APPENDIX A

Laboratory Data Reports

New Jersey
ACCUTEST LABORATORIES

10/17/13

Technical Report for

AECOM, INC.

PPG-Site 186 RAM, Jersey City, NJ

60238842 186.RAM

Accutest Job Number: JB50090

Sampling Date: 10/14/13

Report to:

AECOM, INC.
30 Knightsbridge Road Suite 520
Piscataway, NJ 08854
NJlabdata@aecom.com; Lisa.Krowitz@aecom.com;
Justin.Webster@aecom.com; Alfred.LoPilato@aecom.com
ATTN: Lisa Krowitz

Total number of pages in report: **53**

ACCREDITED IN ACCORDANCE WITH nelac

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Nancy Cole
Laboratory Director

Client Service contact: Matt Cordova 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, DE, FL, IL, IN, KS, KY, LA, MA, MD, MI, MT, NC, OH VAP (CL0056), PA, RI, SC, TN, VA, WV

Sections: 1 2 3 4 5 6 7

Table of Contents

Sample Summary

AECOM, INC.

Job No: JB50090

PPG-Site 186 RAM, Jersey City, NJ
Project No: 60238842 186.RAM

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JB50090-1	10/14/13	08:30	AL	10/14/13	AQ	Field Blank Soil	186-FB20131014
JB50090-2	10/14/13	11:05	AL	10/14/13	SO	Soil	186-MFHT1-4-2.0-2.5
JB50090-3	10/14/13	10:15	AL	10/14/13	SO	Soil	186-MFHT1-3-2.0-2.5
JB50090-4	10/14/13	09:15	AL	10/14/13	SO	Soil	186-MFHT1-2-2.0-2.5
JB50090-5	10/14/13	08:31	AL	10/14/13	SO	Soil	186-MFHT1-2.0-2.5X
JB50090-6	10/14/13	08:30	AL	10/14/13	SO	Soil	186-MFHT1-2.0-2.5

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	AECOM, INC.	**Job No**	JB50090
Site:	PPG-Site 186, Jersey City, NJ	**Report Date**	10/15/2013 5:37:56 P

On 10/14/2013, 5 Sample(s), 0 Trip Blank(s) and 1 Field Blank(s) were received at Accutest Laboratories at a temperature of 3.5 C. Samples were intact and chemically preserved, unless noted below. An Accutest Job Number of JB50090 was assigned to the project. Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Wet Chemistry By Method ASTM D1498-76

Matrix: AQ **Batch ID:** GN93240

- Sample(s) JB50090-1DUP were used as the QC samples for Redox Potential Vs H2.

Wet Chemistry By Method ASTM D1498-76M

Matrix: SO **Batch ID:** GN93230

- Sample(s) JB50090-2DUP were used as the QC samples for Redox Potential Vs H2.

Wet Chemistry By Method SM2540 G-97

Matrix: SO **Batch ID:** GN93189

- The data for SM2540 G-97 meets quality control requirements.

Wet Chemistry By Method SM4500H+ B-11

Matrix: AQ **Batch ID:** R127133

- The data for SM4500H+ B-11 meets quality control requirements.
- JB50090-1 for pH: Sample received out of holding time for pH analysis.

Wet Chemistry By Method SW846 3060A/7196A

Matrix: SO **Batch ID:** GP75260

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB50090-4DUP, JB50090-4MS were used as the QC samples for Chromium, Hexavalent.
- Matrix Spike Recovery(s) for Chromium, Hexavalent are outside control limits. Soluble XCR matrix spike recovery indicates possible matrix interference. Good post spike recovery (85.8%) on this sample.
- GP75260-S2 for Chromium, Hexavalent: Good recovery on insoluble XCR matrix spike. See additional comments on soluble matrix spike recovery.

Wet Chemistry By Method SW846 7196A

Matrix: AQ **Batch ID:** GN93212

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB50113-1DUP, JB50113-1MS were used as the QC samples for Chromium, Hexavalent.

Wet Chemistry By Method SW846 9045C,D

Matrix: SO **Batch ID:** GN93229

- Sample(s) JB50090-2DUP were used as the QC samples for pH.

Accutest certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting Accutest's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

Accutest Laboratories is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. Data release is authorized by Accutest Laboratories indicated via signature on the report cover

Summary of Hits

Job Number: JB50090
Account: AECOM, INC.
Project: PPG-Site 186 RAM, Jersey City, NJ
Collected: 10/14/13

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JB50090-1	**186-FB20131014**					
Redox Potential Vs H2		349			mv	ASTM D1498-76
pH [a]		6.75			su	SM4500H+ B-11
JB50090-2	**186-MFHT1-4-2.0-2.5**					
Chromium, Hexavalent		5.8	0.47	0.081	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		345			mv	ASTM D1498-76M
pH		7.70			su	SW846 9045C,D
JB50090-3	**186-MFHT1-3-2.0-2.5**					
Chromium, Hexavalent		24.1	0.47	0.081	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		365			mv	ASTM D1498-76M
pH		7.37			su	SW846 9045C,D
JB50090-4	**186-MFHT1-2-2.0-2.5**					
Chromium, Hexavalent		1.1	0.44	0.076	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		355			mv	ASTM D1498-76M
pH		7.70			su	SW846 9045C,D
JB50090-5	**186-MFHT1-2.0-2.5X**					
Chromium, Hexavalent		5.6	0.45	0.078	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		316			mv	ASTM D1498-76M
pH		7.86			su	SW846 9045C,D
JB50090-6	**186-MFHT1-2.0-2.5**					
Chromium, Hexavalent		4.7	0.45	0.077	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		313			mv	ASTM D1498-76M
pH		7.87			su	SW846 9045C,D

(a) Sample received out of holding time for pH analysis.

New Jersey ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID: 186-FB20131014
Lab Sample ID: JB50090-1
Matrix: AQ - Field Blank Soil
Project: PPG-Site 186 RAM, Jersey City, NJ

Date Sampled: 10/14/13
Date Received: 10/14/13
Percent Solids: n/a

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.0024 U	0.010	0.0024	mg/l	1	10/14/13 22:25	MH	SW846 7196A
Redox Potential Vs H2	349			mv	1	10/15/13 11:36	AA	ASTM D1498-76
pH [a]	6.75			su	1	10/14/13 13:08	SUB	SM4500H+ B-11

(a) Sample received out of holding time for pH analysis.

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: 186-MFHT1-4-2.0-2.5
Lab Sample ID: JB50090-2
Matrix: SO - Soil
Project: PPG-Site 186 RAM, Jersey City, NJ

Date Sampled: 10/14/13
Date Received: 10/14/13
Percent Solids: 85.5

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	5.8	0.47	0.081	mg/kg	1	10/15/13 09:42	BP	SW846 3060A/7196A
Redox Potential Vs H2	345			mv	1	10/15/13 11:09	AA	ASTM D1498-76M
Solids, Percent	85.5			%	1	10/14/13 15:21	AR	SM2540 G-97
pH	7.70			su	1	10/15/13 10:58	AA	SW846 9045C,D

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: 186-MFHT1-3-2.0-2.5
Lab Sample ID: JB50090-3
Matrix: SO - Soil
Project: PPG-Site 186 RAM, Jersey City, NJ

Date Sampled: 10/14/13
Date Received: 10/14/13
Percent Solids: 84.9

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	24.1	0.47	0.081	mg/kg	1	10/15/13 09:42	BP	SW846 3060A/7196A
Redox Potential Vs H2	365			mv	1	10/15/13 11:09	AA	ASTM D1498-76M
Solids, Percent	84.9			%	1	10/14/13 15:21	AR	SM2540 G-97
pH	7.37			su	1	10/15/13 10:58	AA	SW846 9045C,D

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: 186-MFHT1-2-2.0-2.5
Lab Sample ID: JB50090-4
Matrix: SO - Soil
Project: PPG-Site 186 RAM, Jersey City, NJ

Date Sampled: 10/14/13
Date Received: 10/14/13
Percent Solids: 90.8

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	1.1	0.44	0.076	mg/kg	1	10/15/13 09:37	BP	SW846 3060A/7196A
Redox Potential Vs H2	355			mv	1	10/15/13 11:09	AA	ASTM D1498-76M
Solids, Percent	90.8			%	1	10/14/13 15:21	AR	SM2540 G-97
pH	7.70			su	1	10/15/13 10:58	AA	SW846 9045C,D

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: 186-MFHT1-2.0-2.5X
Lab Sample ID: JB50090-5
Matrix: SO - Soil
Project: PPG-Site 186 RAM, Jersey City, NJ

Date Sampled: 10/14/13
Date Received: 10/14/13
Percent Solids: 88.8

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	5.6	0.45	0.078	mg/kg	1	10/15/13 09:42	BP	SW846 3060A/7196A
Redox Potential Vs H2	316			mv	1	10/15/13 11:09	AA	ASTM D1498-76M
Solids, Percent	88.8			%	1	10/14/13 15:21	AR	SM2540 G-97
pH	7.86			su	1	10/15/13 10:58	AA	SW846 9045C,D

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: 186-MFHT1-2.0-2.5
Lab Sample ID: JB50090-6
Matrix: SO - Soil
Project: PPG-Site 186 RAM, Jersey City, NJ

Date Sampled: 10/14/13
Date Received: 10/14/13
Percent Solids: 89.8

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	4.7	0.45	0.077	mg/kg	1	10/15/13 09:42	BP	SW846 3060A/7196A
Redox Potential Vs H2	313			mv	1	10/15/13 11:09	AA	ASTM D1498-76M
Solids, Percent	89.8			%	1	10/14/13 15:21	AR	SM2540 G-97
pH	7.87			su	1	10/15/13 10:58	AA	SW846 9045C,D

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

New Jersey ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- Sample Tracking Chronicle
- Internal Chain of Custody

AECOM

SO
FB

CHAIN-OF-CUSTODY / Analytical Request Document
2013-10-14_SITE186_COC

Page: 1 of 1

JB50090

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Lab Information:		**Project Information:**		**Other Information:**		**Task:**	Site 186
Lab:	Accutest, Dayton NJ	Site ID #:	Site 186	Send Invoice to:	Lisa Krowitz (Lisa.Krowitz@aecom.com)	Total # of Samples: 6	
Address:	2235 Route 130, Dayton NJ 08810	Project #:	60238842.NGA.186.RAM	Address:	100 Red Schoolhouse Road Suite B-1	TAT	per P.O. / Rush / SEE BELOW
		Site Address:		City/State.	Chestnut Ridge , NY 10977-6715 Phone #: 845.425.4980	Notes: F= Field Filtered , H= Hold	
Lab PM:	Matt Cordova	City	Jersey City State, Zip NJ 07304	PO #:		Lab Notes	
Phone/Fax:	732-329-0200/732-329-3499/3480	PM Name:	Alfred LoPilato	Send EDD to:	NJLABDATA@aecom.com	Preservative	
PM email:		Phone/Fax:	845-425-4980	CC Hardcopy to	No Hardcopy Needed		
Lab Quote #:	46011607	PM Email:	Alfred.LoPilato@aecom.com	CC Hardcopy to			

ITEM #	Field Sample No. /Identification	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comment	Analysis: GARA-HexChrom	GARA-pH-ORP						
1	186-FB20131014	SO	G	10/14/2013 08:30	2	2 Containers: 1 Cr+6, 1 pH-ORP	X	X	-1	PH	6.75			C45
2	186-MFHT1-4-2.0-2.5	SO	G	10/12/2013 11:05	1	1 Jar	X	X	-2					G27
3	186-MFHT1-3-2.0-2.5	SO	G	10/12/2013 10:15	1	1 Jar	X	X	-3					M25
4	186-MFHT1-2-2.0-2.5	SO	G	10/12/2013 09:15	2	MS/MSD - 2 Jars	X	X	-4					
5	186-MFHT1-2.0-2.5X	SO	G	10/12/2013 08:31	1	1 Jar	X	X	-5					
6	186-MFHT1-2.0-2.5	SO	G	10/12/2013 08:30	1	1 Jar	X	X	-6					

Additional Comments/Special Instructions:
1 DAY TAT

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
[illegible] / AECOM	10/14/13		[illegible] Temp	10/14/13	1034
[illegible] Temp 10/14/13	1259			10/14/13	1255

Sample Receipt Conditions

Temp in OC	Samples on Ice?	Sample Intact?	Trip Blank?
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

NAME OF SAMPLER:		DATE/TIME:	
SIGNATURE OF SAMPLER		Custody Seal(s):	

LA

1 Cooler (R)

3.5C GP

JB50090: Chain of Custody
Page 1 of 3

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: JB50090 **Client:** **Project:**

Date / Time Received: 10/14/2013 **Delivery Method:** **Airbill #'s:**

Cooler Temps (Initial/Adjusted): #1: (3.5/3.5); 0

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:	IR Gun		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	1		

Quality Control Preservatio	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☑	☐
2. Trip Blank listed on COC:	☐		☑	☐
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☐		☐	☑

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Comments

Accutest Laboratories
V:732.329.0200

2235 US Highway 130
F: 732.329.3499

Dayton, New Jersey
www/accutest.com

JB50090: Chain of Custody
Page 2 of 3

ACCUTEST LABORATORIES

Job Change Order: JB50090

Requested Date:	10/15/2013	**Received Date:**	10/14/2013
Account Name:	AECOM, INC.	**Due Date:**	10/15/2013
Project Description:	PPG-Site 186, Jersey City, NJ	**Deliverable:**	FULT1
CSR:	kellyp	**TAT (Days):**	1

Sample #: JB50090-2 thru 6
Dept:

Change:
Please relog for XXCRAR

Sample #: JB50090-4
Dept:

Change:
Please relog for XXCRAR, FE2/7, SULFS, and TOCLK

186-MFHT1-2-2.0-2.5

Above Changes Per: Lisa Krowitz **Date:** 10/15/2013

To Client: This Change Order is confirmation of the revisions, previously discussed with the Accutest Client Service Representative.

Page 1 of 1

Internal Sample Tracking Chronicle

AECOM, INC.

Job No: JB50090

PPG-Site 186 RAM, Jersey City, NJ
Project No: 60238842 186.RAM

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB50090-1	Collected: 14-OCT-13 08:30 By: AL		Received: 14-OCT-13 By: AS			
186-FB20131014						
JB50090-1	SM4500H+ B-11	14-OCT-13 13:08	SUB			PH
JB50090-1	SW846 7196A	14-OCT-13 22:25	MH			XCR
JB50090-1	ASTM D1498-76	15-OCT-13 11:36	AA			EH
JB50090-2	Collected: 14-OCT-13 11:05 By: AL		Received: 14-OCT-13 By: AS			
186-MFHT1-4-2.0-2.5						
JB50090-2	SM2540 G-97	14-OCT-13 15:21	AR			SOL104
JB50090-2	SW846 3060A/7196A	15-OCT-13 09:42	BP	14-OCT-13	NP	XCRA
JB50090-2	SW846 9045C,D	15-OCT-13 10:58	AA			PH
JB50090-2	ASTM D1498-76M	15-OCT-13 11:09	AA			EH
JB50090-3	Collected: 14-OCT-13 10:15 By: AL		Received: 14-OCT-13 By: AS			
186-MFHT1-3-2.0-2.5						
JB50090-3	SM2540 G-97	14-OCT-13 15:21	AR			SOL104
JB50090-3	SW846 3060A/7196A	15-OCT-13 09:42	BP	14-OCT-13	NP	XCRA
JB50090-3	SW846 9045C,D	15-OCT-13 10:58	AA			PH
JB50090-3	ASTM D1498-76M	15-OCT-13 11:09	AA			EH
JB50090-4	Collected: 14-OCT-13 09:15 By: AL		Received: 14-OCT-13 By: AS			
186-MFHT1-2-2.0-2.5						
JB50090-4	SM2540 G-97	14-OCT-13 15:21	AR			SOL104
JB50090-4	SW846 3060A/7196A	15-OCT-13 09:37	BP	14-OCT-13	NP	XCRA
JB50090-4	SW846 9045C,D	15-OCT-13 10:58	AA			PH
JB50090-4	ASTM D1498-76M	15-OCT-13 11:09	AA			EH
JB50090-5	Collected: 14-OCT-13 08:31 By: AL		Received: 14-OCT-13 By: AS			
186-MFHT1-2.0-2.5X						
JB50090-5	SM2540 G-97	14-OCT-13 15:21	AR			SOL104
JB50090-5	SW846 3060A/7196A	15-OCT-13 09:42	BP	14-OCT-13	NP	XCRA
JB50090-5	SW846 9045C,D	15-OCT-13 10:58	AA			PH
JB50090-5	ASTM D1498-76M	15-OCT-13 11:09	AA			EH

Internal Sample Tracking Chronicle

AECOM, INC.

Job No: JB50090

PPG-Site 186 RAM, Jersey City, NJ
Project No: 60238842 186.RAM

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB50090-6	Collected: 14-OCT-13 08:30 By: AL		Received: 14-OCT-13 By: AS			
186-MFHT1-2.0-2.5						
JB50090-6	SM2540 G-97	14-OCT-13 15:21	AR			SOL104
JB50090-6	SW846 3060A/7196A	15-OCT-13 09:42	BP	14-OCT-13	NP	XCRA
JB50090-6	SW846 9045C,D	15-OCT-13 10:58	AA			PH
JB50090-6	ASTM D1498-76M	15-OCT-13 11:09	AA			EH

Accutest Internal Chain of Custody

Job Number: JB50090
Account: ENSRNJ AECOM, INC.
Project: PPG-Site 186 RAM, Jersey City, NJ
Received: 10/14/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB50090-1.1	Secured Storage	Lucas Schneider	10/14/13 15:24	Retrieve from Storage
JB50090-1.1	Shirley Grzybowski	Secured Storage	10/15/13 07:21	Return to Storage
Analyst unavailable for custody transfer.				
JB50090-1.2	Secured Storage	Bernadette Vassilatos	10/15/13 06:25	Retrieve from Storage
JB50090-1.2	Bernadette Vassilatos	Secured Staging Area	10/15/13 06:25	Return to Storage
JB50090-1.2	Secured Staging Area	Alec Arbello	10/15/13 08:38	Retrieve from Storage
JB50090-1.2	Alec Arbello	Secured Storage	10/15/13 12:08	Return to Storage
JB50090-2.1	Secured Storage	Bernadette Vassilatos	10/14/13 14:38	Retrieve from Storage
JB50090-2.1	Bernadette Vassilatos	Secured Staging Area	10/14/13 14:38	Return to Storage
JB50090-2.1	Secured Staging Area	Nilesh Patel	10/14/13 15:09	Retrieve from Storage
JB50090-2.1	Nilesh Patel	Secured Storage	10/14/13 23:27	Return to Storage
JB50090-2.1	Secured Storage	Bernadette Vassilatos	10/15/13 06:25	Retrieve from Storage
JB50090-2.1	Bernadette Vassilatos	Secured Staging Area	10/15/13 06:25	Return to Storage
JB50090-2.1	Secured Staging Area	Alec Arbello	10/15/13 08:38	Retrieve from Storage
JB50090-2.1	Alec Arbello	Secured Storage	10/15/13 12:08	Return to Storage
JB50090-2.1	Secured Storage	Bernadette Vassilatos	10/15/13 15:14	Retrieve from Storage
JB50090-2.1	Bernadette Vassilatos	Secured Staging Area	10/15/13 15:15	Return to Storage
JB50090-2.1	Secured Staging Area	Nilesh Patel	10/15/13 15:24	Retrieve from Storage
JB50090-2.1	Nilesh Patel	Secured Storage	10/15/13 20:28	Return to Storage
JB50090-2.1.1	Nilesh Patel	Arayna Ramkelawan	10/14/13 15:10	Aliquot from JB50090-2.1
JB50090-2.1.1	Arayna Ramkelawan		10/14/13 16:57	Depleted
JB50090-3.1	Secured Storage	Bernadette Vassilatos	10/14/13 14:38	Retrieve from Storage
JB50090-3.1	Bernadette Vassilatos	Secured Staging Area	10/14/13 14:38	Return to Storage
JB50090-3.1	Secured Staging Area	Nilesh Patel	10/14/13 15:09	Retrieve from Storage
JB50090-3.1	Nilesh Patel	Secured Storage	10/14/13 23:27	Return to Storage
JB50090-3.1	Secured Storage	Bernadette Vassilatos	10/15/13 06:25	Retrieve from Storage
JB50090-3.1	Bernadette Vassilatos	Secured Staging Area	10/15/13 06:25	Return to Storage
JB50090-3.1	Secured Staging Area	Alec Arbello	10/15/13 08:38	Retrieve from Storage
JB50090-3.1	Alec Arbello	Secured Storage	10/15/13 12:08	Return to Storage
JB50090-3.1	Secured Storage	Bernadette Vassilatos	10/15/13 15:14	Retrieve from Storage
JB50090-3.1	Bernadette Vassilatos	Secured Staging Area	10/15/13 15:15	Return to Storage
JB50090-3.1	Secured Staging Area	Nilesh Patel	10/15/13 15:24	Retrieve from Storage
JB50090-3.1	Nilesh Patel	Secured Storage	10/15/13 20:28	Return to Storage
JB50090-3.1.1	Nilesh Patel	Arayna Ramkelawan	10/14/13 15:10	Aliquot from JB50090-3.1
JB50090-3.1.1	Arayna Ramkelawan		10/14/13 16:57	Depleted
JB50090-4.1	Secured Storage	Bernadette Vassilatos	10/14/13 14:38	Retrieve from Storage
JB50090-4.1	Bernadette Vassilatos	Secured Staging Area	10/14/13 14:38	Return to Storage
JB50090-4.1	Secured Staging Area	Nilesh Patel	10/14/13 15:09	Retrieve from Storage

Accutest Internal Chain of Custody

Job Number: JB50090
Account: ENSRNJ AECOM, INC.
Project: PPG-Site 186 RAM, Jersey City, NJ
Received: 10/14/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB50090-4.1	Nilesh Patel	Secured Storage	10/14/13 23:27	Return to Storage
JB50090-4.1	Secured Storage	Bernadette Vassilatos	10/15/13 06:25	Retrieve from Storage
JB50090-4.1	Bernadette Vassilatos	Secured Staging Area	10/15/13 06:25	Return to Storage
JB50090-4.1	Secured Staging Area	Alec Arbello	10/15/13 08:38	Retrieve from Storage
JB50090-4.1	Alec Arbello	Secured Storage	10/15/13 12:08	Return to Storage
JB50090-4.1	Secured Storage	Bernadette Vassilatos	10/16/13 06:17	Retrieve from Storage
JB50090-4.1	Bernadette Vassilatos	Secured Staging Area	10/16/13 06:17	Return to Storage
JB50090-4.1	Secured Staging Area	Chris Brunson	10/16/13 09:44	Retrieve from Storage
JB50090-4.1	Chris Brunson	Vaidehi Amin	10/16/13 10:20	Custody Transfer
JB50090-4.1	Vaidehi Amin	Secured Storage	10/16/13 18:35	Return to Storage
JB50090-4.1.1	Nilesh Patel	Arayna Ramkelawan	10/14/13 15:10	Aliquot from JB50090-4.1
JB50090-4.1.1	Arayna Ramkelawan		10/14/13 16:57	Depleted
JB50090-4.2	Secured Storage	Bernadette Vassilatos	10/14/13 14:38	Retrieve from Storage
JB50090-4.2	Bernadette Vassilatos	Secured Staging Area	10/14/13 14:38	Return to Storage
JB50090-4.2	Secured Staging Area	Nilesh Patel	10/14/13 15:09	Retrieve from Storage
JB50090-4.2	Nilesh Patel	Secured Storage	10/14/13 23:27	Return to Storage
JB50090-4.2	Secured Storage	Bernadette Vassilatos	10/15/13 06:25	Retrieve from Storage
JB50090-4.2	Bernadette Vassilatos	Secured Staging Area	10/15/13 06:25	Return to Storage
JB50090-4.2	Secured Staging Area	Alec Arbello	10/15/13 08:38	Retrieve from Storage
JB50090-4.2	Alec Arbello	Secured Storage	10/15/13 12:08	Return to Storage
JB50090-4.2	Secured Storage	Bernadette Vassilatos	10/15/13 15:14	Retrieve from Storage
JB50090-4.2	Bernadette Vassilatos	Secured Staging Area	10/15/13 15:15	Return to Storage
JB50090-4.2	Secured Staging Area	Nilesh Patel	10/15/13 15:24	Retrieve from Storage
JB50090-4.2	Nilesh Patel	Secured Storage	10/15/13 20:28	Return to Storage
JB50090-5.1	Secured Storage	Bernadette Vassilatos	10/14/13 14:38	Retrieve from Storage
JB50090-5.1	Bernadette Vassilatos	Secured Staging Area	10/14/13 14:38	Return to Storage
JB50090-5.1	Secured Staging Area	Nilesh Patel	10/14/13 15:09	Retrieve from Storage
JB50090-5.1	Nilesh Patel	Secured Storage	10/14/13 23:27	Return to Storage
JB50090-5.1	Secured Storage	Bernadette Vassilatos	10/15/13 06:25	Retrieve from Storage
JB50090-5.1	Bernadette Vassilatos	Secured Staging Area	10/15/13 06:25	Return to Storage
JB50090-5.1	Secured Staging Area	Alec Arbello	10/15/13 08:38	Retrieve from Storage
JB50090-5.1	Alec Arbello	Secured Storage	10/15/13 12:08	Return to Storage
JB50090-5.1	Secured Storage	Bernadette Vassilatos	10/15/13 15:14	Retrieve from Storage
JB50090-5.1	Bernadette Vassilatos	Secured Staging Area	10/15/13 15:15	Return to Storage
JB50090-5.1	Secured Staging Area	Nilesh Patel	10/15/13 15:24	Retrieve from Storage
JB50090-5.1	Nilesh Patel	Secured Storage	10/15/13 20:28	Return to Storage
JB50090-5.1.1	Nilesh Patel	Arayna Ramkelawan	10/14/13 15:10	Aliquot from JB50090-5.1
JB50090-5.1.1	Arayna Ramkelawan		10/14/13 16:57	Depleted
JB50090-6.1	Secured Storage	Bernadette Vassilatos	10/14/13 14:38	Retrieve from Storage

Accutest Internal Chain of Custody

Job Number: JB50090
Account: ENSRNJ AECOM, INC.
Project: PPG-Site 186 RAM, Jersey City, NJ
Received: 10/14/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB50090-6.1	Bernadette Vassilatos	Secured Staging Area	10/14/13 14:38	Return to Storage
JB50090-6.1	Secured Staging Area	Nilesh Patel	10/14/13 15:09	Retrieve from Storage
JB50090-6.1	Nilesh Patel	Secured Storage	10/14/13 23:27	Return to Storage
JB50090-6.1	Secured Storage	Bernadette Vassilatos	10/15/13 06:25	Retrieve from Storage
JB50090-6.1	Bernadette Vassilatos	Secured Staging Area	10/15/13 06:25	Return to Storage
JB50090-6.1	Secured Staging Area	Alec Arbello	10/15/13 08:38	Retrieve from Storage
JB50090-6.1	Alec Arbello	Secured Storage	10/15/13 12:08	Return to Storage
JB50090-6.1	Secured Storage	Bernadette Vassilatos	10/15/13 15:14	Retrieve from Storage
JB50090-6.1	Bernadette Vassilatos	Secured Staging Area	10/15/13 15:15	Return to Storage
JB50090-6.1	Secured Staging Area	Nilesh Patel	10/15/13 15:24	Retrieve from Storage
JB50090-6.1	Nilesh Patel	Secured Storage	10/15/13 20:28	Return to Storage
JB50090-6.1.1	Nilesh Patel	Arayna Ramkelawan	10/14/13 15:10	Aliquot from JB50090-6.1
JB50090-6.1.1	Arayna Ramkelawan		10/14/13 16:57	Depleted

New Jersey ACCUTEST LABORATORIES

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries
- Percent Solids Raw Data Summary

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: JB50090
Account: ENSRNJ - AECOM, INC.
Project: PPG-Site 186 RAM, Jersey City, NJ

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GN93212	0.010	0.0	mg/l	0.15	0.15	100.0	90-110%
Chromium, Hexavalent	GP75260/GN93231	0.40	0.0	mg/kg	40.0	35.2	88.0	80-120%
Chromium, Hexavalent	GP75260/GN93231			mg/kg	958.911	865	90.2	80-120%

Associated Samples:
Batch GN93212: JB50090-1
Batch GP75260: JB50090-2, JB50090-3, JB50090-4, JB50090-5, JB50090-6
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: JB50090
Account: ENSRNJ - AECOM, INC.
Project: PPG-Site 186 RAM, Jersey City, NJ

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GN93212	JB50113-1	mg/l	0.26	0.26	0.0	0-20%
Chromium, Hexavalent	GP75260/GN93231	JB50090-4	mg/kg	1.1	1.1	0.0	0-20%
Redox Potential Vs H2	GN93230	JB50090-2	mv	345	347	0.6	0-20.6%
Redox Potential Vs H2	GN93240	JB50090-1	mv	349	361	3.4	0-17.2%
pH	GN93229	JB50090-2	su	7.70	7.61	1.2	0-5.9%

Associated Samples:
Batch GN93212: JB50090-1
Batch GN93229: JB50090-2, JB50090-3, JB50090-4, JB50090-5, JB50090-6
Batch GN93230: JB50090-2, JB50090-3, JB50090-4, JB50090-5, JB50090-6
Batch GN93240: JB50090-1
Batch GP75260: JB50090-2, JB50090-3, JB50090-4, JB50090-5, JB50090-6
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: JB50090
Account: ENSRNJ - AECOM, INC.
Project: PPG-Site 186 RAM, Jersey City, NJ

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chromium, Hexavalent	GN93212	JB50113-1	mg/l	0.26	0.15	0.42	106.7	85-115%
Chromium, Hexavalent	GP75260/GN93231	JB50090-4	mg/kg	1.1	44.4	28.4	61.5N(a)	75-125%
Chromium, Hexavalent	GP75260/GN93231	JB50090-4	mg/kg	1.1	1020	1020	99.4(b)	75-125%

Associated Samples:
Batch GN93212: JB50090-1
Batch GP75260: JB50090-2, JB50090-3, JB50090-4, JB50090-5, JB50090-6
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(a) Soluble XCR matrix spike recovery indicates possible matrix interference. Good post spike recovery (85.8%) on this sample.
(b) Good recovery on insoluble XCR matrix spike. See additional comments on soluble matrix spike recovery.

Percent Solids Raw Data Summary

Job Number: JB50090
Account: ENSRNJ AECOM, INC.
Project: PPG-Site 186 RAM, Jersey City, NJ

Sample: JB50090-2 **Analyzed:** 14-OCT-13 by AR **Method:** SM2540 G-97
ClientID: 186-MFHT1-4-2.0-2.5

Wet Weight (Total)	34.2	g
Tare Weight	29.03	g
Dry Weight (Total)	33.45	g
Solids, Percent	85.5	%

Sample: JB50090-3 **Analyzed:** 14-OCT-13 by AR **Method:** SM2540 G-97
ClientID: 186-MFHT1-3-2.0-2.5

Wet Weight (Total)	33.39	g
Tare Weight	27.49	g
Dry Weight (Total)	32.5	g
Solids, Percent	84.9	%

Sample: JB50090-4 **Analyzed:** 14-OCT-13 by AR **Method:** SM2540 G-97
ClientID: 186-MFHT1-2-2.0-2.5

Wet Weight (Total)	30.89	g
Tare Weight	24.26	g
Dry Weight (Total)	30.28	g
Solids, Percent	90.8	%

Sample: JB50090-5 **Analyzed:** 14-OCT-13 by AR **Method:** SM2540 G-97
ClientID: 186-MFHT1-2.0-2.5X

Wet Weight (Total)	32.43	g
Tare Weight	26.71	g
Dry Weight (Total)	31.79	g
Solids, Percent	88.8	%

Sample: JB50090-6 **Analyzed:** 14-OCT-13 by AR **Method:** SM2540 G-97
ClientID: 186-MFHT1-2.0-2.5

Wet Weight (Total)	26.86	g
Tare Weight	21.59	g
Dry Weight (Total)	26.32	g
Solids, Percent	89.8	%

New Jersey ACCUTEST LABORATORIES

General Chemistry

Raw Data

Hexavalent Chromium

Test Title:	XCr
GN Batch:	GN93212
Analyst:	MRH
Prep Date:	N/A
Analysis Date:	10/14/2013
Instrument ID:	E

Method: SW846 7196A

Note: Use 4 for CLP list pointer, 1 for reg. List pointer.

Corr. Coef:	0.99997
Slope:	0.8585
Y intercept:	0.0022

Bottle ID	Sample #	Sample Absorbance	BKGRD Abs	Analyzed Times	Y Values Corr Sample Absorbance	X Values Conc(mg/l)	Final Vol. (ml)	Sam Vol. (ml)	Dilution	Final Conc.	Units	MDL	RDL
	Cal. Blk.	0.000	NA	21:20	0.000	0.0000							
	STD1	0.009	NA	21:24	0.009	0.0100							
	STD2	0.044	NA	21:24	0.044	0.0500							
	STD3	0.089	NA	21:24	0.089	0.1000							
	STD4	0.263	NA	21:24	0.263	0.3000							
	STD5	0.436	NA	21:24	0.436	0.5000							
	STD6	0.687	NA	21:24	0.687	0.8000							
	STD7	0.859	NA	21:24	0.859	1.0000							
	CCV	0.440	NA	21:53	0.440	0.5100	NA	NA	NA	NA	mg/l	0.001	0.010
	CCB	0.000	NA	22:07	0.000	-0.0026	NA	NA	NA	NA	mg/l	0.0013	0.010
	GN93212-MB1	0.000	0.000	22:07	0.000	-0.0026	50.0	50.0	1	-0.003	mg/l	0.0014	0.010
	GN93212-B1	0.132	0.000	22:07	0.132	0.1512	50.0	50.0	1	0.151	mg/l	0.0014	0.010
4	GN93212-S1	0.388	0.027	22:07	0.361	0.4179	50.0	50.0	1	0.418	mg/l	0.0014	0.010
4	GN93212-D1	0.256	0.028	22:07	0.228	0.2630	50.0	50.0	1	0.263	mg/l	0.0014	0.010
4	JB50113-1	0.254	0.027	22:07	0.227	0.2619	50.0	50.0	1	0.262	mg/l	0.0014	0.010
2	JB50113-2	0.095	0.102	22:07	0.000	-0.0026	50.0	50.0	1	-0.003	mg/l	0.0014	0.010
2	JB50113-3	0.108	0.021	22:07	0.087	0.0988	50.0	50.0	1	0.099	mg/l	0.0014	0.010
2	JB50113-4	0.026	0.024	22:07	0.002	-0.0002	50.0	50.0	1	0.000	mg/l	0.0014	0.010
2	JB50113-5	0.245	0.018	22:07	0.227	0.2619	50.0	50.0	1	0.262	mg/l	0.0014	0.010
3	JB50113-6	0.000	0.000	22:07	0.000	-0.0026	50.0	50.0	1	-0.003	mg/l	0.0014	0.010
	CCV	0.438	NA	22:07	0.438	0.5076	NA	NA	NA	NA	mg/l	0.0013	0.010
	CCB	0.000	NA	22:07	0.000	-0.0026	NA	NA	NA	NA	mg/l	0.0013	0.010
2	JB50113-7	0.095	0.015	22:25	0.080	0.0906	50.0	50.0	1	0.091	mg/l	0.0014	0.010
2	JB50113-8	0.092	0.052	22:25	0.040	0.0440	50.0	50.0	1	0.044	mg/l	0.0014	0.010
1	JB50090-1	0.000	0.000	22:25	0.000	-0.0026	50.0	50.0	1	-0.003	mg/l	0.0014	0.010
1	JB50119-1	0.000	0.000	22:25	0.000	-0.0026	50.0	50.0	1	-0.003	mg/l	0.0014	0.010
2	GN93212-S2	0.149	0.023	22:25	0.126	0.1442	50.0	50.0	1	0.144	mg/l	0.0014	0.010
2	GN93212-D2	0.018	0.023	22:25	0.000	-0.0026	50.0	50.0	1	-0.003	mg/l	0.0014	0.010
2	JB50139-3	0.018	0.023	22:25	0.000	-0.0026	50.0	50.0	1	-0.003	mg/l	0.0014	0.010
2	JB50139-6	0.000	0.000	22:25	0.000	-0.0026	50.0	50.0	1	-0.003	mg/l	0.0014	0.010
8	jb50145-38	0.001	0.000	22:25	0.001	-0.0014	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
8	jb50145-39	0.000	0.000	22:25	0.000	-0.0026	50.0	50.0	1	-0.003	mg/l	0.0014	0.010
	CCV	0.438	NA	22:25	0.438	0.5076	NA	NA	NA	NA	mg/l	0.0013	0.010
	CCB	0.000	NA	22:25	0.000	-0.0026	NA	NA	NA	NA	mg/l	0.0013	0.010
	CCV		NA				NA	NA	NA	NA	mg/l	0.0013	0.010
	CCB		NA				NA	NA	NA	NA	mg/l	0.0013	0.010
	CCV		NA				NA	NA	NA	NA	mg/l	0.0013	0.010
	CCB		NA				NA	NA	NA	NA	mg/l	0.0013	0.010

Hexavalent Chromium

Test Title:	XCr
GN Batch:	GN93212
Analyst:	MRH
Prep Date:	N/A
Analysis Date:	10/14/2013
Instrument ID:	E

Y Values Corr: 1

Method: SW846 7196A

Note: Use 4 for CLP list pointer, 1 for reg. List pointer.

Corr. Coef: 0.99997

Slope: 0.8585

Y Intercept: 0.0022

Bottle ID	Sample #	Sample Absorbance	BKGRD Abs	Analyzed Times	Y Values Corr Sample Absorbance	X Values Conc(mg/l)	Final Vol. (ml)	Sam Vol. (ml)	Dilution	Final Conc.	Units	MDL	RDL
	Cal. Blk.	0.000	NA	21:20	0.000	0.0000							
	STD1	0.009	NA		0.009	0.0100							
	STD2	0.044	NA		0.044	0.0500							
	STD3	0.089	NA		0.089	0.1000							
	STD4	0.263	NA		0.263	0.3000							
	STD5	0.436	NA		0.436	0.5000							
	STD6	0.687	NA		0.687	0.8000							
	STD7	0.859	NA	21:24	0.859	1.0000	Final Vol. (ml)	Sam. Vol. (ml)	Dilution	Final Conc.	Units	MDL	RDL
	CCV	0.440	NA	21:53	0.440	0.5100	NA	NA	NA	NA	mg/l	0.001	0.010
	CCB	0.000	NA		0.000	-0.0026	NA	NA	NA	NA	mg/l	0.0013	0.010
	GN93212-MB1	0.000	0.000	22:07	0.000	-0.0026	50.0	50.0	1	-0.003	mg/l	0.0014	0.010
	GN93212-B1	0.132	0.000	22:07	0.132	0.1512	50.0	50.0	1	0.151	mg/l	0.0014	0.010
4	GN93212-S1	0.388	0.027	22:07	0.361	0.4179	50.0	50.0	1	0.418	mg/l	0.0014	0.010
4	GN93212-D1	0.256	0.028	22:07	0.228	0.2630	50.0	50.0	1	0.263	mg/l	0.0014	0.010
4	JB50113-1	0.254	0.027	22:07	0.227	0.2619	50.0	50.0	1	0.262	mg/l	0.0014	0.010
2	JB50113-2	0.095	0.102	22:07	0.000	-0.0026	50.0	50.0	1	-0.003	mg/l	0.0014	0.010
2	JB50113-3	0.108	0.021	22:07	0.087	0.0988	50.0	50.0	1	0.099	mg/l	0.0014	0.010
2	JB50113-4	0.026	0.024	22:07	0.002	-0.0002	50.0	50.0	1	0.000	mg/l	0.0014	0.010
2	JB50113-5	0.245	0.018	22:07	0.227	0.2619	50.0	50.0	1	0.262	mg/l	0.0014	0.010
3	JB50113-6	0.000	0.000	22:07	0.000	-0.0026	50.0	50.0	1	-0.003	mg/l	0.0014	0.010
	CCV	0.438	NA	22:07	0.438	0.5076	NA	NA	NA	NA	mg/l	0.0013	0.010
	CCB	0.000	NA		0.000	-0.0026	NA	NA	NA	NA	mg/l	0.0013	0.010
2	JB50113-7	0.095	0.015	0	0.080	0.0906	50.0	50.0	1	0.091	mg/l	0.0014	0.010
2	JB50113-8	0.092	0.052	0	0.040	0.0440	50.0	50.0	1	0.044	mg/l	0.0014	0.010
1	JB50090-1	0.000	0.000	0	0.000	-0.0026	50.0	50.0	1	-0.003	mg/l	0.0014	0.010
1	JB50119-1	0.000	0.000	0	0.000	-0.0026	50.0	50.0	1	-0.003	mg/l	0.0014	0.010
2	GN93212-S2	0.149	0.023	0	0.126	0.1442	50.0	50.0	1	0.144	mg/l	0.0014	0.010
2	GN93212-D2	0.018	0.023	0	0.000	-0.0026	50.0	50.0	1	-0.003	mg/l	0.0014	0.010
2	JB50139-3	0.018	0.023	0	0.000	-0.0026	50.0	50.0	1	-0.003	mg/l	0.0014	0.010
2	JB50139-6	0.000	0.000	0	0.000	-0.0026	50.0	50.0	1	-0.003	mg/l	0.0014	0.010
8	jb50145-38	0.001	0.000	0	0.001	-0.0014	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
8	jb50145-39	0.000	0.000	0	0.000	-0.0026	50.0	50.0	1	-0.003	mg/l	0.0014	0.010
	CCV	0.438	NA		0.438	0.5076	NA	NA	NA	NA	mg/l	0.0013	0.010
	CCB	0.000	NA	22:25	0.000	-0.0026	NA	NA	NA	NA	mg/l	0.0013	0.010
	CCV		NA				NA	NA	NA	NA	mg/l	0.0013	0.010
	CCB		NA				NA	NA	NA	NA	mg/l	0.0013	0.010
	CCV		NA				NA	NA	NA	NA	mg/l	0.0013	0.010
	CCB		NA				NA	NA	NA	NA	mg/l	0.0013	0.010

1 of 2

ACCUTEST.

Test: Hexavalent Chromium
Product: XCr
Method: SW846 7196A

MDL = 0.0013 mg/l
RDL = 0.010 mg/l

GNBatch ID: GN 93212
Date: 10/14/13

Digestion Batch QC Summary Units = mg/l

Method Blank ID: MB1 Date: 10/14/13 Result: 0.000 RDL: 0.010 <RDL: Yes
Spike Blank ID: B1 Date: ↓ Result: 0.151 Spike: 0.150 %Rec.: 100.7 %
Duplicate ID: D1 (JB50113-1) Samp. Result: 0.262 Dup. Result: 0.263 %RPD: 0.3 %
MS ID: S1 ↓ Samp. Result: 0.262 MS Result: 0.418 Spike: 0.150 %Rec: 104.0 %
Diluted Sample ID: _____ Samp. Result: _____ Dil. Result: _____ %RPD: _____
pH adj. PS ID: _____ Samp. Result: _____ MS Result: _____ Spike: _____ %Rec: _____

Analysis Batch QC Summary Units = mg/l

CCV: 10/14/13 Result: 0.5100 TV: 0.5000 %Rec.: 102.0 %
CCV: ↓ Result: 0.5076 TV: ↓ %Rec.: 101.5 %
CCV: ↓ Result: 0.5076 TV: ↓ %Rec.: ↓
CCV: _____ Result: _____ TV: _____ %Rec.: _____
CCV: _____ Result: _____ TV: _____ %Rec.: _____
CCV: _____ Result: _____ TV: _____ %Rec.: _____

CCB: 10/14/13 Result: 0.0000 RDL: 0.010 <RDL: Yes
CCB: ↓ Result: ↓ RDL: ↓ <RDL: ↓
CCB: ↓ Result: ↓ RDL: ↓ <RDL: ↓
CCB: _____ Result: _____ RDL: _____ <RDL: _____
CCB: _____ Result: _____ RDL: _____ <RDL: _____
CCB: _____ Result: _____ RDL: _____ <RDL: _____

Reagent Reference Numbers:

See attached

Initial Calibration Source:
Continuing Calibration Source:

Analyst: MRH Date: 10/14/13

Comments: _____

Form: GN076-01
Rev Date: 1/10/11

2 of 2

ACCUTEST.

Test: **Hexavalent Chromium** MDL = 0.0013 mg/l GNBatch ID: GN93212
Product: **XCr** RDL = 0.010 mg/l Date: 10/14/13
Method: **SW846 7196A**

Digestion Batch QC Summary Units = mg/l

Method Blank ID:_____ Date:_____ Result:_____ RDL:_____ <RDL:_____

Spike Blank ID:_____ Date:_____ Result:_____ Spike:_____ %Rec.:_____

Duplicate ID: D2 (JB50139-3) Samp. Result: 0.000 Dup. Result: 0.000 %RPD: 0.0%

MS ID: S2 Samp. Result: 0.000 MS Result: 0.144 Spike: 0.150 %Rec: 96.0%

Diluted Sample ID:_____ Samp. Result:_____ Dil. Result:_____ %RPD:_____

pH adj. PS ID:_____ Samp. Result:_____ MS Result:_____ Spike:_____ %Rec:_____

Analysis Batch QC Summary Units = mg/l

CCV :_____ Result:_____ TV:_____ %Rec.:_____
CCV :_____ Result:_____ TV:_____ %Rec.:_____
CCV :_____ Result:_____ TV:_____ %Rec.:_____
CCV :_____ Result:_____ TV:_____ %Rec.:_____
CCV :_____ Result:_____ TV:_____ %Rec.:_____
CCV :_____ Result:_____ TV:_____ %Rec.:_____

CCB:_____ Result:_____ RDL:_____ <RDL:_____
CCB:_____ Result:_____ RDL:_____ <RDL:_____
CCB:_____ Result:_____ RDL:_____ <RDL:_____
CCB:_____ Result:_____ RDL:_____ <RDL:_____
CCB:_____ Result:_____ RDL:_____ <RDL:_____
CCB:_____ Result:_____ RDL:_____ <RDL:_____

Reagent Reference Numbers:

See attached

Initial Calibration Source:

Continuing Calibration Source:

Analyst: MRH Date: 10/14/13

Comments:_____

Form: GN076-01
Rev Date: 1/10/11

Hexavalent Chromium pH Adjustment Log
Method: SW846 7196A

pH adj. start time: 21 25 _____ pH Adjust. Date: 10/14/13
pH adj. end time: 21:45 _____ GN Batch ID: GN93212

Sample ID	Initial Sample Volume (ml)	Final Volume (ml)	pH after H2SO4	bkg pH after H2SO4	Spike Info	Comments
CCV	45	50	1.73	N/A	5.0 mL	5ppm ultra
CCV						
CCV						
CCV						
CCB	45	50	1.75	N/A	N/A	
CCB						
CCB						
CCB						
MS (JB50113-1)	45	50	1.72	1.80	1.0mL	7.5ppm Abs
DUP ↓			1.69	1.88		
SB BSP			1.81	1.93	1.0mL	7.5ppm Abs.
PB MB			1.93	1.76		
1. JB50113-1			1.88	1.69		
2. -2			1.76	1.72		
3. -3			1.75	1.81		
4. -4			1.68	1.86		
5. -5			1.73	1.88		
6. -6			1.85	1.70		
7. -7			1.84	1.91		
8. ↓ -8			1.91	1.86		
9. JB50090-1			1.90	1.93		
10. JB50119-1			1.76	1.86		
11. (MS2/JB50139-3)			1.86	1.83	1.0mL	7.5ppm Abs
12. -D2 ↓			1.82	1.90		
13. JB50139-3			1.80	1.89		
14. ↓ -6			1.77	1.86		
15. JB50145-38			1.69	1.81		
16. ↓ -39	↓	↓	1.71	1.80		
17.						
18.						
19.						
20.						
PS						
DIL						
DIL						

Reagent Information: See attached

Analyst: MRH Date: 10/14/13 QC Reviewer: _____ Date: _____

Form: GN077-01
Rev. Date:1/10/11

ACCUTEST.

Hexavalent Chromium pH Adjustment Log
Method: SW846 7196A

pH adj. start time: 21:10 _____ pH Adjust. Date: 10/14/13

pH adj. end time: 21:15 _____ GN Batch ID: GN93212

Sample ID	Initial Sample Volume (ml)	Final Volume (ml)	pH after H2SO4	Comments	Spike Info.
Calibration Blank	45	50	1.76		
0.010 mg/l standard			1.70	5 ppm Absolute	0.10 ml of 5 mg/l to 50 ml FV
0.050 mg/l standard			1.71		0.50 ml of 5 mg/l to 50 mL FV
0.100 mg/l standard			1.81		1.00 ml of 5 mg/l to 50 mL FV
0.300 mg/l standard			1.80		3.00 ml of 5 mg/l to 50 mL FV
0.500 mg/l standard			1.75		5.00 ml of 5 mg/l to 50 mL FV
0.800 mg/l standard			1.76		8.00 ml of 5 mg/l to 50 mL FV
1.00 mg/l standard	↓	↓	1.81	↓	10.0 ml of 5 mg/l to 50 mL FV
2.00 mg/l standard					20.0 ml of 5 mg/l to 50 mL FV

Reagent Information: See attached

Analyst: MRH Date: 10/14/13

Form: GN078-01
Rev. Date: 1/10/11

ACCUTEST.

HEXAVALENT CHROMIUM STANDARD PREPARATION LOG

Product: XCR 7196

GN or GP Number: GN93212

Intermediate Standard Description	Stock used to prepare standard	Stock concentration	Stock volume used in ml	Diluent	Final Volume	Final Conc. of Intermediate (mg/l)	Expiration Date	Analyst	Date
10 ppm	Absolute Grade Lot #032513	1000 ppm	1.0 ml	DI	100 mls	10 mg/l	3/25/2016	MRH	10/14/13
100 ppm		1000 ppm	10 ml	DI	100 mls	100 mg/l			
5 ppm		1000 ppm	1.0 ml	DI	200 mg/l	5 mg/l			
7.5 ppm		1000 ppm	1.5 ml	DI	200 mg/l	7.5 mg/l			
10 ppm	Ultra lot #P00986	1000 ppm	1.0 ml	DI	100 mg/l	10 mg/l	10/31/2019		

Standard Description	Intermediate or Stock used to prepare standard	Intermediate or Stock concentration	Intermediate or Stock volume used in ml	Diluent	Final Volume	Final Conc. Of Standard (mg/l)	Expiration Date	Analyst	Date
.010 ppm	5.0 ppm abs	5.0 ppm	0.1 ppm	DI	50 mls	0.01 mg/l	10/15/13	MRH	10/14/13
.050 ppm	5.0 ppm abs	5.0 ppm	0.5 ppm	DI	50 mls	0.05 mg/l			
.10 ppm	5.0 ppm abs	5.0 ppm	1.0 ppm	DI	50 mls	0.10 mg/l			
.30 ppm	5.0 ppm abs	5.0 ppm	3.0 ppm	DI	50 mls	0.30 mg/l			
.50 ppm	5.0 ppm abs	5.0 ppm	5.0 ppm	DI	50 mls	0.50 mg/l			
.80 ppm	5.0 ppm abs	5.0 ppm	8.0 ppm	DI	50 mls	0.80 mg/l			
1.00 ppm	5.0 ppm abs	5.0 ppm	10.0 ppm	DI	50 mls	1.0 mg/l			

Form: GN205-02
Rev. Date:10/16/09

Reagent Information Log - XCR - water - 7196A

Reagent	Exp. Date	Reagent # or Manufacturer/Lot
Calibration Source: Hexavalent Chromium, 1000 mg/L Stock	6/6/2016	Absolute Grade Lot # 060613
Calibration Checks: Hexavalent Chromium, 1000 mg/L Stock	10/31/2019	Ultra lot # P00986
External Check	10/31/2019	Ultra lot # P00986
Spiking Solution Source	6/6/2016	Absolute Grade Lot # 060613
Diphenyl carbazide Solution	11/2/2013	GNE10-37623-XCR
Sulfuric Acid, 10%	3/30/2014	GNE9-37608-XCR
Filter 0.45um	na	130407036
1N NaOH	12/6/2013	GNE-6-36428-XCR

Form: GN087A-23
Rev. Date: 10/3/05

ACCUTEST LABORATORIES

Test: **pH, Corrosivity**
Method: **SW846 9040B or SW846 9045C**

Product: **PH, CORR**
Analyst: ALECA
GN Batch ID: GN93229
Analysis Date: 10/15/2013
pH Meter ID: 50

Thermometer ID: 394
Correction Factor: 0

QC Summary

Duplicate ID: GN93229-D1
Dup Result: 7.61
Sample ID: JB50090-2
% RPD: 1.18%

Sample ID	Wt./Vol. used for soilds	Uncorrected/ Corrected Temp in Deg C.	Result	Corrosivity	Read time
Buffer Check: 4		25	3.98		9:57
Buffer Check: 7		25	6.97		
Buffer Check: 10		25	9.98		
GN93229-D1		25	7.61		
JB50090-2		25	7.70		
JB50090-3		25	7.37		
JB50090-4		25	7.70		
JB50090-5		25	7.86		
JB50090-6		25	7.87		
JB50119-2		25	7.95		
JB50145-32		25	7.44		
JB50145-33CONF		25	7.30		
JB50145-34		25	7.30		
Buffer Check: 7		25	6.97		
Buffer Check: 10		25	9.97		
JB50145-35CONF		25	7.71		
JB50145-36CONF		25	7.64		
JB50145-37CONF		25	7.79		
Buffer Check: 7		25	6.99		
Buffer Check: 10		25	10.00		10:58
Buffer Check:					
Buffer Check:					

Comments:

Validated By: Nancy Cole
Validated Date: 10/1/2012
Document Control #: **AGN-PH CORR-AQ-02**

7.2
7

ACCUTEST.

Analyst CC

Method EH/pH

Prep Date 10/15/2013

Balance # 38

GP # GN93229-pH
GN93230-EH

Sample Prep Log

Sample ID	Sample Size	Final Volume
JB50090-2	50.9	added 50mL
-3	50.5	
-4	50.9	
-5	50.1	
-6	50.8	
-2DUP	50.9	
JB50145-32	50.4	
-33	50.0	
-34	50.7	
-35	50.0	
-36	50.8	
-37	50.9	
JB50119-2	30.0	added 30mL

Form: GN166-02
Rev. Date: 8/5/05

QC Review_____

Reagent Information Log
Test Name:_____pH_____

GN 93229

Reagent

pH 2 Buffer Solution	FISHER LOT#126191 EXP 10/2014
pH 4 Buffer Solution	BDH LOT#2206544 EXP 6/2014
pH 7 Buffer Solution	RICCA LOT#2304783 EXP 03/2015
pH 10 Buffer Solution	BDH LOT#2206072 EXP 11/2013
pH 13 Buffer Solution	Lab Chem LOT# C025-16 EXP 1/29/20

Form: GN087-01
Rev. Date:9/18/2013

ACCUTEST LABORATORIES

Test: Redox Potential | **Test Code: REDOX** | **Analyst:** ALECA

Matrix: Aqueous (◉) | Method: ASTM D1498-76 | **Date:** 10/15/13

Matrix: Solid (○) | Method: ASTM D1498-76 Mod. | **GN Batch ID:** GN93230

Temp (Deg C): 25

Quality Control Summary

Sample ID:	GN93230-D1	Results:	**345.4**	Dup:	**346.9**
Ferrous-Ferric True: 675				Found	**675.5**
pH 4 Quinhydrone True: 462				Found	**492.8**
pH 4 Quinhydrone True: 462				Found	**485.1**
pH 4 Quinhydrone True: 462				Found	**484.4**
pH 7 Quinhydrone True: 285				Found	**290.3**
pH 7 Quinhydrone True: 285				Found	**284.8**
pH 7 Quinhydrone True: 285				Found	**285.4**

	% RPD:	**0.43%**
	% Rec	**100.07%**
	% Rec	**106.67%**
	% Rec	**105.00%**
	% Rec	**104.85%**
	% Rec	**101.86%**
	% Rec	**99.93%**
	% Rec	**100.14%**

Sample #:	mv vs. Ag/AgCl Electrode	Corrected results (mv vs. Hydrogen electrode) ***
Ferrous-Ferric Solution	463.5	675.5
pH 4 Quinhydrone	280.7	492.8
pH 7 Quinhydrone	78.2	290.3
Dup GN93230-D1	134.8	346.9
1. JB50090-2	133.3	345.4
2. JB50090-3	152.8	364.9
3. JB50090-4	143.2	355.3
4. JB50090-5	104.3	316.4
5. JB50090-6	101.1	313.2
6. JB50119-2	63.7	275.9
7. JB50145-32	90.5	302.5
8. JB50145-33CONF	101	313.1
9. JB50145-34	105.7	317.9
pH 4 Quinhydrone	273	485.1
pH 7 Quinhydrone	72.7	284.8
10. JB50145-35CONF	53.4	265.5
11. JB50145-36CONF	60	272.1
12. JB50145-37CONF	60.9	273
13.		
14.		
15.		
16.		
17.		
18.		
19.		
pH 4 Quinhydrone	272.3	484.4
pH 7 Quinhydrone	73.3	285.4

*** Note: Results vs Ag/AgCl electrode are converted to corrected results automatically at the instrument by changing to the relative mv scale. This conversion is done by adding about 200 mV to the Ag/AgCl reading.

Reagent Numbers: GNE4-35810-ORP EXP:10/6/13

Comments:

ACCUTEST.

Analyst CC

Method GH/PH

Prep Date 10/15/2013

Balance # 38

GP # GN93229-pH
GN93230-EH

Sample Prep Log

Sample ID	Sample Size	Final Volume
JB50090-2	50.9	added 50mL
-3	50.5	
-4	50.9	
-5	50.1	
-6	50.8	
-2DUP	50.9	
JB50145-32	50.4	
-33	50.0	
-34	50.7	
-35	50.0	
-36	50.8	
-37	50.9	
JB50119-2	30.0	added 30mL

Form: GN166-02
Rev. Date: 8/5/05

QC Review_____

Hexavalent Chromium

Test Title: XCRA
GN Batch: GN93231
Analyst: BP
Prep Date: 10/14/2013
Analysis Date: 10/15/2013
Instrument ID: H

Method: SW846 3060A, 7196A

Note: All results below shown on a wet weight basis.

Corr. Coef: 0.99997
Slope: 0.8939
Y intercept: -0.0005

Bottle #	Sample #	Sample Absorbance	BKGRD Abs	Analysis Times	Y Values Corr Sample Absorbance	X Values Conc(mg/l)	Final Vol. (ml)	Sam Wt. (g)	Dilution	Final Conc.	Units	MDL	RDL
	Cal. Blk.	0.000	NA	8:37	0.000	0.0000							
	STD 1	0.009	NA	8:41	0.009	0.0100							
	STD 2	0.044	NA	8:41	0.044	0.0500							
	STD 3	0.089	NA	8:41	0.089	0.1000							
	STD 4	0.268	NA	8:41	0.268	0.3000							
	STD 5	0.446	NA	8:41	0.446	0.5000							
	STD 6	0.709	NA	8:41	0.709	0.8000							
	STD 7	0.898	NA	8:41	0.898	1.0000							
	CCV	0.442	NA	9:29	0.442	0.4950	NA	NA	NA	NA	mg/l	0.002	0.010
	CCB	0.000	NA	9:29	0.000	0.0006	NA	NA	NA	NA	mg/l	0.002	0.010
	GP75260-MB1	0.000	0.000	9:37	0.000	0.0006	100.0	2.5000	1	0.024	mg/kg	0.069	0.400
	GP75260-B1	0.787	0.000	9:37	0.787	0.8810	100.0	2.5000	1	35.239	mg/kg	0.069	0.400
	GP75260-S1	0.577	0.005	9:37	0.572	0.6405	100.0	2.4800	1	25.825	mg/kg	0.070	0.403
	GP75260-D1	0.027	0.006	9:37	0.021	0.0241	100.0	2.4700	1	0.975	mg/kg	0.070	0.405
	JB50090-4	0.031	0.009	9:37	0.022	0.0252	100.0	2.4700	1	1.021	mg/kg	0.070	0.405
	JB50090-4PSCONF	0.394	0.000	9:37	0.394	0.4413	100.0	2.4700	2	35.736	mg/kg	0.070	0.810
	GP75260-B2	>3	OVR	9:37		#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
	GP75260-S2	>3	OVR	9:37		#VALUE!	100.0	2.4900	1	#VALUE!	mg/kg	0.069	0.402
	GP75260-B2	0.386	0.000	9:37	0.386	0.4324	100.0	2.5000	50	864.788	mg/kg	0.069	20.000
	GP75260-S2	0.413	0.000	9:37	0.413	0.4626	100.0	2.4900	50	928.910	mg/kg	0.069	20.080
	CCV	0.442	NA	9:37	0.442	0.4950	NA	NA	NA	NA	mg/l	0.002	0.010
	CCB	0.000	NA	9:37	0.000	0.0006	NA	NA	NA	NA	mg/l	0.002	0.010
	JB50090-2	0.150	0.039	9:42	0.111	0.1248	100.0	2.5000	1	4.991	mg/kg	0.069	0.400
	JB50090-3	0.578	0.132	9:42	0.446	0.4995	100.0	2.4400	1	20.472	mg/kg	0.071	0.410
	JB50090-5	0.140	0.031	9:42	0.109	0.1225	100.0	2.4800	1	4.941	mg/kg	0.070	0.403
	JB50090-6	0.126	0.033	9:42	0.093	0.1046	100.0	2.4900	1	4.202	mg/kg	0.069	0.402
				9:42		#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
				9:42		#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
				9:42		#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
				9:42		#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
				9:42		#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
				9:42		#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
	CCV	0.438	NA	9:42	0.438	0.4906	NA	NA	NA	NA	mg/l	0.002	0.010
	CCB	0.000	NA	9:42	0.000	0.0006	NA	NA	NA	NA	mg/l	0.002	0.010
				0:00		#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
						#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
						#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
						#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
						#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
						#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
						#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
						#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
						#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
						#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
	CCV		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.002	0.010
	CCB		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.002	0.010
						#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
						#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
						#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
						#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
						#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
						#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
						#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
						#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
						#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
						#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
	CCV		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.002	0.010
	CCB		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.002	0.010
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400

7.4
7

						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
	CCV		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.002	0.010
	CCB		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.002	0.010
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
	CCV		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.002	0.010
	CCB		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.002	0.010
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
	CCV		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.002	0.010
	CCB		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.002	0.010
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
	CCV		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.002	0.010
	CCB		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.002	0.010
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
	CCV		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.002	0.010
	CCB		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.002	0.010
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
	CCV		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.002	0.010
	CCB		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.002	0.010

revised 4/25/11

Comments:

7.4

7

ACCUTEST.

Test: **Hexavalent Chromium** MDL = 0.069 mg/kg GNBatch ID: GN93231
Product: **XCr** RDL = 0.40 mg/kg Date: 10/15/13
Method: **SW846 3060A/7196A**

Digestion Batch QC Summary Units = mg/kg

Method Blank ID: GP75260-MB1 Date: 10/15/13 Result: 0.024 RDL: 0.4 <RDL: Yes
Sol. Spike Blank ID: -B1 Date: Result: 35.239 Spike: 40 %Rec.: 88 %
Insol. Spike Blank ID: -B2 Date: Result: 864.788 Spike: 955.91 %Rec.: 90.25 %
Duplicate ID: -D1 Samp. Result: 1.021 Dup. Result: 0.975 %RPD: 4.61
Sol. MS ID: -S1 Samp. Result: MS Result: 25.525 Spike: 40.32 %Rec: 61.52 %
Insol. MS ID: -S2 Samp. Result: MS Result: 925.90 Spike: 930.454 %Rec: 99.72 %
Post Spike ID: JB50090-4PS Samp. Result: PS Result: 35.736 Spike: 40.4 %Rec: 85.75 %
Diluted Sample ID: Samp. Result: Dil. Result: %RPD:
pH adj. PS ID: Samp. Result: MS Result: Spike: %Rec:

Analysis Batch QC Summary Units = mg/l

CCV: 10/15/13 Result: 0.4950 TV: 0.500 %Rec.: 99.1 %
CCV: Result: TV: 0.500 %Rec.:
CCV: Result: 0.4906 TV: 0.500 %Rec.: 95.12 %
CCV: Result: TV: 0.500 %Rec.:
CCV: Result: TV: 0.500 %Rec.:
CCV: Result: TV: 0.500 %Rec.:
CCV: Result: TV: 0.500 %Rec.:
CCV: Result: TV: 0.500 %Rec.:
CCV: Result: TV: 0.500 %Rec.:

CCB: 10/15/13 Result: 0.0006 RDL: 0.010 <RDL: Yes
CCB: Result: RDL: 0.010 <RDL:
CCB: Result: RDL: 0.010 <RDL:
CCB: Result: RDL: 0.010 <RDL:
CCB: Result: RDL: 0.010 <RDL:
CCB: Result: RDL: 0.010 <RDL:
CCB: Result: RDL: 0.010 <RDL:
CCB: Result: RDL: 0.010 <RDL:
CCB: Result: RDL: 0.010 <RDL:

Reagent Reference Information - refer to attached reagent reference information page(s).

Insoluble spike = $PbCrO_4$ Molecular weight = 323.2 g/mol Cr = 52.0 g/mol

{1000000 ug/g x Insoluble spike wt(g) x 52/323.2}/ms sample wt(g) = Insoluble spike amount

Analyst: BP Date: 10/15/13

Comments:

Form: GN066-01
Rev. Date: 05/13/13

ACCUTEST.

Hexavalent Chromium pH Adjustment Log
Method Sw846 3060A/7196A

pH Meter ID: 23
Digestion Date: 10-14-13
pH adj. start time: 8:57 9:16
pH adj. end time: 9:07 9:24
pH adj. Date: 10/15/13
GN Batch ID: GN93231

GP75260 Sample ID	Sample Weight in g	pH after HNO3 (7.0 to 8.0)	Final Volume (ml)	pH after H2SO4 (1.5 to 2.5)	bkg pH after H2SO4	Spike Amounts	Spike Solution	Digestate Description/Comments
CCV		7.42	100	1.96	—	5.0mL	100PPMCrVI	
CCV						↓	↓	
CCV								
CCV								
CCB		7.67	100	2.16	—			
CCB								
CCB								
CCB								
MS (Sol) JB50090-4	2.48	7.52	100	2.32	1.96	1.0mL	100PPMABS	
MS (Insol.) -4	2.49	7.61		2.19	1.73	0.0144	PbCrO4	
DUP -4	2.47	7.46		2.06	1.52			
SB (Sol)	2.50	7.54		2.12	1.68	1.0mL	100PPMABS	
SB (Insol)		7.30		1.73	1.50	0.0149	PbCrO4	
MB		7.67		1.54	1.95			
1 JB50090-4	2.47	7.53		2.22	1.65			Yellow
2 -2	2.50	7.70		1.61	1.72			Tan
3 -3	2.44	7.36		1.75	1.90			Brown
4 -5	2.48	7.28		2.16	1.52			Tan
5 -6	2.49	7.10	↓	2.05	2.13			↓
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
SB (Insol)	2.50	7.30	100	2.14	1.68	1mL Samp*1	50mL WDI	dilution 1:50
MS (Insol.)	2.49	7.61		1.86	2.03	↓		dilution 1:50
PS (JB50090-4)	2.47	7.53	↓	1.93	1.52	0.225mL 100ppm ABS,	H2O 5mL	(1:2)
pH adjusted PS			N/A					
1:5 dil.								
JB50090-4	2.45							

Reagent Reference Information - refer to attached reagent reference information page(s).

{1000000 ug/g x Insoluble spike wt(g) x 52/323.2}/ms sample wt(g) = Insoluble spike amount of PbCrO4

2nd analyst check: _____ Anayst: BP

Form: GN-067
Rev. Date: 08/8/12

ACCUTEST LABS
DAYTON, NJ

3060A/7196A POST-DIGEST SPIKE LEVEL CALCULATION SPREADSHEET

GP Batch: GP7 5260

NOTE: Always dilute post-spike first, then take a 45 ml aliquot of the diluted post-spike and add the spike amount.

Sample ID	PS Aliquot Weight in g Digested in 100 ml	Weight in 45 ml	Results in mg/kg.	Amount in ml to add of 100 ppm solution	Dilution needed	Suggested Dilution to use	Actual Dilution to be used	Suggested ml of 100 ppm to spike on dilution of sample.	Actual ml of 100 ppm to spike on dilution of sample.	Est. Read-back on curve in mg/l	Calculated Spike Amount in mg/kg	Use calculated or default spike?
JB50090-4	2.47	1.1115	1.021	0.445	yes	1	2	0.223	0.225	0.513	40.486	efault (40 mg/kg) spike
		0		0.000	no	0		#DIV/0!		#DIV/0!	#DIV/0!	efault (40 mg/kg) spike
		0		0.000	no	0		#DIV/0!		#DIV/0!	#DIV/0!	efault (40 mg/kg) spike
		0		0.000	no	0		#DIV/0!		#DIV/0!	#DIV/0!	efault (40 mg/kg) spike
		0		0.000	no	0		#DIV/0!		#DIV/0!	#DIV/0!	efault (40 mg/kg) spike
		0		0.000	no	0		#DIV/0!		#DIV/0!	#DIV/0!	efault (40 mg/kg) spike
		0		0.000	no	0		#DIV/0!		#DIV/0!	#DIV/0!	efault (40 mg/kg) spike
		0		0.000	no	0		#DIV/0!		#DIV/0!	#DIV/0!	efault (40 mg/kg) spike
		0		0.000	no	0		#DIV/0!		#DIV/0!	#DIV/0!	efault (40 mg/kg) spike
		0		0.000	no	0		#DIV/0!		#DIV/0!	#DIV/0!	efault (40 mg/kg) spike
		0		0.000	no	0		#DIV/0!		#DIV/0!	#DIV/0!	efault (40 mg/kg) spike

3060A/7196A INSOLUBLE SPIKE CALCULATION

Weight of $PbCrO_4$	Weight of Sample	Amount Spiked
0.0149	2.5	958.911
0.0144	2.49	930.454
		#DIV/0!
		#DIV/0!
		#DIV/0!

B2 S2.

Validated By: JJY
Doc. Control #: AGN-XCRAPSCALC-01

Date Validated: 2/26/13

ACCUTEST.

HEXAVALENT CHROMIUM TEMPERATURE AND TIME DIGESTON LOG - METHOD 3060A

Record a minimum of starting, middle, and ending temperatures for each batch.

Thermometer ID: 318,25A,395,159
Thermometer Correction factor: 1,0,0,0

Note: Minimum of 1 hour digestion time for each batch. Corrected temperatures must be in the range of 90 to 95 deg. C.

Digestion Batch ID	Description	Time	Temp. in deg. C Hot Plate # 1 - Uncorrected/Corrected	Temp. in deg. C Hot Plate # 2 - Uncorrected/Corrected	Temp. in deg. C Hot Plate # 3 - Uncorrected/Corrected	Temp. in deg. C Hot Plate # 4 - Uncorrected/Corrected
GP 75259	Starting Time	16:44	93/94	91/91	91/91	91/91
	Time 1	17:14	93/94	91/91	91/91	91/91
	Ending Time	17:44	93/94	91/91	91/91	91/91
GP 75260	Starting Time	17:50	93/94	91/91	91/91	91/91
GP 75261	Time 1	18:20	93/94	91/91	91/91	91/91
	Ending Time	18:50	93/94	91/91	91/91	91/91
GP 75262	Starting Time	19:00	93/94	91/91		
	Time 1	19:30	93/94	91/91		
	Ending Time	20:00	93/94	91/91		

Analyst: NBB
2nd Analyst Check: MLH

Date: 10-14-13

Form: GN074-02
Rev. Date: 8/08/12

ACCUTEST.

Hexavalent Chromium pH Adjustment Log
Method: SW846 3060A/7196A

pH adj. start time: 8:21 8:31
pH adj. end time: 8:29 8:33

pH adjustment Date: 10/15/13
GN Batch ID: GN13231

Sample ID	Sample Weight in g	pH after HNO3	Final Volume (ml)	pH after H2SO4	Comments	Spike Info.
Calibration Blank	NA	7.81	100	1.96	0	
0.010 mg/l standard	NA	7.42	100	2.09	10ppm Absolute	0.10 ml of 10 mg/l
0.050 mg/l standard	NA	7.26	100	1.76	10ppm Absolute	0.50 ml of 10 mg/l
0.100 mg/l standard	NA	7.61	100	1.60	10ppm Absolute	1.00 ml of 10 mg/l
0.300 mg/l standard	NA	7.58	100	1.93	10ppm Absolute	3.00 ml of 10 mg/l
0.500 mg/l standard	NA	7.33	100	2.16	10ppm Absolute	5.00 ml of 10 mg/l
0.800 mg/l standard	NA	7.20	100	2.30	10ppm Absolute	8.00 ml of 10 mg/l
1.00 mg/l standard	NA	7.14	100	2.05	10ppm Absolute	10.0 ml of 10 mg/l

Reagent Reference Information - refer to attached reagent reference information page(s).

{1000000 ug/g x Insoluble spike wt(g) x 52/323.2}/ms sample wt(g) = Insoluble spike amount of PbCrO4

Anayst: BP.
Date: 10/15/13.

Form: GN068-01
Rev. Date:5/22/06

7.4.7

ACCUTEST.

HEXAVALENT CHROMIUM STANDARD PREPARATION LOG

Product: XCRA7196.

GN or GP Number: GN93231.

Intermediate Standard Description	Stock used to prepare standard	Stock concentration	Stock volume used in ml	Diluent	Final Volume	Final Conc. of Intermediate (mg/l)	Expiration Date	Analyst	Date
10 ppm	Absolute Grade Lot #060613	1000 ppm	1.0 ml	DI	100 mls	10 mg/l	6/6/2016	BP	10/15/13
100 ppm		1000 ppm	10 ml	DI	100 mls	100 mg/l			
5 ppm		1000 ppm	1.0 ml	DI	200 mg/l	5 mg/l			
7.5 ppm		1000 ppm	1.5 ml	DI	200 mg/l	7.5 mg/l			
10 ppm	Ultra lot #L00439	1000 ppm	1.0 ml	DI	100 mg/l	10 mg/l	5/31/2017		

Standard Description	Intermediate or Stock used to prepare standard	Intermediate or Stock concentration	Intermediate or Stock volume used in ml	Diluent	Final Volume	Final Conc. Of Standard (mg/l)	Expiration Date	Analyst	Date
.010 ppm	10.0 ppm abs	10.0 ppm	0.1 ppm	DI	100 mls	0.01 mg/l	10/16/13	BP	10/15/13
.050 ppm	10.0 ppm abs	10.0 ppm	0.5 ppm	DI	100 mls	0.05 mg/l			
.10 ppm	10.0 ppm abs	10.0 ppm	1.0 ppm	DI	100 mls	0.10 mg/l			
.30 ppm	10.0 ppm abs	10.0 ppm	3.0 ppm	DI	100 mls	0.30 mg/l			
.50 ppm	10.0 ppm abs	10.0 ppm	5.0 ppm	DI	100 mls	0.50 mg/l			
.80 ppm	10.0 ppm abs	10.0 ppm	8.0 ppm	DI	100 mls	0.80 mg/l			
1.00 ppm	10.0 ppm abs	10.0 ppm	10.0 ppm	DI	100 mls	1.0 mg/l			

Form: GN205-02
Rev. Date:10/16/09

ACCUTEST.

GN/GP Batch ID: GP75260

Reagent Information Log - XCRA (soil 3060A/7196)

Reagent	Exp. Date	Reagent # or Manufacturer/Lot
Calibration Source: Hexavalent Chromium, 1000 mg/L Stock	6/6/2016	ABSOLUTE GRADE #060616
Calibration Checks: Hexavalent Chromium, 1000 mg/L Stock	10/31/2019	ULTRA #P00986
Spiking Solution Source	6/6/2016	ABSOLUTE GRADE #060616
Lead Chromate (Insoluble Hexavalent Chromium Spike)	7/26/2017	SIGMA ALDRICH # BCBG0578V
Magnesium Chloride, Anhydrous	9/2/2017	ALFA AESAR # H10X010
1N NaOH	—	—
Digestion Solution	11/9/2013	GNE10-37704-XCR
Phosphate Buffer Solution	4/3/2014	GNE10-37639-XCRA
5.0 M Nitric Acid	5/28/14	GNE9-37551-XCRA
Diphenylcarbazide Solution	11/4/13	GNE10-37685-XCR
Sulfuric Acid, 10%	3/3/14	GNE9-37608-XCR
Filter	NA	Lot #130508059
Teflon Chips	NA	91920

Form: GN087A-21B
Rev. Date: 2/18/10

ACCUTEST LABORATORIES

Test: Redox Potential
Matrix: Aqueous (◉)
Matrix: Solid ( )

Test Code: REDOX
Method: ASTM D1498-76
Method: ASTM D1498-76 Mod.

Analyst: ALECA
Date: 10/15/13
GN Batch ID: GN93240
Temp (Deg C): 25

Quality Control Summary

Sample ID: GN93240-D1	Results:	**370.3**	Dup:	**361.2**	% RPD: **2.49%**
Ferrous-Ferric True: 675			Found	**672.9**	% Rec **99.69%**
pH 4 Quinhydrone True: 462			Found	**494.6**	% Rec **107.06%**
pH 4 Quinhydrone True: 462			Found	**484.5**	% Rec **104.87%**
pH 4 Quinhydrone True: 462			Found		% Rec
pH 7 Quinhydrone True: 285			Found	**288**	% Rec **101.05%**
pH 7 Quinhydrone True: 285			Found	**285.4**	% Rec **100.14%**
pH 7 Quinhydrone True: 285			Found		% Rec

Sample #:	mv vs. Ag/AgCl Electrode	Corrected results (mv vs. Hydrogen electrode) ***
Ferrous-Ferric Solution	461	672.9
pH 4 Quinhydrone	282.4	494.6
pH 7 Quinhydrone	76	288
Dup GN93240-D1	149.2	361.2
1. JB50090-1	136.4	348.5
2. JB50119-1	158.2	370.3
3.		
4.		
5.		
6.		
7.		
8.		
9.		
pH 4 Quinhydrone	272.4	484.5
pH 7 Quinhydrone	73.3	285.4
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.		
19.		
pH 4 Quinhydrone		
pH 7 Quinhydrone		

*** Note: Results vs Ag/AgCl electrode are converted to corrected results automatically at the instrument by changing to the relative mv scale. This conversion is done by adding about 200 mV to the Ag/AgCl reading.

Reagent Numbers: GNE4-35810-ORP EXP:10/6/13

Comments:

7.5

ACCUTEST.

Analyst CC

Method EH

Prep Date 10/15/2013

Balance #_____

GP # GN93240

Sample Prep Log

Sample ID	Sample Size	Final Volume
JB50090-1	40mL	
-1DUP	40	
JB50119-1	40	

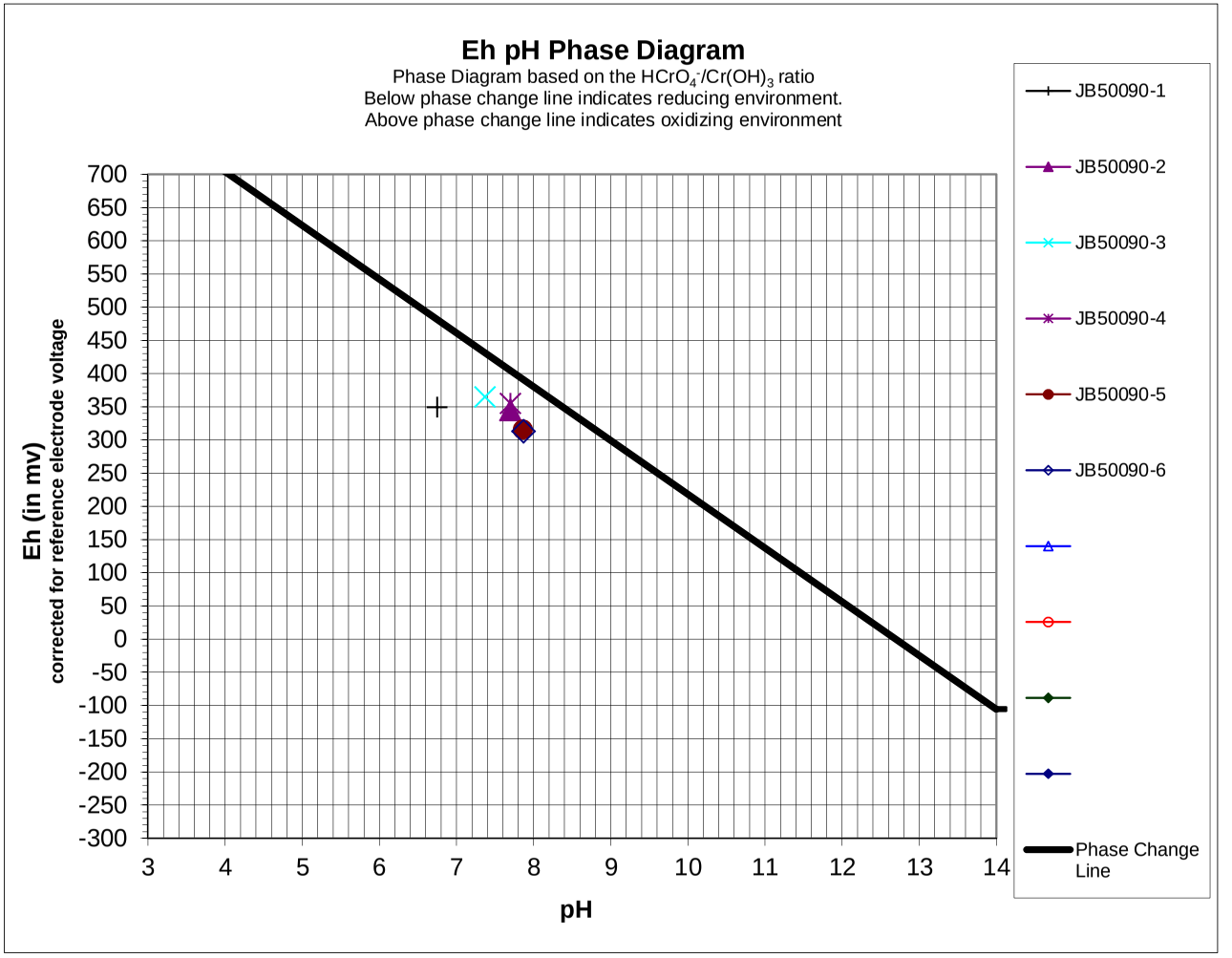
Form: GN166-02
Rev. Date: 8/5/05

QC Review_____

ACCUTEST

Phase Change Line	pH	eH (MV)
	0	1027.7
	14	-105.6

Sample Number	pH	eH (mv)
JB50090-1	6.75	349
JB50090-2	7.7	345
JB50090-3	7.37	365
JB50090-4	7.7	355
JB50090-5	7.86	316
JB50090-6	7.87	313



Note that the Eh values plotted on this diagram are corrected for the reference electrode voltage and the values shown are versus the standard hydrogen electrode

Reference for graph: SW846 method 3060A

New Jersey
ACCUTEST LABORATORIES

10/17/13

Technical Report for

AECOM, INC.

PPG-Site 186 RAM, Jersey City, NJ

60238842 186.RAM

Accutest Job Number: JB50090R

Sampling Date: 10/14/13

Report to:

AECOM, INC.
30 Knightsbridge Road Suite 520
Piscataway, NJ 08854
NJlabdata@aecom.com; Lisa.Krowitz@aecom.com;
Justin.Webster@aecom.com; Alfred.LoPilato@aecom.com
ATTN: Lisa Krowitz

Total number of pages in report: **79**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Nancy Cole
Laboratory Director

Client Service contact: Matt Cordova 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, DE, FL, IL, IN, KS, KY, LA, MA, MD, MI, MT, NC, OH VAP (CL0056), PA, RI, SC, TN, VA, WV

Sections: 1 2 3 4 5 6 7

Table of Contents

-1-

Accutest Laboratories

Sample Summary

AECOM, INC.

Job No: JB50090R

PPG-Site 186 RAM, Jersey City, NJ
Project No: 60238842 186.RAM

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JB50090-2R	10/14/13	11:05	AL	10/14/13	SO	Soil	186-MFHT1-4-2.0-2.5
JB50090-3R	10/14/13	10:15	AL	10/14/13	SO	Soil	186-MFHT1-3-2.0-2.5
JB50090-4R	10/14/13	09:15	AL	10/14/13	SO	Soil	186-MFHT1-2-2.0-2.5
JB50090-5R	10/14/13	08:31	AL	10/14/13	SO	Soil	186-MFHT1-2.0-2.5X
JB50090-6R	10/14/13	08:30	AL	10/14/13	SO	Soil	186-MFHT1-2.0-2.5

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	AECOM, INC.	**Job No**	JB50090R
Site:	PPG-Site 186 RAM, Jersey City, NJ	**Report Date**	10/17/2013 7:13:22 P

On 10/14/2013, 5 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at Accutest Laboratories at a temperature of 3.5 C. Samples were intact and chemically preserved, unless noted below. An Accutest Job Number of JB50090R was assigned to the project. Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Wet Chemistry By Method ASTM D3872-86

Matrix: SO **Batch ID:** GN93315

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB47902-1RTDUP, JB47902-1RTMS were used as the QC samples for Iron, Ferrous.
- JB50090-4R for Iron, Ferrous: The ferrous iron test was analyzed after completion of Cr6 testing (outside of normal hold times for this parameter) in order to provide more information about the possible impact of the sample matrix on Cr6 recoveries.

Wet Chemistry By Method LLOYD KAHN 1988 MOD

Matrix: SO **Batch ID:** GP75181

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB48878-1DUP, JB48878-1MS were used as the QC samples for Total Organic Carbon.
- Matrix Spike Recovery(s) for Total Organic Carbon are outside control limits. Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.

Wet Chemistry By Method SM4500S2- A-11

Matrix: SO **Batch ID:** GN93317

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- JB50090-4R for Sulfide Screen: The sulfide screen test was analyzed after completion of Cr6 testing (outside of normal hold times for this parameter) in order to provide more information about the possible impact of the sample matrix on Cr6 recoveries.

Wet Chemistry By Method SW846 3060A/7196A

Matrix: SO **Batch ID:** GP75278

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB50090-4RDUP, JB50090-4RMS were used as the QC samples for Chromium, Hexavalent.
- Matrix Spike Recovery(s) for Chromium, Hexavalent are outside control limits. Insoluble XCR matrix spike recovery indicates possible matrix interference. See additional comments on soluble matrix spike recovery.
- RPD(s) for Duplicate for Chromium, Hexavalent are outside control limits for sample GP75278-D1. High RPD due to possible sample nonhomogeneity.
- GP75278-S1 for Chromium, Hexavalent: Soluble XCR matrix spike recovery indicates possible matrix interference. Good post spike recovery (93.8%) on this sample.

Accutest certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting Accutest's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

Accutest Laboratories is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. Data release is authorized by Accutest Laboratories indicated via signature on the report cover

Summary of Hits

Job Number: JB50090R
Account: AECOM, INC.
Project: PPG-Site 186 RAM, Jersey City, NJ
Collected: 10/14/13

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JB50090-2R	**186-MFHT1-4-2.0-2.5**					
Chromium, Hexavalent		4.1	0.47	0.081	mg/kg	SW846 3060A/7196A
JB50090-3R	**186-MFHT1-3-2.0-2.5**					
Chromium, Hexavalent		24.1	0.47	0.081	mg/kg	SW846 3060A/7196A
JB50090-4R	**186-MFHT1-2-2.0-2.5**					
Chromium, Hexavalent		1.4	0.44	0.076	mg/kg	SW846 3060A/7196A
Iron, Ferrous [a]		0.50	0.20		%	ASTM D3872-86
Total Organic Carbon		39700	110	92	mg/kg	LLOYD KAHN 1988 MOD
JB50090-5R	**186-MFHT1-2.0-2.5X**					
Chromium, Hexavalent		2.0	0.45	0.078	mg/kg	SW846 3060A/7196A
JB50090-6R	**186-MFHT1-2.0-2.5**					
Chromium, Hexavalent		2.5	0.45	0.077	mg/kg	SW846 3060A/7196A

(a) The ferrous iron test was analyzed after completion of Cr6 testing (outside of normal hold times for this parameter) in order to provide more information about the possible impact of the sample matrix on Cr6 recoveries.

New Jersey ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID: 186-MFHT1-4-2.0-2.5
Lab Sample ID: JB50090-2R
Matrix: SO - Soil
Project: PPG-Site 186 RAM, Jersey City, NJ

Date Sampled: 10/14/13
Date Received: 10/14/13
Percent Solids: 85.5

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	4.1	0.47	0.081	mg/kg	1	10/16/13 10:03	BP	SW846 3060A/7196A

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: 186-MFHT1-3-2.0-2.5
Lab Sample ID: JB50090-3R
Matrix: SO - Soil
Project: PPG-Site 186 RAM, Jersey City, NJ

Date Sampled: 10/14/13
Date Received: 10/14/13
Percent Solids: 84.9

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	24.1	0.47	0.081	mg/kg	1	10/16/13 10:03	BP	SW846 3060A/7196A

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: 186-MFHT1-2-2.0-2.5
Lab Sample ID: JB50090-4R
Matrix: SO - Soil
Project: PPG-Site 186 RAM, Jersey City, NJ

Date Sampled: 10/14/13
Date Received: 10/14/13
Percent Solids: 90.8

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	1.4	0.44	0.076	mg/kg	1	10/16/13 09:58	BP	SW846 3060A/7196A
Iron, Ferrous [a]	0.50	0.20		%	1	10/16/13	CB	ASTM D3872-86
Sulfide Screen [b]	NEGATIVE				1	10/16/13	CB	SM4500S2- A-11
Total Organic Carbon	39700	110	92	mg/kg	1	10/16/13 14:24	VA	LLOYD KAHN 1988 MOD

(a) The ferrous iron test was analyzed after completion of Cr6 testing (outside of normal hold times for this parameter) in order to provide more information about the possible impact of the sample matrix on Cr6 recoveries.
(b) The sulfide screen test was analyzed after completion of Cr6 testing (outside of normal hold times for this parameter) in order to provide more information about the possible impact of the sample matrix on Cr6 recoveries.

RL = Reporting Limit
MDL = Method Detection Limit
U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: 186-MFHT1-2.0-2.5X
Lab Sample ID: JB50090-5R
Matrix: SO - Soil
Project: PPG-Site 186 RAM, Jersey City, NJ

Date Sampled: 10/14/13
Date Received: 10/14/13
Percent Solids: 88.8

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	2.0	0.45	0.078	mg/kg	1	10/16/13 10:03	BP	SW846 3060A/7196A

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: 186-MFHT1-2.0-2.5
Lab Sample ID: JB50090-6R
Matrix: SO - Soil
Project: PPG-Site 186 RAM, Jersey City, NJ

Date Sampled: 10/14/13
Date Received: 10/14/13
Percent Solids: 89.8

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	2.5	0.45	0.077	mg/kg	1	10/16/13 10:03	BP	SW846 3060A/7196A

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

New Jersey ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- Sample Tracking Chronicle
- Internal Chain of Custody

AECOM

50
FB

CHAIN-OF-CUSTODY / Analytical Request Document

2013-10-14_SITE186_COC

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of 1

JB50090

Task:	Site 186
Total # of Samples: 6	

TAT	per P.O.	Rush	SEE BELOW

Notes: F= Field Filtered , H= Hold

Lab Information:

Lab:	Accutest, Dayton NJ
Address:	2235 Route 130, Dayton NJ 08810
Lab PM:	Matt Cordova
Phone/Fax:	732-329-0200/732-329-3499/3480
PM email:	
Lab Quote #:	46011607

Project Information:

Site ID #:	Site 186
Project #:	60238842.NGA.186.RAM
Site Address:	
City	Jersey City; State, Zip NJ 07304
PM Name:	Alfred LoPilato
Phone/Fax:	845-425-4980
PM Email:	Alfred.LoPilato@aecom.com

Other Information:

Send Invoice to:	Lisa Krowitz (Lisa.Krowitz@aecom.com)
Address:	100 Red Schoolhouse Road Suite B-1
City/State.	Chestnut Ridge , NY 10977-6715; Phone #: 845.425.4980
PO #:	
Send EDD to:	NJLABDATA@aecom.com
CC Hardcopy to	No Hardcopy Needed
CC Hardcopy to	

ITEM #	Field Sample No. /Identification	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comment	GARA-HexChrom	GARA-pH-ORP					
1	186-FB20131014	SO	G	10/14/2013 08:30	2	2 Containers: 1 Cr+6, 1 pH-ORP	X	X	-1	pH	6.75	[illegible]	
2	186-MFHT1-4-2.0-2.5	SO	G	10/12/2013 11:05	1	1 Jar	X	X	-2				
3	186-MFHT1-3-2.0-2.5	SO	G	10/12/2013 10:15	1	1 Jar	X	X	-3				
4	186-MFHT1-2-2.0-2.5	SO	G	10/12/2013 09:15	2	MS/MSD - 2 Jars	X	X	-4				
5	186-MFHT1-2.0-2.5X	SO	G	10/12/2013 08:31	1	1 Jar	X	X	-5				
6	186-MFHT1-2.0-2.5	SO	G	10/12/2013 08:30	1	1 Jar	X	X	-6				
													C45
													G27
													M25

Additional Comments/Special Instructions:
1 DAY TAT

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
[illegible] / AECOM	10/14/13		[illegible]	10/14/13	10:40
[illegible]	10/14/13	12:55	[illegible]	10/14/13	12:55

Sample Receipt Conditions			
	Y / N	Y / N	Y / N
	Y / N	Y / N	Y / N
	Y / N	Y / N	Y / N
	Y / N	Y / N	Y / N
Temp in 0C	Samples on Ice?	Sample intact?	Trip Blank?

NAME OF SAMPLER:		DATE/TIME:	
SIGNATURE OF SAMPLER		Custody Seal(s):	

1 Cooler

3.5C

JB50090R: Chain of Custody

Page 1 of 3

5.1

5

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: JB50090 **Client:** **Project:**

Date / Time Received: 10/14/2013 **Delivery Method:** **Airbill #'s:**

Cooler Temps (Initial/Adjusted): #1: (3.5/3.5); 0

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:	IR Gun		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	1		

Quality Control Preservatio	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☑	☐
2. Trip Blank listed on COC:	☐		☑	☐
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☐		☐	☑

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Comments

Accutest Laboratories
V:732.329.0200

2235 US Highway 130
F: 732.329.3499

Dayton, New Jersey
www/accutest.com

JB50090R: Chain of Custody
Page 2 of 3

ACCUTEST LABORATORIES

Job Change Order: JB50090

Requested Date:	10/15/2013	**Received Date:**	10/14/2013
Account Name:	AECOM, INC.	**Due Date:**	10/15/2013
Project Description:	PPG-Site 186, Jersey City, NJ	**Deliverable:**	FULT1
CSR:	kellyp	**TAT (Days):**	1

Sample #: JB50090-2 thru 6
Dept:
Change: Please relog for XXCRAR

Sample #: JB50090-4
Dept:
Change: Please relog for XXCRAR, FE2/7, SULFS, and TOCLK

186-MFHT1-2-2.0-2.5

Above Changes Per: Lisa Krowitz **Date:** 10/15/2013

To Client: This Change Order is confirmation of the revisions, previously discussed with the Accutest Client Service Representative.

Page 1 of 1

JB50090R: Chain of Custody
Page 3 of 3

Internal Sample Tracking Chronicle

AECOM, INC.

Job No: JB50090R

PPG-Site 186 RAM, Jersey City, NJ
Project No: 60238842 186.RAM

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB50090-2R	Collected: 14-OCT-13 11:05 By: AL 186-MFHT1-4-2.0-2.5		Received: 14-OCT-13		By: AS	
JB50090-2R	SW846 3060A/7196A	16-OCT-13 10:03	BP	15-OCT-13	NP	XCRA
JB50090-3R	Collected: 14-OCT-13 10:15 By: AL 186-MFHT1-3-2.0-2.5		Received: 14-OCT-13		By: AS	
JB50090-3R	SW846 3060A/7196A	16-OCT-13 10:03	BP	15-OCT-13	NP	XCRA
JB50090-4R	Collected: 14-OCT-13 09:15 By: AL 186-MFHT1-2-2.0-2.5		Received: 14-OCT-13		By: AS	
JB50090-4R	ASTM D3872-86	16-OCT-13	CB			FE2/7
JB50090-4R	SM4500S2- A-11	16-OCT-13	CB			SULFS
JB50090-4R	SW846 3060A/7196A	16-OCT-13 09:58	BP	15-OCT-13	NP	XCRA
JB50090-4R	LLOYD KAHN 1988 MOD	16-OCT-13 14:24	VA	16-OCT-13	VA	TOCLK
JB50090-5R	Collected: 14-OCT-13 08:31 By: AL 186-MFHT1-2.0-2.5X		Received: 14-OCT-13		By: AS	
JB50090-5R	SW846 3060A/7196A	16-OCT-13 10:03	BP	15-OCT-13	NP	XCRA
JB50090-6R	Collected: 14-OCT-13 08:30 By: AL 186-MFHT1-2.0-2.5		Received: 14-OCT-13		By: AS	
JB50090-6R	SW846 3060A/7196A	16-OCT-13 10:03	BP	15-OCT-13	NP	XCRA

Accutest Internal Chain of Custody

Job Number: JB50090R
Account: ENSRNJ AECOM, INC.
Project: PPG-Site 186 RAM, Jersey City, NJ
Received: 10/14/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB50090-2.1	Secured Storage	Bernadette Vassilatos	10/14/13 14:38	Retrieve from Storage
JB50090-2.1	Bernadette Vassilatos	Secured Staging Area	10/14/13 14:38	Return to Storage
JB50090-2.1	Secured Staging Area	Nilesh Patel	10/14/13 15:09	Retrieve from Storage
JB50090-2.1	Nilesh Patel	Secured Storage	10/14/13 23:27	Return to Storage
JB50090-2.1	Secured Storage	Bernadette Vassilatos	10/15/13 06:25	Retrieve from Storage
JB50090-2.1	Bernadette Vassilatos	Secured Staging Area	10/15/13 06:25	Return to Storage
JB50090-2.1	Secured Staging Area	Alec Arbello	10/15/13 08:38	Retrieve from Storage
JB50090-2.1	Alec Arbello	Secured Storage	10/15/13 12:08	Return to Storage
JB50090-2.1	Secured Storage	Bernadette Vassilatos	10/15/13 15:14	Retrieve from Storage
JB50090-2.1	Bernadette Vassilatos	Secured Staging Area	10/15/13 15:15	Return to Storage
JB50090-2.1	Secured Staging Area	Nilesh Patel	10/15/13 15:24	Retrieve from Storage
JB50090-2.1	Nilesh Patel	Secured Storage	10/15/13 20:28	Return to Storage
JB50090-2.1.1	Nilesh Patel	Arayna Ramkelawan	10/14/13 15:10	Aliquot from JB50090-2.1
JB50090-2.1.1	Arayna Ramkelawan		10/14/13 16:57	Depleted
JB50090-3.1	Secured Storage	Bernadette Vassilatos	10/14/13 14:38	Retrieve from Storage
JB50090-3.1	Bernadette Vassilatos	Secured Staging Area	10/14/13 14:38	Return to Storage
JB50090-3.1	Secured Staging Area	Nilesh Patel	10/14/13 15:09	Retrieve from Storage
JB50090-3.1	Nilesh Patel	Secured Storage	10/14/13 23:27	Return to Storage
JB50090-3.1	Secured Storage	Bernadette Vassilatos	10/15/13 06:25	Retrieve from Storage
JB50090-3.1	Bernadette Vassilatos	Secured Staging Area	10/15/13 06:25	Return to Storage
JB50090-3.1	Secured Staging Area	Alec Arbello	10/15/13 08:38	Retrieve from Storage
JB50090-3.1	Alec Arbello	Secured Storage	10/15/13 12:08	Return to Storage
JB50090-3.1	Secured Storage	Bernadette Vassilatos	10/15/13 15:14	Retrieve from Storage
JB50090-3.1	Bernadette Vassilatos	Secured Staging Area	10/15/13 15:15	Return to Storage
JB50090-3.1	Secured Staging Area	Nilesh Patel	10/15/13 15:24	Retrieve from Storage
JB50090-3.1	Nilesh Patel	Secured Storage	10/15/13 20:28	Return to Storage
JB50090-3.1.1	Nilesh Patel	Arayna Ramkelawan	10/14/13 15:10	Aliquot from JB50090-3.1
JB50090-3.1.1	Arayna Ramkelawan		10/14/13 16:57	Depleted
JB50090-4.1	Secured Storage	Bernadette Vassilatos	10/14/13 14:38	Retrieve from Storage
JB50090-4.1	Bernadette Vassilatos	Secured Staging Area	10/14/13 14:38	Return to Storage
JB50090-4.1	Secured Staging Area	Nilesh Patel	10/14/13 15:09	Retrieve from Storage
JB50090-4.1	Nilesh Patel	Secured Storage	10/14/13 23:27	Return to Storage
JB50090-4.1	Secured Storage	Bernadette Vassilatos	10/15/13 06:25	Retrieve from Storage
JB50090-4.1	Bernadette Vassilatos	Secured Staging Area	10/15/13 06:25	Return to Storage
JB50090-4.1	Secured Staging Area	Alec Arbello	10/15/13 08:38	Retrieve from Storage
JB50090-4.1	Alec Arbello	Secured Storage	10/15/13 12:08	Return to Storage
JB50090-4.1	Secured Storage	Bernadette Vassilatos	10/16/13 06:17	Retrieve from Storage
JB50090-4.1	Bernadette Vassilatos	Secured Staging Area	10/16/13 06:17	Return to Storage
JB50090-4.1	Secured Staging Area	Chris Brunson	10/16/13 09:44	Retrieve from Storage
JB50090-4.1	Chris Brunson	Vaidehi Amin	10/16/13 10:20	Custody Transfer

Accutest Internal Chain of Custody

Job Number: JB50090R
Account: ENSRNJ AECOM, INC.
Project: PPG-Site 186 RAM, Jersey City, NJ
Received: 10/14/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB50090-4.1	Vaidehi Amin	Secured Storage	10/16/13 18:35	Return to Storage
JB50090-4.1.1	Nilesh Patel	Arayna Ramkelawan	10/14/13 15:10	Aliquot from JB50090-4.1
JB50090-4.1.1	Arayna Ramkelawan		10/14/13 16:57	Depleted
JB50090-4.2	Secured Storage	Bernadette Vassilatos	10/14/13 14:38	Retrieve from Storage
JB50090-4.2	Bernadette Vassilatos	Secured Staging Area	10/14/13 14:38	Return to Storage
JB50090-4.2	Secured Staging Area	Nilesh Patel	10/14/13 15:09	Retrieve from Storage
JB50090-4.2	Nilesh Patel	Secured Storage	10/14/13 23:27	Return to Storage
JB50090-4.2	Secured Storage	Bernadette Vassilatos	10/15/13 06:25	Retrieve from Storage
JB50090-4.2	Bernadette Vassilatos	Secured Staging Area	10/15/13 06:25	Return to Storage
JB50090-4.2	Secured Staging Area	Alec Arbello	10/15/13 08:38	Retrieve from Storage
JB50090-4.2	Alec Arbello	Secured Storage	10/15/13 12:08	Return to Storage
JB50090-4.2	Secured Storage	Bernadette Vassilatos	10/15/13 15:14	Retrieve from Storage
JB50090-4.2	Bernadette Vassilatos	Secured Staging Area	10/15/13 15:15	Return to Storage
JB50090-4.2	Secured Staging Area	Nilesh Patel	10/15/13 15:24	Retrieve from Storage
JB50090-4.2	Nilesh Patel	Secured Storage	10/15/13 20:28	Return to Storage
JB50090-5.1	Secured Storage	Bernadette Vassilatos	10/14/13 14:38	Retrieve from Storage
JB50090-5.1	Bernadette Vassilatos	Secured Staging Area	10/14/13 14:38	Return to Storage
JB50090-5.1	Secured Staging Area	Nilesh Patel	10/14/13 15:09	Retrieve from Storage
JB50090-5.1	Nilesh Patel	Secured Storage	10/14/13 23:27	Return to Storage
JB50090-5.1	Secured Storage	Bernadette Vassilatos	10/15/13 06:25	Retrieve from Storage
JB50090-5.1	Bernadette Vassilatos	Secured Staging Area	10/15/13 06:25	Return to Storage
JB50090-5.1	Secured Staging Area	Alec Arbello	10/15/13 08:38	Retrieve from Storage
JB50090-5.1	Alec Arbello	Secured Storage	10/15/13 12:08	Return to Storage
JB50090-5.1	Secured Storage	Bernadette Vassilatos	10/15/13 15:14	Retrieve from Storage
JB50090-5.1	Bernadette Vassilatos	Secured Staging Area	10/15/13 15:15	Return to Storage
JB50090-5.1	Secured Staging Area	Nilesh Patel	10/15/13 15:24	Retrieve from Storage
JB50090-5.1	Nilesh Patel	Secured Storage	10/15/13 20:28	Return to Storage
JB50090-5.1.1	Nilesh Patel	Arayna Ramkelawan	10/14/13 15:10	Aliquot from JB50090-5.1
JB50090-5.1.1	Arayna Ramkelawan		10/14/13 16:57	Depleted
JB50090-6.1	Secured Storage	Bernadette Vassilatos	10/14/13 14:38	Retrieve from Storage
JB50090-6.1	Bernadette Vassilatos	Secured Staging Area	10/14/13 14:38	Return to Storage
JB50090-6.1	Secured Staging Area	Nilesh Patel	10/14/13 15:09	Retrieve from Storage
JB50090-6.1	Nilesh Patel	Secured Storage	10/14/13 23:27	Return to Storage
JB50090-6.1	Secured Storage	Bernadette Vassilatos	10/15/13 06:25	Retrieve from Storage
JB50090-6.1	Bernadette Vassilatos	Secured Staging Area	10/15/13 06:25	Return to Storage
JB50090-6.1	Secured Staging Area	Alec Arbello	10/15/13 08:38	Retrieve from Storage
JB50090-6.1	Alec Arbello	Secured Storage	10/15/13 12:08	Return to Storage
JB50090-6.1	Secured Storage	Bernadette Vassilatos	10/15/13 15:14	Retrieve from Storage
JB50090-6.1	Bernadette Vassilatos	Secured Staging Area	10/15/13 15:15	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB50090R
Account: ENSRNJ AECOM, INC.
Project: PPG-Site 186 RAM, Jersey City, NJ
Received: 10/14/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB50090-6.1	Secured Staging Area	Nilesh Patel	10/15/13 15:24	Retrieve from Storage
JB50090-6.1	Nilesh Patel	Secured Storage	10/15/13 20:28	Return to Storage
JB50090-6.1.1	Nilesh Patel	Arayna Ramkelawan	10/14/13 15:10	Aliquot from JB50090-6.1
JB50090-6.1.1	Arayna Ramkelawan		10/14/13 16:57	Depleted

New Jersey ACCUTEST LABORATORIES

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries
- Instrument Runlogs/QC
- Percent Solids Raw Data Summary

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: JB50090R
Account: ENSRNJ - AECOM, INC.
Project: PPG-Site 186 RAM, Jersey City, NJ

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GP75278/GN93304	0.40	0.0	mg/kg	40.0	38.2	95.5	80-120%
Chromium, Hexavalent	GP75278/GN93304			mg/kg	900.990	884	98.1	80-120%
Iron, Ferrous	GN93315	0.20	<0.20	%				
Sulfide Screen	GN93317		NEGATIVE					
Total Organic Carbon	GP75181/GN93334	100	0.00	mg/kg	2000	1950	97.5	80-120%

Associated Samples:
Batch GN93315: JB50090-4R
Batch GN93317: JB50090-4R
Batch GP75181: JB50090-4R
Batch GP75278: JB50090-2R, JB50090-3R, JB50090-4R, JB50090-5R, JB50090-6R
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: JB50090R
Account: ENSRNJ - AECOM, INC.
Project: PPG-Site 186 RAM, Jersey City, NJ

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GP75278/GN93304	JB50090-4R	mg/kg	1.4	0.77	58.1*(a)	0-20%
Iron, Ferrous	GN93315	JB47902-1RT	%	1.0	1.0	0.0	0-26%
Sulfide Screen	GN93317	JB47902-1RT		NEGATIVE	NEGATIVE		0-%
Total Organic Carbon	GP75181/GN93029	JB48878-1	mg/kg	84500	109000	25.3	0-50.8%

Associated Samples:
Batch GN93315: JB50090-4R
Batch GN93317: JB50090-4R
Batch GP75181: JB50090-4R
Batch GP75278: JB50090-2R, JB50090-3R, JB50090-4R, JB50090-5R, JB50090-6R
(*) Outside of QC limits
(a) High RPD due to possible sample nonhomogeneity.

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: JB50090R
Account: ENSRNJ - AECOM, INC.
Project: PPG-Site 186 RAM, Jersey City, NJ

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chromium, Hexavalent	GP75278/GN93304	JB50090-4R	mg/kg	1.4	44.6	28.5	60.8N(a)	75-125%
Chromium, Hexavalent	GP75278/GN93304	JB50090-4R	mg/kg	1.4	968	1280	132.0N(b)	75-125%
Iron, Ferrous	GN93315	JB47902-1RT	%	1.0	50.71	58.0	112.4	62-130%
Total Organic Carbon	GP75181/GN93029	JB48878-1	mg/kg	84500	95000	222000	144.8N(c)	39.6-124.8%

Associated Samples:
Batch GN93315: JB50090-4R
Batch GP75181: JB50090-4R
Batch GP75278: JB50090-2R, JB50090-3R, JB50090-4R, JB50090-5R, JB50090-6R
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(a) Soluble XCR matrix spike recovery indicates possible matrix interference. Good post spike recovery (93.8%) on this sample.
(b) Insoluble XCR matrix spike recovery indicates possible matrix interference. See additional comments on soluble matrix spike recovery.
(c) Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB50090R
Account: ENSRNJ - AECOM, INC.
Project: PPG-Site 186 RAM, Jersey City, NJ

File ID: E31010S1.TXT Date Analyzed: 10/10/13 Methods: LLOYD KAHN 1988 MOD
Analyst: VA Run ID: GN93029
Parameters: Total Organic Carbon

Time	Sample Description	Dilution Factor	PS Recov	Comments
10:01	GN93029-STD1	1		STDA
10:19	GN93029-STD2	1		STDB
11:19	GN93029-STD3	1		STDC
11:31	GN93029-STD4	1		STDD
11:44	GN93029-STD5	1		STDE
12:02	GN93029-STD6	1		STDF
12:17	GN93029-STD7	1		STDG
09:58	GN93029-CRI1	1		
10:19	GN93029-HSTD1	1		
10:34	GN93029-ICV1	1		
11:03	GN93029-ICB1	1		
11:27	GN93029-CCV1	1		
11:45	GN93029-CCB1	1		
12:02	GP75181-MB1	1		
12:14	GP75181-B1	1		
12:32	ZZZZZZ	1		
12:51	JB48878-1	1		(sample used for QC only; not part of login JB50090R)
13:11	ZZZZZZ	1		
14:08	ZZZZZZ	1		
14:34	ZZZZZZ	1		
14:52	ZZZZZZ	1		
15:09	GP75181-D1	1		
15:40	GP75181-S1	1		
15:54	GN93029-CCV2	1		
16:04	GN93029-CCB2	1		
16:16	ZZZZZZ	1		
16:54	ZZZZZZ	1		
17:09	ZZZZZZ	1		
17:23	GN93029-CCV3	1		
17:40	GN93029-CCB3	1		

Refer to raw data for calibration curve and standards.

Instrument QC Summary
Inorganics Analyses

Login Number: JB50090R
Account: ENSRNJ - AECOM, INC.
Project: PPG-Site 186 RAM, Jersey City, NJ

File ID: E31010S1.TXT Date Analyzed: 10/10/13 Methods: LLOYD KAHN 1988 MOD
Run ID: GN93029 Units: mg/l

Sample Number	Parameter	Result	RL	IDL/MDL	True Value	% Recov.	QC Limits
GN93029-CRI1	Total Organic Carbon	127	100	84	100	127.0	70-130
GN93029-HSTD1	Total Organic Carbon	5080	100	84	5000	101.6	90-110
GN93029-ICV1	Total Organic Carbon	2080	100	84	2000	104.0	90-110
GN93029-ICB1	Total Organic Carbon	37.0	100	84			
GN93029-CCV1	Total Organic Carbon	2600	100	84	2500	104.0	90-110
GN93029-CCB1	Total Organic Carbon	31.7	100	84			
GN93029-CCV2	Total Organic Carbon	2620	100	84	2500	104.8	90-110
GN93029-CCB2	Total Organic Carbon	31.7	100	84			
GN93029-CCV3	Total Organic Carbon	2610	100	84	2500	104.4	90-110
GN93029-CCB3	Total Organic Carbon	31.7	100	84			

(!) Outside of QC limits

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB50090R
Account: ENSRNJ - AECOM, INC.
Project: PPG-Site 186 RAM, Jersey City, NJ

File ID: D31016S1.TXT Date Analyzed: 10/16/13 Methods: LLOYD KAHN 1988 MOD
Analyst: VA Run ID: GN93334
Parameters: Total Organic Carbon

Time	Sample Description	Dilution Factor	PS Recov	Comments
11:00	GN93334-STD1	1		STDB
11:31	GN93334-STD2	1		STDC
11:52	GN93334-STD3	1		STDD
12:08	GN93334-STD4	1		STDE
12:27	GN93334-STD5	1		STDF
12:46	GN93334-STD6	1		STDG
09:47	GN93334-CRI1	1		
10:31	GN93334-HSTD1	1		
10:44	GN93334-ICV1	1		
11:10	GN93334-CCV1	1		
11:47	GP75181-MB2	1		
12:16	GP75181-B2	1		
12:52	JB50090-4R	1		Overrange.Rerun at 0.1g.
14:24	JB50090-4R	1		
14:52	ZZZZZZ	1		
15:11	ZZZZZZ	1		
15:40	GN93334-CCV2	1		
15:57	ZZZZZZ	1		
16:32	ZZZZZZ	1		
16:49	ZZZZZZ	1		
17:03	ZZZZZZ	1		
17:15	ZZZZZZ	1		
17:29	ZZZZZZ	1		
17:59	GN93334-CCV3	1		

Refer to raw data for calibration curve and standards.

Instrument QC Summary
Inorganics Analyses

Login Number: JB50090R
Account: ENSRNJ - AECOM, INC.
Project: PPG-Site 186 RAM, Jersey City, NJ

File ID: D31016S1.TXT Date Analyzed: 10/16/13 Methods: LLOYD KAHN 1988 MOD
Run ID: GN93334 Units: mg/l

Sample Number	Parameter	Result	RL	IDL/MDL	True Value	% Recov.	QC Limits
GN93334-CRI1	Total Organic Carbon	79.1	100	84	100	79.1	70-130
GN93334-HSTD1	Total Organic Carbon	5120	100	84	5000	102.4	90-110
GN93334-ICV1	Total Organic Carbon	2010	100	84	2000	100.5	90-110
GN93334-CCV1	Total Organic Carbon	2520	100	84	2500	100.8	90-110
GN93334-CCV2	Total Organic Carbon	2520	100	84	2500	100.8	90-110
GN93334-CCV3	Total Organic Carbon	2500	100	84	2500	100.0	90-110

(!) Outside of QC limits

Report of Analysis

Client Sample ID: 186-MFHT1-2-2.0-2.5
Lab Sample ID: JB50090-4R
Matrix: SO - Soil
Project: PPG-Site 186 RAM, Jersey City, NJ

Date Sampled: 10/14/13
Date Received: 10/14/13
Percent Solids: 90.8

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	1.4	0.44	0.076	mg/kg	1	10/16/13 09:58	BP	SW846 3060A/7196A
Iron, Ferrous [a]	0.50	0.20		%	1	10/16/13	CB	ASTM D3872-86
Sulfide Screen [b]	NEGATIVE				1	10/16/13	CB	SM4500S2- A-11
Total Organic Carbon	39700	110	92	mg/kg	1	10/16/13 14:24	VA	LLOYD KAHN 1988 MOD

(a) The ferrous iron test was analyzed after completion of Cr6 testing (outside of normal hold times for this parameter) in order to provide more information about the possible impact of the sample matrix on Cr6 recoveries.
(b) The sulfide screen test was analyzed after completion of Cr6 testing (outside of normal hold times for this parameter) in order to provide more information about the possible impact of the sample matrix on Cr6 recoveries.

RL = Reporting Limit
MDL = Method Detection Limit
U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Percent Solids Raw Data Summary

Job Number: JB50090R
Account: ENSRNJ AECOM, INC.
Project: PPG-Site 186 RAM, Jersey City, NJ

Sample: JB50090-2 **Analyzed:** 14-OCT-13 by AR **Method:** SM2540 G-97
ClientID: 186-MFHT1-4-2.0-2.5

Wet Weight (Total)	34.2	g
Tare Weight	29.03	g
Dry Weight (Total)	33.45	g
Solids, Percent	85.5	%

Sample: JB50090-3 **Analyzed:** 14-OCT-13 by AR **Method:** SM2540 G-97
ClientID: 186-MFHT1-3-2.0-2.5

Wet Weight (Total)	33.39	g
Tare Weight	27.49	g
Dry Weight (Total)	32.5	g
Solids, Percent	84.9	%

Sample: JB50090-4 **Analyzed:** 14-OCT-13 by AR **Method:** SM2540 G-97
ClientID: 186-MFHT1-2-2.0-2.5

Wet Weight (Total)	30.89	g
Tare Weight	24.26	g
Dry Weight (Total)	30.28	g
Solids, Percent	90.8	%

Sample: JB50090-5 **Analyzed:** 14-OCT-13 by AR **Method:** SM2540 G-97
ClientID: 186-MFHT1-2.0-2.5X

Wet Weight (Total)	32.43	g
Tare Weight	26.71	g
Dry Weight (Total)	31.79	g
Solids, Percent	88.8	%

Sample: JB50090-6 **Analyzed:** 14-OCT-13 by AR **Method:** SM2540 G-97
ClientID: 186-MFHT1-2.0-2.5

Wet Weight (Total)	26.86	g
Tare Weight	21.59	g
Dry Weight (Total)	26.32	g
Solids, Percent	89.8	%

New Jersey ACCUTEST LABORATORIES

General Chemistry

Raw Data

C:\TOC-L\Data\e310105 1.toc.tlx

	Type	Analysis	Sample Nam	Sample ID	Origin	Manual Diluti	Result	Status	Date / Time
1	Unknown	SSM-TC	CRI	(A)	TOCSSMC	1.000	SSM-TC:0.1	Completed	10/10/2013 1
2	Unknown	SSM-TC	HSTD		TOCSSMC	1.000	SSM-TC:5.0	Completed	10/10/2013 1
3	Unknown	SSM-TC	ICV		TOCSSMC	1.000	SSM-TC:2.0	Completed	10/10/2013 1
4	Unknown	SSM-TC	ICB		TOCSSMC	1.000	SSM-TC:0.0	Completed	10/10/2013 1
5	Unknown	SSM-TC	CCV		TOCSSMC	1.000	SSM-TC:2.5	Completed	10/10/2013 1
6	Unknown	SSM-TC	CCB		TOCSSMC	1.000	SSM-TC:0.0	Completed	10/10/2013 1
7	Unknown	SSM-TC	GP75181-M	TOCLK	TOCSSM.m	1.000	SSM-TC:0.0	Completed	10/10/2013 1
8	Unknown	SSM-TC	GP75181-B1		TOCSSM.m	1.000	SSM-TC:0.2	Completed	10/10/2013 1
9	Unknown	SSM-TC	JB48878-3		TOCSSM.m	1.000	SSM-TC:4.4	Completed	10/10/2013 1
10	Unknown	SSM-TC	JB48878-1		TOCSSM.m	1.000	SSM-TC:3.5	Completed	10/10/2013 1
11	Unknown	SSM-TC	JB48878-2		TOCSSM.m	1.000	SSM-TC:3.6	Completed	10/10/2013 1:
12	Unknown	SSM-TC	JB48878-14		TOCSSM.m	1.000	SSM-TC:4.8	Completed	10/10/2013 2:
13	Unknown	SSM-TC	JB48878-19		TOCSSM.m	1.000	SSM-TC:1.3	Completed	10/10/2013 2:
14	Unknown	SSM-TC	JB48878-22		TOCSSM.m	1.000	SSM-TC:1.8	Completed	10/10/2013 3:
15	Unknown	SSM-TC	GP75181-D1	JB48878-3	TOCSSM.m	1.000	SSM-TC:4.5	Completed	10/10/2013 3:
16	Unknown	SSM-TC	GP75181-S1	JB48878-3	TOCSSM.m	1.000	SSM-TC:9.2	Completed	10/10/2013 3:
17	Unknown	SSM-TC	CCV		TOCSSMC	1.000	SSM-TC:2.6	Completed	10/10/2013 4:
18	Unknown	SSM-TC	CCB		TOCSSMC	1.000	SSM-TC:0.0	Completed	10/10/2013 4:
19	Unknown	SSM-TC	JB48878-24		TOCSSM.m	1.000	SSM-TC:0.4	Completed	10/10/2013 4:
20	Unknown	SSM-TC	JB48878-38		TOCSSM.m	1.000	SSM-TC:4.3	Completed	10/10/2013 5:
21	Unknown	SSM-TC	JB48878-42		TOCSSM.m	1.000	SSM-TC:5.1	Completed	10/10/2013 5:
22	Unknown	SSM-TC	CCV		TOCSSMC	1.000	SSM-TC:2.6	Completed	10/10/2013 5:
23	Unknown	SSM-TC	CCB		TOCSSMC	1.000	SSM-TC:0.0	Completed	10/10/2013 6:

E310105 1.TOC
TOCLK

GN93029
VA 10/11/13

10/11/2013 7:24:57 AM 1/1

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7

TOCLL

E310105.1.TOC

ACCUTEST

Test: Total Organic Carbon
Product: TOC
Method: Corp. Eng. 81 M/SW846 9060 M or EPA Region 2 Lloyd Kahn (circle one)
DL = 1000 mg/kg or 100 mg/kg (circle one)

Units = mg/kg
Balance ID: B-39

GN Batch ID GN93029
Date 10/10/13
Analyst VA

Sample ID	Sample Weight	Bottle #	Sample Description & comments
CRI			
HSTD			
ICV / ICB			
CCV / CCB			
GP75181-MB1	1.0000		
	1.0000		
GP75181-B1	1.0000		
	1.0000		
JB488878-3	0.0513	3	
	0.0501		
	0.0518		
	0.0522		
JB488878-1	0.0517	1	
	0.0503		
	0.0509		
	0.0501		
JB488878-2	0.0509	1	
	0.0503		
	0.0525		
	0.0529		
JB488878-14	0.0514	1	
	0.0505		
	0.0517		
	0.0515		

Analyst: VA Date: 10/10/13 QCReviewer: _____ Date: _____
Manager Review: _____ Date: _____
Comments:
BS + MS = 100 uL of 20000 mg/L (Glucose) → 1.0 g of Silica Sand TV = 2000 mg/kg

Form: GN058-01
Rev. Date: 11/11/08

(2)

ACCUTEST.

est: Total Organic Carbon
roduct: TOC
lethod: Corp. Eng. 81 M/SW846 9060 M or EPA Region 2 Lloyd Kahn (circle one)
DL = 1000 mg/kg or 100 mg/kg (circle one)

Units = mg/kg
Balance ID: 6-39

GN Batch ID GN93029
Date 10/10/13
Analyst VA

Sample ID	Sample Weight	Bottle #	Sample Description & comments
JB48878-19	0.1038	1	
	0.1000		
	0.1040		
	0.1054		
JB48878-22	0.0520	1	
	0.0502		
	0.0501		
	0.0501		
GP75181-P1	0.0522	3	JB48878-3
	0.0509		
	0.0501		
	0.0518		
GP75181-S1	0.0503	3	JB48878-3 TV= 39801
	0.0502		
	0.0502		
	0.0501		
CCV/CCB			
JB48868-24	0.2502	1	
	0.2501		
	0.2500		
	0.2500		
JB48868-38	0.0520		
	0.0502		
	0.0501		

Analyst: VA Date: 10/10/13 QCReviewer: _____ Date: _____
Manager Review: _____ Date: _____
Comments: _____

Form: GN058-01
Rev. Date: 11/11/08

(3)

ACCUTEST.

Test: Total Organic Carbon
Product: TOC
Method: Corp. Eng. 81 M/SW846 9060 M or EPA Region 2 Lloyd Kahn (circle one)
TDL = 1000 mg/kg or 100 mg/kg (circle one)

Units = mg/kg
Balance ID: 6-39

GN Batch ID GN93029
Date 10/10/13
Analyst VA

Sample ID	Sample Weight	Bottle #	Sample Description & comments
	0.0509		
JB49378-42	0.0515	1	
	0.0501		
	0.0504		
	0.0502		
CCV/CCB			

Analyst: VA Date: 10/10/13 QCReviewer: _____ Date: _____
Manager Review: _____ Date: _____
Comments: _____

Form: GN058-01
Rev. Date: 11/11/08

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ACCUTEST

Balance: B-39
Glass Pipet: Class A

GENERAL CHEMISTRY STANDARD PREPARATION LOG

Product: TOCLK
GN or GP Number: GN93029

Intermediate Standard Description	Stock used to prepare standard	Stock concentration	Stock volume used in ml	Diluent	Final Volume	Final Conc. of Intermediate (mg/l)	Expiration Date	Analyst	Date
GNE10-37709-TOC	Fisher 12297	Sucrose	47.5g	DI H_2O	100mL	200,000	11/6/13	VA	10/9/13
GNE10-37710-TOC	Fisher 120315	Glucose	12.5g	↓	↓	50,000	↓	↓	↓

Standard Description	Intermediate or Stock used to prepare standard	Intermediate or Stock concentration	Intermediate or Stock volume used in ml	Diluent	Final Volume	Final Conc. of Standard (mg/l)	Expiration Date	Analyst	Date
Sucrose STDs									
GNE10-37711-TOC	GNE10-37709-TOC	200,000	0.5	DI H_2O	100mL	1000	11/6/13	VA	10/9/13
GNE10-37712-TOC			2.5			5000			
GNE10-37713-TOC			5.0			10000			
GNE10-37714-TOC			12.5			25000			
GNE10-37715-TOC			20.0			40000			
GNE10-37716-TOC	↓	↓	25.0	↓	↓	50000	↓	↓	↓
Glucose STDs									
GNE10-37717-TOC	GNE10-37710-TOC	50000	10.0	DI H_2O	100mL	20,000	11/6/13	VA	10/9/13
GNE10-37718-TOC	↓	↓	50.0	↓	↓	25,000	↓	↓	↓

Form: GN121
Rev. Date:2/26/03

GN93029

ACCUTEST.

Reagent Information Log - TOC - Soil

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Reagent	Reagent # or Manufacturer/Lot	
Sucrose Stock Solution, 200000 mg/L	GNE10-37709-TOC	11/6/13
Glucose Stock Solution, 50000 ug/L	GNE10-37710-TOC	11/6/13
Glucose Check Solution, 25000 ug/L	GNE10-37718-TOC	11/6/13
Nitric Acid, Reagent Grade	Baker K50030	2/17/17
Glucose Check Solution, 20000 ug/L	GNE10-37717-TOC	11/6/13

All standards and stocks were made as described in the SOP for this method (circle one): Y or N
If no (N), see attached page for standards prep.

Form: GN-087 1-66
Rev. Date:4/26/01

TOC-Control L Report

e31009s2.toc.tlx

Instr.Information

Instrument Options	TOC/SSM/Sparge Kit/
Catalyst	Regular Sensitivity

Cal. Curve

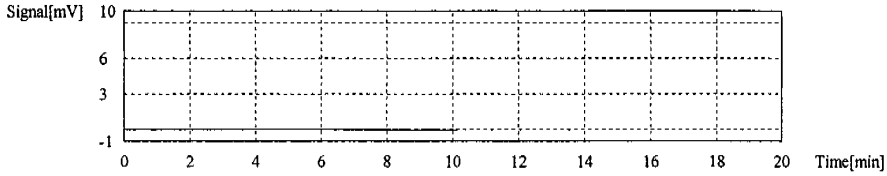
Sample Name:	Untitled
Sample ID:	Untitled
Cal. Curve:	e31009s1.2013_10_09_09_50_34.cal
Status	Completed

Standard	SSM-TC

AbsC: 0.000ug

1	0.000	0.000	0.000ug	100.0mg	*******	10/9/2013 10:01:14 AM
2	0.000	0.000	0.000ug	100.0mg	*******	10/9/2013 10:12:38 AM

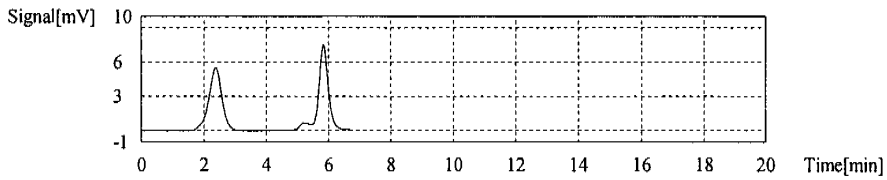
Mean Area 0.000
Mean CNV 0.000



AbsC: 0.01000ug

1	16.35	16.35	0.01000ug	100.0mg	*******	10/9/2013 10:19:58 AM
2	16.73	16.73	0.01000ug	100.0mg	*******	10/9/2013 10:59:25 AM

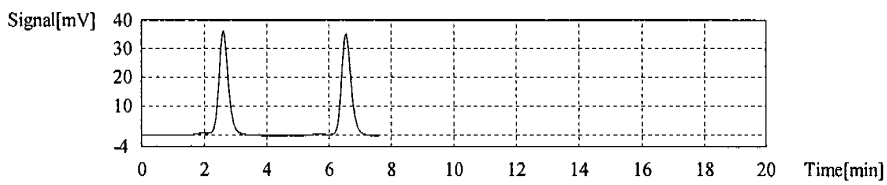
Mean Area 16.54
Mean CNV 16.54



AbsC: 0.05000ug

1	76.25	76.25	0.05000ug	100.0mg	*******	10/9/2013 11:19:15 AM
2	76.49	76.49	0.05000ug	100.0mg	*******	10/9/2013 11:25:09 AM

Mean Area 76.37
Mean CNV 76.37



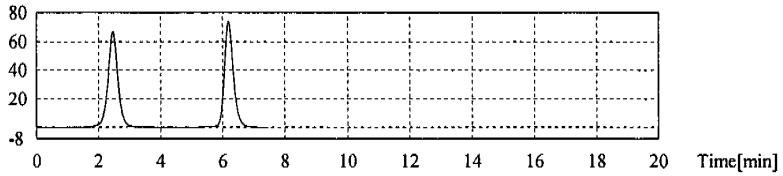
TOC-Control L Report

e31009s2.toc.tlx

AbsC: 0.1000ug

1	149.4	149.4	0.1000ug	100.0mg	*******	10/9/2013 11:31:05 AM
2	150.2	150.2	0.1000ug	100.0mg	*******	10/9/2013 11:37:36 AM

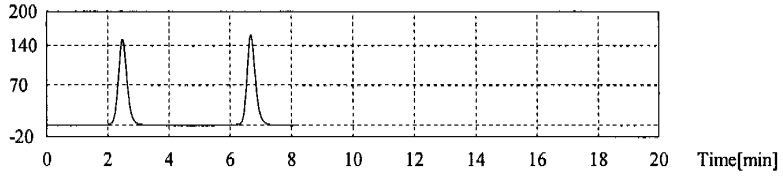
Mean Area 149.8
Mean CNV 149.8



AbsC: 0.2500ug

1	300.3	300.3	0.2500ug	100.0mg	*******	10/9/2013 11:44:45 AM
2	310.1	310.1	0.2500ug	100.0mg	*******	10/9/2013 11:55:34 AM

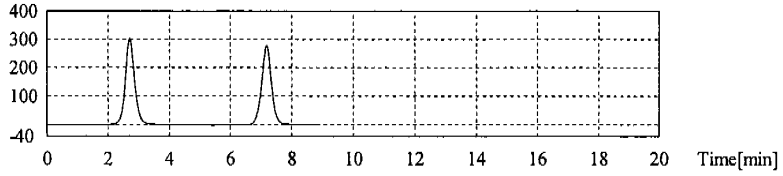
Mean Area 305.2
Mean CNV 305.2



AbsC: 0.4000ug

1	632.2	632.2	0.4000ug	100.0mg	*******	10/9/2013 12:02:28 PM
2	614.5	614.5	0.4000ug	100.0mg	*******	10/9/2013 12:09:13 PM

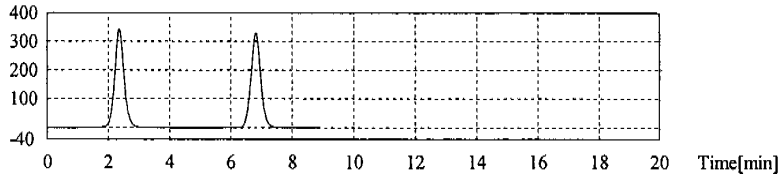
Mean Area 623.4
Mean CNV 623.4



AbsC: 0.5000ug

1	731.9	731.9	0.5000ug	100.0mg	*******	10/9/2013 12:17:26 PM
2	735.1	735.1	0.5000ug	100.0mg	*******	10/9/2013 12:26:39 PM

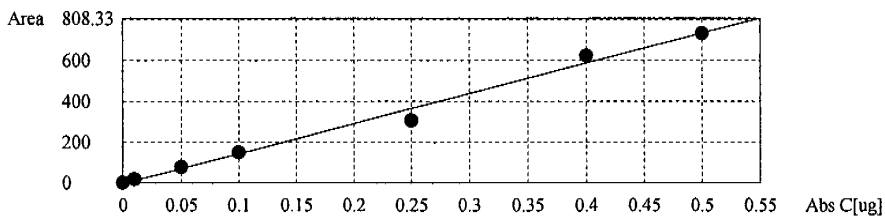
Mean Area 733.5
Mean CNV 733.5



TOC-Control L Report

e31009s2.toc.tlx

Slope:	1479
Intercept	-4.688
r^2	0.9904
r	0.9952
Zero Shift	No



TOC-Control L Report

e31010s1.toc.tlx

Instr.Information

Instrument Options: TOC/SSM/Sparge Kit/
Catalyst: Regular Sensitivity

Sample

Sample Name: CRI
Sample ID:
Origin: TOCSSMCAL.met
Status: Completed
Chk. Result:

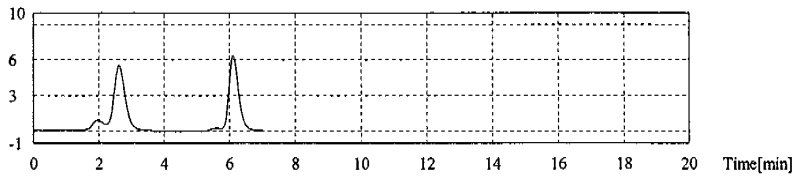
Unknown	SSM-TC	1.000	1.000mg/uL	SSM-TC:0.1267mg/L

1. Det

Anal.: SSM-TC

1	14.67	14.67	0.1309mg/L	100.0mg	100uL	e31009s1.2013_10_09_09_50_34.cal	10/10/2013 9:58:08 AM
2	13.42	13.42	0.1224mg/L	100.0mg	100uL	e31009s1.2013_10_09_09_50_34.cal	10/10/2013 10:05:20 AM

Mean Conc. 0.1267mg/L
CV Conc 4.72%



Sample

Sample Name: HSTD
Sample ID:
Origin: TOCSSMCAL.met
Status: Completed
Chk. Result:

Unknown	SSM-TC	1.000	1.000mg/uL	SSM-TC:5.084mg/L

1. Det

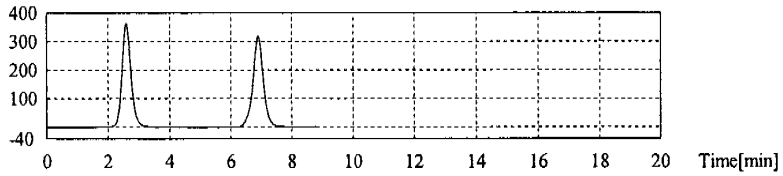
Anal.: SSM-TC

1	738.5	738.5	5.025mg/L	100.0mg	100uL	e31009s1.2013_10_09_09_50_34.cal	10/10/2013 10:19:49 AM
2	755.9	755.9	5.142mg/L	100.0mg	100uL	e31009s1.2013_10_09_09_50_34.cal	10/10/2013 10:28:35 AM

TOC-Control L Report

e31010s1.toc.tlx

Mean Conc. 5.084mg/L
CV Conc 1.64%



Sample

Sample Name: ICV
Sample ID:
Origin: TOCSSMCAL.met
Status Completed
Chk. Result

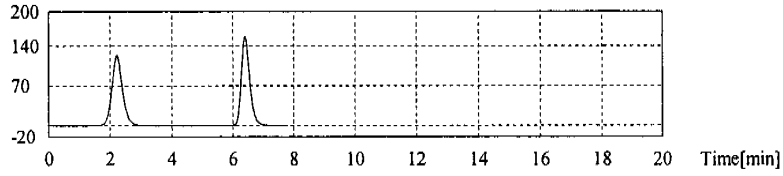
Unknown	SSM-TC	1.000	1.000mg/uL		SSM-TC:2.079mg/L

1. Det

Anal.: SSM-TC

1	300.4	300.4	2.063mg/L	100.0mg	100uL	e31009s1.2013_10_09_09_50_34.cal	10/10/2013 10:34:44 AM
2	305.2	305.2	2.095mg/L	100.0mg	100uL	e31009s1.2013_10_09_09_50_34.cal	10/10/2013 10:58:59 AM

Mean Conc. 2.079mg/L
CV Conc 1.10%



Sample

Sample Name: ICB
Sample ID:
Origin: TOCSSMCAL.met
Status Completed
Chk. Result

Unknown	SSM-TC	1.000	1.000mg/uL		SSM-TC:0.03695mg/L

1. Det

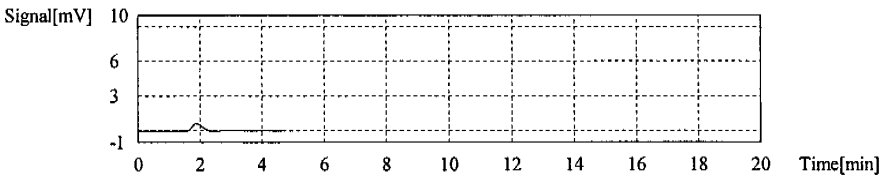
Anal.: SSM-TC

1	1.554	1.554	0.04220mg/L	100.0mg	100uL	e31009s1.2013_10_09_09_50_34.cal	10/10/2013 11:03:27 AM
2	0.000	0.000	0.03170mg/L	100.0mg	100uL	e31009s1.2013_10_09_09_50_34.cal	10/10/2013 11:16:39 AM

TOC-Control L Report

e31010s1.toc.tlx

Mean Conc. 0.03695mg/L
CV Conc 20.11%



Sample

Sample Name: CCV
Sample ID:
Origin: TOCSSMCAL.met
Status Completed
Chk. Result

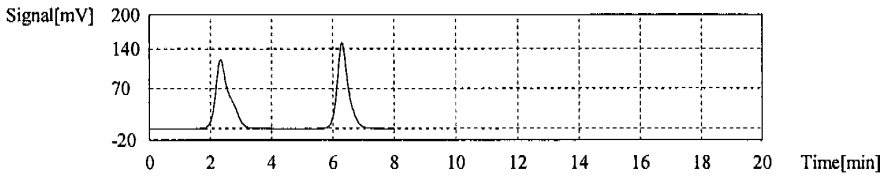
Unknown	SSM-TC	1.000	1.000mg/uL	SSM-TC:2.597mg/L

1. Det

Anal.: SSM-TC

1	380.2	380.2	2.602mg/L	100.0mg	100uL	e31009s1.2013_10_09_09_50_34.cal	10/10/2013 11:27:58 AM
2	378.7	378.7	2.592mg/L	100.0mg	100uL	e31009s1.2013_10_09_09_50_34.cal	10/10/2013 11:41:08 AM

Mean Conc. 2.597mg/L
CV Conc 0.28%



Sample

Sample Name: CCB
Sample ID:
Origin: TOCSSMCAL.met
Status Completed
Chk. Result

Unknown	SSM-TC	1.000	1.000mg/uL	SSM-TC:0.03170mg/L

1. Det

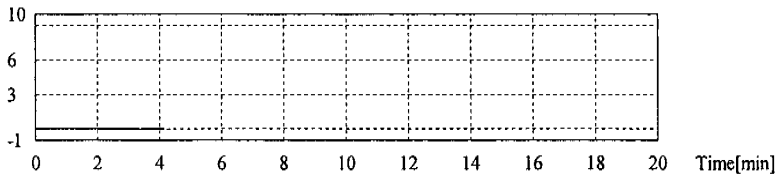
Anal.: SSM-TC

1	0.000	0.000	0.03170mg/L	100.0mg	100uL	e31009s1.2013_10_09_09_50_34.cal	10/10/2013 11:45:54 AM
2	0.000	0.000	0.03170mg/L	100.0mg	100uL	e31009s1.2013_10_09_09_50_34.cal	10/10/2013 11:53:21 AM

TOC-Control L Report

e31010s1.toc.tlx

Mean Conc. 0.03170mg/L
CV Conc 0.00%



Sample

Sample Name: GP75181-MB1
Sample ID: TOCLK
Origin: TOCSSM.met
Status Completed
Chk. Result

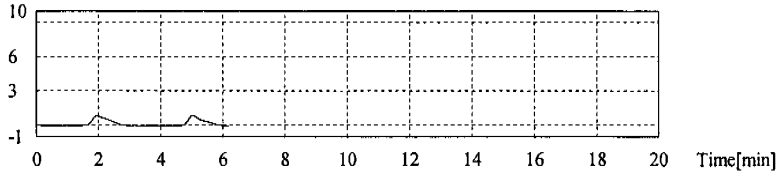
Unknown	SSM-TC	1.000	1.000mg/uL		SSM-TC:0.00518mg/L

1. Det

Anal.: SSM-TC

1	3.034	3.034	0.00522mg/L	1000mg	1000uL	e31009s1.2013_10_09_09_50_34.cal	10/10/2013 12:02:00 PM
2	2.925	2.925	0.00515mg/L	1000mg	1000uL	e31009s1.2013_10_09_09_50_34.cal	10/10/2013 12:07:32 PM

Mean Conc. 0.00518mg/L
CV Conc 1.01%



Sample

Sample Name: GP75181-B1
Sample ID:
Origin: TOCSSM.met
Status Completed
Chk. Result

Unknown	SSM-TC	1.000	1.000mg/uL		SSM-TC:0.2004mg/L

1. Det

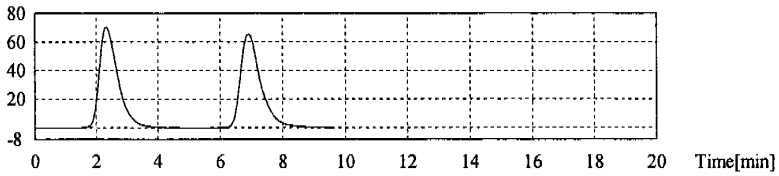
Anal.: SSM-TC

1	293.1	293.1	0.2013mg/L	1000mg	1000uL	e31009s1.2013_10_09_09_50_34.cal	10/10/2013 12:14:23 PM
2	290.4	290.4	0.1995mg/L	1000mg	1000uL	e31009s1.2013_10_09_09_50_34.cal	10/10/2013 12:23:08 PM

TOC-Control L Report

e31010s1.toc.tlx

Mean Conc. 0.2004mg/L
CV Conc 0.64%



Sample

Sample Name: JB48878-3
Sample ID:
Origin: TOCSSM.met
Status Completed
Chk. Result

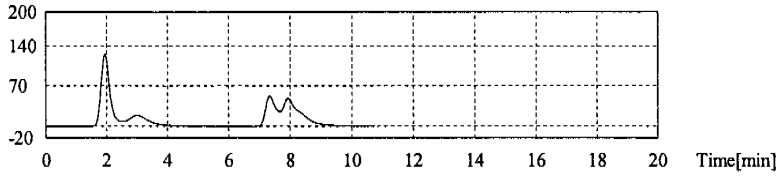
Unknown	SSM-TC	1.000	1.000mg/uL	SSM-TC:4.486mg/L

1. Det

Anal.: SSM-TC

1	348.1	348.1	4.650mg/L	51.30mg	51uL	e31009s1.2013_10_09_09_50_34.cal	10/10/2013 12:32:52 PM
2	315.6	323.2	4.322mg/L	50.10mg	50uL	e31009s1.2013_10_09_09_50_34.cal	10/10/2013 12:40:28 PM

Mean Conc. 4.486mg/L
CV Conc 5.16%



Sample

Sample Name: JB48878-1
Sample ID:
Origin: TOCSSM.met
Status Completed
Chk. Result

Unknown	SSM-TC	1.000	1.000mg/uL	SSM-TC:3.542mg/L

1. Det

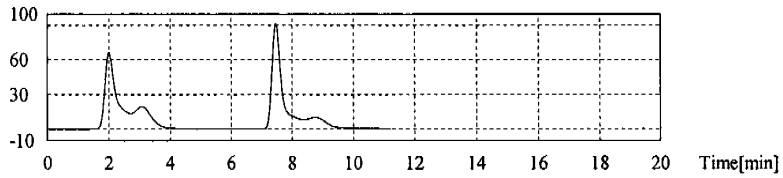
Anal.: SSM-TC

1	265.2	265.2	3.529mg/L	51.70mg	51uL	e31009s1.2013_10_09_09_50_34.cal	10/10/2013 12:51:29 PM
2	259.8	267.0	3.555mg/L	50.30mg	50uL	e31009s1.2013_10_09_09_50_34.cal	10/10/2013 12:59:35 PM

TOC-Control L Report

e31010s1.toc.tlx

Mean Conc. 3.542mg/L
CV Conc 0.51%



Sample

Sample Name: JB48878-2
Sample ID:
Origin: TOCSSM.met
Status Completed
Chk. Result

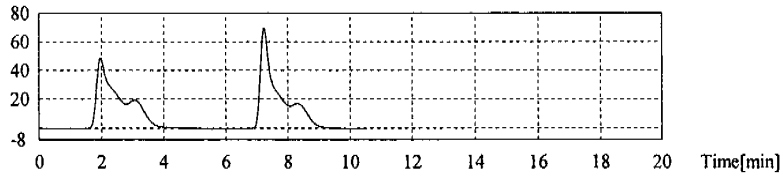
Unknown	SSM-TC	1.000	1.000mg/uL	SSM-TC:3.650mg/L

1. Det

Anal.: SSM-TC

1	258.1	258.1	3.491mg/L	50.90mg	50uL	e31009s1.2013_10_09_09_50_34.cal	10/10/2013 1:11:01 PM
2	278.7	282.0	3.809mg/L	50.30mg	50uL	e31009s1.2013_10_09_09_50_34.cal	10/10/2013 1:58:46 PM

Mean Conc. 3.650mg/L
CV Conc 6.17%



Sample

Sample Name: JB48878-14
Sample ID:
Origin: TOCSSM.met
Status Completed
Chk. Result

Unknown	SSM-TC	1.000	1.000mg/uL	SSM-TC:4.815mg/L

1. Det

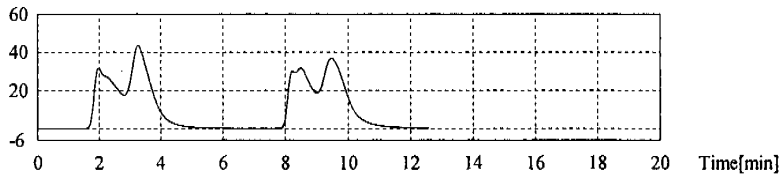
Anal.: SSM-TC

1	361.4	361.4	4.815mg/L	51.40mg	51uL	e31009s1.2013_10_09_09_50_34.cal	10/10/2013 2:08:17 PM
2	355.0	361.3	4.816mg/L	50.50mg	50uL	e31009s1.2013_10_09_09_50_34.cal	10/10/2013 2:24:15 PM

TOC-Control L Report

e31010s1.toc.tlx

Mean Conc. 4.815mg/L
CV Conc 0.00%



Sample

Sample Name: JB48878-19
Sample ID:
Origin: TOCSSM.met
Status Completed
Chk. Result

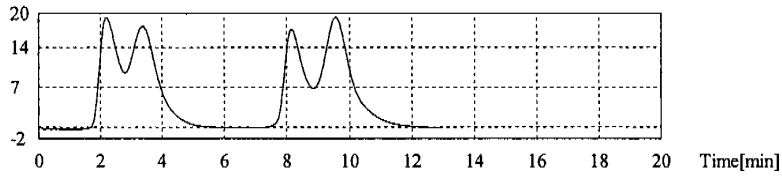
Unknown	SSM-TC	1.000	1.000mg/uL		SSM-TC:1.330mg/L

1. Det

Anal.: SSM-TC

1	192.9	192.9	1.287mg/L	103.8mg	103uL	e31009s1.2013_10_09_09_50_34.cal	10/10/2013 2:34:15 PM
2	198.3	205.8	1.372mg/L	100.0mg	100uL	e31009s1.2013_10_09_09_50_34.cal	10/10/2013 2:46:37 PM

Mean Conc. 1.330mg/L
CV Conc 4.54%



Sample

Sample Name: JB48878-22
Sample ID:
Origin: TOCSSM.met
Status Completed
Chk. Result

Unknown	SSM-TC	1.000	1.000mg/uL		SSM-TC:1.807mg/L

1. Det

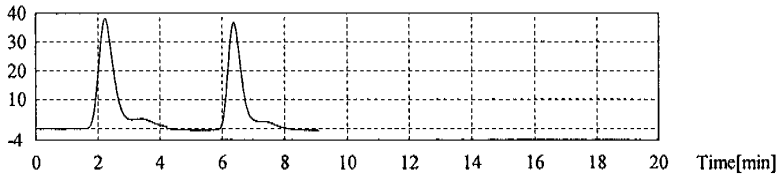
Anal.: SSM-TC

1	139.9	139.9	1.880mg/L	52.00mg	52uL	e31009s1.2013_10_09_09_50_34.cal	10/10/2013 2:52:15 PM
2	124.0	128.4	1.733mg/L	50.20mg	50uL	e31009s1.2013_10_09_09_50_34.cal	10/10/2013 3:00:16 PM

TOC-Control L Report

e31010s1.toc.tlx

Mean Conc. 1.807mg/L
CV Conc 5.74%



Sample

Sample Name: GP75181-D1
Sample ID: JB48878-3
Origin: TOCSSM.met
Status Completed
Chk. Result

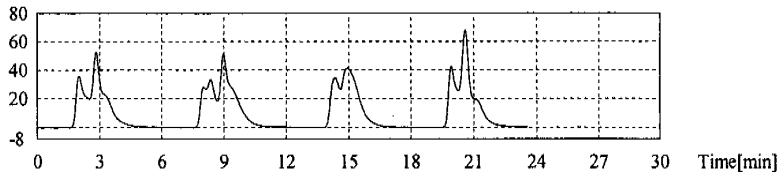
Unknown	SSM-TC	1.000	1.000mg/uL		SSM-TC:4.588mg/L

1. Det

Anal.: SSM-TC

1	324.6	324.6	4.265mg/L	52.20mg	52uL	e31009s1.2013_10_09_09_50_34.cal	10/10/2013 3:09:46 PM
2	368.7	378.1	4.960mg/L	50.90mg	50uL	e31009s1.2013_10_09_09_50_34.cal	10/10/2013 3:17:20 PM
3	327.8	341.5	4.487mg/L	50.10mg	50uL	e31009s1.2013_10_09_09_50_34.cal	10/10/2013 3:26:19 PM
4	350.8	353.5	4.640mg/L	51.80mg	51uL	e31009s1.2013_10_09_09_50_34.cal	10/10/2013 3:33:02 PM

Mean Conc. 4.588mg/L
CV Conc 6.36%



Sample

Sample Name: GP75181-S1
Sample ID: JB48878-3
Origin: TOCSSM.met
Status Completed
Chk. Result

Unknown	SSM-TC	1.000	1.000mg/uL		SSM-TC:9.292mg/L

1. Det

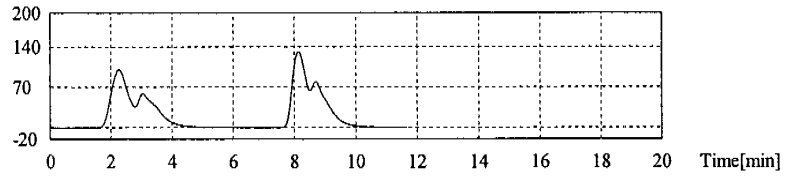
Anal.: SSM-TC

TOC-Control L Report

e31010s1.toc.tlx

1	665.4	665.4	9.007mg/L	50.30mg	50uL	e31009s1.2013_10_09_09_50_34.cal	10/10/2013 3:40:47 PM
2	706.4	707.8	9.577mg/L	50.20mg	50uL	e31009s1.2013_10_09_09_50_34.cal	10/10/2013 3:47:24 PM

Mean Conc. 9.292mg/L
CV Conc 4.34%



Sample

Sample Name: CCV
Sample ID:
Origin: TOCSSMCAL.met
Status Completed
Chk. Result

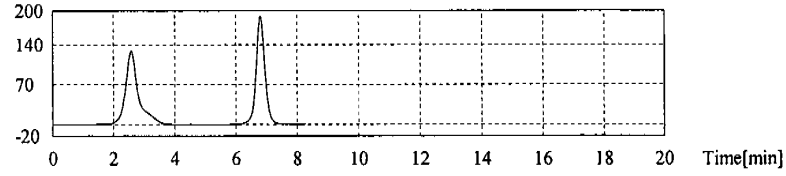
Unknown	SSM-TC	1.000	1.000mg/uL	SSM-TC:2.623mg/L

1. Det

Anal.: SSM-TC

1	384.4	384.4	2.631mg/L	100.0mg	100uL	e31009s1.2013_10_09_09_50_34.cal	10/10/2013 3:54:14 PM
2	382.1	382.1	2.615mg/L	100.0mg	100uL	e31009s1.2013_10_09_09_50_34.cal	10/10/2013 4:00:42 PM

Mean Conc. 2.623mg/L
CV Conc 0.42%



Sample

Sample Name: CCB
Sample ID:
Origin: TOCSSMCAL.met
Status Completed
Chk. Result

Unknown	SSM-TC	1.000	1.000mg/uL	SSM-TC:0.03266mg/L

1. Det

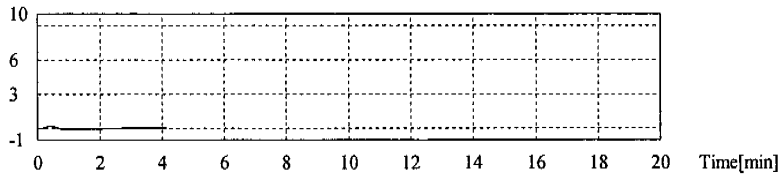
Anal.: SSM-TC

TOC-Control L Report

e31010s1.toc.tlx

1	0.2854	0.2854	0.03363mg/L	100.0mg	100uL	e31009s1.2013_10_09_09_50_34.cal	10/10/2013 4:04:33 PM
2	0.000	0.000	0.03170mg/L	100.0mg	100uL	e31009s1.2013_10_09_09_50_34.cal	10/10/2013 4:09:01 PM

Mean Conc. 0.03266mg/L
CV Conc 4.18%



Sample

Sample Name: JB48878-24
Sample ID:
Origin: TOCSSM.met
Status Completed
Chk. Result

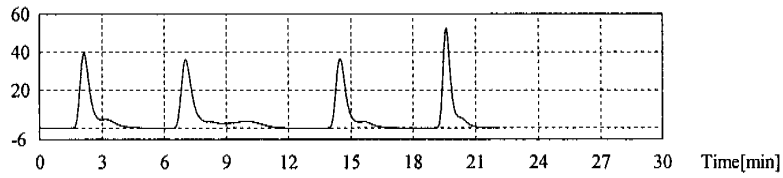
Unknown	SSM-TC	1.000	1.000mg/uL	SSM-TC:0.4387mg/L

1. Det

Anal.: SSM-TC

1	149.5	149.5	0.4167mg/L	250.2mg	250uL	e31009s1.2013_10_09_09_50_34.cal	10/10/2013 4:16:58 PM
2	189.9	190.0	0.5260mg/L	250.1mg	250uL	e31009s1.2013_10_09_09_50_34.cal	10/10/2013 4:25:30 PM
3	139.8	139.9	0.3908mg/L	250.0mg	250uL	e31009s1.2013_10_09_09_50_34.cal	10/10/2013 4:33:18 PM
4	151.1	151.2	0.4213mg/L	250.0mg	250uL	e31009s1.2013_10_09_09_50_34.cal	10/10/2013 4:45:47 PM

Mean Conc. 0.4387mg/L
CV Conc 13.62%



Sample

Sample Name: JB48878-38
Sample ID:
Origin: TOCSSM.met
Status Completed
Chk. Result

Unknown	SSM-TC	1.000	1.000mg/uL	SSM-TC:4.300mg/L

1. Det

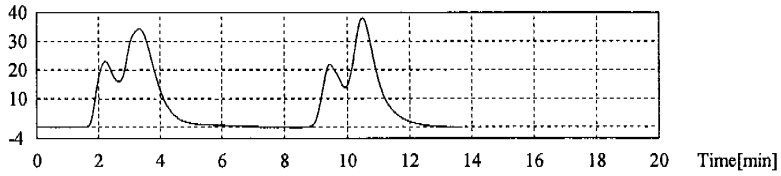
TOC-Control L Report

e31010s1.toc.tlx

Anal.: SSM-TC

1	333.0	333.0	4.391mg/L	52.00mg	52uL	e31009s1.2013_10_09_09_50_34.cal	10/10/2013 4:54:49 PM
2	307.8	318.8	4.209mg/L	50.20mg	50uL	e31009s1.2013_10_09_09_50_34.cal	10/10/2013 5:02:33 PM

Mean Conc. 4.300mg/L
CV Conc 2.99%



Sample

Sample Name: JB48878-42
Sample ID:
Origin: TOCSSM.met
Status Completed
Chk. Result

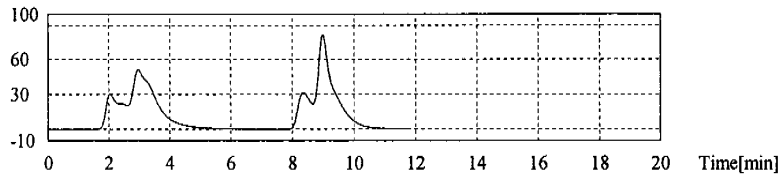
Unknown	SSM-TC	1.000	1.000mg/uL	SSM-TC:5.172mg/L

1. Det

Anal.: SSM-TC

1	389.1	389.1	5.170mg/L	51.50mg	51uL	e31009s1.2013_10_09_09_50_34.cal	10/10/2013 5:09:49 PM
2	378.8	389.4	5.175mg/L	50.10mg	50uL	e31009s1.2013_10_09_09_50_34.cal	10/10/2013 5:16:15 PM

Mean Conc. 5.172mg/L
CV Conc 0.07%



Sample

Sample Name: CCV
Sample ID:
Origin: TOCSSMCAL.met
Status Completed
Chk. Result

Unknown	SSM-TC	1.000	1.000mg/uL	SSM-TC:2.612mg/L

1. Det

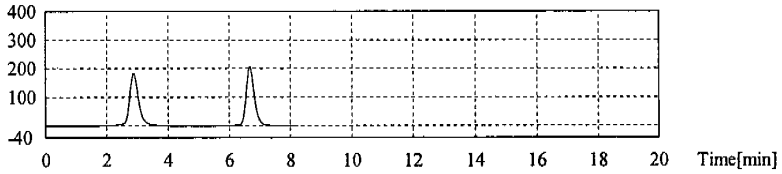
TOC-Control L Report

e31010s1.toc.tlx

Anal.: SSM-TC

1	381.1	381.1	2.608mg/L	100.0mg	100uL		e31009s1.2013_10_09_09_50_34.cal	10/10/2013 5:23:06 PM
2	382.1	382.1	2.615mg/L	100.0mg	100uL		e31009s1.2013_10_09_09_50_34.cal	10/10/2013 5:32:42 PM

Mean Conc. 2.612mg/L
CV Conc 0.18%



Sample

Sample Name: CCB
Sample ID:
Origin: TOCSSMCAL.met
Status Completed
Chk. Result

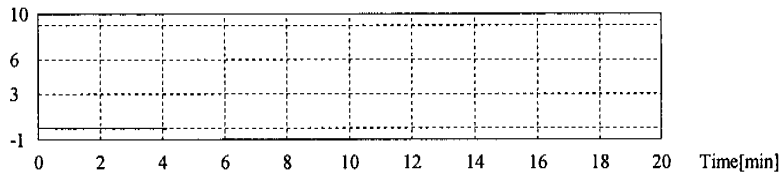
Unknown	SSM-TC	1.000	1.000mg/uL	SSM-TC:0.03170mg/L

1. Det

Anal.: SSM-TC

1	0.000	0.000	0.03170mg/L	100.0mg	100uL		e31009s1.2013_10_09_09_50_34.cal	10/10/2013 5:40:26 PM
2	0.000	0.000	0.03170mg/L	100.0mg	100uL		e31009s1.2013_10_09_09_50_34.cal	10/10/2013 6:11:33 PM

Mean Conc. 0.03170mg/L
CV Conc 0.00%



Hexavalent Chromium

Test Title:	XCRA
GN Batch:	gn93304
Analyst:	BP
Prep Date:	10/15/2013
Analysis Date:	10/16/2013
Instrument ID:	H

Method: SW846 3060A, 7196A

Note: All results below shown on a wet weight basis.

Corr. Coef: 0.99985

Slope: 0.8922

Y intercept: -0.0002

Bottle #	Sample #	Sample Absorbance	BKGRD Abs	Analysis Times	Y Values Corr Sample Absorbance	X Values Conc(mg/l)	Final Vol. (ml)	Sam Wt. (g)	Dilution	Final Conc.	Units	MDL	RDL
	Cal. Blk.	0.000	NA	8:36	0.000	0.0000							
	STD 1	0.009	NA	8:39	0.009	0.0100							
	STD 2	0.044	NA	8:39	0.044	0.0500							
	STD 3	0.091	NA	8:39	0.091	0.1000							
	STD 4	0.267	NA	8:39	0.267	0.3000							
	STD 5	0.448	NA	8:39	0.448	0.5000							
	STD 6	0.701	NA	8:39	0.701	0.8000							
	STD 7	0.901	NA	8:39	0.901	1.0000							
	CCV	0.430	NA	9:50	0.430	0.4822	NA	NA	NA	NA	mg/l	0.002	0.010
	CCB	0.000	NA	9:58	0.000	0.0002	NA	NA	NA	NA	mg/l	0.002	0.010
	GP75278-MB1	0.000	0.000	9:58	0.000	0.0002	100.0	2.5000	1	0.008	mg/kg	0.069	0.400
	GP75278-B1	0.852	0.000	9:58	0.852	0.9551	100.0	2.5000	1	38.206	mg/kg	0.069	0.400
	GP75278-S1	0.581	0.011	9:58	0.570	0.6391	100.0	2.4700	1	25.874	mg/kg	0.070	0.405
	GP75278-D1	0.027	0.012	9:58	0.015	0.0170	100.0	2.4400	1	0.697	mg/kg	0.071	0.410
	JB50090-4R	0.038	0.011	9:58	0.027	0.0305	100.0	2.4700	1	1.234	mg/kg	0.070	0.405
	JB50090-4RPSCONF	0.432	0.000	9:58	0.432	0.4844	100.0	2.4700	2	39.223	mg/kg	0.070	0.810
	GP75278-B2	>3	OVR	9:58		#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
	GP75278-S2	>3	OVR	9:58		#VALUE!	100.0	2.4700	1	#VALUE!	mg/kg	0.070	0.405
	GP75278-B2	0.394	0.000	9:58	0.394	0.4418	100.0	2.5000	50	883.622	mg/kg	0.069	20.000
	GP75278-S2	0.511	0.000	9:58	0.511	0.5729	100.0	2.4700	50	1159.813	mg/kg	0.070	20.243
	CCV	0.430	NA	9:58	0.430	0.4822	NA	NA	NA	NA	mg/l	0.002	0.010
	CCB	0.000	NA	9:58	0.000	0.0002	NA	NA	NA	NA	mg/l	0.002	0.010
	JB50090-2R	0.154	0.077	10:03	0.077	0.0865	100.0	2.4400	1	3.545	mg/kg	0.071	0.410
	JB50090-3R	0.609	0.167	10:03	0.442	0.4956	100.0	2.4200	1	20.480	mg/kg	0.071	0.413
	JB50090-5R	0.084	0.046	10:03	0.038	0.0428	100.0	2.4400	1	1.754	mg/kg	0.071	0.410
	JB50090-6R	0.110	0.062	10:03	0.048	0.0540	100.0	2.4400	1	2.213	mg/kg	0.071	0.410
				10:03		#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
				10:03		#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
				10:03		#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
				10:03		#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
				10:03		#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
				10:03		#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
	CCV	0.430	NA	10:03	0.430	0.4822	NA	NA	NA	NA	mg/l	0.002	0.010
	CCB	0.000	NA	10:03	0.000	0.0002	NA	NA	NA	NA	mg/l	0.002	0.010
						#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
						#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
						#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
						#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
						#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
						#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
						#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
						#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
						#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
						#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
	CCV		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.002	0.010
	CCB		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.002	0.010
						#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
						#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
						#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
						#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
						#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
						#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
						#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
						#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
						#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
						#VALUE!	100.0		1	#VALUE!	mg/kg	#DIV/0!	#DIV/0!
	CCV		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.002	0.010
	CCB		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.002	0.010
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400

						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
	CCV		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.002	0.010
	CCB		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.002	0.010
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
	CCV		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.002	0.010
	CCB		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.002	0.010
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
	CCV		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.002	0.010
	CCB		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.002	0.010
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
	CCV		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.002	0.010
	CCB		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.002	0.010
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
	CCV		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.002	0.010
	CCB		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.002	0.010
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
						#VALUE!	100.0	2.5000	1	#VALUE!	mg/kg	0.069	0.400
	CCV		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.002	0.010
	CCB		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.002	0.010

revised 4/25/11

Comments:

7.2

7

ACCUTEST.

Test: **Hexavalent Chromium**
Product: **XCr**
Method: **SW846 3060A/7196A**

MDL = 0.069 mg/kg
RDL = 0.40 mg/kg

GNBatch ID: GN93304
Date: 10/16/13

Digestion Batch QC Summary Units = mg/kg

Method Blank ID: GP75278-MB1 Date: 10/16/13 Result: 0.0708 RDL: 0.4 <RDL: Yes

Sol. Spike Blank ID: -B1 Date: Result: 356.266 Spike: 400 %Rec.: 95.52%

Insol. Spike Blank ID: -B2 Date: Result: 883.662 Spike: 900.99[c] %Rec.: 98.08%

Duplicate ID: -D1 Samp. Result: 1.234 Dup. Result: 0.697 %RPD: 55.62%

Sol. MS ID: -S1 Samp. Result: MS Result: 25.674 Spike: 40.49 %Rec: 60.65%

Insol. MS ID: -S2 Samp. Result: MS Result: 1159.513 Spike: 879.36[d] %Rec: 131.75%

Post Spike ID: IB5C090-4RPS Samp. Result: PS Result: 39.223 Spike: 40.48[e] %Rec: 93.83%

Diluted Sample ID: Samp. Result: Dil. Result: %RPD:

pH adj. PS ID: Samp. Result: MS Result: Spike: %Rec:

Analysis Batch QC Summary Units = mg/l

CCV: 10/16/13	Result: 0.4822	TV: 0.500	%Rec.: 96.44	
CCV:	Result:	TV: 0.500	%Rec.:	
CCV:	Result:	TV: 0.500	%Rec.:	
CCV:	Result:	TV: 0.500	%Rec.:	
CCV:	Result:	TV: 0.500	%Rec.:	
CCV:	Result:	TV: 0.500	%Rec.:	
CCV:	Result:	TV: 0.500	%Rec.:	
CCV:	Result:	TV: 0.500	%Rec.:	
CCV:	Result:	TV: 0.500	%Rec.:	

CCB: 10/16/13	Result: 0.0009	RDL: 0.010	<RDL: Yes	
CCB:	Result:	RDL: 0.010	<RDL:	
CCB:	Result:	RDL: 0.010	<RDL:	
CCB:	Result:	RDL: 0.010	<RDL:	
CCB:	Result:	RDL: 0.010	<RDL:	
CCB:	Result:	RDL: 0.010	<RDL:	
CCB:	Result:	RDL: 0.010	<RDL:	
CCB:	Result:	RDL: 0.010	<RDL:	
CCB:	Result:	RDL: 0.010	<RDL:	

Reagent Reference Information - refer to attached reagent reference information page(s).

Insoluble spike = $PbCrO_4$ Molecular weight = 323.2 g/mol Cr = 52.0 g/mol

{1000000 ug/g x Insoluble spike wt(g) x 52/323.2)/ms sample wt(g) = Insoluble spike amount

Analyst: BP Date: 10/16/13

Comments:

Form: GN066-01
Rev. Date: 05/13/13

ACCUTEST LABS
DAYTON, NJ

3060A/7196A POST-DIGEST SPIKE LEVEL CALCULATION SPREADSHEET

GP Batch: GP75278.

NOTE: Always dilute post-spike first, then take a 45 ml aliquot of the diluted post-spike and add the spike amount.

Sample ID	PS Aliquot Weight in g Digested in 100 ml	Weight in 45 ml	Results in mg/kg.	Amount in ml to add of 100 ppm solution	Dilution needed	Suggested Dilution to use	Actual Dilution to be used	Suggested ml of 100 ppm to spike on dilution of sample.	Actual ml of 100 ppm to spike on dilution of sample.	Est. Read-back on curve in mg/l	Calculated Spike Amount in mg/kg	Use calculated or default spike?
JB50090-4R	2.47	1.1115	1.234	0.445	yes	1	2	0.223	0.225	0.515	40.486	efault (40 mg/kg) spike
		0		0.000	no	0		#DIV/0!		#DIV/0!	#DIV/0!	efault (40 mg/kg) spike
		0		0.000	no	0		#DIV/0!		#DIV/0!	#DIV/0!	efault (40 mg/kg) spike
		0		0.000	no	0		#DIV/0!		#DIV/0!	#DIV/0!	efault (40 mg/kg) spike
		0		0.000	no	0		#DIV/0!		#DIV/0!	#DIV/0!	efault (40 mg/kg) spike
		0		0.000	no	0		#DIV/0!		#DIV/0!	#DIV/0!	efault (40 mg/kg) spike
		0		0.000	no	0		#DIV/0!		#DIV/0!	#DIV/0!	efault (40 mg/kg) spike
		0		0.000	no	0		#DIV/0!		#DIV/0!	#DIV/0!	efault (40 mg/kg) spike
		0		0.000	no	0		#DIV/0!		#DIV/0!	#DIV/0!	efault (40 mg/kg) spike
		0		0.000	no	0		#DIV/0!		#DIV/0!	#DIV/0!	efault (40 mg/kg) spike
		0		0.000	no	0		#DIV/0!		#DIV/0!	#DIV/0!	efault (40 mg/kg) spike

3060A/7196A INSOLUBLE SPIKE CALCULATION

Weight of PbCrO4	Weight of Sample	Amount Spiked	
0.014	2.5	900.990	B2
0.0135	2.47	879.364	S2.
		#DIV/0!	
		#DIV/0!	
		#DIV/0!	

Validated By: JJY
Date Validated: 2/26/13
Doc. Control #: AGN-XCRAPSCALC-01

ACCUTEST.

Hexavalent Chromium pH Adjustment Log
Method Sw846 3060A/7196A

pH Meter ID: 23
Digestion Date: 10-15-13
pH adj. Date: 10/16/13
GN Batch ID: GN93304

pH adj. start time: 9:14 | 9:37
pH adj. end time: 9:26 | 9:45

GP5278 Sample ID	Sample Weight in g	pH after HNO3 (7.0 to 8.0)	Final Volume (ml)	pH after H2SO4 (1.5 to 2.5)	bkg pH after H2SO4	Spike Amounts	Spike Solution	Digestate Description/Comments
CCV		7.42	100	2.16	—	5.0mL	100ppm CrVI	
CCV						↓	↓	
CCV								
CCV								
CCB		7.54	100	2.03	—			
CCB								
CCB								
CCB								
MS (Sol) JB50090-4R	2.47	7.33	100	2.32	1.89	1.0mL	100ppm ABS PbCrO4	
MS (Insol.) -4R	2.47	7.52	↓	2.16	2.04	0.0135		
DUP -4R	2.44	7.46		1.56	1.63			
SB (Sol)	2.50	7.73		1.77	2.15	1.0mL	100ppm ABS PbCrO4	
SB (Insol)	↓	7.56		2.04	1.55	0.0140		
MB		7.59		1.95	1.82			
1 JB50090-4R	2.47	7.23		1.73	2.17			Yellow
2 -2R	2.44	7.40		2.28	1.95			Brown
3 -3R	2.42	7.74		1.68	1.73			Dark Brown
4 -5R	2.44	7.91		2.35	1.59			Tan
5 -6R	2.44	7.75	↓	1.79	1.82			Tan
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
SB (Insol)	2.50	7.86	100	2.14	2.33	1mL Samp	50mL WD	dilution 1:50
MS (Insol.)	2.47	7.82	↓	1.95	1.62	↓		dilution 1:50
PS (JB50090-4R)	2.47	7.23	↓	2.02	1.73	0.225mL 100ppm ABS		FV 50mL 1:222
pH adjusted PS								
1:5 dil.								
JB50090-4L	2.45							

Reagent Reference Information - refer to attached reagent reference information page(s).

{1000000 ug/g x Insoluble spike wt(g) x 52/323.2}/ms sample wt(g) = Insoluble spike amount of PbCrO4

2nd analyst check: _____ Anayst: BP

Form: GN-067
Rev. Date: 08/8/12

ACCUTEST.

Hexavalent Chromium pH Adjustment Log
Method: SW846 3060A/7196A

pH adj. start time: 8:20 8:29
pH adj. end time: 8:26 8:32

pH adjustment Date: 10/16/13
GN Batch ID: GN GN 93304

Sample ID	Sample Weight in g	pH after HNO3	Final Volume (ml)	pH after H2SO4	Comments	Spike Info.
Calibration Blank	NA	7.33	100	2.13	0	
0.010 mg/l standard	NA	7.86	100	2.08	10ppm Absolute	0.10 ml of 10 mg/l
0.050 mg/l standard	NA	7.79	100	1.97	10ppm Absolute	0.50 ml of 10 mg/l
0.100 mg/l standard	NA	7.65	100	2.31	10ppm Absolute	1.00 ml of 10 mg/l
0.300 mg/l standard	NA	7.22	100	1.77	10ppm Absolute	3.00 ml of 10 mg/l
0.500 mg/l standard	NA	7.58	100	1.60	10ppm Absolute	5.00 ml of 10 mg/l
0.800 mg/l standard	NA	7.37	100	1.62	10ppm Absolute	8.00 ml of 10 mg/l
1.00 mg/l standard	NA	7.81	100	1.93	10ppm Absolute	10.0 ml of 10 mg/l

Reagent Reference Information - refer to attached reagent reference information page(s).

{1000000 ug/g x Insoluble spike wt(g) x 52/323.2}/ms sample wt(g) = Insoluble spike amount of PbCrO4

Anayst: BP
Date: 10/16/13

Form: GN068-01
Rev. Date:5/22/06

ACCUTEST.

HEXAVALENT CHROMIUM STANDARD PREPARATION LOG

Product: XCRA7196

GN or GP Number: GN93304

Intermediate Standard Description	Stock used to prepare standard	Stock concentration	Stock volume used in ml	Diluent	Final Volume	Final Conc. of Intermediate (mg/l)	Expiration Date	Analyst	Date
10 ppm	Absolute Grade Lot #060613	1000 ppm	1.0 ml	DI	100 mls	10 mg/l	6/6/2016	BP	10/16/13
100 ppm		1000 ppm	10 ml	DI	100 mls	100 mg/l			
5 ppm		1000 ppm	1.0 ml	DI	200 mg/l	5 mg/l			
7.5 ppm		1000 ppm	1.5 ml	DI	200 mg/l	7.5 mg/l			
10 ppm	Ultra lot #L00439	1000 ppm	1.0 ml	DI	100 mg/l	10 mg/l	5/31/2017		

Standard Description	Intermediate or Stock used to prepare standard	Intermediate or Stock concentration	Intermediate or Stock volume used in ml	Diluent	Final Volume	Final Conc. Of Standard (mg/l)	Expiration Date	Analyst	Date
.010 ppm	10.0 ppm abs	10.0 ppm	0.1 ppm	DI	100 mls	0.01 mg/l	10/17/13	BP	10/16/13
.050 ppm	10.0 ppm abs	10.0 ppm	0.5 ppm	DI	100 mls	0.05 mg/l			
.10 ppm	10.0 ppm abs	10.0 ppm	1.0 ppm	DI	100 mls	0.10 mg/l			
.30 ppm	10.0 ppm abs	10.0 ppm	3.0 ppm	DI	100 mls	0.30 mg/l			
.50 ppm	10.0 ppm abs	10.0 ppm	5.0 ppm	DI	100 mls	0.50 mg/l			
.80 ppm	10.0 ppm abs	10.0 ppm	8.0 ppm	DI	100 mls	0.80 mg/l			
1.00 ppm	10.0 ppm abs	10.0 ppm	10.0 ppm	DI	100 mls	1.0 mg/l			

Form: GN205-02
Rev. Date:10/16/09

ACCUTEST.

HEXAVALENT CHROMIUM TEMPERATURE AND TIME DIGESTON LOG - METHOD 3060A

Record a minimum of starting, middle, and ending temperatures for each batch.

Thermometer ID: 318,25A,385,159

Thermometer Correction factor: 1,0,0,0

Note: Minimum of 1 hour digestion time for each batch. Corrected temperatures must be in the range of 90 to 95 deg. C.

Digestion Batch ID	Description	Time	Temp. in deg. C Hot Plate # 1 - Uncorrected/Corrected	Temp. in deg. C Hot Plate # 2 - Uncorrected/Corrected	Temp. in deg. C Hot Plate # 3 - Uncorrected/Corrected	Temp. in deg. C Hot Plate # 4 - Uncorrected/Corrected
GP 75278	Starting Time	16:43	93/94	91/91	91/91	91/91
GP 75279	Time 1	17:13	93/94	91/91	91/91	91/91
	Ending Time	17:43	93/94	91/91	91/91	91/91
GP 75280	Starting Time	17:50	93/94	91/91	91/91	91/91
GP 75281	Time 1	18:20	93/94	91/91	91/91	91/91
	Ending Time	18:50	93/94	91/91	91/91	91/91
GP 75282	Starting Time	18:55	93/94	91/91	91/91	91/91
GP 75283	Time 1	19:25	93/94	91/91	91/91	91/91
	Ending Time	19:55	93/94	91/91	91/91	91/91

Analyst: NBP

2nd Analyst Check: MEH

Date: 10-15-13

Form: GN074-02
Rev. Date: 8/08/12

ACCUTEST.

GN/GP Batch ID: GN93304.

Reagent Information Log - XCRA (soil 3060A/7196)

Reagent	Exp. Date	Reagent # or Manufacturer/Lot
Calibration Source: Hexavalent Chromium, 1000 mg/L Stock	6/6/2016	ABSOLUTE GRADE #060616
Calibration Checks: Hexavalent Chromium, 1000 mg/L Stock	10/31/2019	ULTRA #P00986
Spiking Solution Source	6/6/2016	ABSOLUTE GRADE #060616
Lead Chromate (Insoluble Hexavalent Chromium Spike)	7/26/2017	SIGMA ALDRICH # BCBG0578V
Magnesium Chloride, Anhydrous	9/2/2017	ALFA AESAR # H10X010
1N NaOH	—	—
Digestion Solution	11/9/2013	GNE10-37204-XCR
Phosphate Buffer Solution	4/3/2014	GNE10-37639-XCRA
5.0 M Nitric Acid	3/25/14	GNE9-37551-XCRA
Diphenylcarbazide Solution	11/6/13	GNE10-37689-XCR
Sulfuric Acid, 10%	3/30/14	GNE9-37605-XCR
Filter	NA	Lot #130508059
Teflon Chips	NA	91920

Form: GN087A-21B
Rev. Date: 2/18/10

ACCUTEST.

TEST: Ferrous Iron (FE2/7)
METHOD: ASTM D3872-86
RDL: 0.20 %

ANALYST: CB
DATE: 10/16/13

GN BATCH: GN 93315
REAGENT ID's: See attached page

F = Weight of Iron in g / Vol. Of Dichomate in mL

F = 0.0067

%Fe2/7 = ml Dichromate x F x 100 / sample wt in g x (%sol/100)

QC Summary

						Units	Within limits? (Y/N)
Dup. Sample ID: D1	Original: 1.02	Duplicate: 1.02	RPD: 0				
MS Sample ID: S1 Original:	1.02 Amt. Spiked:	50.71 MS: 58.03	REC: 112.42				
MB ID and prep date: MB	Result: <0.2	RDL: 0.2	<RDL? Y				
SB ID and prep date:	Amt. Spiked:	Result:	REC:				
External ID:	Known:	Result:	REC:				

Spike prep: 0.25g Fe → 0.52g sample

Bottle #	Sample Description	Sample Weight in g	Start Time/End Time	Titrant Start in ml	Titrant End in ml	Titrant Total (ml)	Result in mg/l	Final Result in mg/l	RDL	Units
	GN -MB		10:00 AM	0	0.10	0.10	0.134	<0.2	0.2	%
	GN -B				37.50	37.50	For calculation only			%
1	JB47902-1RT	0.52g			0.75	0.75	1.0193	1.02		%
	GN -D	0.52g			0.75	0.75	1.0193	1.02		%
	GN -S	0.52g			42.70	42.70	58.0351	58.03		%
2	JB50090-4R	0.52g	#4 48		0.35	0.35	0.4966	0.50		%
3	JB49787-1R	0.52g 0.56g			0.25	0.25	0.3840	0.38		%
4	JB49673-1R	0.52g			0.70	0.70	1.0145	1.01		%
5										%
6										%
7										%
8										%
9	% solids									%
10	JB47902-1RT	94.8								%
11	JB50090-4R	90.8		M.S=	.25 / .52	x 100 x	1 / .948 =	50.71		%
12	JB49787-1R	75.2								%
13	JB49673-1R	88.9								%
14										%
15										%
16										%
17										%
18										%
19										%
20										%

Reason codes for data corrections : 1 - reviewer error correction; 2 - transcription error; 3-computer error; 4- analyst error

ANALYST: CB DATE: 10/16/13 QC REVIEW: DATE:

COMMENTS:

Form: GN-198
Rev. Date: 6/16/06

ACCUTEST.

Reagent Information Log
Fe2/7

Work Group #_____

Reagent	Reagent # or Manufacturer/Lot
Iron ~~Wire Std~~ Filings	Fisher 135597 9/27/18
HCL (1:1)	CONE10-37651-SBP9L 4/5/14
60% Sulfuric Acid/Phosphoric Acid	CONE10-37652-Fe 2/7 4/5/14
Potassium Dichromate Solution	CONE10-37653-Fe 2/7 4/5/14
Diphenyl Amino Indicator	CONE 9-37565-Fe 2/7 3/26/14
Acetic Acid Buffer	CONE 7-36794-SU185 1/11/14

All standards and stocks were made as described in the SOP for this method (circle one): (Y) or N
If no (N), see attached page for standards prep.

Form: GN087-01
Rev. Date:12/19/2011

ACCUTEST.

Analyst CB

Method SulFS

Prep Date 10/16/13

Balance # B-14

GP # GN93317

Sample Prep Log

Sample ID	Sample Size	Final Volume
MB	+10ml DI	Negative
JB47902-1RT	10.58 g	
-1RTDup	10.62 g	
JB50090-4R	10.11 g	
JB49787-1R	10.01 g	
JB49673-1R	10.52 g	

Form: GN166-02
Rev. Date: 8/5/05

QC Review

C:\TOC-L\Data\d3101681.toc.tlx

	Type	Sample Nam	Sample ID	Origin	Manual Diluti	Result	Status	Date / Time
1	Unknown	CRI	(A)	TOCSSMC	1.000	SSM-TC:0.07911m	Completed	10/16/2013
2	Unknown	HSTD		TOCSSMC	1.000	SSM-TC:5.120mg/	Completed	10/16/2013
3	Unknown	ICV		TOCSSMC	1.000	SSM-TC:2.013mg/	Completed	10/16/2013
4	Unknown	CCV		TOCSSMC	1.000	SSM-TC:2.515mg/	Completed	10/16/2013
5	Unknown	GP75181-M	TOCLK	TOCSSM.m	1.000	SSM-TC:0.00255m	Completed	10/16/2013
6	Unknown	GP75181-B2		TOCSSM.m	1.000	SSM-TC:0.1951mg	Completed	10/16/2013
7	Unknown	JB50090-4R	(2)	TOCSSM.m	1.000	SSM-TC:3.404mg/	Completed	10/16/2013 ← overrange. Rerun at 0.1g.
8	Unknown	JB50090-4R	(B)	TOCSSM.m	1.000	SSM-TC:3.606mg/	Completed	10/16/2013
9	Unknown	JB24887-1		TOCSSM.m	1.000	SSM-TC:0.01213m	Completed	10/16/2013
10	Unknown	JB24887-1		TOCSSM.m	1.000	SSM-TC:0.01147m	Completed	10/16/2013
11	Unknown	CCV		TOCSSMC	1.000	SSM-TC:2.521mg/	Completed	10/16/2013

D3101681.TOC GN93334

TOCLK VA 10/17/13

10/16/2013 3:49:58 PM

1/1

TOCLK

ACCUTEST.

D3101651.TOC

Test: Total Organic Carbon
Product: TOC
Method: Corp. Eng. 81 M/SW846 9060 M or EPA Region 2 Lloyd Kahn (circle one)
RDL = 1000 mg/kg or 100 mg/kg (circle one)

Units = mg/kg
Balance ID: B-39

GN Batch ID GN93334
Date 10/16/13
Analyst VA

Sample ID	Sample Weight	Bottle #	Sample Description & comments
CRI			
MSTD			
ICV			
CCV			
GP75781 -MB2	1.0000		
	1.0000		
GP75781 -B2	1.0000		
	1.0000		
JB50090-4R	0.4065	1	Overange. Rerun at 0.1g
	0.4034		
	0.4144		
	0.4111		
JB50090-4R	0.1034	1	
	0.1015		
	0.1064		
	0.1080		
JB24887-1	1.0000		JB24890-1 (TOC-SO) MDL TV=10ppm
	1.0000		
JB24887-1	1.0000		JB24890-1
	1.0000		
JB24887-1	1.0000		JB24890-1
	1.0000		
JB24887-1	1.0000		JB24890-1
	1.0000		

Analyst: VA Date: 10/16/13 QCReviewer: _____ Date: _____
Manager Review: _____ Date: _____
Comments:
BSP = 100uL of 20000 mg/L (Glucose) → 1.0g of Silica Sand TV = 2000 mg/kg.

Form: GN058-01
Rev. Date: 11/11/08

(2)

ACCUTEST

Test: Total Organic Carbon
Product: TOC
Method: Corp. Eng. 81 M/SW846 9060 M or EPA Region 2 Lloyd Kahn (circle one)
RDL = 1000 mg/kg or 100 mg/kg (circle one)

Units = mg/kg
Balance ID: B-39

GN Batch ID GN93334
Date 10/16/13
Analyst VA

Sample ID	Sample Weight	Bottle #	Sample Description & comments
JB24887-1	1.0000		JB24890-1
	1.0000		
JB24887-1	1.0000		JB24890-1
	1.0000		
CCV			
JB24887-1	1.0000		JB24890-1
	1.0000		
JB24887-2	1.0000		JB24890-2 TV=50 ppm MDL V
	1.0000		
CCV			

Analyst: VA Date: 10/16/13 QCReviewer: _____ Date: _____
Manager Review: _____ Date: _____
Comments:

Form: GN058-01
Rev. Date: 11/11/08

ACCUTEST LABORATORIES

MDL Schedule Log

Product: TOC-LK

Matrix: SO

Instrument: TOC-D

Sample #: JB24887-1 (MDL or MDLVER) x 7

Concentration: 1000 VA 10/16/13 mg/L or (mg/kg) or

Prep: SID B (GWE10-37711-TOC)

Sample #: JB24887-2 MDL or (MDLVER) x 1

Concentration: 50 VA DI 10/16/13 mg/L or (mg/kg) or

Prep: 1 mL of 50,000 mg/L (GWE10-37716-TOC) → ↑ 100 mL DI H2O

Date: 10/16/13

Analyst: VA

Batch #: GN93334

Form: GN278-02 Revised: 10/16/12

TOC-Control L Report

d31016s1.toc.tlx

Instr.Information

Instrument Options	TOC/SSM/Sparge Kit/
Catalyst	Regular Sensitivity

Sample

Sample Name:	CRI
Sample ID:	
Origin:	TOCSSMCAL.met
Status	Completed
Chk. Result	

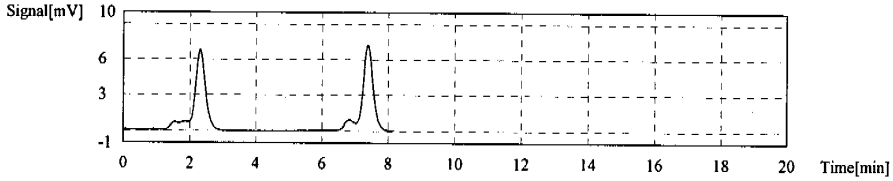
Unknown	SSM-TC		1.000	1.000mg/uL	SSM-TC:0.07911mg/L

1. Det

Anal.: SSM-TC

1	16.18	16.18	0.1175mg/L	100.0mg	100uL	d31009s1 2013_10_09_10_01_03.cal	10/16/2013 9:47:48 AM
2	0.000	0.000	0.00081mg/L	100.0mg	100uL	d31009s1.2013_10_09_10_01_03.cal	10/16/2013 10:02:13 AM
3	16.38	16.38	0.1190mg/L	100.0mg	100uL	d31009s1.2013_10_09_10_01_03.cal	10/16/2013 10:14:22 AM

Mean Conc.	0.07911mg/L
CV Conc	85.72%



Sample

Sample Name:	HSTD
Sample ID:	
Origin:	TOCSSMCAL.met
Status	Completed
Chk. Result	

Unknown	SSM-TC		1.000	1.000mg/uL	SSM-TC:5.120mg/L

1. Det

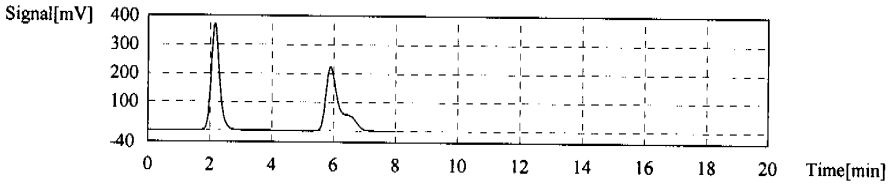
Anal.: SSM-TC

1	707.9	707.9	5.108mg/L	100.0mg	100uL	d31009s1.2013_10_09_10_01_03.cal	10/16/2013 10:31:26 AM
2	711.2	711.2	5.132mg/L	100.0mg	100uL	d31009s1.2013_10_09_10_01_03.cal	10/16/2013 10:38:55 AM

TOC-Control L Report

d31016s1.toc.tlx

Mean Conc. 5.120mg/L
CV Conc 0.33%



Sample

Sample Name: ICV
Sample ID:
Origin: TOCSSMCAL.met
Status Completed
Chk. Result

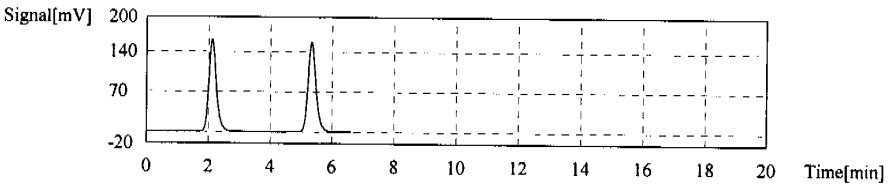
Unknown	SSM-TC	1.000	1.000mg/uL		SSM-TC:2.013mg/L

1. Det

Anal.: SSM-TC

1	275.0	275.0	1.985mg/L	100.0mg	100uL	d31009s1.2013_10_09_10_01_03.cal	10/16/2013 10:44:18 AM
2	282.8	282.8	2.041mg/L	100.0mg	100uL	d31009s1.2013_10_09_10_01_03.cal	10/16/2013 11:00:12 AM

Mean Conc. 2.013mg/L
CV Conc 1.98%



Sample

Sample Name: CCV
Sample ID:
Origin: TOCSSMCAL.met
Status Completed
Chk. Result

Unknown	SSM-TC	1.000	1.000mg/uL		SSM-TC:2.515mg/L

1. Det

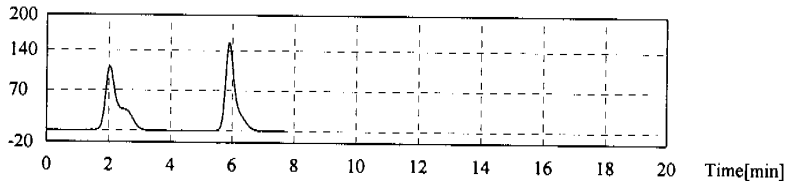
Anal.: SSM-TC

1	348.9	348.9	2.518mg/L	100.0mg	100uL	d31009s1.2013_10_09_10_01_03.cal	10/16/2013 11:10:21 AM
2	348.2	348.2	2.513mg/L	100.0mg	100uL	d31009s1.2013_10_09_10_01_03.cal	10/16/2013 11:37:04 AM

TOC-Control L Report

d31016s1.toc.tlx

Mean Conc. 2.515mg/L
CV Conc 0.14%



Sample

Sample Name: GP75181-MB2
Sample ID: TOCLK
Origin: TOCSSM.met
Status Completed
Chk. Result

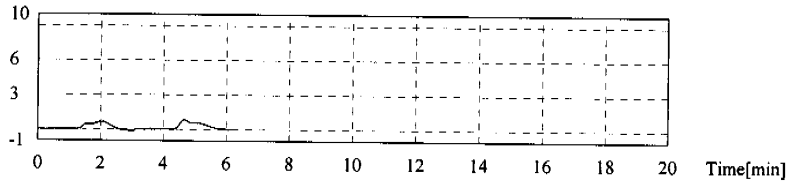
Unknown	SSM-TC	1.000	1.000mg/uL		SSM-TC:0.00255mg/L

1. Det

Anal.: SSM-TC

1	3.280	3.280	0.00245mg/L	1000mg	1000uL	d31009s1.2013_10_09_10_01_03.cal	10/16/2013 11:47:38 AM
2	3.563	3.563	0.00265mg/L	1000mg	1000uL	d31009s1.2013_10_09_10_01_03.cal	10/16/2013 12:03:21 PM

Mean Conc. 0.00255mg/L
CV Conc 5.66%



Sample

Sample Name: GP75181-B2
Sample ID:
Origin: TOCSSM.met
Status Completed
Chk. Result

Unknown	SSM-TC	1.000	1.000mg/uL		SSM-TC:0.1951mg/L

1. Det

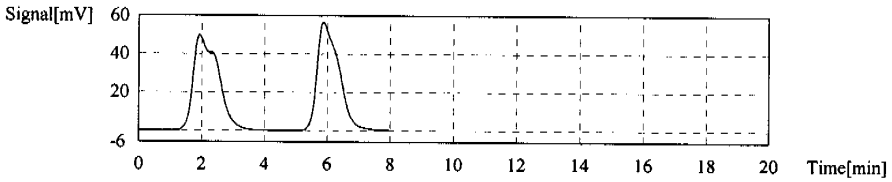
Anal.: SSM-TC

1	270.1	270.1	0.1949mg/L	1000mg	1000uL	d31009s1.2013_10_09_10_01_03.cal	10/16/2013 12:16:22 PM
2	270.5	270.5	0.1952mg/L	1000mg	1000uL	d31009s1.2013_10_09_10_01_03.cal	10/16/2013 12:22:11 PM

TOC-Control L Report

d31016s1.toc.tlx

Mean Conc. 0.1951mg/L
CV Conc 0.10%



Sample

Sample Name: JB50090-4R
Sample ID:
Origin: TOCSSM.met
Status Completed
Chk. Result

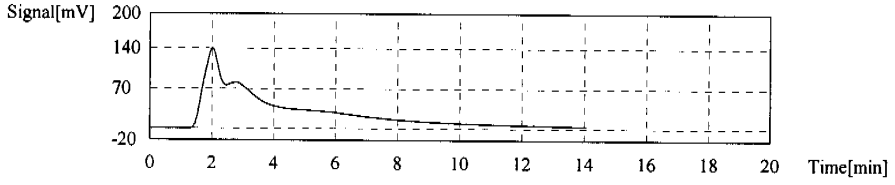
Unknown	SSM-TC	1.000	1.000mg/uL		SSM-TC:3.404mg/L

1. Det

Anal.: SSM-TC

1	1918	1918	3.404mg/L	406.5mg	406uL	d31009s1.2013_10_09_10_01_03.cal	10/16/2013 12:52:15 PM

Mean Conc. 3.404mg/L
CV Conc 0.00%



Sample

Sample Name: JB50090-4R
Sample ID:
Origin: TOCSSM.met
Status Completed
Chk. Result

Unknown	SSM-TC	1.000	1.000mg/uL		SSM-TC:3.606mg/L

1. Det

Anal.: SSM-TC

1	521.8	521.8	3.641mg/L	103.4mg	103uL	d31009s1.2013_10_09_10_01_03.cal	10/16/2013 2:24:06 PM
2	502.3	511.7	3.571mg/L	101.5mg	101uL	d31009s1.2013_10_09_10_01_03.cal	10/16/2013 2:42:56 PM

TOC-Control L Report

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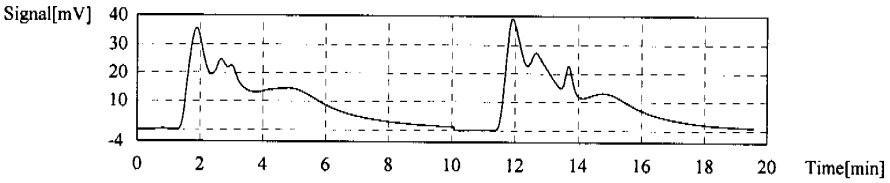
Mean Conc. 3.606mg/L
CV Conc 1.38%



Sample

Sample Name: JB24887-1
Sample ID:
Origin: TOCSSM.met
Status Completed
Chk. Result

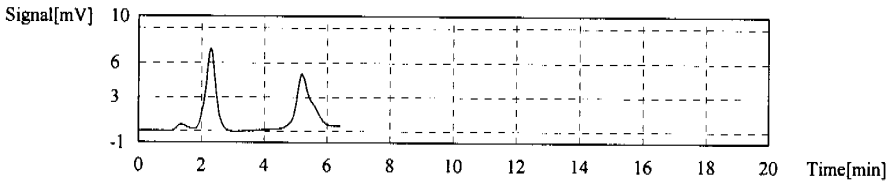
Unknown	SSM-TC	1.000	1.000mg/uL		SSM-TC:0.01213mg/L

1. Det

Anal.: SSM-TC

1	18.20	18.20	0.01321mg/L	1000mg	1000uL	d31009s1.2013_10_09_10_01_03.cal	10/16/2013 2:52:25 PM
2	15.21	15.21	0.01105mg/L	1000mg	1000uL	d31009s1.2013_10_09_10_01_03.cal	10/16/2013 3:03:04 PM

Mean Conc. 0.01213mg/L
CV Conc 12.57%



Sample

Sample Name: JB24887-1
Sample ID:
Origin: TOCSSM.met
Status Completed
Chk. Result

Unknown	SSM-TC	1.000	1.000mg/uL		SSM-TC:0.01147mg/L

1. Det

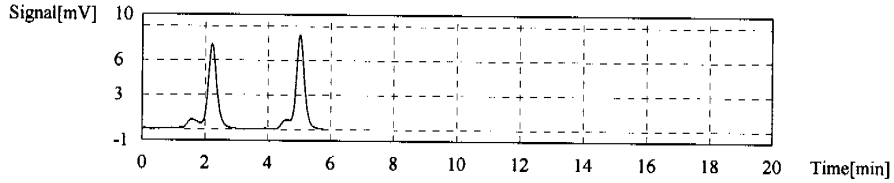
Anal.: SSM-TC

1	15.57	15.57	0.01131mg/L	1000mg	1000uL	d31009s1.2013_10_09_10_01_03.cal	10/16/2013 3:11:18 PM
2	16.01	16.01	0.01163mg/L	1000mg	1000uL	d31009s1.2013_10_09_10_01_03.cal	10/16/2013 3:17:55 PM

TOC-Control L Report

d31016s1.toc.tlx

Mean Conc.	0.01147mg/L
CV Conc	1.96%



Sample

Sample Name:	CCV
Sample ID:	
Origin:	TOCSSMCAL.met
Status	Completed
Chk. Result	

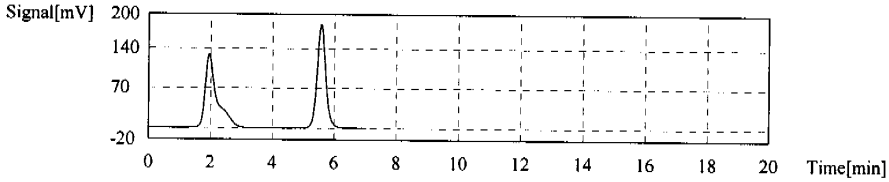
Unknown	SSM-TC		1.000	1.000mg/uL	SSM-TC:2.521mg/L

1. Det

Anal.: SSM-TC

1	342.2	342.2	2.469mg/L	100.0mg	100uL	d31009s1.2013_10_09_10_01_03.cal	10/16/2013 3:40:09 PM
2	356.5	356.5	2.573mg/L	100.0mg	100uL	d31009s1.2013_10_09_10_01_03.cal	10/16/2013 3:48:59 PM

Mean Conc.	2.521mg/L
CV Conc	2.89%



C:\TOC-L\Data\d31016s2.toc.tlx

	Type	Sample Nam	Sample ID	Origin	Manual Diluti	Result	Status	Date / Time
1	Unknown	JB24887-1	A2	TOCSSM.m	1.000	SSM-TC:0.01290m	Completed	10/16/2013
2	Unknown	JB24887-1		TOCSSM.m	1.000	SSM-TC:0.01095m	Completed	10/16/2013
3	Unknown	JB24887-1		TOCSSM.m	1.000	SSM-TC:0.06023m	Completed	10/16/2013
4	Unknown	JB24887-1		TOCSSM.m	1.000	SSM-TC:0.01039m	Completed	10/16/2013
5	Unknown	JB24887-1		TOCSSM.m	1.000	SSM-TC:0.00927m	Completed	10/16/2013
6	Unknown	JB24887-2	MDL-V	TOCSSM.m	1.000	SSM-TC:0.00575m	Completed	10/16/2013
7	Unknown	CCV		TOCSSMC	1.000	SSM-TC:2.499mg/	Completed	10/16/2013

D31016S2.TOC

TOC LL

GN93334

VA10117H13

7.5

7

10/16/2013 6:39:10 PM

1/1

TOC-Control L Report

d31016s2.toc.tlx

Instr.Information

Instrument Options: TOC/SSM/Sparge Kit/
Catalyst: Regular Sensitivity

Sample

Sample Name: JB24887-1
Sample ID:
Origin: TOCSSM.met
Status: Completed
Chk. Result:

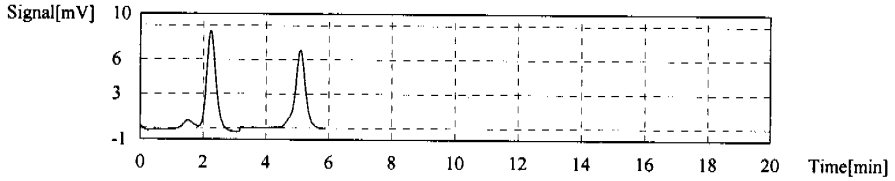
Unknown	SSM-TC	1.000	1.000mg/uL	SSM-TC:0.01290mg/L

1. Det

Anal.: SSM-TC

1	20.29	20.29	0.01472mg/L	1000mg	1000uL	d31009s1.2013_10_09_10_01_03.cal	10/16/2013 3:57:56 PM
2	15.25	15.25	0.01108mg/L	1000mg	1000uL	d31009s1.2013_10_09_10_01_03.cal	10/16/2013 4:06:04 PM

Mean Conc. 0.01290mg/L
CV Conc 19.93%



Sample

Sample Name: JB24887-1
Sample ID:
Origin: TOCSSM.met
Status: Completed
Chk. Result:

Unknown	SSM-TC	1.000	1.000mg/uL	SSM-TC:0.01095mg/L

1. Det

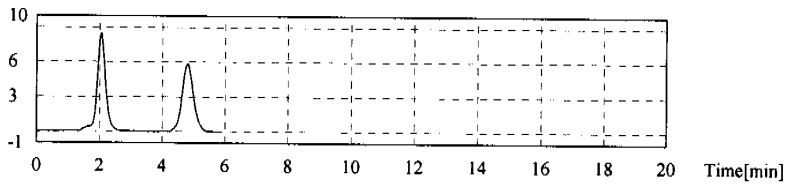
Anal.: SSM-TC

1	15.47	15.47	0.01124mg/L	1000mg	1000uL	d31009s1.2013_10_09_10_01_03.cal	10/16/2013 4:32:17 PM
2	14.66	14.66	0.01066mg/L	1000mg	1000uL	d31009s1.2013_10_09_10_01_03.cal	10/16/2013 4:39:21 PM

TOC-Control L Report

d31016s2.toc.tlx

Mean Conc.	0.01095mg/L
CV Conc	3.77%



Sample

Sample Name:	JB24887-1
Sample ID:	
Origin:	TOCSSM.met
Status	Completed
Chk. Result	

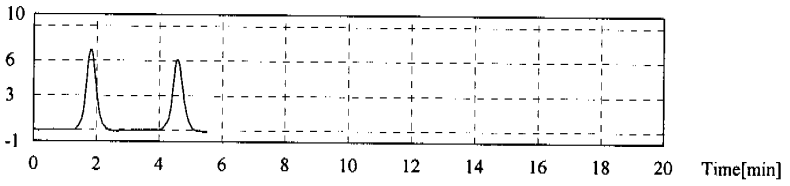
Unknown	SSM-TC	1.000	1.000mg/uL		SSM-TC:0.06023mg/L

1. Det

Anal.: SSM-TC

1	16.35	16.35	0.01188mg/L	1000mg	1000uL	d31009s1.2013_10_09_10_01_03.cal	10/16/2013 4:49:05 PM
2	14.94	149.4	0.1086mg/L	100.0mg	100uL	d31009s1.2013_10_09_10_01_03.cal	10/16/2013 4:56:34 PM

Mean Conc.	0.06023mg/L
CV Conc	113.54%



Sample

Sample Name:	JB24887-1
Sample ID:	
Origin:	TOCSSM.met
Status	Completed
Chk. Result	

Unknown	SSM-TC	1.000	1.000mg/uL		SSM-TC:0.01039mg/L

1. Det

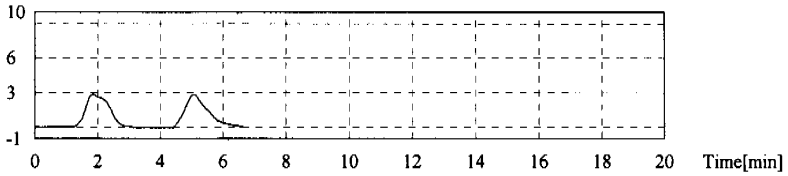
Anal.: SSM-TC

1	13.89	13.89	0.01010mg/L	1000mg	1000uL	d31009s1.2013_10_09_10_01_03.cal	10/16/2013 5:03:52 PM
2	14.70	14.70	0.01069mg/L	1000mg	1000uL	d31009s1.2013_10_09_10_01_03.cal	10/16/2013 5:10:27 PM

TOC-Control L Report

d31016s2.toc.tlx

Mean Conc. 0.01039mg/L
CV Conc 3.98%



Sample

Sample Name: JB24887-1
Sample ID:
Origin: TOCSSM.met
Status Completed
Chk. Result

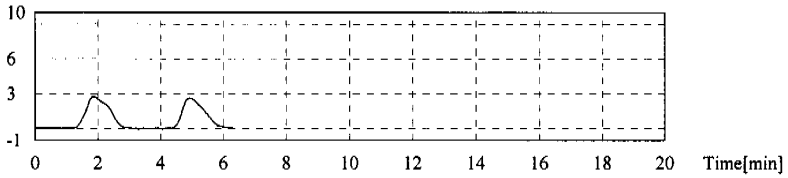
Unknown	SSM-TC		1.000	1.000mg/uL		SSM-TC:0.00927mg/L

1. Det

Anal.: SSM-TC

1	13.14	13.14	0.00956mg/L	1000mg	1000uL	d31009s1.2013_10_09_10_01_03.cal	10/16/2013 5:15:12 PM
2	12.34	12.34	0.00898mg/L	1000mg	1000uL	d31009s1.2013_10_09_10_01_03.cal	10/16/2013 5:22:22 PM

Mean Conc. 0.00927mg/L
CV Conc 4.40%



Sample

Sample Name: JB24887-2
Sample ID: MDL-V
Origin: TOCSSM.met
Status Completed
Chk. Result

Unknown	SSM-TC		1.000	1.000mg/uL		SSM-TC:0.00575mg/L

1. Det

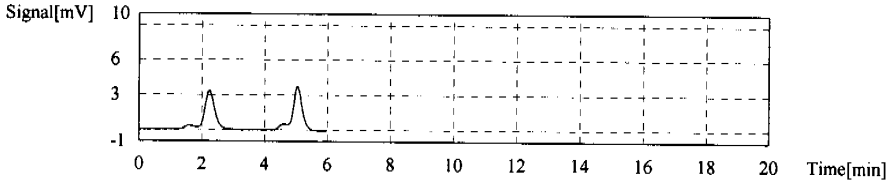
Anal.: SSM-TC

1	7.715	7.715	0.00565mg/L	1000mg	1000uL	d31009s1.2013_10_09_10_01_03.cal	10/16/2013 5:29:14 PM
2	8.006	8.006	0.00586mg/L	1000mg	1000uL	d31009s1.2013_10_09_10_01_03.cal	10/16/2013 5:37:21 PM

TOC-Control L Report

d31016s2.toc.tlx

Mean Conc.	0.00575mg/L
CV Conc	2.58%



Sample

Sample Name:	CCV
Sample ID:	
Origin:	TOCSSMCAL.met
Status	Completed
Chk. Result	

Unknown	SSM-TC	1.000	1.000mg/uL	SSM-TC:2.499mg/L

1. Det

Anal.: SSM-TC

1	349.7	349.7	2.524mg/L	100.0mg	100uL	d31009s1.2013_10_09_10_01_03.cal	10/16/2013 5:59:32 PM
2	343.0	343.0	2.475mg/L	100.0mg	100uL	d31009s1.2013_10_09_10_01_03.cal	10/16/2013 6:14:27 PM

Mean Conc.	2.499mg/L
CV Conc	1.37%