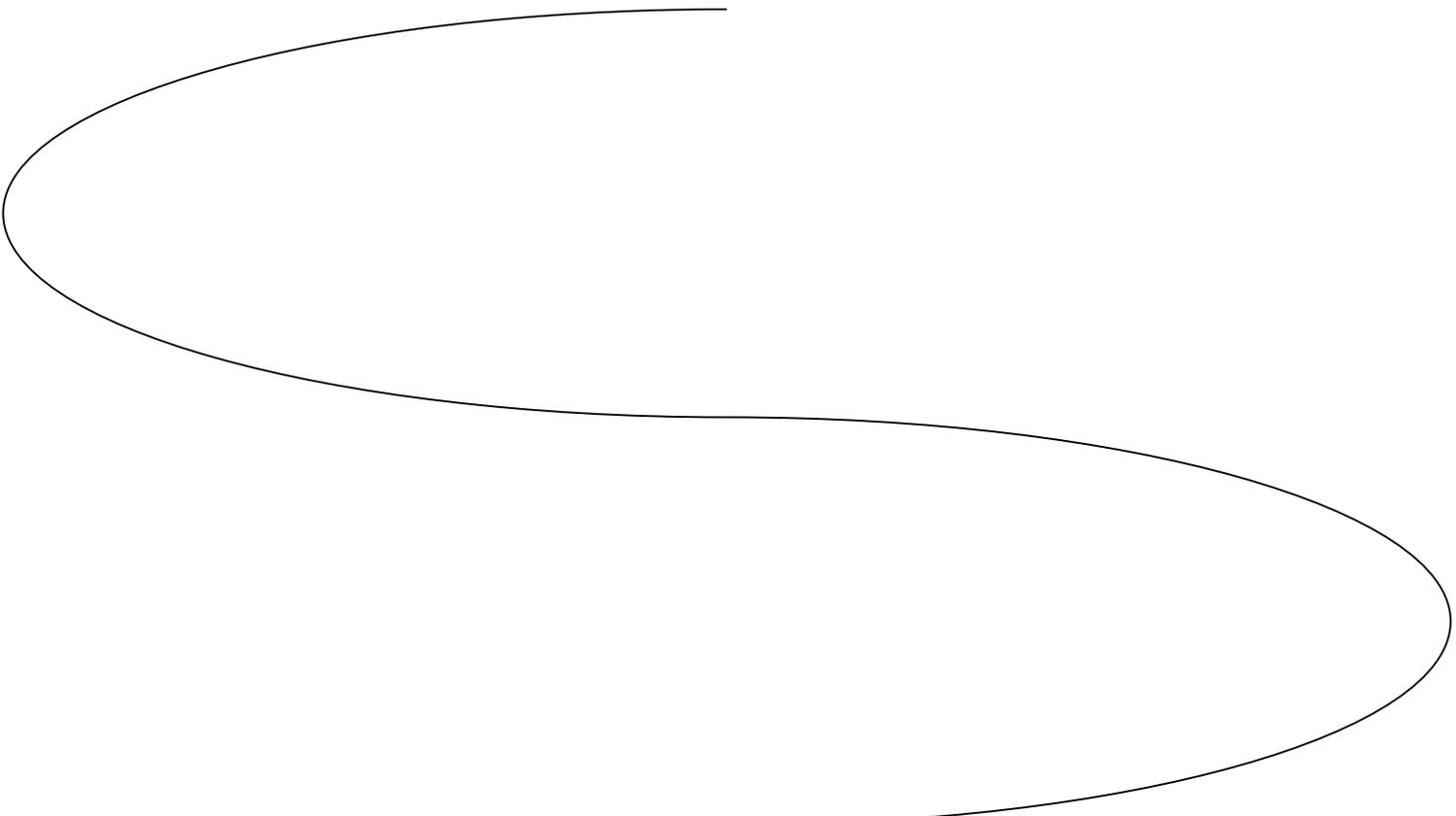
Southwest Research Institute
San Antonio, Texas 78228

Batch: 20150903-A017 (Ver. 1)
Status: APPROVED

Client(s): CH2M Hill Plateau Remediation Company
Task Order(s): 150807-13
SDG(s): 579641
Project(s): 20933.01.00X
Matrix(s): Soil
Balance(s): 135
Heating Device: Oven #31 Temperature (C): NA
Time In: NA Time Out: NA

<u>Sample Identification</u>	<u>Client Identification</u>	<u>Tare Wt (g)</u>	<u>WetSample+TareWt (g)</u>	<u>DriedSample+TareWt (g)</u>	<u>%Solids (%)</u>
PB15J03JH4	NA	0.9895	0.9895	0.9894	
579641	B32D76	1.0138	11.2839	10.3610	91.01
579641D	B32D76	1.0184	11.3712	10.4374	90.98
579642	B32DK9	1.0181	11.2052	10.9304	97.30
579643	B32DL0	1.0040	11.3762	10.8138	94.58
579644	B32F19	0.9859	11.2791	10.8589	95.92
579645	B32F22	0.9907	11.1106	10.2002	91.00
579646	B32F25	1.0007	11.5792	9.5662	80.97
579647	B32F28	1.0224	11.1585	10.8152	96.61
579648	B32F31	1.0120	11.2162	10.3403	91.42

Comments: NA



Prepared by: HERRERA, JUDY

Date: 09/03/2015

Reviewed by: MOKEN, JAMES

Date: 09/04/2015

Disposal Int/Date/Loc: _____

Digestion Log

010023

Southwest Research Institute
San Antonio, Texas 78228

Batch: 20150903-A019 (Ver. 1)
Status: APPROVED

Client(s): CH2M Hill Plateau Remediation Company
Task Order(s): 150807-13, 150807-12
SDG(s): 579641, 579621
Project(s): 20933.01.00X
Method(s): IC by 9056 (TAP: TAP-01-0406-042)
Matrix(s): Soil
Pipette(s): 5000-3, 1000-1, 200-H
Time In: NA Time Out: NA

<u>Sample Identification</u>	<u>Client Identification</u>	<u>Initial Weight (g)</u>	<u>Final Volume (mL)</u>
PB15J03JH6	NA	1.2	10
LCS15J03JH2 *	NA	0.1	10
579641	B32D76	1.15	10
579641D	B32D76	1.03	10
579641MS *	B32D76	1.190	10
579642	B32DK9	1.1102	10
579643	B32DL0	1.0764	10
579644	B32F19	1.1399	10
579645	B32F22	1.1917	10
579646	B32F25	1.0522	10
579647	B32F28	1.1185	10
579648	B32F31	1.0483	10
579621MS *	B32D16	1.1437	10
579640	B32D73	1.0583	10

* spiked .1 mL of 27-04-WCS11 (ChemInv# , Source: , Exp: 09/04/2016)

Comments: NA

Prepared by: HERRERA, JUDY

Date: 09/03/2015

Reviewed by: MOKEN, JAMES

Date: 09/04/2015

Disposal Int/Date/Loc: _____

SOUTHWEST RESEARCH INSTITUTE
CLIENT: CH2M Hill Plateau Remediation
Company
TASK ORDER(s): 150807-13
SRR: 55929
SDG: 579641
CASE: F15-048
VTSR: 08.07.15
PROJECT#: 20859.01.00X

RAW DATA

Client: CH2M Hill Plateau Remediation Company
 SDG: 579641
 SwRI Project Number: 20933.01.006
 SwRI Task Order Number(s): 150807-13

Sample Calculation Sheet

IC, SW 846 9056A

A = Analyte Result (ug/L)

Final Result (mg/kg) = A X (1 mg/1000 ug) X (46 g/mol / 45 g/mol) X (Final Volume (mL) / Initial Weight) X
 %Solids)

Conversion Factor of Formate to Formic Acid = 46/45

RSS 9/18/15

5796415

$$9330 \frac{\mu\text{g}}{\text{L}} \times \frac{1 \text{ mg}}{1000 \mu\text{g}} \times \frac{46 \text{ g/mol}}{45 \text{ g/mol}} \times \frac{10 \text{ mL}}{1.190 \text{ g}} \times \frac{100\%}{91.01\%} = 88.1 \text{ mg/kg formic Acid}$$

% Solids

A = Tare Weight (g)

B = Dried Sample + Tare Weight (g)

C = Wet Sample + Tare Weight (g)

B = 9.1815 g

$$\% \text{ Solids} = \left[\frac{B - A}{C - A} \right] \times 100\%$$

579641

$$\left[\frac{(10.3610 \text{ g} - 1.0138 \text{ g})}{(11.2839 \text{ g} - 1.0138 \text{ g})} \right] \times 100 = 91.01\%$$

Southwest Research Institute
San Antonio, Texas 78228

Batch: 20150904-A004 (Ver. 2)
Status: COMPLETED

Limit: IC 9056A
Analysis Method: IC 9056A (TAP: TAP-01-0406-042)
Instrument: IC DX500
Data File Name: 150825.csv
Analyte Test: IC 9056A
Start Time: 08/25/2015 16:10:39
Stop Time: 08/25/2015 23:42:10
Task Order: 150807-13, 150807-12
Project: 20933.01.00X
Customer: CH2M Hill Plateau Remediation Company
SDG: 579641, 579621
Qualifier Set: Default

Sample Identification	Client Identification	Formate/Formic acid		
		Analyte Result (ug/L)	Final Result (mg/Kg)	RL (mg/Kg)
ICV ^	NA	9210	9.41 (mg/L)	0.102 (mg/L)
ICB	NA	0.00 U	0.100 U (mg/L)	0.102 (mg/L)
LLC ^^	NA	118	0.121 (mg/L)	0.102 (mg/L)
PB15J03JH6 +	NA	0.00 U	0.852 U	0.852
LCS15J03JH2 +	NA	9250	946	10.2
579641 ++	B32D76	0.00 U	0.977 U	0.977
579641D ++	B32D76	0.00 U	1.09 U	1.09
579641S ++	B32D76	9330	88.1	0.944
CCV ^	NA	9270	9.48 (mg/L)	0.102 (mg/L)
CCB	NA	0.00 U	0.100 U (mg/L)	0.102 (mg/L)
579642 ++	B32DK9	0.00 U	0.946 U	0.946
579643 ++	B32DL0	0.00 U	1.00 U	1.00
579644 ++	B32F19	0.00 U	0.935 U	0.935
579645 ++	B32F22	0.00 U	0.943 U	0.943
579646 ++	B32F25	89.3 U	1.20 U	1.20
579647 ++	B32F28	0.00 U	0.946 U	0.946
579648 ++	B32F31	0.00 U	1.07 U	1.07
579640 +++	B32D73	0.00 U	0.00931 U	0.00931
579621S +++	B32D16	9230	85.3	0.924
CCV2 ^	NA	9180	9.38 (mg/L)	0.102 (mg/L)
CCB2	NA	0.00 U	0.100 U (mg/L)	0.102 (mg/L)

^ spiked .05 mL of 27-04-WCS11 (ChemInv# UNDEFINED, Source: UNDEFINED, Exp:) at 1000
^^ spiked .0005 mL of 27-04-WCS11 (ChemInv# UNDEFINED, Source: UNDEFINED, Exp:) at 1000

+ prepared in batch 20150903-A019
++ prepared in batch 20150903-A017
+++ prepared in batch 20150903-A016

Comments: NA

U - Result is less than the SwRI Reporting Limit (RL)

Prepared by: HERRERA, JUDY

Date: 08/25/2015

Reviewed by: MOKEN, JAMES

Date: 9/4/15

SEPTEMBER 10, 2015

010027

Line	Sample	Sample Type	Level	Method	Data File	Dilution
1	ICV	Sample		ice-as1_formate_150810.met	150825_001.dxd	1
2	ICB	Sample		ice-as1_formate_150810.met	150825_002.dxd	1
3	LLC	Sample		ice-as1_formate_150810.met	150825_003.dxd	1
4	LOD	Sample		ice-as1_formate_150810.met	150825_004.dxd	1
5	LOQ1	Sample		ice-as1_formate_150810.met	150825_005.dxd	1
6	LOQ2	Sample		ice-as1_formate_150810.met	150825_006.dxd	1
7	LOQ3	Sample		ice-as1_formate_150810.met	150825_007.dxd	1
8	PB <i>22-00114*</i>	Sample		ice-as1_formate_150810.met	150825_008.dxd	1
9	LCS <i>22-00114*</i>	Sample		ice-as1_formate_150810.met	150825_009.dxd	1
10	579641	Sample		ice-as1_formate_150810.met	150825_010.dxd	1
11	579641D	Sample		ice-as1_formate_150810.met	150825_011.dxd	1
12	579641S	Sample		ice-as1_formate_150810.met	150825_012.dxd	1
13	CCV	Sample		ice-as1_formate_150810.met	150825_013.dxd	1
14	CCB	Sample		ice-as1_formate_150810.met	150825_014.dxd	1
15	579642	Sample		ice-as1_formate_150810.met	150825_015.dxd	1
16	579643	Sample		ice-as1_formate_150810.met	150825_016.dxd	1
17	579644	Sample		ice-as1_formate_150810.met	150825_017.dxd	1
18	579645	Sample		ice-as1_formate_150810.met	150825_018.dxd	1
19	579646	Sample		ice-as1_formate_150810.met	150825_019.dxd	1
20	579647	Sample		ice-as1_formate_150810.met	150825_020.dxd	1
21	579648	Sample		ice-as1_formate_150810.met	150825_021.dxd	1
22	579640	Sample		ice-as1_formate_150810.met	150825_022.dxd	1
23	579621S	Sample		ice-as1_formate_150810.met	150825_023.dxd	1
24	CCV2	Sample		ice-as1_formate_150810.met	150825_024.dxd	1
25	CCB2	Sample		ice-as1_formate_150810.met	150825_025.dxd	1
26	STOP	Sample		astop.met	150825	1



Default Method Path: C:\PEAKNET\METHOD.ACI
 Default Data Path: C:\PEAKNET\DATA\150825
 Comment: *W08/28/15 gdc*
 CH2M Hill Plateau Remediation Company, ~~20033.01.006~~, TO# 150807-12
20859.01.006

"M" INDICATES MANUAL INTEGRATION

ICV:
~~27-04-10-10~~ *WCSII TE 9/19/15 gdc*
 T.V. = 10 ppm

LLC:
~~27-04-10-10~~ *WCSII TE 9/19/15 gdc*
 T.V. = 0.100 ppm

EP:
 5000-3
 1000-1
 200-H

** C108/28/15 gdc*
() sample should read 579 -- C108/28/15 gdc*

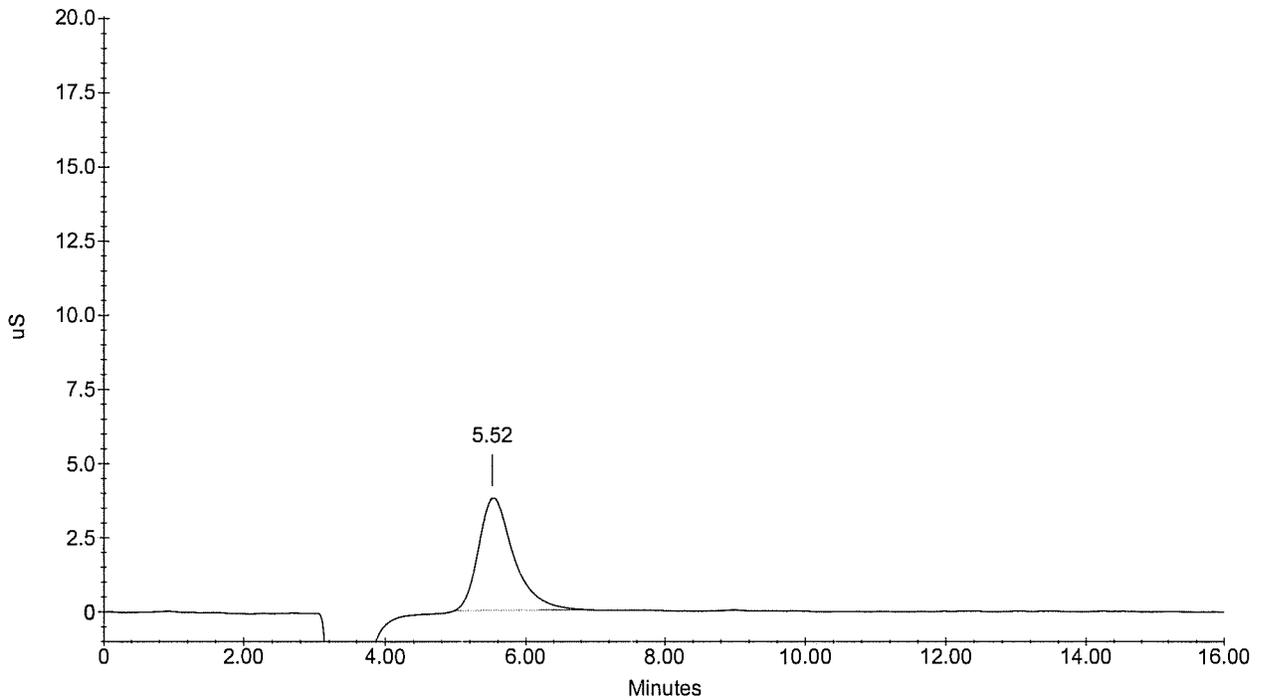
*Jenny Meryc
 8/26/15*

Sample Name : ICV
 Dilution Factor : 1.00
 Injection Number : 1
 Data File Name : ...150825_001.DXD
 Method File Name : ...ICE-AS1_FORMATE_150810.MET
 Schedule File Name : C:\PeakNet\schedule\25AUG15.sch

Date Time Collected : 8/25/2015 4:10:39 PM
 System Name : White Dionex
 Detector Name : PED-Cond.
 Column Type : AS14# 010-04-080
 System Operator :

Peak Information : All Components								
Pk. Num	Ret Time	Component Name	Conc., ug/L	Height	Area	BI. Code	%Delta	
1	5.52	FORMATE	9206.919	3764761	131900033	1	-0.54	
			---total(s)---					
0.00			9206.919	131900033				

ICV

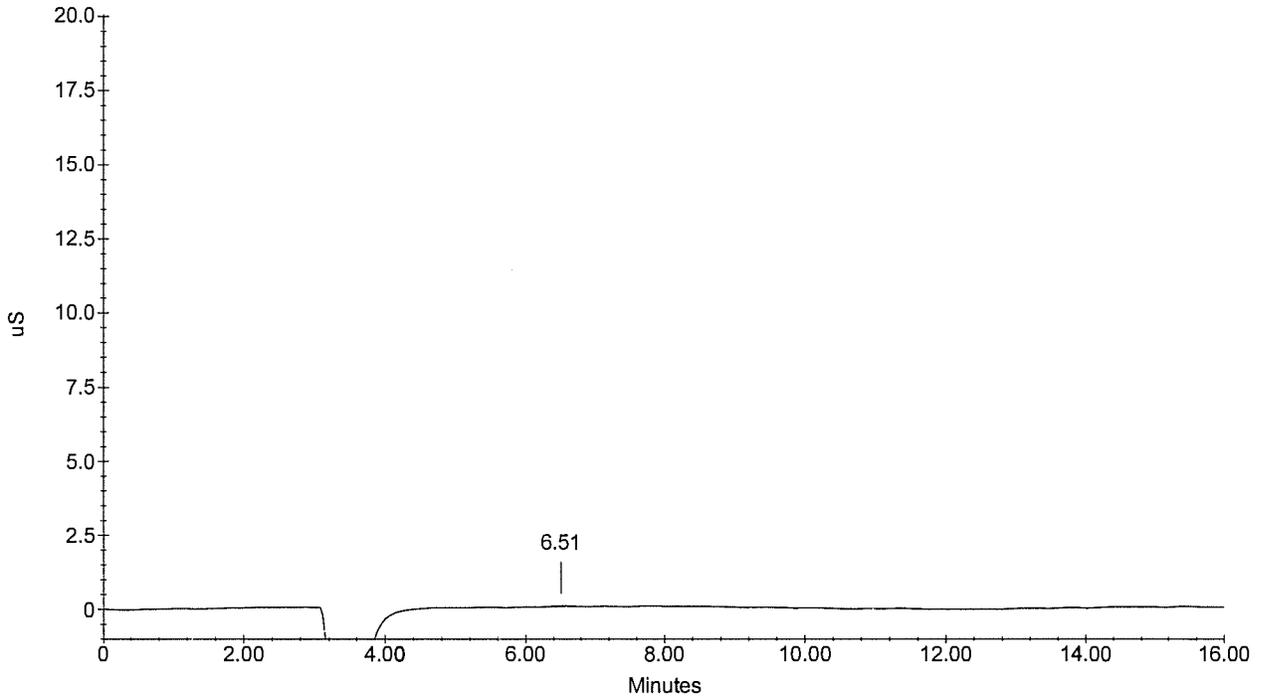


Sample Name : ICB
Dilution Factor : 1.00
Injection Number : 2
Data File Name : ...\\150825_002.DXD
Method File Name : ...\\ICE-AS1_FORMATE_150810.MET
Schedule File Name : C:\\PeakNet\\schedule\\25AUG15.sch

Date Time Collected : 8/25/2015 4:29:27 PM
System Name : White Dionex
Detector Name : PED-Cond.
Column Type : AS14# 010-04-080
System Operator :

Peak Information : All Components								
Pk. Num	Ret Time	Component Name	Conc., ug/L	Height	Area	Bl. Code	%Delta	
1	6.51		0.000	37540	822167	1		
			---total(s)---					
0.00			0.000	822167				

ICB

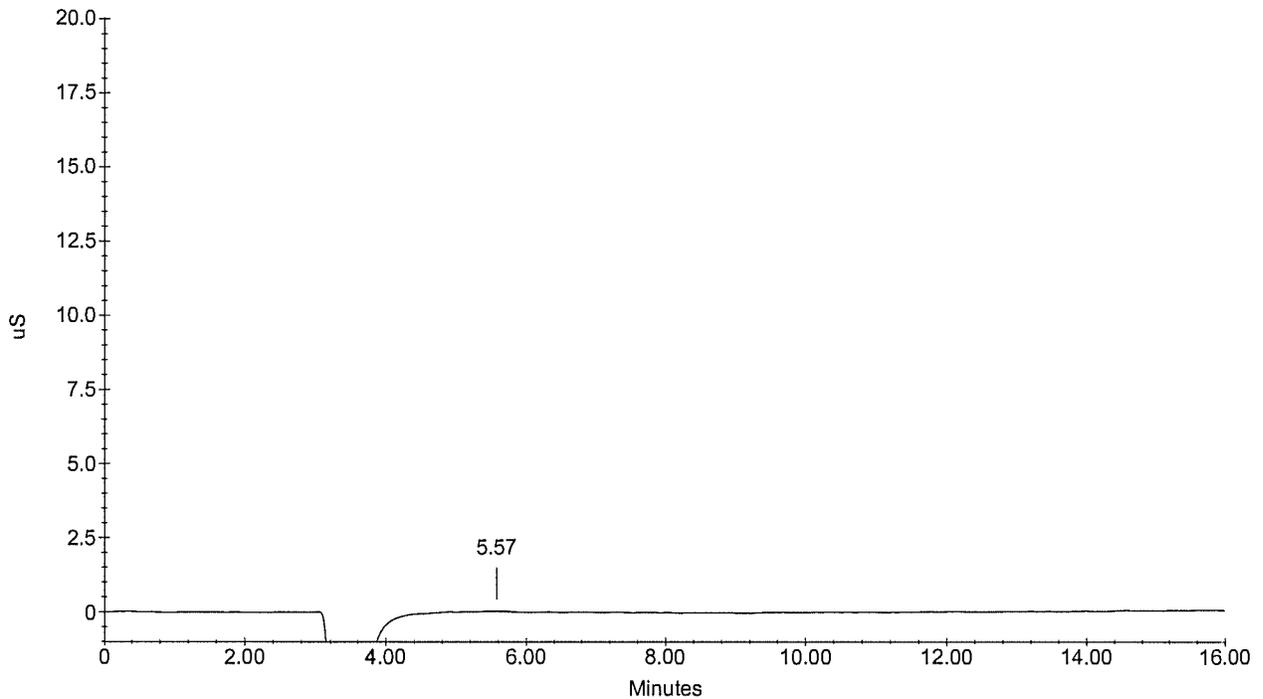


Sample Name : LLC
 Dilution Factor : 1.00
 Injection Number : 3
 Data File Name : ...\\150825_003.DXD
 Method File Name : ...\\ICE-AS1_FORMATE_150810.MET
 Schedule File Name : C:\\PeakNet\\schedule\\25AUG15.sch

Date Time Collected : 8/25/2015 4:48:16 PM
 System Name : White Dionex
 Detector Name : PED-Cond.
 Column Type : AS14# 010-04-080
 System Operator :

Peak Information : All Components								
Pk. Num	Ret Time	Component Name	Conc., ug/L	Height	Area	BI. Code	%Delta	
1	5.57	FORMATE	117.774	38007	858349	1	0.42	
					---total(s)---			
			0.00	117.774	858349			

LLC

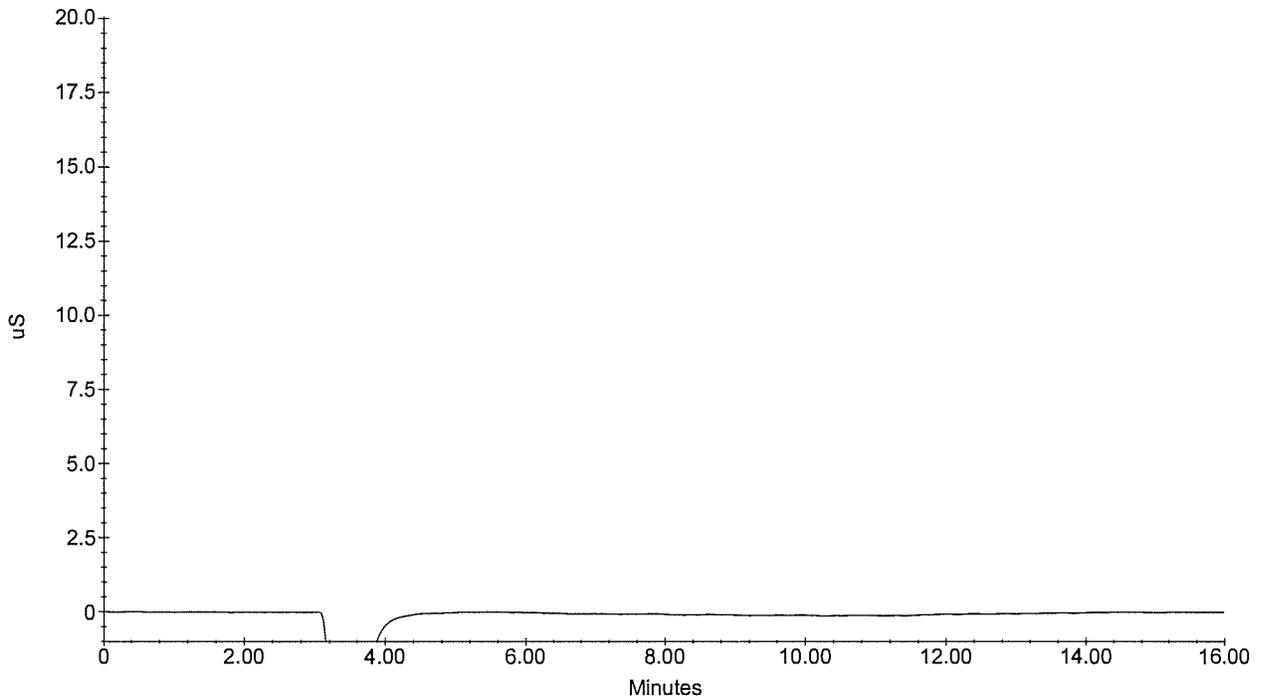


Sample Name : LOD
Dilution Factor : 1.00
Injection Number : 4
Data File Name : ...\\150825_004.DXD
Method File Name : ...\\ICE-AS1_FORMATE_150810.MET
Schedule File Name : C:\\PeakNet\\schedule\\25AUG15.sch

Date Time Collected : 8/25/2015 5:07:05 PM
System Name : White Dionex
Detector Name : PED-Cond.
Column Type : AS14# 010-04-080
System Operator :

Peak Information : All Components								
Pk. Num	Ret Time	Component Name	Conc., ug/L	Height	Area	Bl. Code	%Delta	
0	0.00	(null)	0.000	0	0	0	0.00	
			---total(s)---					
0.00			0.000			0		

LOD

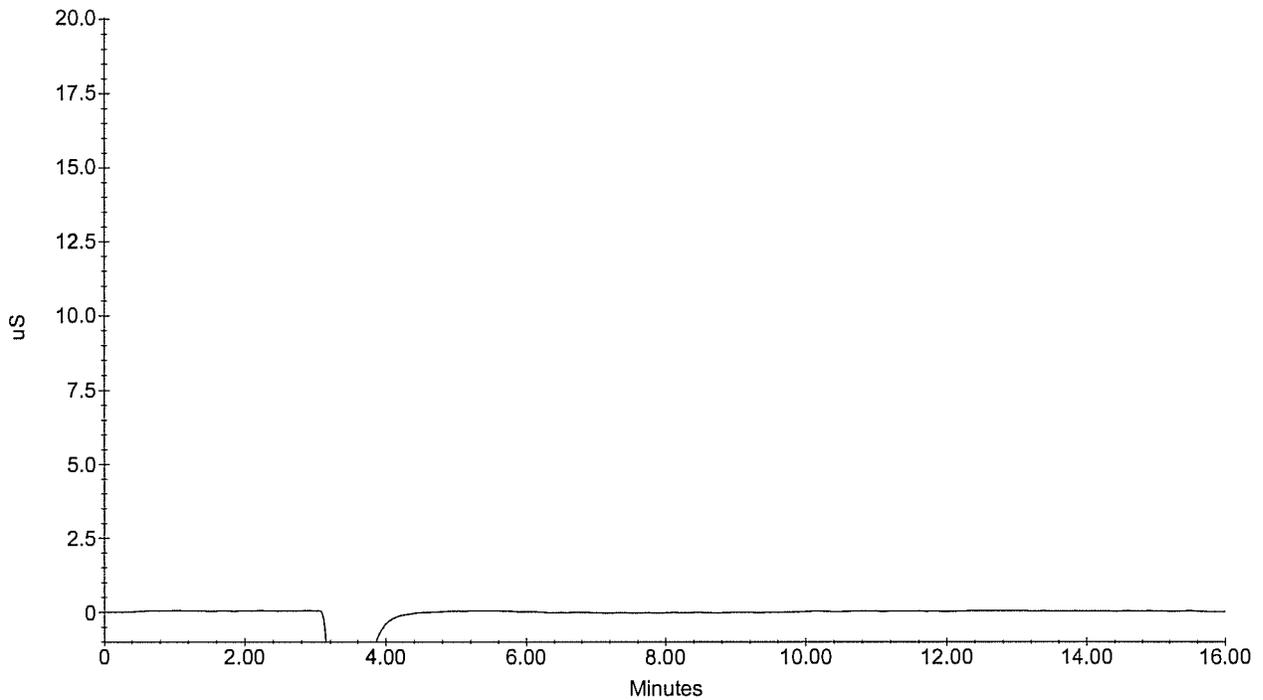


Sample Name : LOQ1
Dilution Factor : 1.00
Injection Number : 5
Data File Name : ...150825_005.DXD
Method File Name : ...ICE-AS1_FORMATE_150810.MET
Schedule File Name : C:\PeakNet\schedule\25AUG15.sch

Date Time Collected : 8/25/2015 5:25:54 PM
System Name : White Dionex
Detector Name : PED-Cond.
Column Type : AS14# 010-04-080
System Operator :

Peak Information : All Components								
Pk. Num	Ret Time	Component Name	Conc., ug/L	Height	Area	Bl. Code	%Delta	
0	0.00	(null)	0.000	0	0	0	0.00	
			---total(s)---					
0.00			0.000			0		

LOQ1

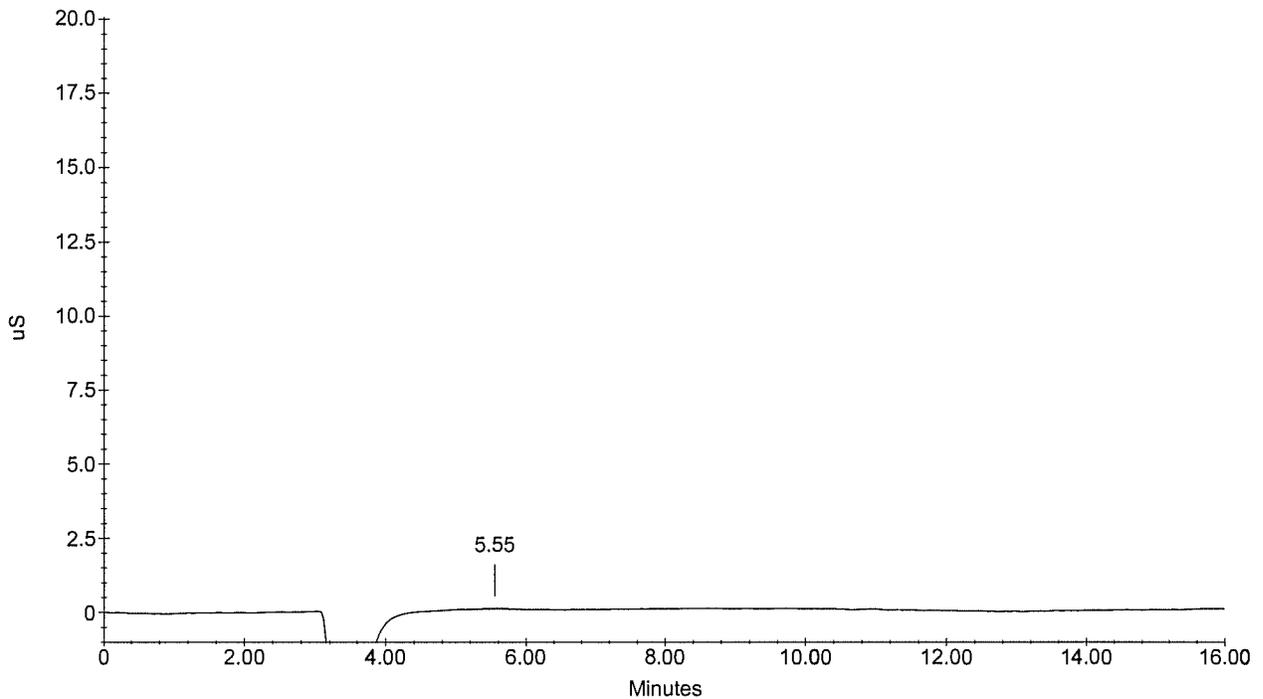


Sample Name : LOQ2
 Dilution Factor : 1.00
 Injection Number : 6
 Data File Name : ...\\150825_006.DXD
 Method File Name : ...\\ICE-AS1_FORMATE_150810.MET
 Schedule File Name : C:\\PeakNet\\schedule\\25AUG15.sch

Date Time Collected : 8/25/2015 5:44:43 PM
 System Name : White Dionex
 Detector Name : PED-Cond.
 Column Type : AS14# 010-04-080
 System Operator :

Peak Information : All Components								
Pk. Num	Ret Time	Component Name	Conc., ug/L	Height	Area	Bl. Code	%Delta	
1	5.55	FORMATE	124.845	40898	960178	1	-0.06	
					---total(s)---			
0.00				124.845	960178			

LOQ2

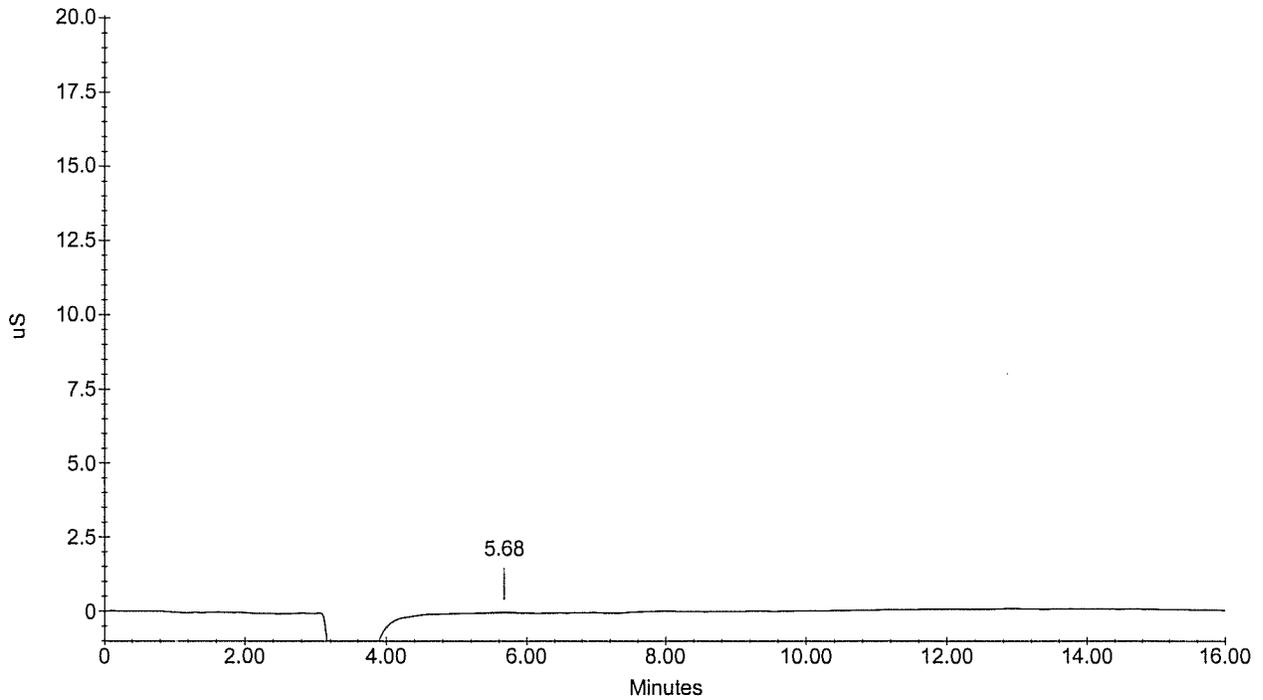


Sample Name : LOQ3
 Dilution Factor : 1.00
 Injection Number : 7
 Data File Name : ...\\150825_007.DXD
 Method File Name : ...\\ICE-AS1_FORMATE_150810.MET
 Schedule File Name : C:\\PeakNet\\schedule\\25AUG15.sch

Date Time Collected : 8/25/2015 6:03:31 PM
 System Name : White Dionex
 Detector Name : PED-Cond.
 Column Type : AS14# 010-04-080
 System Operator :

Peak Information : All Components								
Pk. Num	Ret Time	Component Name	Conc., ug/L	Height	Area	BI. Code	%Delta	
1	5.68	FORMATE	132.456	38883	1069784	1	2.34	
			---total(s)---					
0.00			132.456	1069784				

LOQ3

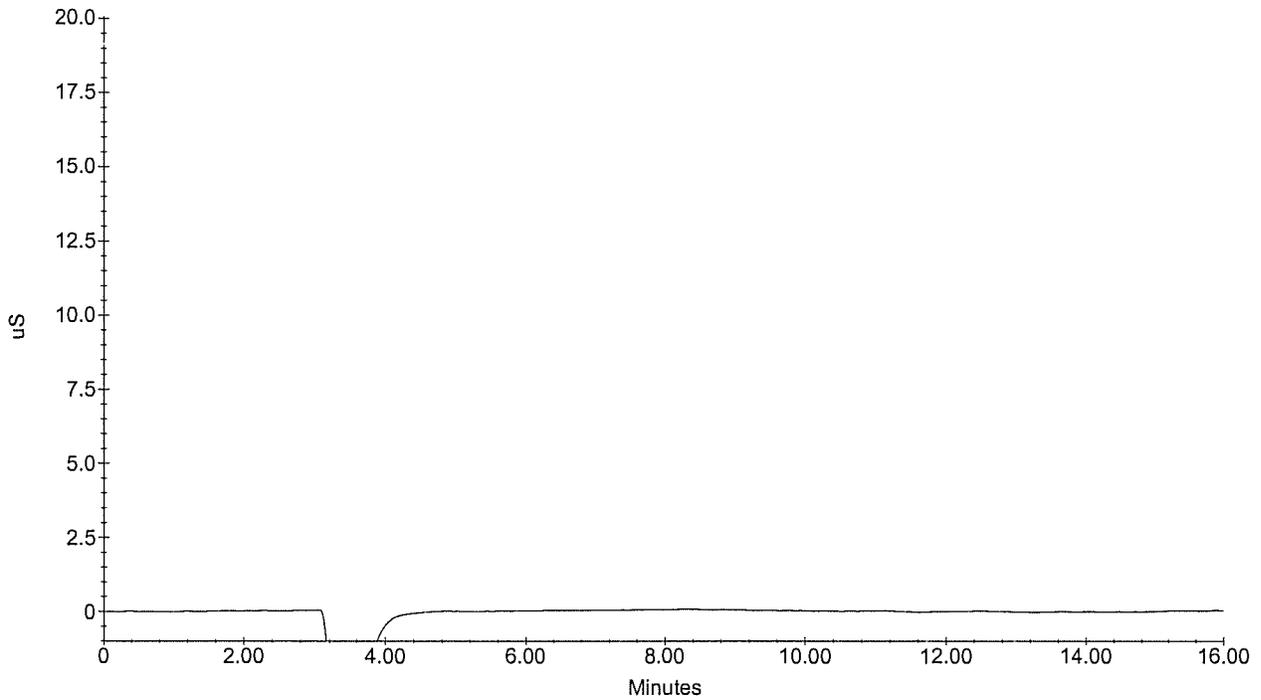


Sample Name : PB
 Dilution Factor : 1.00
 Injection Number : 8
 Data File Name : ...150825_008.DXD
 Method File Name : ...ICE-AS1_FORMATE_150810.MET
 Schedule File Name : C:\PeakNet\schedule\25AUG15.sch

Date Time Collected : 8/25/2015 6:22:20 PM
 System Name : White Dionex
 Detector Name : PED-Cond.
 Column Type : AS14# 010-04-080
 System Operator :

Peak Information : All Components								
Pk. Num	Ret Time	Component Name	Conc., ug/L	Height	Area	Bl. Code	%Delta	
0	0.00	(null)	0.000	0	0	0	0.00	
			---total(s)---					
			0.000			0		

PB 22-00114*



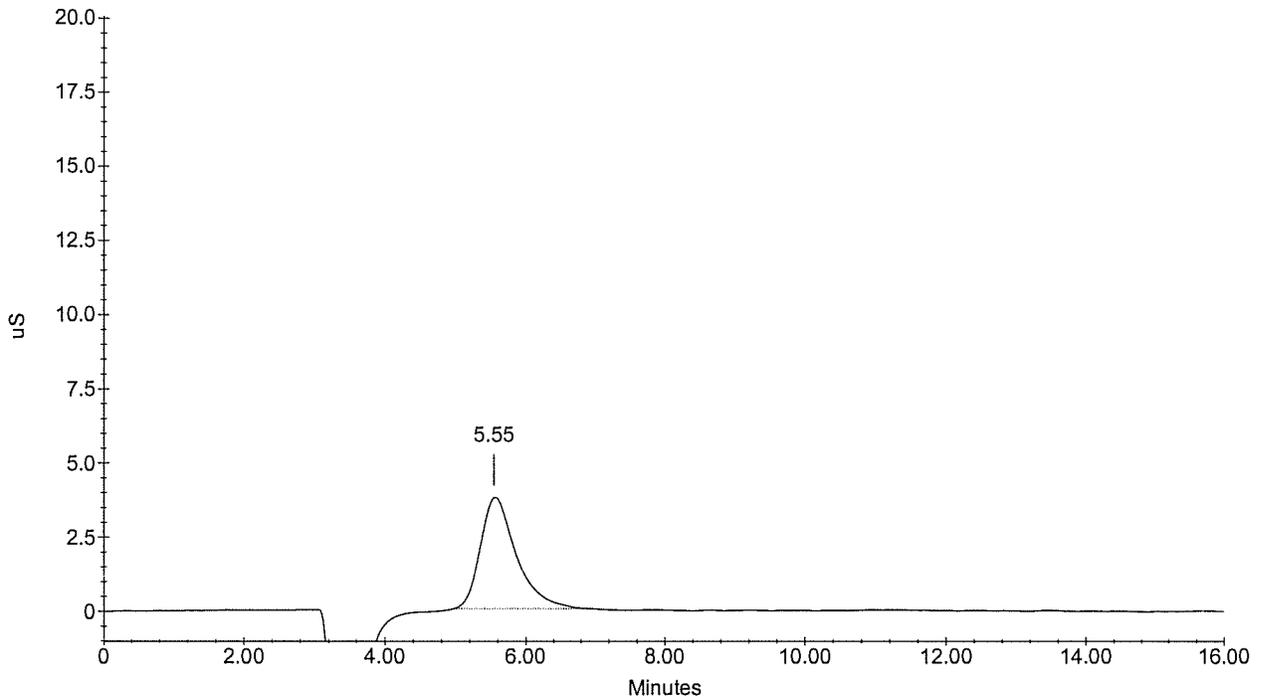
* Cl 08/28/15 gcu

Sample Name : LCS
Dilution Factor : 1.00
Injection Number : 9
Data File Name : ...150825_009.DXD
Method File Name : ...ICE-AS1_FORMATE_150810.MET
Schedule File Name : C:\PeakNet\schedule\25AUG15.sch

Date Time Collected : 8/25/2015 6:41:09 PM
System Name : White Dionex
Detector Name : PED-Cond.
Column Type : AS14# 010-04-080
System Operator :

Peak Information : All Components								
Pk. Num	Ret Time	Component Name	Conc., ug/L	Height	Area	BI. Code	%Delta	
1	5.55	FORMATE	9247.112	3713146	132480166	1	-0.06	
			---total(s)---					
0.00			9247.112	132480166				

LCS 02-00114*



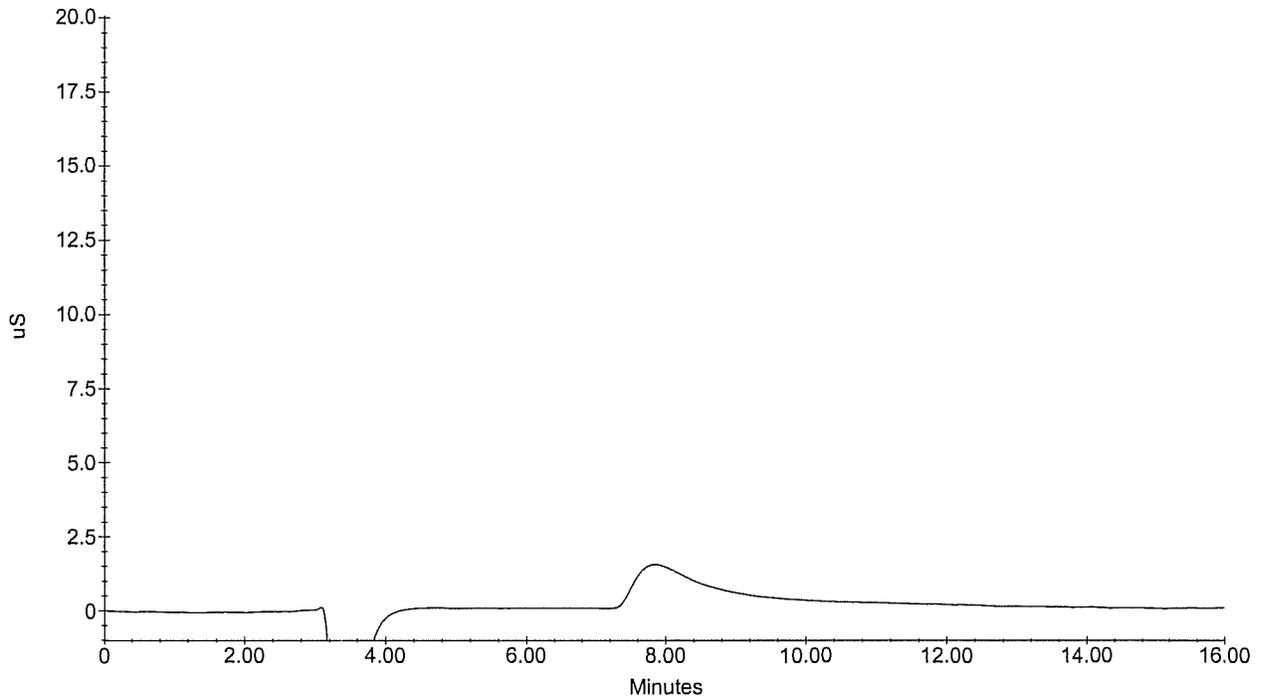
*cl 08/28/15 gclm

Sample Name : 579641
Dilution Factor : 1.00
Injection Number : 10
Data File Name : ...150825_010.DXD
Method File Name : ...ICE-AS1_FORMATE_150810.MET
Schedule File Name : C:\PeakNet\schedule\25AUG15.sch

Date Time Collected : 8/25/2015 6:59:58 PM
System Name : White Dionex
Detector Name : PED-Cond.
Column Type : AS14# 010-04-080
System Operator :

Peak Information : All Components								
Pk. Num	Ret Time	Component Name	Conc., ug/L	Height	Area	BI. Code	%Delta	
0	0.00	(null)	0.000	0	0	0	0.00	
			---total(s)---					
0.00			0.000			0		

579641

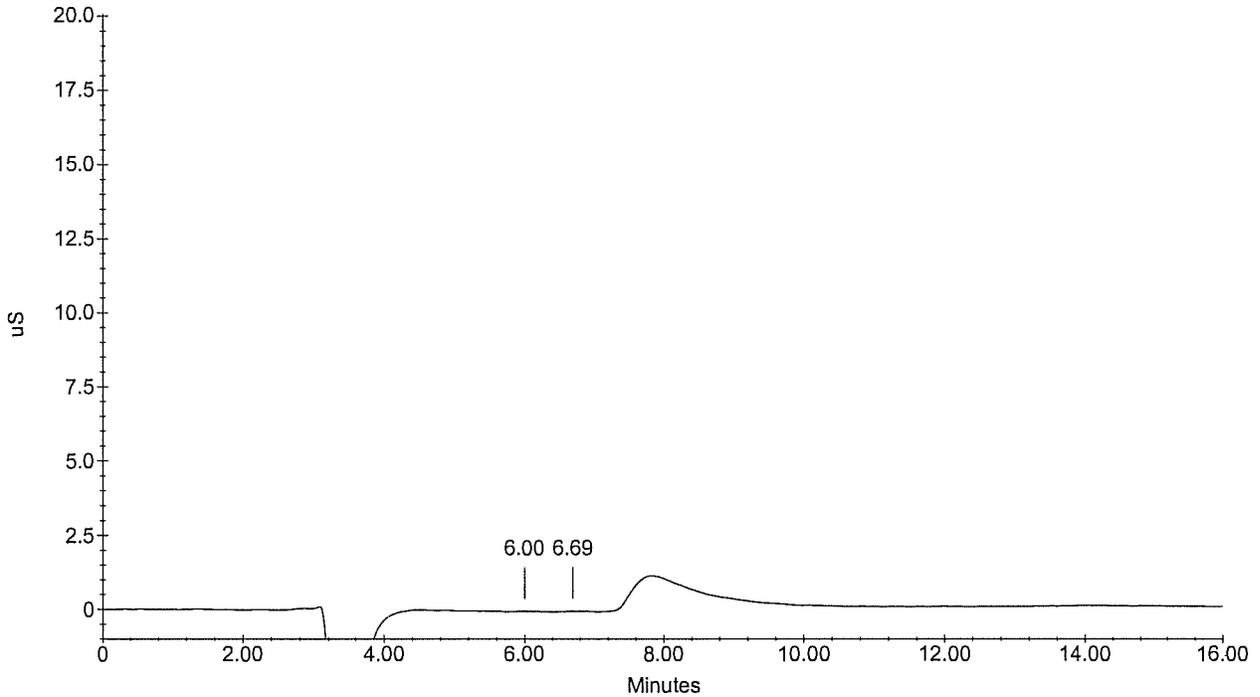


Sample Name : 579641D
Dilution Factor : 1.00
Injection Number : 11
Data File Name : ...\\150825_011.DXD
Method File Name : ...\\ICE-AS1_FORMATE_150810.MET
Schedule File Name : C:\\PeakNet\\schedule\\25AUG15.sch

Date Time Collected : 8/25/2015 7:18:47 PM
System Name : White Dionex
Detector Name : PED-Cond.
Column Type : AS14# 010-04-080
System Operator :

Peak Information : All Components								
Pk. Num	Ret Time	Component Name	Conc., ug/L	Height	Area	BI. Code	%Delta	
1	6.00		0.000	26707	609809	1		
			---total(s)---					
0.00			0.000			609809		

579641D

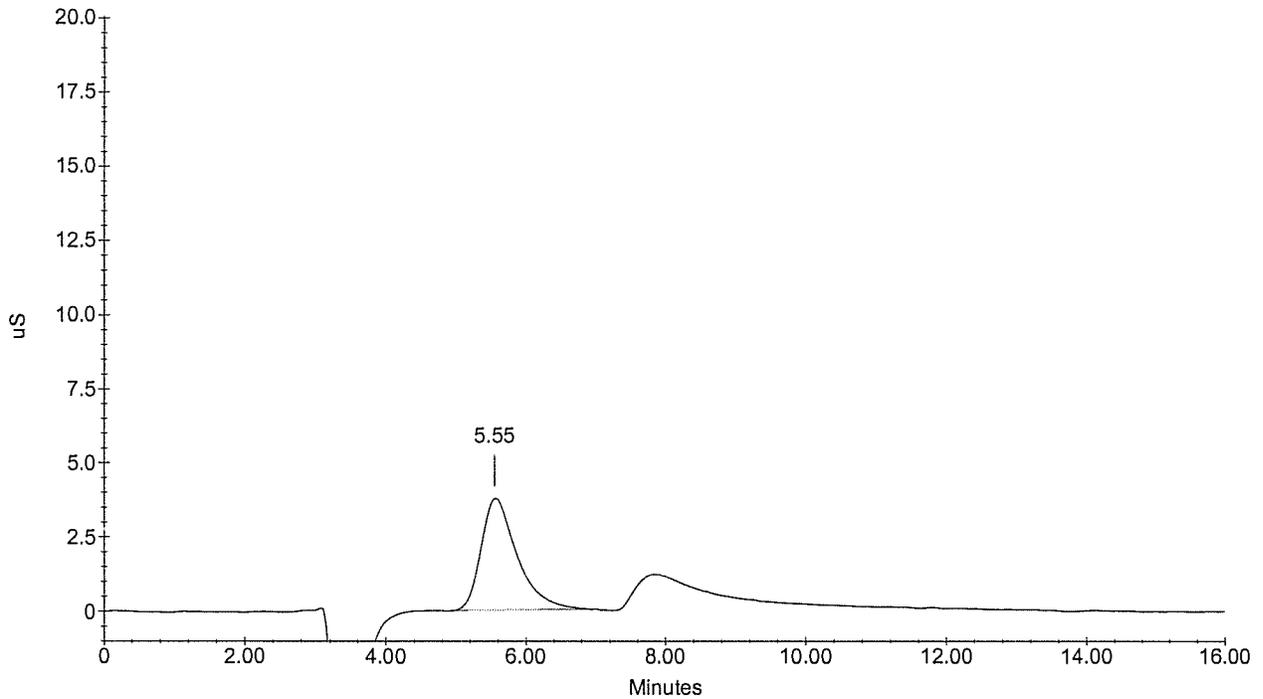


Sample Name : 579641S
Dilution Factor : 1.00
Injection Number : 12
Data File Name : ...\\150825_012.DXD
Method File Name : ...\\ICE-AS1_FORMATE_150810.MET
Schedule File Name : C:\\PeakNet\\schedule\\25AUG15.sch

Date Time Collected : 8/25/2015 7:37:36 PM
System Name : White Dionex
Detector Name : PED-Cond.
Column Type : AS14# 010-04-080
System Operator :

Peak Information : All Components								
Pk. Num	Ret Time	Component Name	Conc., ug/L	Height	Area	BI. Code	%Delta	
1	5.55	FORMATE	9325.048	3722408	133605095	1	-0.06	
			---total(s)---					
0.00			9325.048	133605095				

579641S

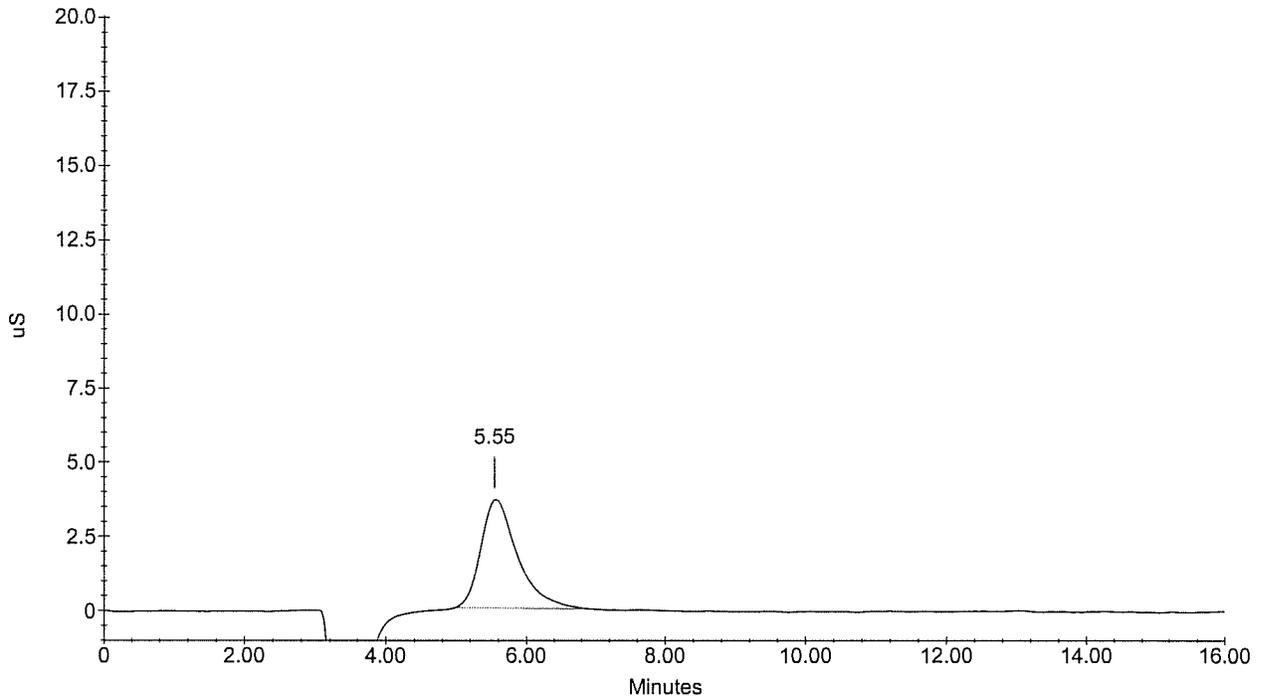


Sample Name : CCV
 Dilution Factor : 1.00
 Injection Number : 13
 Data File Name : ...\\150825_013.DXD
 Method File Name : ...\\ICE-AS1_FORMATE_150810.MET
 Schedule File Name : C:\\PeakNet\\schedule\\25AUG15.sch

Date Time Collected : 8/25/2015 7:56:24 PM
 System Name : White Dionex
 Detector Name : PED-Cond.
 Column Type : AS14# 010-04-080
 System Operator :

Peak Information : All Components								
Pk. Num	Ret Time	Component Name	Conc., ug/L	Height	Area	BI. Code	%Delta	
1	5.55	FORMATE	9265.673	3619177	132748069	1	-0.06	
			---total(s)---					
0.00			9265.673		132748069			

CCV

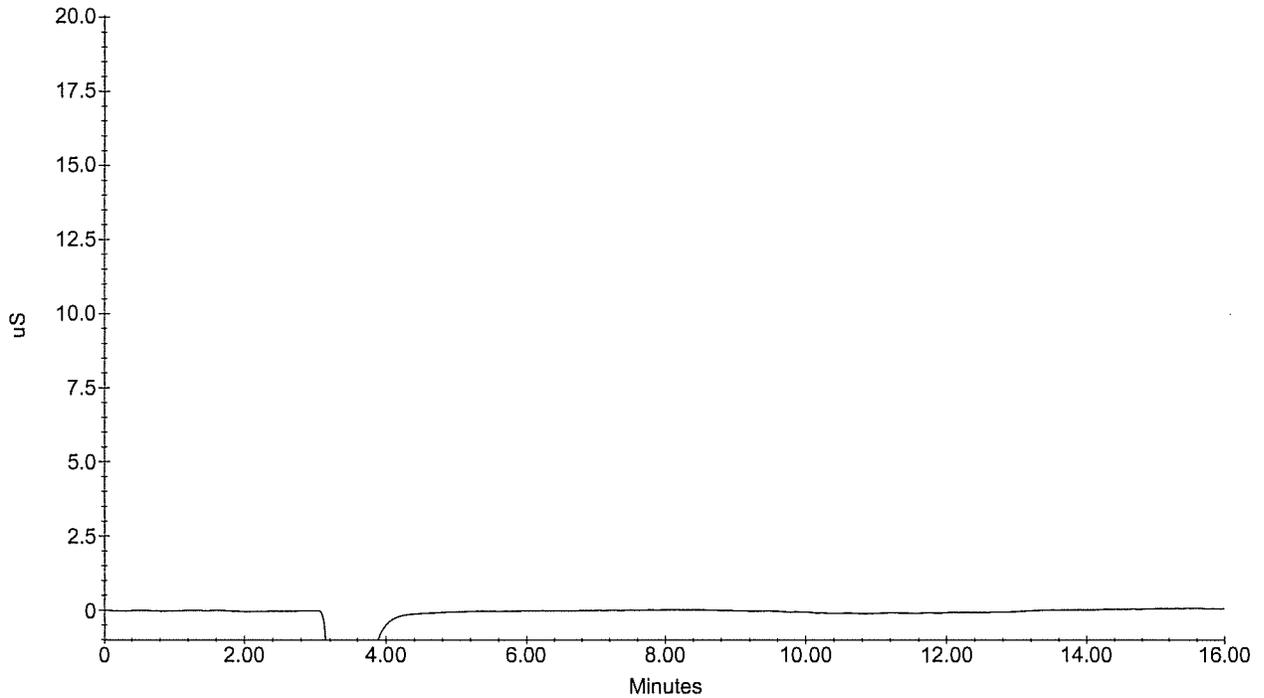


Sample Name : CCB
Dilution Factor : 1.00
Injection Number : 14
Data File Name : ...\\150825_014.DXD
Method File Name : ...\\ICE-AS1_FORMATE_150810.MET
Schedule File Name : C:\\PeakNet\\schedule\\25AUG15.sch

Date Time Collected : 8/25/2015 8:15:13 PM
System Name : White Dionex
Detector Name : PED-Cond.
Column Type : AS14# 010-04-080
System Operator :

Peak Information : All Components							
Pk. Num	Ret Time	Component Name	Conc., ug/L	Height	Area	Bl. Code	%Delta
0	0.00	(null)	0.000	0	0 0		0.00
			---total(s)---				
0.00			0.000			0	

CCB

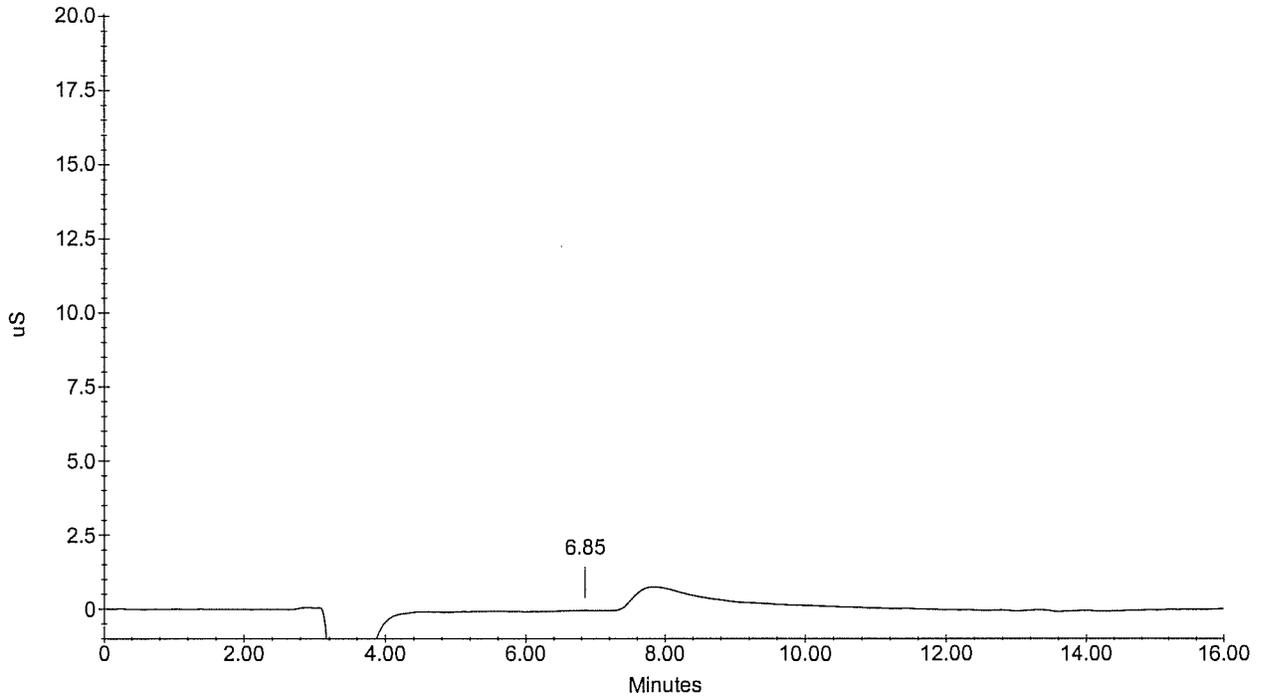


Sample Name : 576642
Dilution Factor : 1.00
Injection Number : 15
Data File Name : ...\\150825_015.DXD
Method File Name : ...\\ICE-AS1_FORMATE_150810.MET
Schedule File Name : C:\\PeakNet\\schedule\\25AUG15.sch

Date Time Collected : 8/25/2015 8:34:02 PM
System Name : White Dionex
Detector Name : PED-Cond.
Column Type : AS14# 010-04-080
System Operator :

Peak Information : All Components							
Pk. Num	Ret Time	Component Name	Conc., ug/L	Height	Area	BI. Code	%Delta
1	6.85		0.000	5310	315028	1	
	0.00		---0.000		315028		

9 TC 8/28/15 JCL
576642

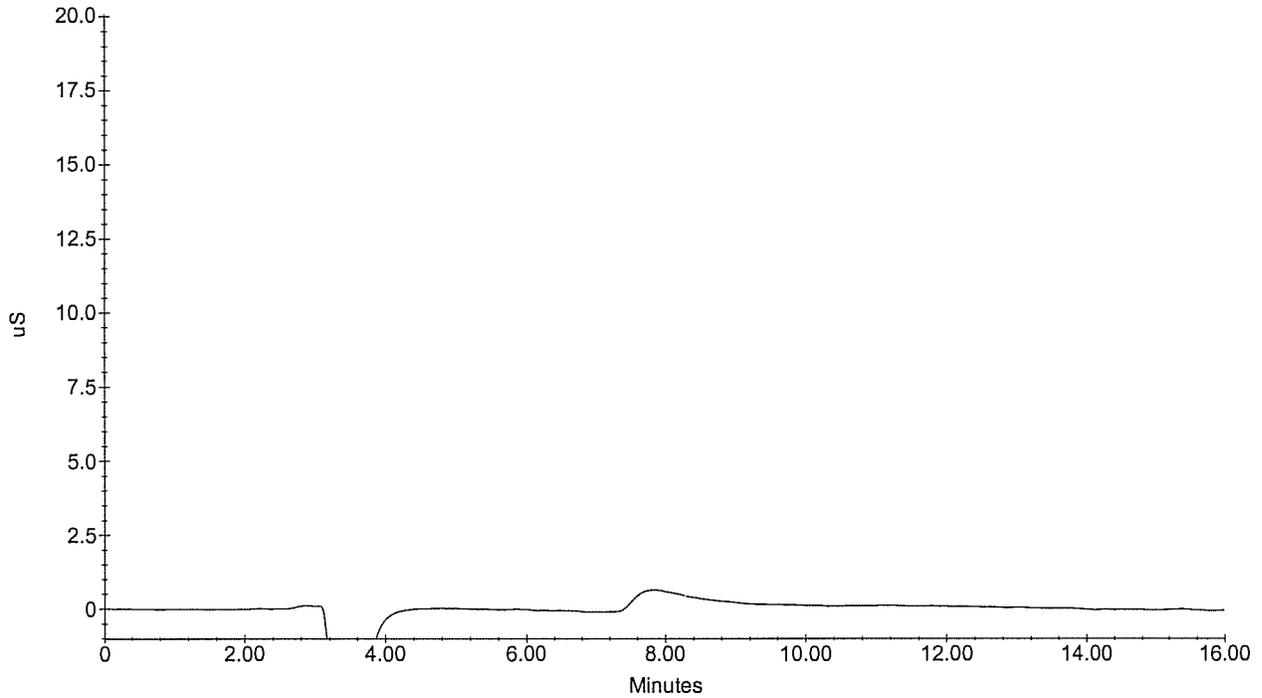


Sample Name : 576643
Dilution Factor : 1.00
Injection Number : 16
Data File Name : ...150825_016.DXD
Method File Name : ...NICE-AS1_FORMATE_150810.MET
Schedule File Name : C:\PeakNet\schedule\25AUG15.sch

Date Time Collected : 8/25/2015 8:52:51 PM
System Name : White Dionex
Detector Name : PED-Cond.
Column Type : AS14# 010-04-080
System Operator :

Peak Information : All Components								
Pk. Num	Ret Time	Component Name	Conc., ug/L	Height	Area	Bl. Code	%Delta	
0	0.00	(null)	0.000	0	0 0		0.00	
				---total(s)---				
				0.000				
				0				

576643
a TE 8/28/15 gcl

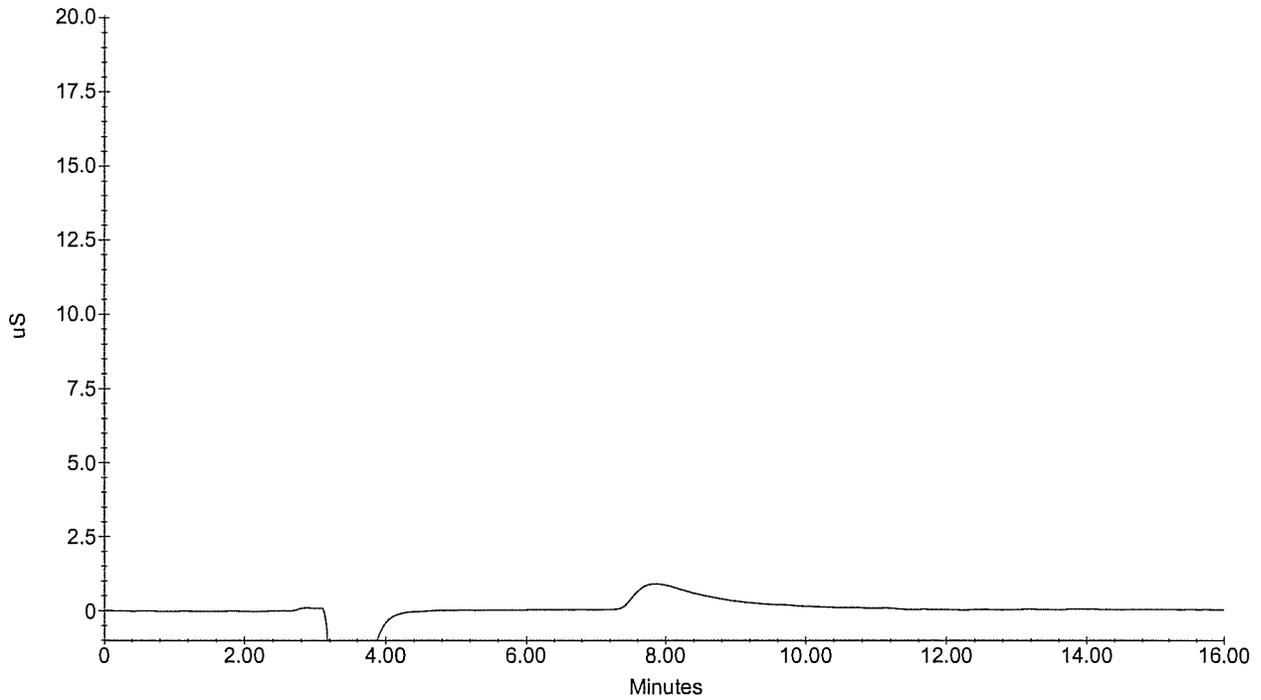


Sample Name : 576644
Dilution Factor : 1.00
Injection Number : 17
Data File Name : ...\\150825_017.DXD
Method File Name : ...\\ICE-AS1_FORMATE_150810.MET
Schedule File Name : C:\\PeakNet\\schedule\\25AUG15.sch

Date Time Collected : 8/25/2015 9:11:40 PM
System Name : White Dionex
Detector Name : PED-Cond.
Column Type : AS14# 010-04-080
System Operator :

Peak Information : All Components								
Pk. Num	Ret Time	Component Name	Conc., ug/L	Height	Area	BI. Code	%Delta	
0	0.00	(null)	0.000	0	0	0	0.00	
				---total(s)---				
				0.000				

9 TE 8/28/15 gcu
576644

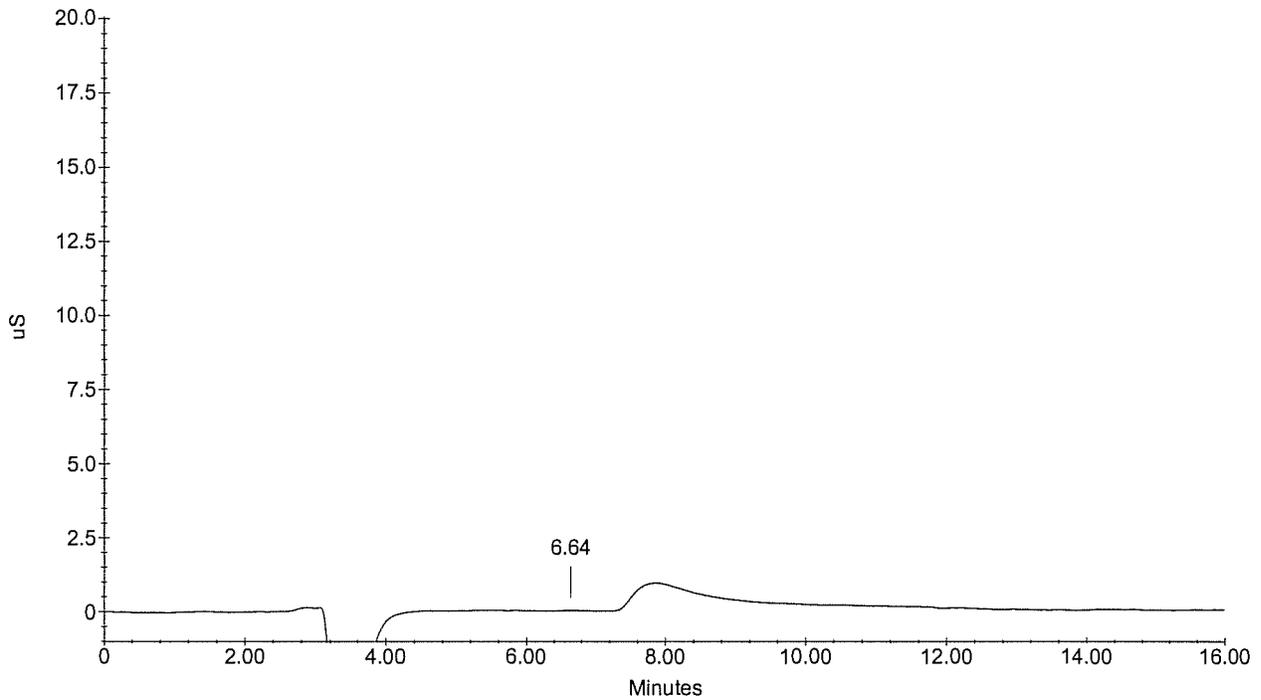


Sample Name : 576645
Dilution Factor : 1.00
Injection Number : 18
Data File Name : ...\\150825_018.DXD
Method File Name : ...\\ICE-AS1_FORMATE_150810.MET
Schedule File Name : C:\\PeakNet\\schedule\\25AUG15.sch

Date Time Collected : 8/25/2015 9:30:28 PM
System Name : White Dionex
Detector Name : PED-Cond.
Column Type : AS14# 010-04-080
System Operator :

Peak Information : All Components								
Pk. Num	Ret Time	Component Name	Conc., ug/L	Height	Area	BI. Code	%Delta	
1	6.64		0.000	16134	289645	1		
			0.00	---0.000	289645			

9 TE 8/28/15 JLL
576645



Sample Name : 576646
Dilution Factor : 1.00
Injection Number : 19
Data File Name : ...\\150825_019.DXD
Method File Name : ...\\ICE-AS1_FORMATE_150810.MET
Schedule File Name : C:\\PeakNet\\schedule\\25AUG15.sch

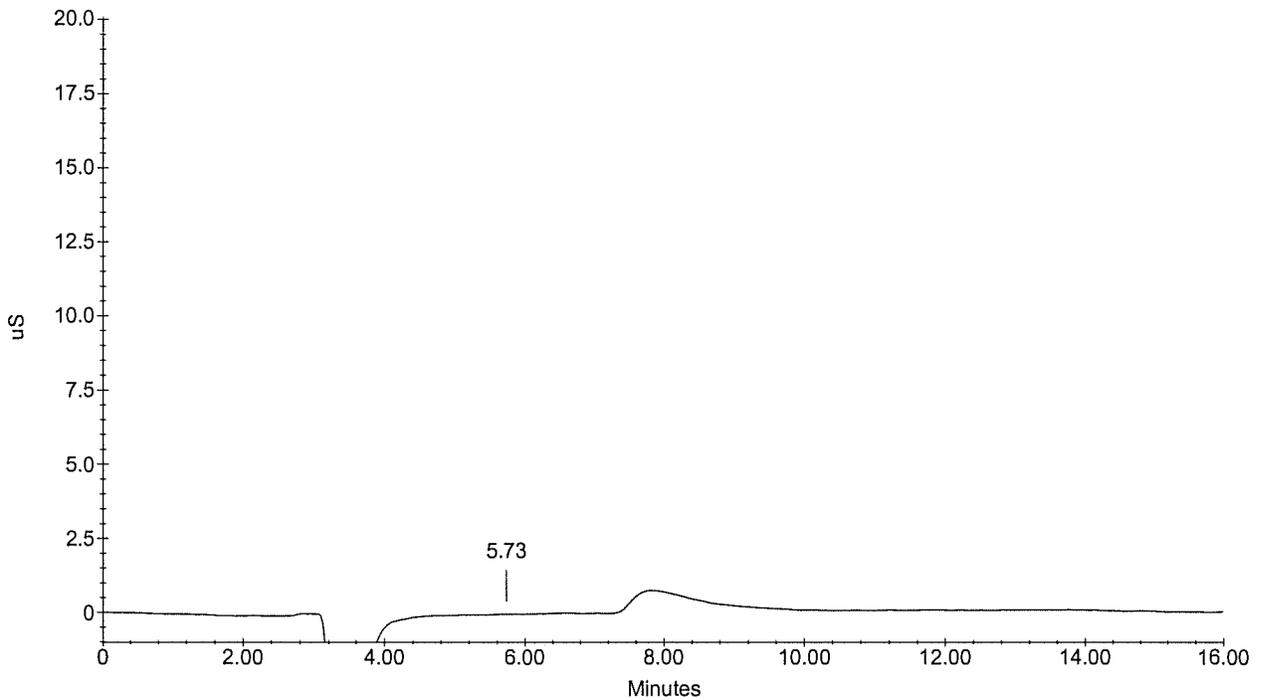
Date Time Collected : 8/25/2015 9:49:17 PM
System Name : White Dionex
Detector Name : PED-Cond.
Column Type : AS14# 010-04-080
System Operator :

Peak Information : All Components								
Pk. Num	Ret Time	Component Name	Conc., ug/L	Height	Area	Bl. Code	%Delta	
1	5.73	FORMATE	89.280	25442	447996	1	3.30	

0.00 ---total(s)---
89.280 447996

9 TE 8/28/15 gdu

576646



Sample Name : 576647
Dilution Factor : 1.00
Injection Number : 20
Data File Name : ...\\150825_020.DXD
Method File Name : ...\\ICE-AS1_FORMATE_150810.MET
Schedule File Name : C:\\PeakNet\\schedule\\25AUG15.sch

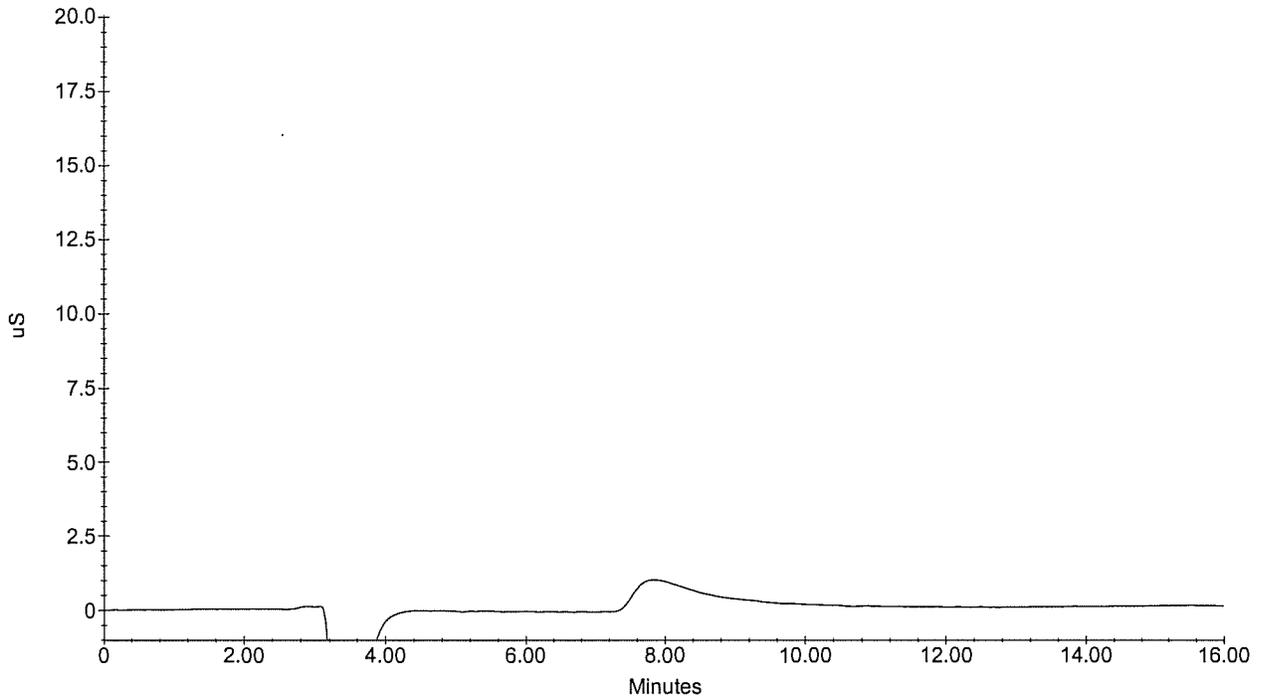
Date Time Collected : 8/25/2015 10:08:06 PM
System Name : White Dionex
Detector Name : PED-Cond.
Column Type : AS14# 010-04-080
System Operator :

Peak Information : All Components								
Pk. Num	Ret Time	Component Name	Conc., ug/L	Height	Area	BI. Code	%Delta	
0	0.00	(null)	0.000	0	0	0	0.00	

---total(s)---
0.000

9 TE 8/28/15 gcu

576647



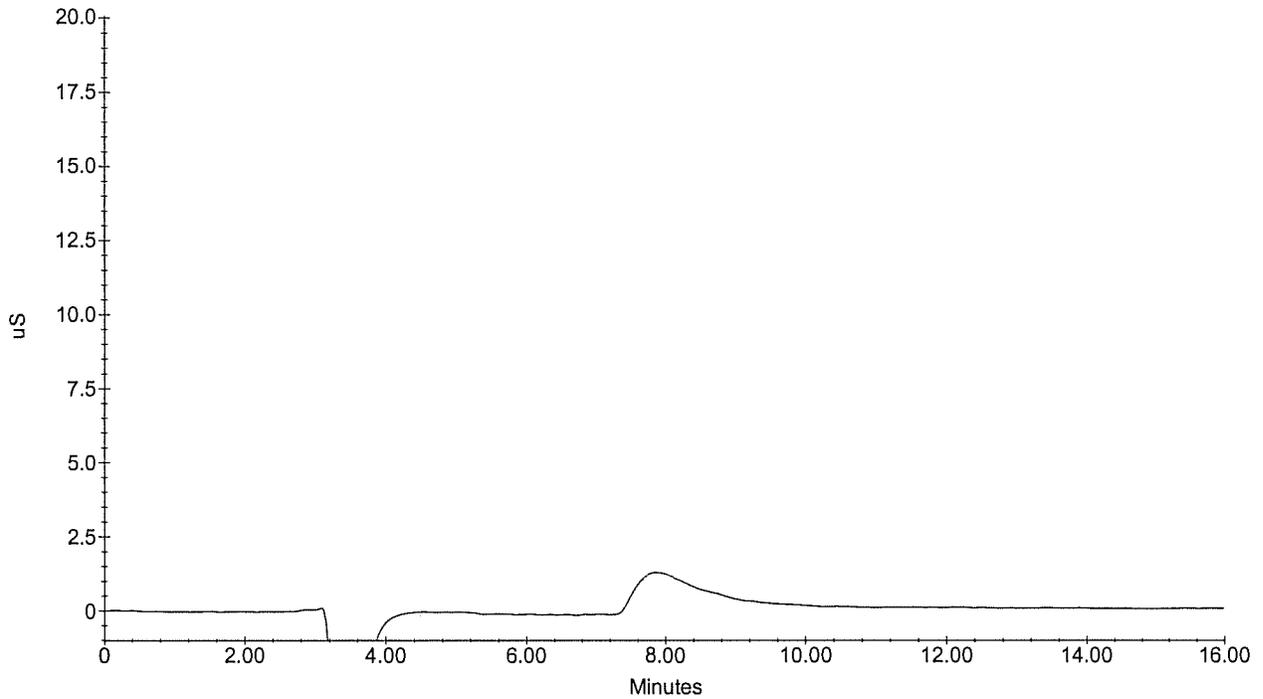
Sample Name : 576648
Dilution Factor : 1.00
Injection Number : 21
Data File Name : ...\\150825_021.DXD
Method File Name : ...\\ICE-AS1_FORMATE_150810.MET
Schedule File Name : C:\\PeakNet\\schedule\\25AUG15.sch

Date Time Collected : 8/25/2015 10:26:55 PM
System Name : White Dionex
Detector Name : PED-Cond.
Column Type : AS14# 010-04-080
System Operator :

Peak Information : All Components								
Pk. Num	Ret Time	Component Name	Conc., ug/L	Height	Area	Bl. Code	%Delta	
0	0.00	(null)	0.000	0	0 0		0.00	

---total(s)---
0.000

9 TE 8/28/15 gcu
576648

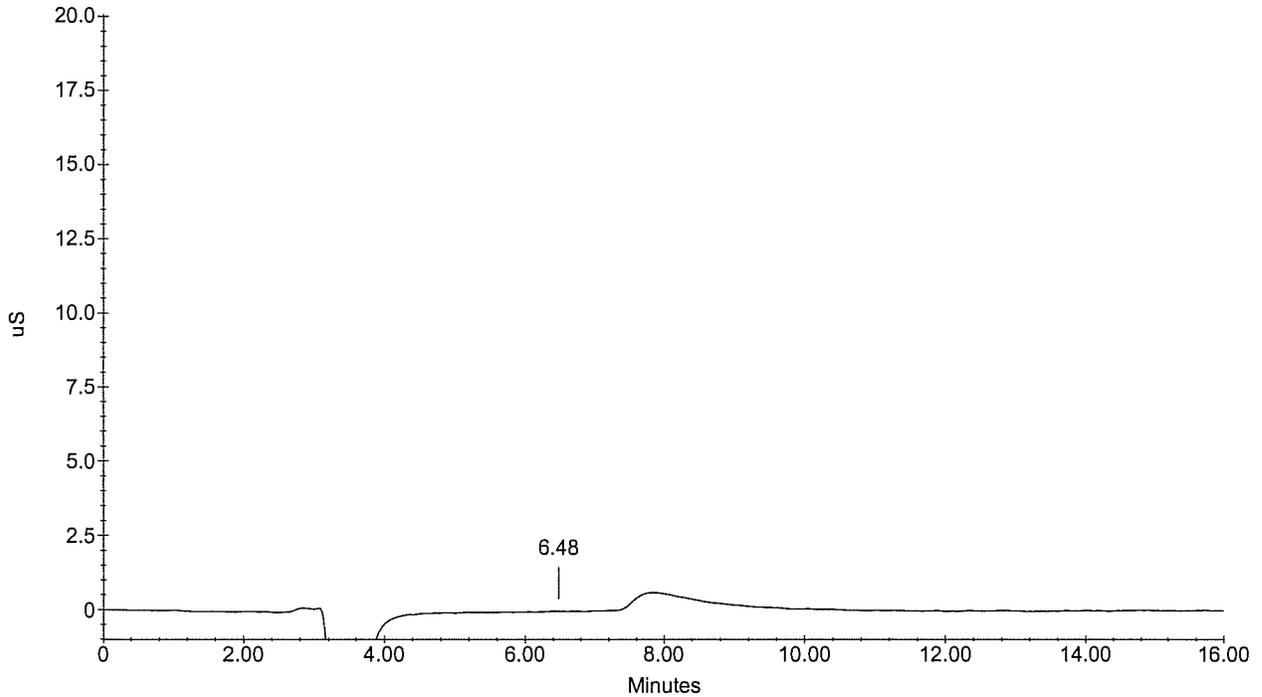


Sample Name : 579640
Dilution Factor : 1.00
Injection Number : 22
Data File Name : ...\\150825_022.DXD
Method File Name : ...\\ICE-AS1_FORMATE_150810.MET
Schedule File Name : C:\\PeakNet\\schedule\\25AUG15.sch

Date Time Collected : 8/25/2015 10:45:44 PM
System Name : White Dionex
Detector Name : PED-Cond.
Column Type : AS14# 010-04-080
System Operator :

Peak Information : All Components								
Pk. Num	Ret Time	Component Name	Conc., ug/L	Height	Area	BI. Code	%Delta	
1	6.48		0.000	20753	512718	1		
			---total(s)---					
0.00			0.000		512718			

579640

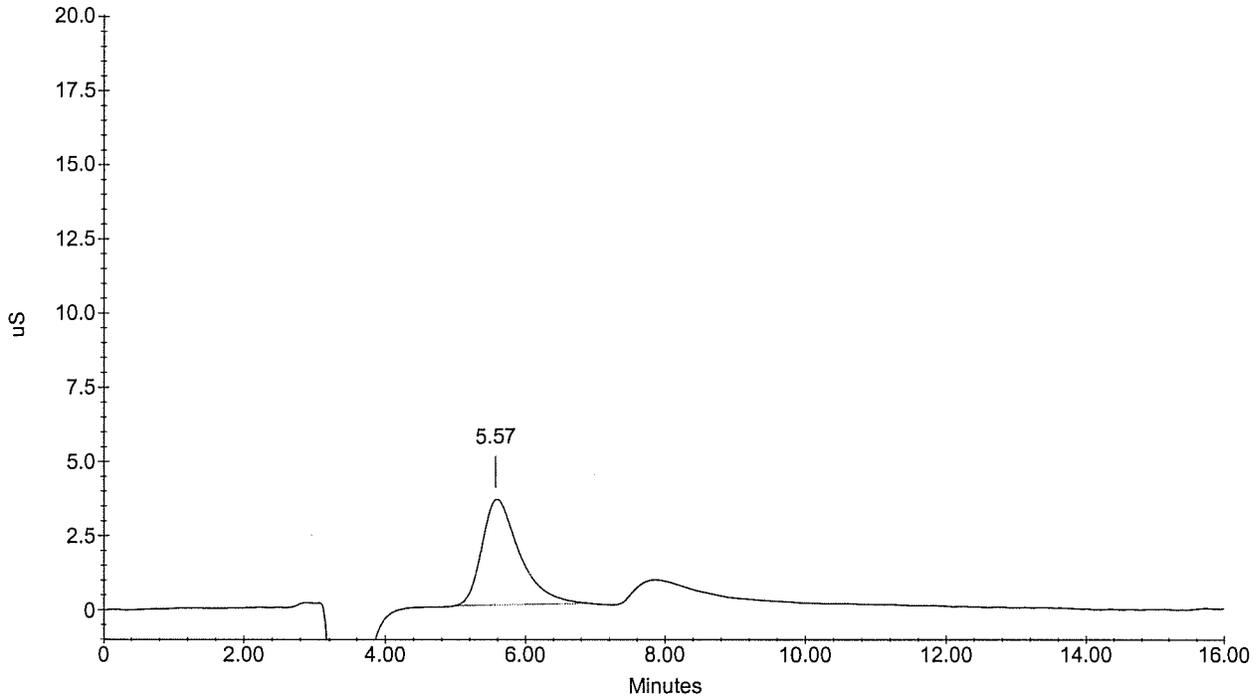


Sample Name : 579621S
Dilution Factor : 1.00
Injection Number : 23
Data File Name : ...\\150825_023.DXD
Method File Name : ...\\ICE-AS1_FORMATE_150810.MET
Schedule File Name : C:\\PeakNet\\schedule\\25AUG15.sch

Date Time Collected : 8/25/2015 11:04:32 PM
System Name : White Dionex
Detector Name : PED-Cond.
Column Type : AS14# 010-04-080
System Operator :

Peak Information : All Components								
Pk. Num	Ret Time	Component Name	Conc., ug/L	Height	Area	BI. Code	%Delta	
1	5.57	FORMATE	9228.163	3532202	132206666	1	0.42	
			---total(s)---					
0.00			9228.163	132206666				

579621S

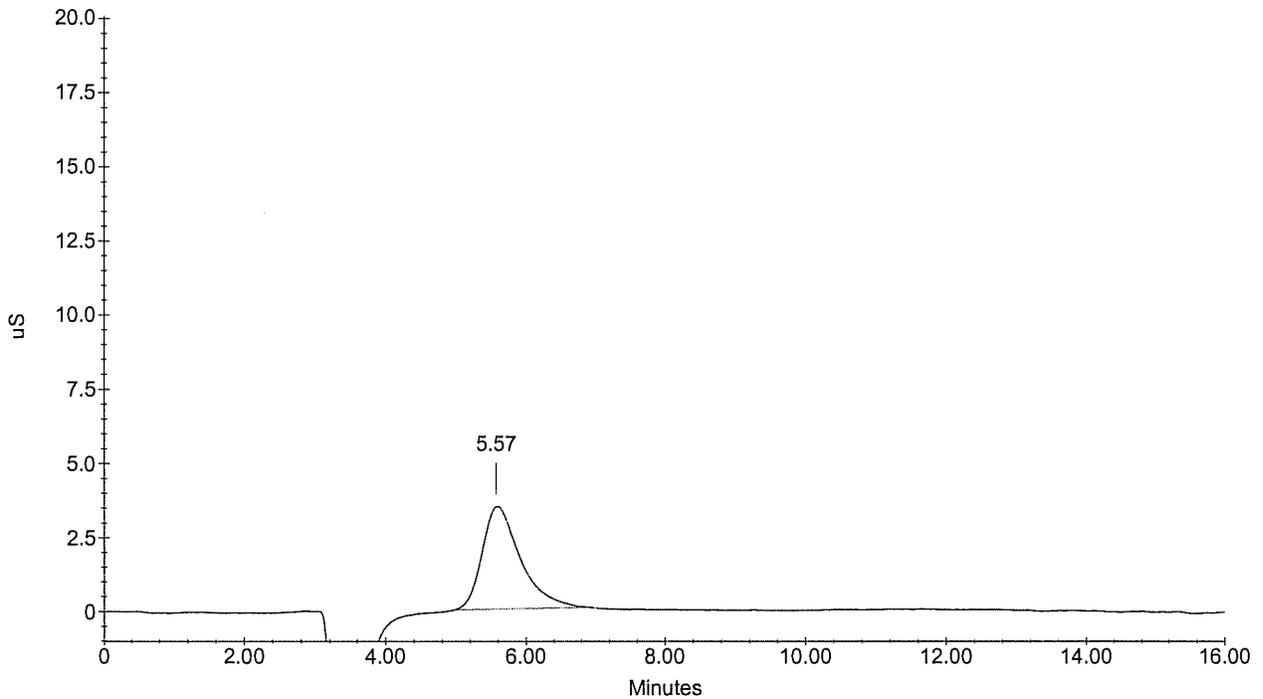


Sample Name : CCV2
 Dilution Factor : 1.00
 Injection Number : 24
 Data File Name : ...150825_024.DXD
 Method File Name : ...ICE-AS1_FORMATE_150810.MET
 Schedule File Name : C:\PeakNet\schedule\25AUG15.sch

Date Time Collected : 8/25/2015 11:23:21 PM
 System Name : White Dionex
 Detector Name : PED-Cond.
 Column Type : AS14# 010-04-080
 System Operator :

Peak Information : All Components								
Pk. Num	Ret Time	Component Name	Conc., ug/L	Height	Area	Bl. Code	%Delta	
1	5.57	FORMATE	9178.375	3442629	131488045	1	0.42	
					---total(s)---			
0.00				9178.375	131488045			

CCV2



Sample Name : CCB2

Dilution Factor : 1.00

Injection Number : 25

Data File Name : ...150825_025.DXD

Method File Name : ...NICE-AS1_FORMATE_150810.MET

Schedule File Name : C:\PeakNet\schedule\25AUG15.sch

Date Time Collected : 8/25/2015 11:42:10 PM

System Name : White Dionex

Detector Name : PED-Cond.

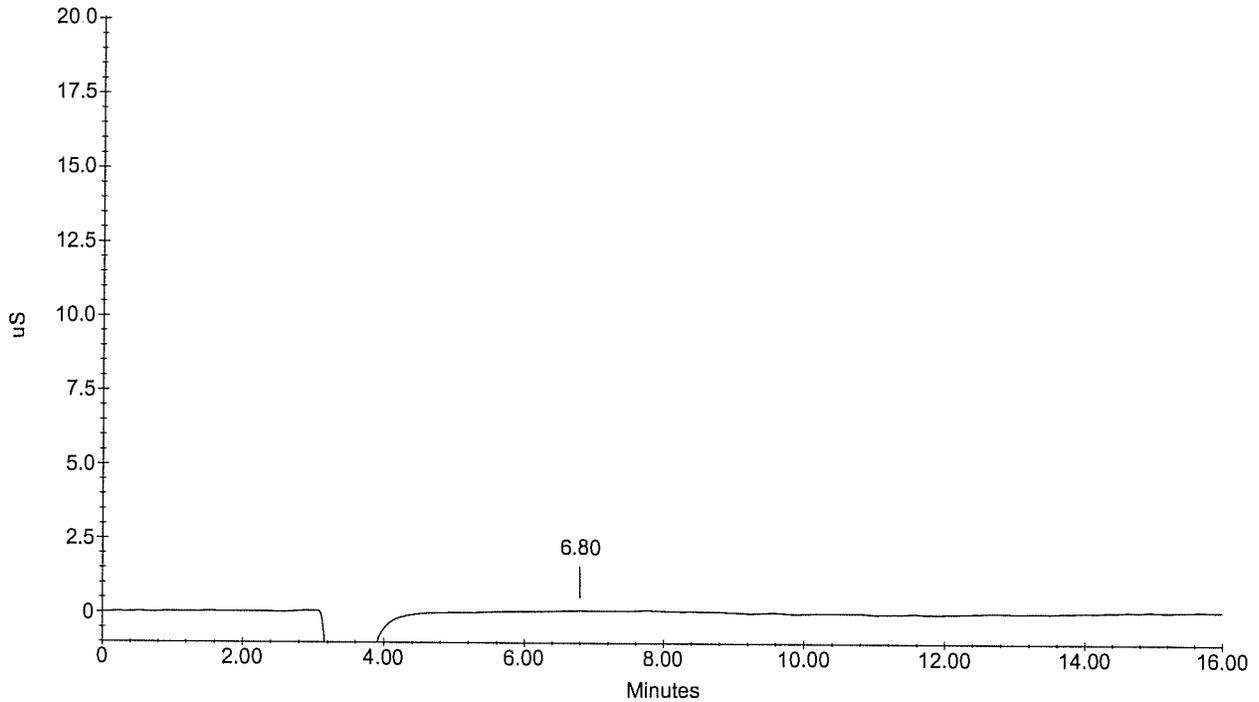
Column Type : AS14# 010-04-080

System Operator :

Peak Information : All Components

Pk. Num	Ret Time	Component Name	Conc., ug/L	Height	Area	Bl. Code	%Delta
1	6.80		0.000	9228	817845	1	
			---total(s)---				
	0.00		0.000		817845		

CCB2



**SOUTHWEST RESEARCH INSTITUTE
CLIENT: CH2M Hill Plateau Remediation
Company
TASK ORDER(s): 150807-13
SRR: 55929
SDG: 579641
CASE: F15-048
VTSR: 08.07.15
PROJECT#: 20859.01.00X**

STANDARD LOGS & CERTIFICATES OF ANALYSIS

TITLE

SEPTEMBER 10, 2015

PROJECT NO.

010054 27

BOOK NO.

15-0406-021

SWRI

Work continued from Page

27-01-WCSII: Acetate @ 1000 mg/L trihydrate STD

dissolve 0.2301 g of sodium acetate (ID# 35215)

to final volume 100 ml w 1 DI H₂O.

balance # 88

Exp. date 6/1/14

27-02-WCSII: Formate @ 1000 mg/L STD

dissolve 0.1512^g of sodium formate (#35301) to

final volume 100 ml w 1 DI H₂O

27-03-WCSII: Acetate @ 1000 mg/L QC

dissolve 0.2302 g of sodium acetate trihydrate (#35215)

to final volume 100 ml w 1 DI H₂O

32732

* 78061115gall

27-04-WCSII: Formate @ 1000 mg/L QC

dissolve 0.1512 g of sodium formate (#26460)

to final volume 100 ml w 1 DI H₂O.

all on page: balance # 88
Exp. date 6/1/14

www.scientificbindery88yrs.com

Work continued to Page

SIGNATURE

Quayle Mera
M. Grubaldon

DATE

6/1/15

DISCLOSED TO AND UNDERSTOOD BY

DATE

WITNESS

DATE

72 of 78
6/1/15

Certificate of Analysis

Product Name: SODIUM FORMATE
 puriss. p.a., ACS reagent
Product Number: 71541
Batch Number: 1376451V
Brand: Sigma-Aldrich
CAS Number: 141-53-7
Formula: CHNaO2
Formula Weight: 68.01
Quality Release Date: 24 JAN 2008
Date retested: 31 JAN 2012
Recommended Retest Date: JUL 2016

TEST	SPECIFICATION	RESULT
APPEARANCE (COLOR)	WHITE TO ALMOST WHITE	ALMOST WHITE
APPEARANCE (FORM)	FINE CRYSTALS TO CRYSTALS WITH LUMPS	CRYSTALS WITH LUMPS
TITRATION (NT) HCLO4 0.1M	≥ 99.0 %	99.4 %
SOLUBILITY (COLOR)	COLORLESS	COLORLESS
SOLUBILITY (TURBIDITY)	CLEAR (< 3.5 NTU)	CLEAR (<3.5 NTU)
SOLUBILITY (METHOD)	--	1G IN 20 ML H2O
PH	7.0 - 8.5	7.5
LOSS ON DRYING	≤ 0.1 %	0.05 %
ACS SPECIFICATIONS	CORRESPONDS TO REQUIREMENTS	CORRESPONDS TO ACS (10TH ED.)
METAL TRACE ANALYSIS (ICP)	CORRESPONDS TO REQUIREMENTS	PASSED
CALCIUM (ICP)	≤ 10 MG/KG	< 10 MG/KG
CADMIUM (ICP)	≤ 5 MG/KG	< 5 MG/KG
COBALT (ICP)	≤ 5 MG/KG	< 5 MG/KG
CHROMIUM (ICP)	≤ 5 MG/KG	< 5 MG/KG
COPPER (ICP)	≤ 5 MG/KG	< 5 MG/KG
IRON (ICP)	≤ 5 MG/KG	< 5 MG/KG
POTASSIUM (ICP)	≤ 100 MG/KG	< 100 MG/KG
MAGNESIUM (ICP)	≤ 5 MG/KG	< 5 MG/KG
MANGANESE (ICP)	≤ 5 MG/KG	< 5 MG/KG
NICKEL (ICP)	≤ 5 MG/KG	< 5 MG/KG
LEAD (ICP)	≤ 5 MG/KG	< 5 MG/KG
ZINC (ICP)	≤ 5 MG/KG	< 5 MG/KG
TOTAL PHOSPHORUS AS PO4 (ICP)	≤ 10 MG/KG	< 10 MG/KG

SwRI Chem ID: 35301

SwRI Chem ID: 35301

SwRI Chem ID: 35301

Certificate of Analysis

TOTAL SULFUR AS SO ₄ (ICP)	≤ 10 MG/KG	< 10 MG/KG
CHLORIDE (CL)	≤ 10 MG/KG	< 10 MG/KG



Dr. Claudia Geitner
 Manager Quality Control
 Buchs, Switzerland

SwRI Chem ID: 35301

SwRI Chem ID: 35301

Sigma-Aldrich warrants that at the time of the quality release or subsequent retest date this product conformed to the information contained in this publication. The current specification sheet may be available at Sigma-Aldrich.com. For further inquiries, please contact Technical Service. Purchaser must determine the suitability of the product for its particular use. See reverse side of invoice or packing slip for additional terms and conditions of sale.

SwRI Chem ID: 35301