AECOM

Memorandum

To	Thomas Gibbons (CB&I)	**Page**	1
CC	Keith Prins (PPG), Mark Terril (PPG), Scott Mikaelian (AECOM)		
Subject	Site 186 RAWP Addendum - Soil Remedial Action at Metropolitan Family Health Network		
From	Alfred LoPilato (AECOM)		
Date	October 25, 2013		

RE: **Hudson County Chromate Site 186 - Remedial Action Work Plan (RAWP) – Proposed RAWP Addendum - Soil Remedial Action at Metropolitan Family Heath Network, 935 Garfield Avenue, Jersey City, NJ**

Tom –

As you know, on Saturday October 12, 2013, PPG/AECOM/ENTACT implemented a Remedial Investigation (RI) at the Metropolitan Family Health Network (MFHN) property, adjacent and south of Site 186.

The purpose of the RI was to investigate the presence/non-presence of visible Chromate Chemical Production Waste (CCPW) on the MHFN side of the fence/property boundary, since visible CCPW was observed at the property boundary on Site 186.

The scope of the RI potentially included both "initial" and "contingency" investigation activities, as presented in AECOM's Technical Memorandum dated September 16, 2013, and as approved by the New Jersey Department of Environmental Protection (NJDEP). A summary of the investigation results and proposed additional actions is provided below.

Initial Investigation Results

The initial investigation activities included excavation of a narrow trench (approximately 3-feet wide) along the fence line/property boundary to a depth of approximately 3-feet below ground surface. The trench was excavated starting at the east side of the property, and continued west along the fence towards the sidewalk adjacent to the MFHN building (Figure 1, attached)

Visible CCPW was not observed by PPG/AECOM or Weston/NJDEP personnel in either the soils excavated from the trench, nor on the excavation sidewalls. As a result, "contingency" RI activities (i.e. expanded excavation) were not required to be implemented.

A total of four confirmatory soil samples were collected (MFHT1-2.0-2.5 through MFHT1-4-2.0-2.5) from within the excavated trench (as depicted on Figure 1), and analyzed for hexavalent chromium (Cr+6) by Accutest Laboratories in Dayton, NJ. One duplicate sample (186-MFHT1-2.0-2.5X) was also collected.

Analytical results indicate Cr+6 concentrations ranged from 1.4 mg/kg to 24.1 mg/kg, as presented in Table 1 below:

TABLE 1
Hexavalent Chromium Analytical Results
Soil Samples Collected at MFHN
October 12, 2013

Lab Sample ID	Client Sample ID	Sample Depth (feet bgs)	Analytical Result (Cr+6 mg/kg)
JB50090-6	186-MFHT1-2.0-2.5	2.0-2.5	4.7
JB50090-5	186-MFHT1-2.0-2.5X	2.0-2.5	5.6
JB50090-4R	186-MFHT1-2-2.0-2.5	2.0-2.5	1.4
JB50090-3	186-MFHT1-3-2.0-2.5	2.0-2.5	**24.1**
JB50090-2	186-MFHT1-4-2.0-2.5	2.0-2.5	5.8

BOLD results exceed the NJDEP Chromium Soil Cleanup Criteria of 20.0 mg/kg.

The laboratory data packages are included in Appendix A. The analytical results were subsequently validated by AECOM and determined to be useable for their intended purpose. AECOM's Validation Report is included as Appendix B.

Based on these findings, a presumably small area of actionable Cr+6 impacted soil exists on MFHN property, in the vicinity of sample location 186-MFHT1-3-2.0-2.5.

This sample exceedence is already delineated to the NORTH (via clean fill previously placed on Site 186), to the WEST via Sample 186-MFHT-2-2.0-2.5, and to the EAST by Sample 186-MFHT1-4-2.0-2.5. At a minimum, additional delineation sampling is required to the SOUTH, and also vertically (2.5-3.0 feet).

Proposed Remedial Action

PPG's proposed remedial action for soils near this sample location is excavation/removal, and off-site disposal. Prior to excavation, PPG proposes to collect four additional "Pre-Post-Excavation" delineation soil samples, as depicted in Figure 1. Assuming the analytical results exhibit Cr+6 concentrations below 20.0 mg/kg, this will allow for a smaller overall excavation area, and also allow for site restoration immediately following excavation.

The Pre-Post Excavation samples will be collected via hand auger at the locations and depths depicted on Figure 1. Analysis for Cr+6 will be requested on an expedited turnaround basis.

Note that during investigation activities, a subsurface concrete foundation structure was observed near the exceedence sample 186-MFHT1-3-2.0-2.5. Therefore, a sample of this concrete will be collected for Cr+6 analysis, and analyzed with the pre-post excavation samples.

Note that all of the applicable Health and Safety (H&S), air monitoring and disposal requirements stipulated in the Site 186 RAWP apply, and will be implemented, during the activities at MFHN, as well as Site 186. Additionally, the new temporary fencing at MFHN will be fitted with privacy screen to secure the work area during excavation activities. The excavated area will be backfilled with clean fill pursuant to NJDEP requirements, and the sod will be repaired/replaced.

Related Concerns

MFHN Fence Removal

Note that the current MFHN fencing along the property boundary will have to be removed to conduct the remedial activity proposed herein, as well as the removal of remaining visible CCPW material along the fence line on Site 186. PPG/ENTACT will request approval from MFHN to install temporary construction fencing, remove the existing fence, then re-install the original fencing upon completion of remediation activities. Note that it is likely the concrete footings for the existing fence will need to be re-poured, and depending on weather conditions, a few days' time for this concrete to set may be needed.

Temporary Re-Route of Pedestrian Traffic Along Garfield Avenue

The sidewalk along Garfield Avenue, adjacent to the east side of Site 186, will be closed during completion of Site 186 remediation activities. Pedestrian traffic will be re-routed, pursuant to the permit obtained from Jersey City by ENTACT, to a temporary walkway created using two rows of Jersey barriers, positioned adjacent to the current sidewalk and an appropriate distance into Garfield Avenue, respectively (see Figure 1). Although permission from MFHN to divert pedestrian traffic is not required, as a courtesy they will be notified, since this may affect patrons of their facility. Should the sidewalk become damaged or need to be removed during remediation activities, it will be repaired or replaced in accordance with Permit Requirements as issued by Jersey City. A copy of the permit is included in Appendix C. No excavation activity is planned beyond the sidewalk in Garfield Avenue

Schedule

NJDEP has requested that remedial action at MFHN be completed concurrent with the remaining remedial activities at Site 186, and that all activities be completed no later than November 2, 2013.

PPG believes this schedule requirement can be met so long as:

- NJDEP approves this RAWP Addendum no later than October 25, 2013;
- MFHN approves this RAWP Addendum, including site access approval for pre-post ex sampling, soil excavation and fence removal, no later than October 28, 2013;
- The pre-post-ex soil samples can be collected on or before October 28;
- The analytical laboratory can provide sample analysis by the afternoon of October 30, 2013.

FIGURES

SAMPLE ID	DEPTH (FT BGS)	ANALYSIS
186-MFHT1-5-2.0-2.5	2.0-2.5	Hexavalent Chromium
186-MFHT1-6-2.0-2.5	2.0-2.5	Hexavalent Chromium
186-MFHT1-7-2.0-2.5	2.0-2.5	Hexavalent Chromium
186-MFHT1-8-2.5-3.0	2.5-3.0	Hexavalent Chromium
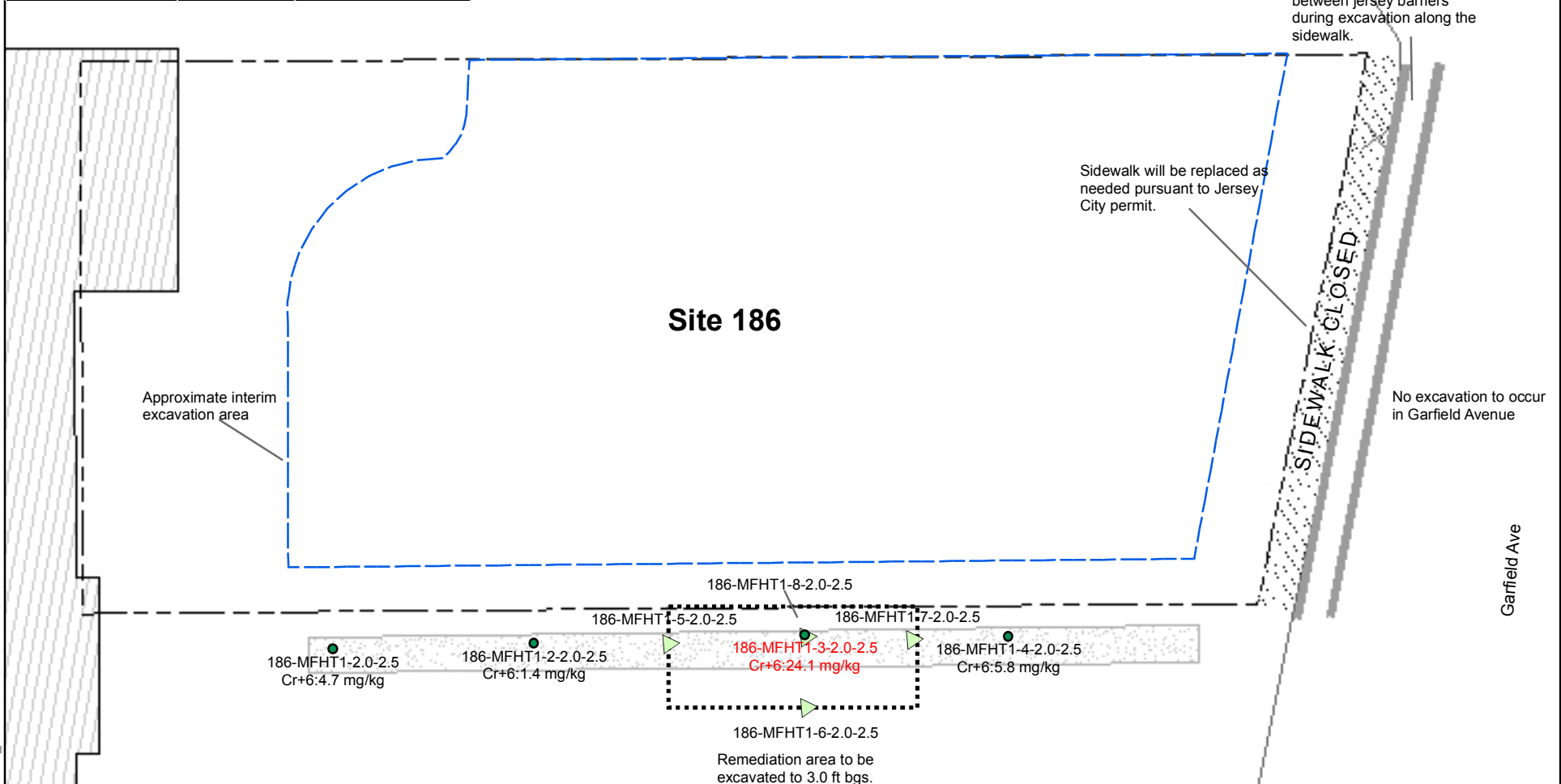
Pedestrian traffic to be routed between jersey barriers during excavation along the sidewalk.

Sidewalk will be replaced as needed pursuant to Jersey City permit.

SIDEWALK CLOSED

Site 186

No excavation to occur in Garfield Avenue

Garfield Ave

Approximate interim excavation area

186-MFHT1-8-2.0-2.5

186-MFHT1-5-2.0-2.5   186-MFHT1-7-2.0-2.5

186-MFHT1-2.0-2.5
Cr+6:4.7 mg/kg

186-MFHT1-2-2.0-2.5
Cr+6:1.4 mg/kg

186-MFHT1-3-2.0-2.5
Cr+6:24.1 mg/kg

186-MFHT1-4-2.0-2.5
Cr+6:5.8 mg/kg

186-MFHT1-6-2.0-2.5

Remediation area to be excavated to 3.0 ft bgs.

LEGEND

△ PROPOSED PRE- POST-EXCAVATION SAMPLE LOCATIONS
● TRENCH SAMPLES COLLECTED ON 10/12/2013
▭ INTERIM EXCAVATION AREA
▭ PROPOSED REMEDIATION AREA
▭ Trench
▭ PROPERTY BOUNDARY (NJ PARCEL DATA)

MFHN

0   7.5   15   30

Scale in Feet

NOTES
1) Red font indicates an exceedance of the NJDEP CrSCC.

AECOM
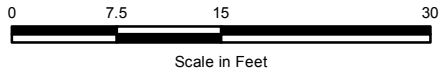
ENVIRONMENT
30 Knightsbridge Road
Suite 520
Piscataway, NJ 08854
Phone: 732.564.3600

PPG INDUSTRIES, INC.
Site 186 - Garfield Avenue Project Area
Jersey City, Hudson County, New Jersey

MFHN Trench Sample Results &
Proposed Remedial Action Area

| PROJ#: 60238842 | DATE: 10/24/2013 | DRAWN BY: huntc | **FIGURE 1** |

Last saved by: huntc 2013-10-24
Filename: F:\GIS\PPG\Site186\Site 186 Excavation_2013 10 22 r0.mxd

AECOM

APPENDIX A

Laboratory Data Reports

New Jersey

ACCUTEST
L A B O R A T O R I E S

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 t. Cole

**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

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories.
Test results relate only to samples analyzed.

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Accutest Laboratories

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

■ 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 Client Sample ID Analyte	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
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Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

Page 1 of 1

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

4.1

4

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

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JB50090

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

4.2

4

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

Accutest Laboratories

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

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JB50090

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

4.4

4

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	186-MFHT1-2.0-2.5X	
Lab Sample ID:	JB50090-5	**Date Sampled:** 10/14/13
Matrix:	SO - Soil	**Date Received:** 10/14/13
		Percent Solids: 88.8
Project:	PPG-Site 186 RAM, Jersey City, NJ	

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

4.6

4

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

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Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

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

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.

JB50090

Task:	Site 186
Total # of Samples: 6	

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 10977-8715	Phone #:	845.425.4980
PO #:	
Send EDD to:	NJLABDATA@aecom.com
CC Hardcopy to	No Hardcopy Needed
CC Hardcopy to	

TAT	per P.O.	Rush	SEE BELOW
Notes: F= Field Filtered , H= Hold			

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		
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
/ AECOM	10/14/13		Robin Peno	10/14/13	10340
Robin Peno	10/14/13	1255		10/14/13	1255

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

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

1 Cooler

3.5C G.P.

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

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

Quality Control Preservatio	Y	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	N
1. Sample labels present on bottles:	☑	☐
2. Container labeling complete:	☑	☐
3. Sample container label / COC agree:	☑	☐

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

Sample Integrity - Instructions	Y	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   **Change:**
Dept: Please relog for XXCRAR

Sample #:   JB50090-4   **Change:**
Dept: 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

JB50090: Chain of Custody
Page 3 of 3

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

5.3

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ACCUTEST
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JB50090

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

5.3

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New Jersey
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9

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

6.1

6

_____

```
                              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
```

6.2

6

```
                         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.

6.3

6

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JB50090

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	%

6.4

6

New Jersey
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General Chemistry

Raw Data

Hexavalent Chromium

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
						1							

Method: SW846 7196A

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

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

ACCUTEST LABORATORIES

Raw Data GN93212: Chromium, Hexavalent   page 1 of 8

JB50090

Hexavalent Chromium

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

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	Final Vol. (ml)	Sam. Vol. (ml)	Dilution	Final Conc.	Units	MDL	RDL
	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		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

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ACCUTEST.

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Test: Hexavalent Chromium   MDL = 0.0013 mg/l   GNBatch ID: _GN 93212_
Product: XCr   RDL = 0.010 mg/l   Date: _10/14/13_
Method: SW846 7196A

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: _0.38%_

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

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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

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ACCUTEST
LABORATORIES

JB50090

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. CMS2 (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
LABORATORIES

JB50090

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	MKH	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	MKH	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

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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**	Product: **PH, CORR**
Method: **SW846 9040B or SW846 9045C**	Analyst: ALECA
	GN Batch ID: GN93229
Thermometer ID: 394	Analysis Date: 10/15/2013
Correction Factor: 0	pH Meter ID: 50

QC Summary

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

ACCUTEST.

Balance # _38_

Analyst _QC_

Method _EH/pH_

Prep Date _10/15/2013_

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_____

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JB50090

JB50090

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

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

ACCUTEST LABORATORIES

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	% RPD: 0.43%

	Found	% Rec
Ferrous-Ferric True: 675	675.5	100.07%
pH 4 Quinhydrone True: 462	492.8	106.67%
pH 4 Quinhydrone True: 462	485.1	105.00%
pH 4 Quinhydrone True: 462	484.4	104.85%
pH 7 Quinhydrone True: 285	290.3	101.86%
pH 7 Quinhydrone True: 285	284.8	99.93%
pH 7 Quinhydrone True: 285	285.4	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 LABORATORIES

JB50090

ACCUTEST.

Analyst ___Od___

Method ___EH/pH___

Prep Date ___10/15/2013___

GP # ___GN93229-pH___
___GN93230-EH___

Balance #___38___

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

7.3 7

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

QC Review_____

Hexavalent Chromium

Method: SW846 3060A, 7196A

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

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!
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!
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
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
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
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
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
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:

ACCUTEST.

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

MDL = 0.069 mg/kg   GNBatch ID: _GNG3231_
RDL = 0.40 mg/kg   Date: _10|15|13_

Digestion Batch QC Summary   Units = mg/kg

Method Blank ID _GP 15260 MB_ 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.: _90.28_

Duplicate ID: _-D1_ Samp. Result: _1.021_ Dup. Result: _0.975_ %RPD _4.61_

Sol. MS ID: _-S1_ Samp. Result: _____ MS Result: _25.625_ 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: _JB50090408_ Samp. Result: _____ PS Result: _35.136_ Spike: _40.4⁵⁶_ %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.: _98.12_
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: _____

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

7.4   7

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

ACCUTEST.

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

GN93260

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	10ppmUGNA	
CCV						↓	↓	
CCV								
CCV								
CCB		7.67	100	2.16	—			
CCB								
CCB								
CCB								
MS (Sol) JB50090-4	2.48	7.82	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	1.96			
1 JB50090-4	2.47	7.83		2.22	1.65			Yellow
2 -2	2.50	7.70		1.61	1.72			Tan
3 -3	2.44	7.36		1.76	1.90			Brown
4 -5	2.48	7.28		2.15	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	1mLSamp + 50mL wIDI	dilution	1:50
MS (Insol.)	2.49	7.61		1.86	2.03	↓	dilution	1:50
PS JB50090-4	2.47	7.83	↓	1.93	1.52	0.225mL 100ppmABS, H.. 50mL	(1:2)
pH adjusted PS								
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 PbCrO4	Weight of Sample	Amount Spiked
0.0149	2.5	958.911
0.0144	2.49	930.454
		#DIV/0!
		#DIV/0!
		#DIV/0!

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

7.4   7

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/Correc ted	Temp. in deg. C Hot Plate # 4 - Uncorrected/Correc ted
GP 75259	Starting Time	16:44	93/93	91/91	91/91	91/91
	Time 1	17:44	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: _NBR_
2nd Analyst Check: _MLH_

Date: _10-14-13_

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

7.4

7

ACCUTEST.

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

pH adj. start time: 8:21   8:31   pH adjustment Date: 10/15/13

pH adj. end time: 8:29   8:33   GN Batch ID: GN 93231

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	1.53	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	7.74	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

HEXAVALENT CHROMIUM STANDARD PREPARATION LOG

ACCUTEST.

Product: _xCAH96._

GN or GP Number: (GN93223).

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	10/15/12
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	10/16/12	BP	10/15/12
.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			

7.4 7

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	GNE10-37689-XCR
Sulfuric Acid, 10%	3/30/14	GNE9-37608-XCR
Filter	NA	Lot #130508059
Teflon Chips	NA	91920

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

ACCUTEST LABORATORIES

Test: Redox Potential	**Test Code:** REDOX
Matrix: Aqueous ●	Method: ASTM D1498-76
Matrix: Solid ○	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:

ACCUTEST.

Analyst _CQ_

Method _CH_

Prep Date _10/15/2013_

GP # _GN93240_

Balance # _____

Sample Prep Log

Sample ID	Sample Size	Final Volume
JBS0090-1	40ml	
~1pvb	40	
JBS0119-1	40	

7.5

7

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

QC Review_____

Eh pH Phase Diagram

Phase Diagram based on the $HCrO_4^-/Cr(OH)_3$ ratio
Below phase change line indicates reducing environment.
Above phase change line indicates oxidizing environment

Eh (in mv)
corrected for reference electrode voltage

pH

Legend:
- JB50090-1
- JB50090-2
- JB50090-3
- JB50090-4
- JB50090-5
- JB50090-6
- Phase Change Line
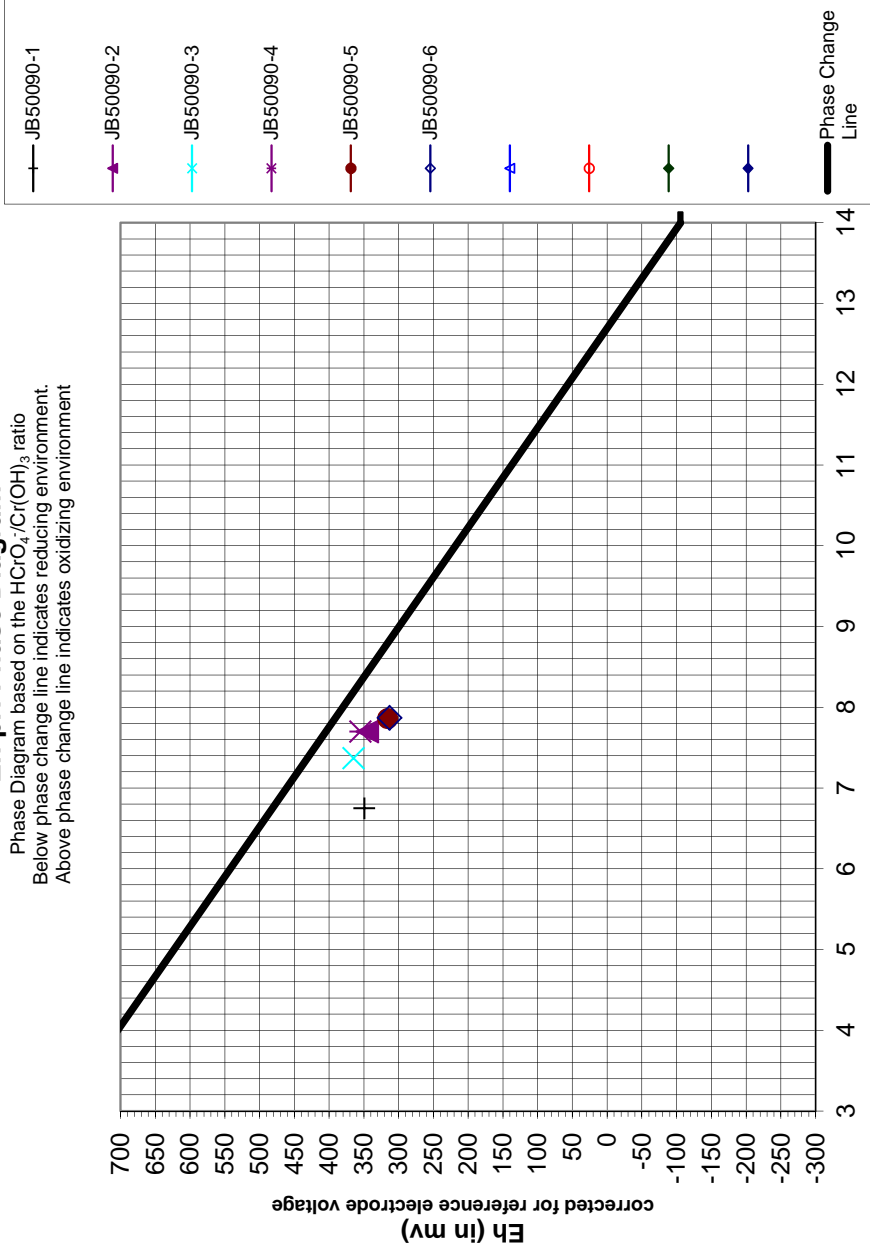
Note that the Eh values plotted on this diagram are corrected for the reference electrode voltage and the values shown are versus the standard hydrogen electrode

Reference for graph: SW846 method 3060A

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

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ACCUTEST LABORATORIES

JB50090

New Jersey
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LABORATORIES

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**

nelac
ACCREDITED IN ACCORDANCE WITH

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

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories.
Test results relate only to samples analyzed.

New Jersey •   2235 Route 130 •   Dayton, NJ 08810 •   tel: 732-329-0200 •   fax: 732-329-3499 •   http://www.accutest.com

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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 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.

Sample Results

Report of Analysis

Accutest Laboratories

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

4.1

4

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

Accutest Laboratories

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

4.2

4

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	186-MFHT1-2-2.0-2.5		
Lab Sample ID:	JB50090-4R	**Date Sampled:**	10/14/13
Matrix:	SO - Soil	**Date Received:**	10/14/13
		Percent Solids:	90.8
Project:	PPG-Site 186 RAM, Jersey City, NJ		

4.3

4

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

Accutest Laboratories

Report of Analysis

Client Sample ID:	186-MFHT1-2.0-2.5X	
Lab Sample ID:	JB50090-5R	**Date Sampled:** 10/14/13
Matrix:	SO - Soil	**Date Received:** 10/14/13
		Percent Solids: 88.8
Project:	PPG-Site 186 RAM, Jersey City, NJ	

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

Accutest Laboratories

Report of Analysis

Client Sample ID: 186-MFHT1-2.0-2.5
Lab Sample ID: JB50090-6R
Matrix: SO - Soil

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

Project: PPG-Site 186 RAM, Jersey City, NJ

4.5

4

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

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Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

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

AECOM

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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	

Lab Information:		Project Information:		Other Information:				TAT	per P.O.	Rush	SEE BELOW
Lab:	Accutest, Dayton NJ	Site ID #:	Site 186	Send Invoice to:	Lisa Krowitz (Lisa.Krowitz@aecom.com)			Notes: F= Field Filtered, H= Hold			

Lab Address: 2235 Route 130, Dayton NJ 08810

Project #: 60238842.NGA.186.RAM

Address: 100 Red Schoolhouse Road Suite B-1

Site Address:

City/State: Chestnut Ridge, NY 10977-6715 Phone #: 845.425.4980

Lab PM: Matt Cordova

City Jersey City State, Zip NJ 07304

PO #:

Phone/Fax: 732-329-0200/732-329-3499/3480

PM Name: Alfred LoPilato

Send EDD to: NJLABDATA@aecom.com

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	Preservative	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	CR		
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	Sample Receipt Conditions		
/AECOM	10/14/13		Robin Pene	10/14/13	10:40	Y/N	Y/N	Y/N
Robin Pene	10/14/13	1255		10/14/13	1255	Y/N	Y/N	Y/N
						Y/N	Y/N	Y/N
						Y/N	Y/N	Y/N

NAME OF SAMPLER:		DATE/TIME:		Temp in OC	Samples on Ice?	Sample intact?	Trip Blank?
SIGNATURE OF SAMPLER		Custody Seal(s):					

1 Cooler R

3.5C G.P.

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

Quality Control Preservatio — Y or N   N/A
	Y	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
	Y	N
1. Sample labels present on bottles:	☑	☐
2. Container labeling complete:	☑	☐
3. Sample container label / COC agree:	☑	☐

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

Sample Integrity - Instructions — Y or N   N/A
	Y	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

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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   **Change:**
Dept: Please relog for XXCRAR

Sample #: JB50090-4   **Change:**
Dept: 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

5.3

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ACCUTEST
LABORATORIES

JB50090R

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

5.3

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New Jersey
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9

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
```

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.

6.2

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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
```

	Sample	Dilution	PS	
Time	Description	Factor	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

                                                             True                   QC
Sample Number    Parameter                  Result    RL     IDL/MDL   Value   % Recov.  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

                                                         True             QC
Sample Number    Parameter              Result    RL     IDL/MDL   Value    % Recov.  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
```

Accutest Laboratories

Report of Analysis

Client Sample ID: 186-MFHT1-2-2.0-2.5
Lab Sample ID: JB50090-4R
Matrix: SO - Soil

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

Project: PPG-Site 186 RAM, Jersey City, NJ

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	%

6.7.9   6

New Jersey
ACCUTEST
LABORATORIES

General Chemistry

Raw Data

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C:\TOC-L\Data\e3101031.toc.tix

	Type	Analysis	Sample Nam	Sample ID	Origin	Manual Diluti	Result	Status	Date / Time
1	Unknown	SSM-TC	CRI	Ⓐ	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:

E3101031.TOC
TOCLK

GN93029
VA 10/11/13

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10/11/2013 7:24:57 AM

1/1

PACCUTEST.

TOCUK

E3101051, TOC

est: **Total Organic Carbon**   Units = mg/kg   GN Batch ID __GN93029__
roduct: **TOC**   Balance ID: __B-39__   Date __10/10/13__
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)   Analyst __VA__

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Sample ID	Sample Weight	Bottle #	Sample Description & comments
CRI			
HSTD			
ICV / ICB			
CCV / CCB			
GP75181 - MBl	1.0000		
	1.0000		
GP75181 - Bl	1.0000		
	1.0000		
JB48878 - 3	0.0513	3	
	0.0501		
	0.0518		
	0.0522		
JB48878 - 1	0.0517	1	
	0.0503		
	0.0509		
	0.0501		
JB48878 - 2	0.0509	1	
	0.0503		
	0.0525		
	0.0529		
JB48878 - 14	0.0514	1	
	0.0506		
	0.0517		
	0.0515		

Analyst: __VA__   Date: __10/10/13__ QCReviewer:_____ Date:_____
Manager Review:_____ Date:_____
Comments:
BSP + MS = 100 uL of 20000 mg/L → 1.0 g of Silica Sand   TV= 2000 mg/kg
(blucok)

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 __UN93029__
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		
GP75185 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**   Units = mg/kg   GN Batch ID__GN93029__
Product: **TOC**   Balance ID: __6-39__   Date____10/10/13____
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)   Analyst____VA____

Sample ID	Sample Weight	Bottle #	Sample Description & comments
	0.0509		
JB48378-42	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

ACCUTEST LABORATORIES

JB50090R

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ACCUTEST

GENERAL CHEMISTRY STANDARD PREPARATION LOG

Product: TOC UK

GN or GP Number: GN93029

Balance: B-34

Glass Piper: Class A

Intermediate Standard Description	Stock used to prepare standard	Stock concentration	Stock volume used in ml	Diluent	Final Volume	Final Conc. of Intermediate (mg/l)	Intermediate Expiration Date	Analyst	Date
GnE10-37709-TOC	Fisher 12297	Sucrose	47.59	DI H2O	100 mL	200,000	11/6/13	VA	10/9/13
GnE10-37710-TOC	Fisher 120315	Glucose	12.59	↓	↓	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 H2O	100 mL	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	50,000	40.0	DI H2O	100 mL	20,000	11/6/13	VA	10/9/13
GnE10-37718-TOC	↓	↓	50.0	↓	↓	25,000	↓	↓	↓

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

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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 ~~Stock~~ Check Solution, 20000 µg/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 I-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
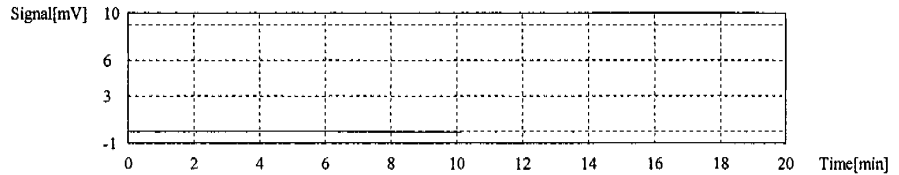
AbsC: 0.01000ug

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
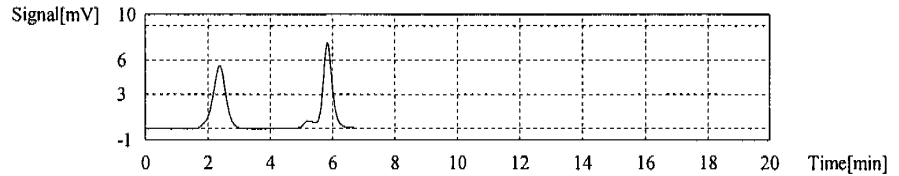
AbsC: 0.05000ug

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

10/10/2013 5:32:16 PM

ACCUTEST LABORATORIES

JB50090R
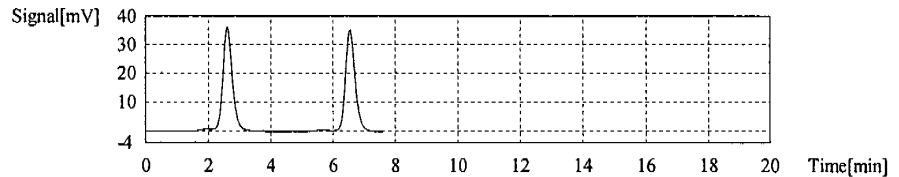
TOC-Control L Report

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
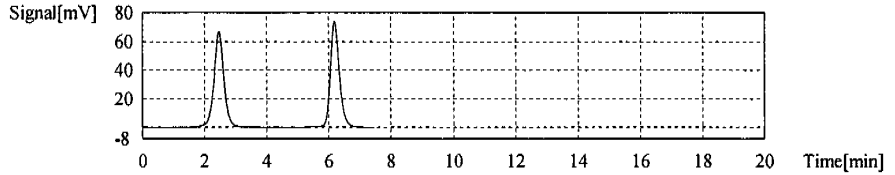
AbsC: 0.2500ug

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
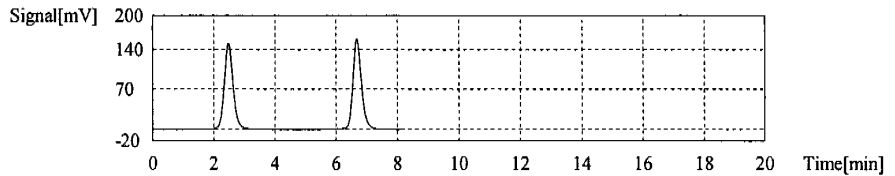
AbsC: 0.4000ug

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
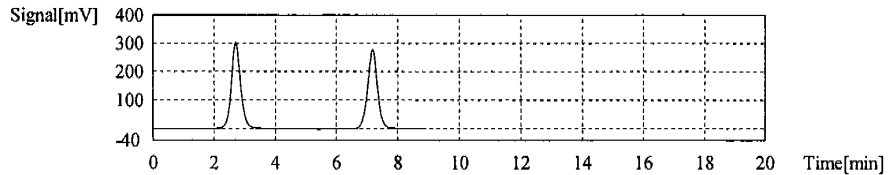
AbsC: 0.5000ug

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

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2/3

10/10/2013 5:32:16 PM

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ACCUTEST LABORATORIES

JB50090R

Raw Data GN93029: Total Organic Carbon   page 8 of 21
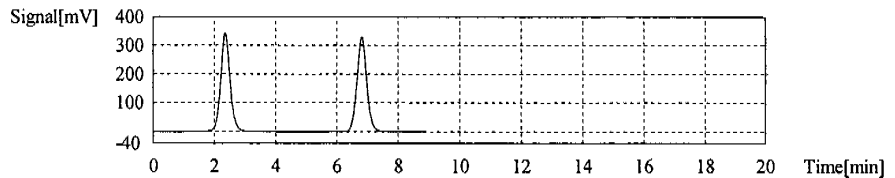
TOC-Control L Report

e31009s2.toc.tlx

Slope:	1479
Intercept	-4.688
r^2	0.9904
r	0.9952
Zero Shift	No
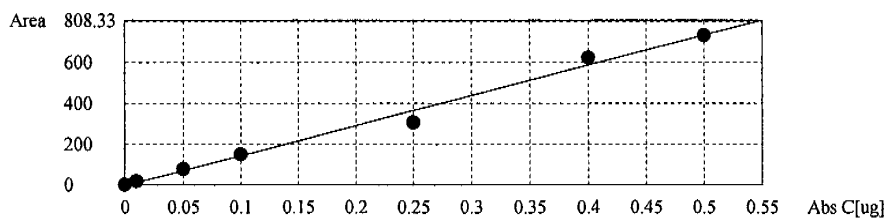
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ACCUTEST
LABORATORIES
JB50090R

TOC-Control L Report

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%
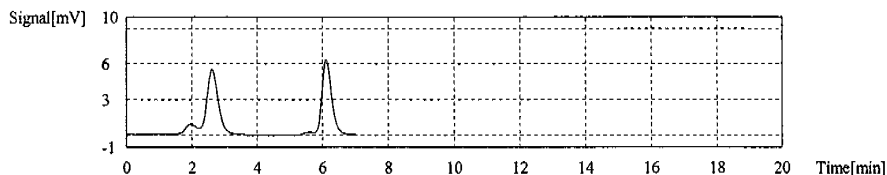
Signal[mV]

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%	

Signal[mV]

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%	

Signal[mV]
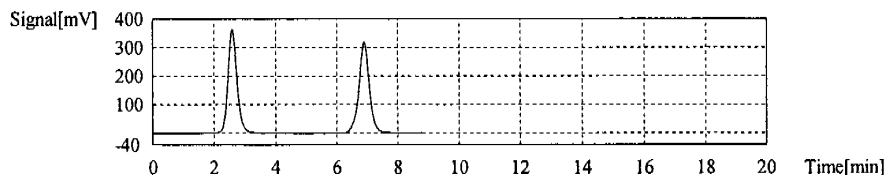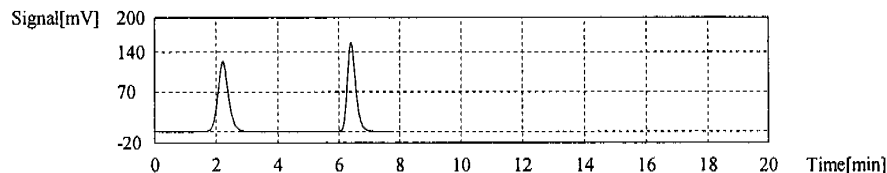
Sample

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

ACCUTEST LABORATORIES

JB50090R

TOC-Control L Report

e31010s1.toc.tlx

Mean Conc.	0.03695mg/L
CV Conc	20.11%
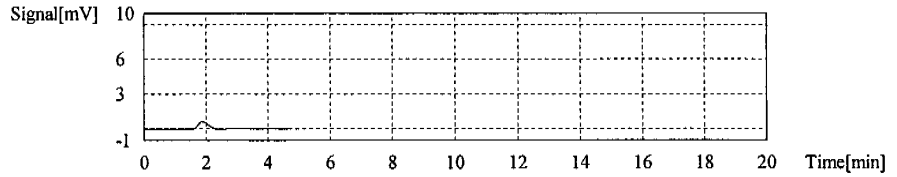
Sample

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

I	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

I	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

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TOC-Control L Report

e31010s1.toc.tlx

Mean Conc.   0.03170mg/L
CV Conc   0.00%
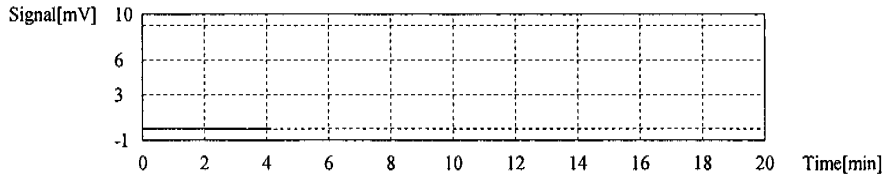
Sample

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%
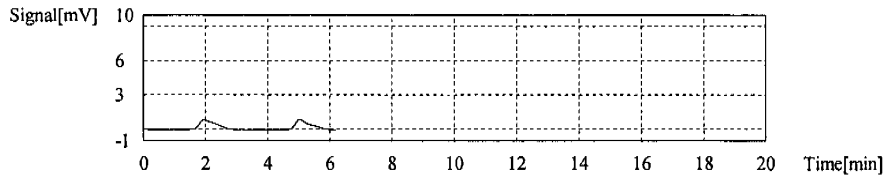
Sample

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

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ACCUTEST
LABORATORIES

TOC-Control L Report

e31010s1.toc.tlx

Mean Conc.	0.2004mg/L
CV Conc	0.64%
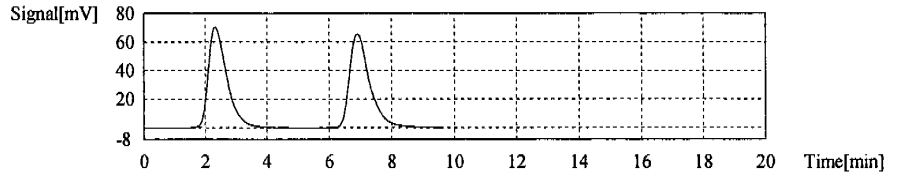
Sample

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%
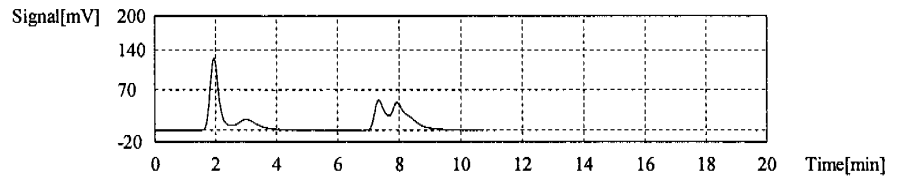
Sample

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

ACCUTEST LABORATORIES

JB50090R

TOC-Control L Report

e31010s1.toc.tlx

Mean Conc.	3.542mg/L
CV Conc	0.51%

Signal[mV]
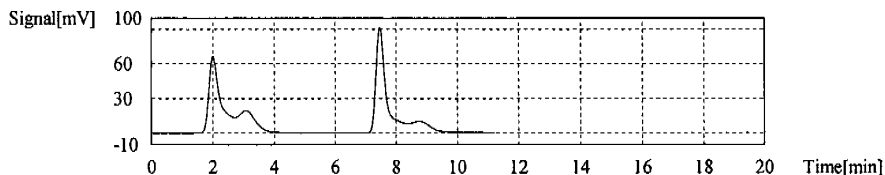
Sample

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%

Signal[mV]
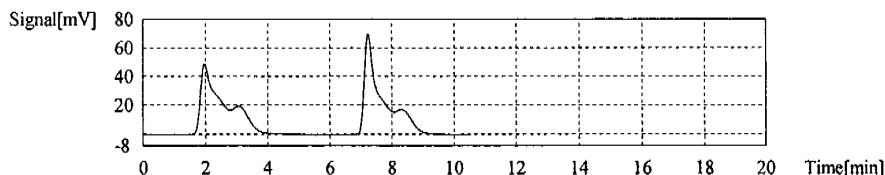
Sample

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

Mean Conc.   4.815mg/L
CV Conc   0.00%

Signal[mV]
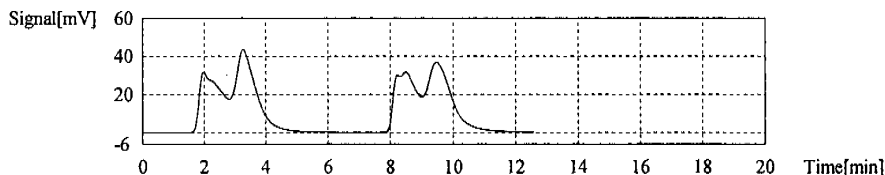
Sample

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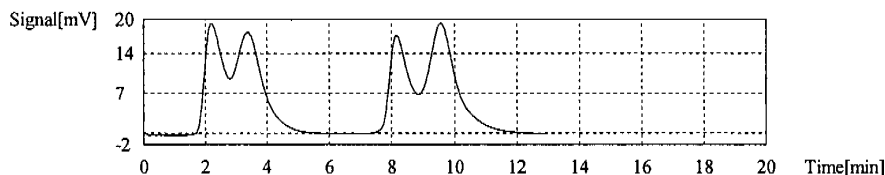Sample ID:
Origin: TOCSSM.met
Status   Completed
Chk. Result

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%

Signal[mV]

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%

Signal[mV]
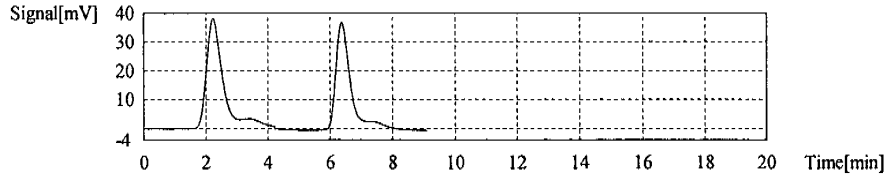
Sample

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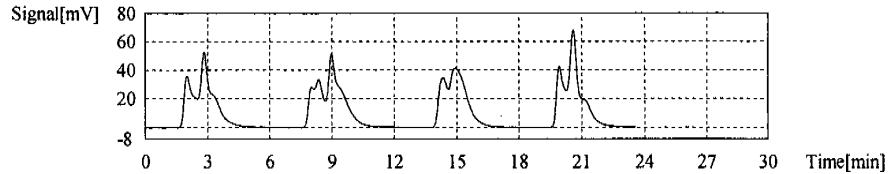Origin: TOCSSM.met
Status   Completed
Chk. Result

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%

Signal[mV]

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%
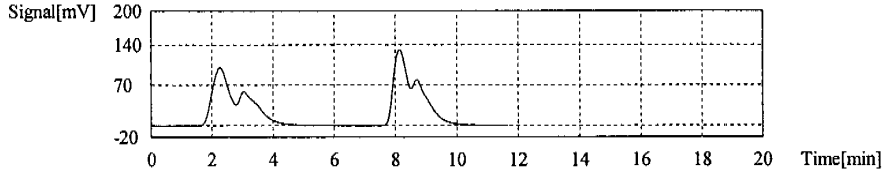
Signal[mV]

Sample

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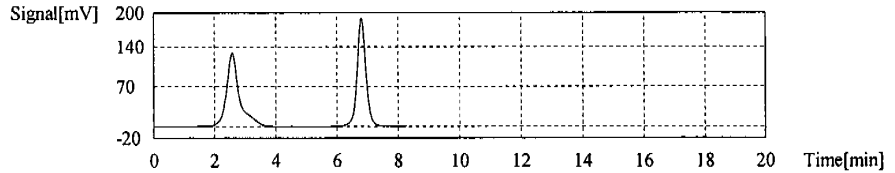Origin: TOCSSMCAL.met
Status   Completed
Chk. Result

| 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%

Signal[mV]

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%

Signal[mV]
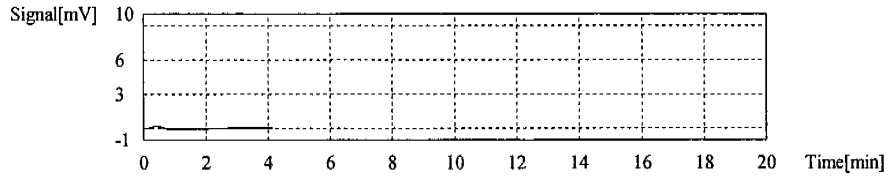
Sample

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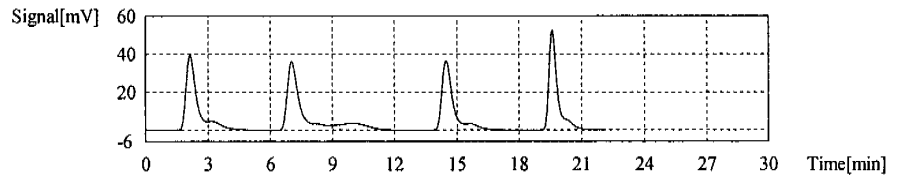Origin: TOCSSM.met
Status   Completed
Chk. Result

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%

Signal[mV]

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

10/12   10/11/2013 7:25:01 AM

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%

Signal[mV]
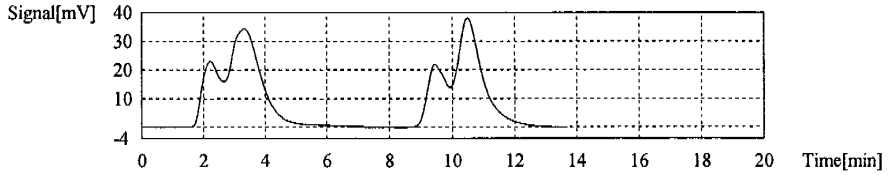
Sample

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%

Signal[mV]

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%
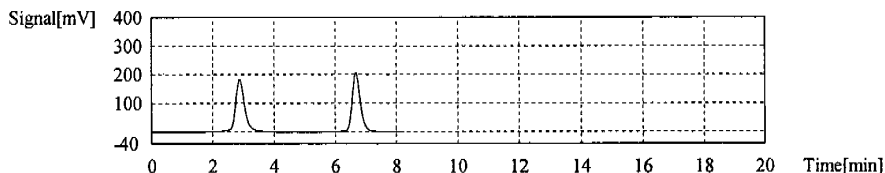
Sample

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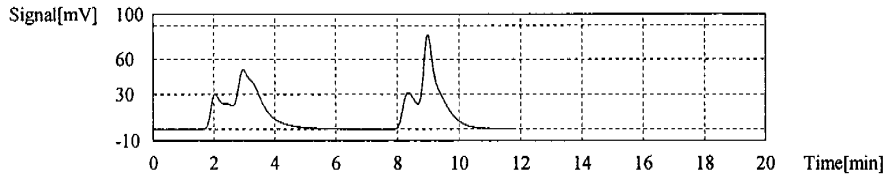Status   Completed
Chk. Result

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 Sample Absorbance	Corr 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!
	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!
	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
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
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
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
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
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:

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: QP75278-MB1 Date: 10|16|13 Result: 0.0058 RDL: 0.4 <RDL: YES

Sol. Spike Blank ID: -B1 Date: ___ Result: 385.206 Spike: 40. %Rec.: 95.52%

Insol. Spike Blank ID: -B2 Date: ___ Result: 883.662 Spike: 900.99 %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: 25.374 Spike: 40.49 %Rec: 60.85%

Insol. MS ID: -S2 Samp. Result: ___ MS Result: 1159.813 Spike: 879.36 %Rec: 131.75%

Post Spike ID: TBS6090-4RPS Samp. Result: ___ PS Result: 39.223 Spike: 40.48 %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: 0.0002 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

7.2   7

JB50090R

ACCUTEST LABS
DAYTON, NJ

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

GP Batch: _GP7S278_

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	default (40 mg/kg) spike
		0		0.000	no	0		#DIV/0!		#DIV/0!	#DIV/0!	default (40 mg/kg) spike
		0		0.000	no	0		#DIV/0!		#DIV/0!	#DIV/0!	default (40 mg/kg) spike
		0		0.000	no	0		#DIV/0!		#DIV/0!	#DIV/0!	default (40 mg/kg) spike
		0		0.000	no	0		#DIV/0!		#DIV/0!	#DIV/0!	default (40 mg/kg) spike
		0		0.000	no	0		#DIV/0!		#DIV/0!	#DIV/0!	default (40 mg/kg) spike
		0		0.000	no	0		#DIV/0!		#DIV/0!	#DIV/0!	default (40 mg/kg) spike
		0		0.000	no	0		#DIV/0!		#DIV/0!	#DIV/0!	default (40 mg/kg) spike
		0		0.000	no	0		#DIV/0!		#DIV/0!	#DIV/0!	default (40 mg/kg) spike
		0		0.000	no	0		#DIV/0!		#DIV/0!	#DIV/0!	default (40 mg/kg) spike
		0		0.000	no	0		#DIV/0!		#DIV/0!	#DIV/0!	default (40 mg/kg) spike
		0		0.000	no	0		#DIV/0!		#DIV/0!	#DIV/0!	default (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

7.2 7

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

ACCUTEST.

pH Meter ID: 23

Digestion Date: 10-15-13

pH adj. start time: 9.14   9.37

pH adj. end time: 9.26   9.45

pH adj. Date: 10|16|13

GN Batch ID: GN93304

GP75278

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	2.18	—	5.0mL	10ppm Ultra	
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	10ppm ABS	
MS (Insol.) -4R	2.47	7.52		2.16	2.04	0.0135	PbClO4	
DUP -4R	2.44	7.46		1.56	1.63			
SB (Sol)	2.50	7.73		1.77	2.18	1.0mL	10ppm ABS	
SB (Insol)		7.56		2.04	1.55	0.0140	PbClO4	
MB		7.59		1.95	1.52			
1 JB50090-4R	2.47	7.23		1.53	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. 150ml WL	dilution	1:50
MS (Insol.)	2.47	7.82		1.98	1.62	↓	dilution	1:50
PS (JB50090-4R)	2.47	7.23		2.02	1.73	0.225mL100ppmAbs, FV-50mL		(1:2)
pH adjusted PS								
1:5 dil. JB50090-4L	2.48							

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

7.2 7

ACCUTEST.

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

pH adj. start time: 8:20   8:29   pH adjustment Date: 10/16/13

pH adj. end time: 8:26   8:32   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	1.52	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

7.2

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HEXAVALENT CHROMIUM STANDARD PREPARATION LOG

ACCUTEST.

Product: ICLA7196

GN or GP Number: GN 93304

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

7.2

7

HEXAVALENT CHROMIUM TEMPERATURE AND TIME DIGESTON LOG - METHOD 3060A

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

Thermometer ID: 318,358A 358,119

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 25278	Starting Time	16:43	93/94	91/91	91/91	91/91
GP 25279	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 25280	Starting Time	17:50	93/94	91/91	91/91	91/91
GP 25281	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 25282	Starting Time	18:55	93/94	91/91	91/91	91/91
GP 25283	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: _NBR_

2nd Analyst Check: _MRH_

Date: 10-15-13

Form: GN074-02

Rev. Date: 8/08/12

7.2

7

![ACCUTEST logo]

GN/GP Batch ID: _____ GIN93306l. _____

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-XCCA
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	GNE9-37608-XCR
Filter	NA	Lot #130508059
Teflon Chips	NA	91920

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

ACCUTEST

TEST: Ferrous Iron (FE2/7)   ANALYST: CB   GN BATCH: GN 9331S
METHOD: ASTM D3872-86   DATE: 10/16/13   REAGENT ID's: See attached page
RDL: 0.20 %

$F = \dfrac{\text{Weight of Iron in g}}{\text{Vol. Of Dichromate in mL}}$ F = 0.0067 $\%Fe2/7 = \dfrac{\text{ml Dichromate x F x 100}}{\text{sample wt in g x (\%sol/100)}}$

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: MA	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			0.35	0.35	0.4966	0.50		%
3	JB49787-1R	0.52g 0.58			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 x 100 x 1 = 50.71					%
12	JB49787-1R	75.2			.52 .948					%
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 LABORATORIES

JB50090R

![ACCUTEST logo]

Reagent Information Log
Fe2/7

Work Group #_____

Reagent	Reagent # or Manufacturer/Lot
Iron ~~Wire Std~~ FilNs	Fisher 135597 9/27/18
HCL (1:1)	GoNE10 - 37651 - SRPaL 4/5/14
60% Sulfuric Acid/Phosphoric Acid	GoNE10 - 37652 - Fe 2/7 4/5/14
Potassium Dichromate Solution	GoNE10 - 37653 - Fe 2/7 4/5/14
Diphenyl Amino Indicator	GoNE 9 - 37565 - Fe 2/7 3/24/14
Acetic Acid Buffer	GoNE 7 - 36794 - SulfS 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___

GP # ___GN 93317___

Balance # ___B-14___

7.4

7

Sample Prep Log

Sample ID	Sample Size	Final Volume
MB	+ 10ml DI	Negative
JB47902-1RT	10.58 g	
-1RT Dup	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 _____

ACCUTEST LABORATORIES

JB50090R

C:\TOC-L\Data\d31016s1.toc.tlx

	Type	Sample Nam	Sample ID	Origin	Manual Diluti	Result	Status	Date / Time
1	Unknown	CRI		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		TOCSSM.m	1.000	SSM-TC:3.404mg/	Completed	10/16/2013
8	Unknown	JB50090-4R		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

D31016s1. TOC

TOCLK

+overrange. here
at 0.1g.

GN93334

JA 10/17/13

7.5

7

10/16/2013 3:49:58 PM

1/1

TOCLK

ACCUTEST.

D3101651.TOC

Test: **Total Organic Carbon**   Units = mg/kg   GN Batch ID __GN93334__
Product: **TOC**   Balance ID: __B-39__   Date __10/16/13__
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)   Analyst __JA__

Sample ID	Sample Weight	Bottle #	Sample Description & comments
CRI			
MSTD			
ICV			
CCV			
GP75781 —MBL	1.0000		
	1.0000		
GP75781 — B2	1.0000		
	1.0000		
JB50090 - 4R	0.4065	1	Overrange. Rerun at 0.1g
	0.4034		
	0.4144		
	0.4114		
JB50090 - 4R	0.1034	1	
	0.1015		
	0.1064		
	0.1080		
JB24887-1	1.0000		JB24890-1 (TOC-50) MDL TV=1000ppm
	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: __JA__   Date: __10/16/13__   QCReviewer:_____   Date:_____
Manager Review:_____   Date:_____
Comments:
BSP = 100 uL of 20,000 mg C/L ⟶ 1.0g of silica sand   TV = 2000 mg/kg
(Glucose)

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

7.5   7

②

ACCUTEST.

Test: **Total Organic Carbon**   Units = mg/kg   GN Batch ID __GN93334__

Product: **TOC**   Balance ID: __B-39__   Date ____10/16/13____

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)   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
	1.0000		MDL-V
CCV			

Analyst: ____VA____ Date: __10/16/13__ QCReviewer: _____ Date: _____

Manager Review: _____ Date: _____

Comments:

Form: GN058-01

Rev. Date: 11/11/08

7.5

7

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: STD B (GNE10-37711-TOC)

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

Concentration: 500 VA 10/16/13   mg/L or (mg/kg) or _____

Prep: 1 mL of 50,000 mg/L (GNE10-37716-TOC) →

      ↑ 100 mL DI H_2O

Date: 10/16/13

Analyst: VA

Batch #:   GN93334

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

7.5

7

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%
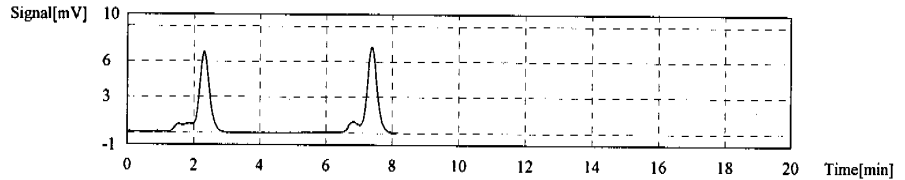
Sample

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% |
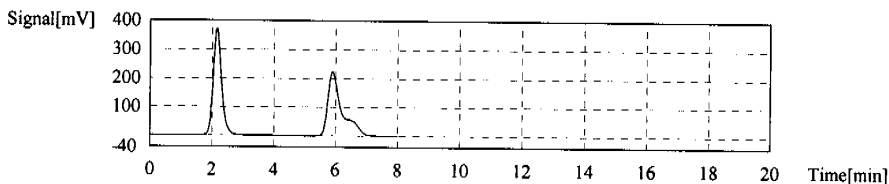
Sample

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% |
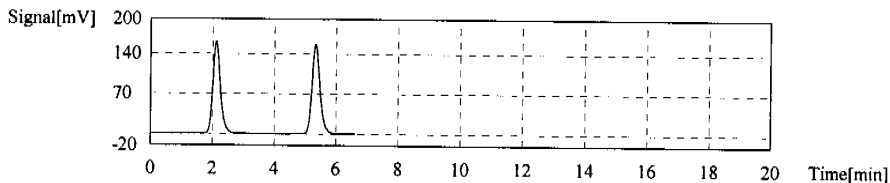
Sample

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_I0_09_10_01_03.cal | 10/16/2013 11:37:04 AM |

TOC-Control L Report

d31016sI.toc.tlx

Mean Conc.	2.515mg/L		
CV Conc	0.14%		

Signal[mV] 200 / 140 / 70 / -20 — Time[min] 0 2 4 6 8 10 12 14 16 18 20
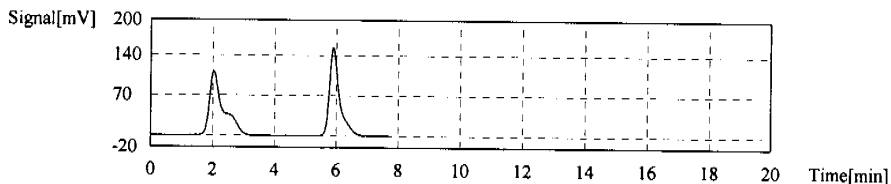
Sample

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%		

Signal[mV] 10 / 6 / 3 / -1 — Time[min] 0 2 4 6 8 10 12 14 16 18 20
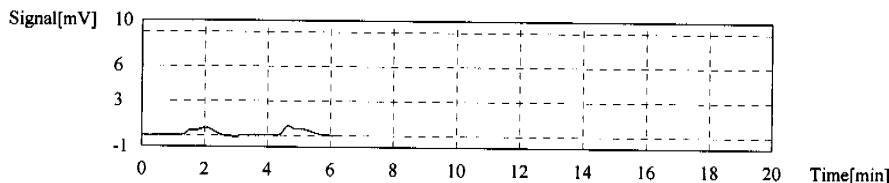
Sample

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% |
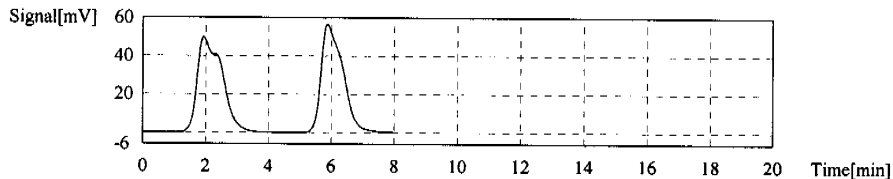
Signal[mV] vs Time[min]

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% |
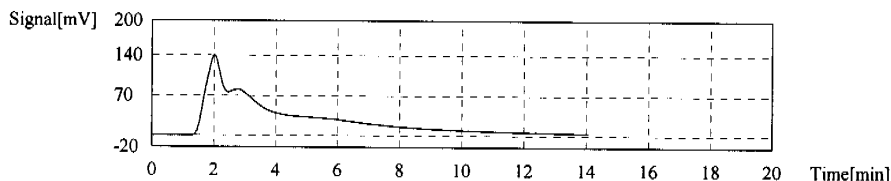
Signal[mV] vs Time[min]

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

d31016s1.toc.tlx

Mean Conc.	3.606mg/L
CV Conc	1.38%
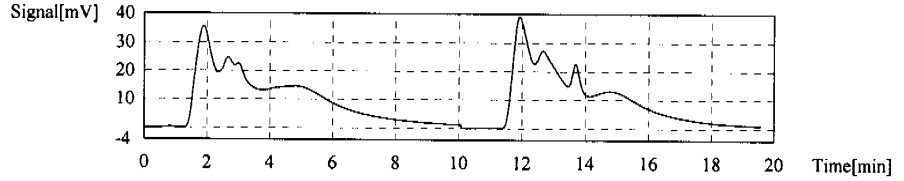
Sample

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%
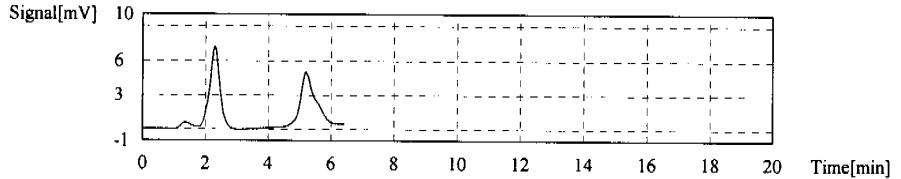
Sample

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%
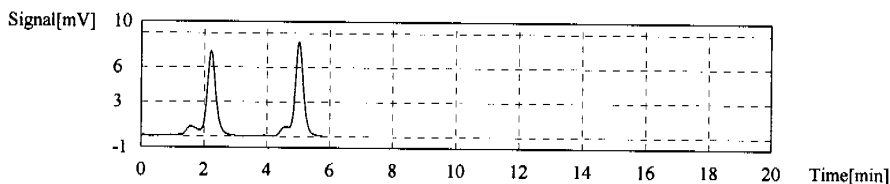
Sample

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%

ACCUTEST LABORATORIES

JB50090R

GN93334

C:\TOC-L\Data\d31016s2.toc.tlx
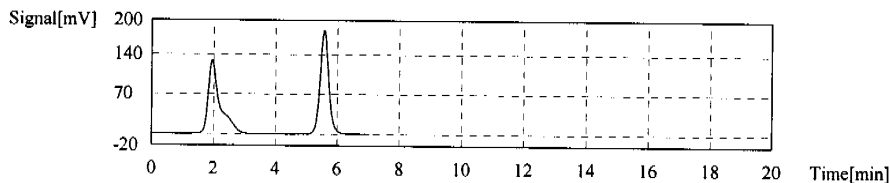
	Type	Sample Nam	Sample ID	Origin	Manual Diluti	Result	Status	Date / Time
1	Unknown	JB24887-1	A	TOCSSM.m	1.000	SSM-TC:0.01290m	Completed	10/16/2013
2	Unknown	JB24887-1		TOCSSM.m	1.000	SSM-TC:0.01095m	Completed	10/16/2013
3	Unknown	JB24887-1		TOCSSM.m	1.000	SSM-TC:0.06023m	Completed	10/16/2013
4	Unknown	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

VA 10117/13

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%
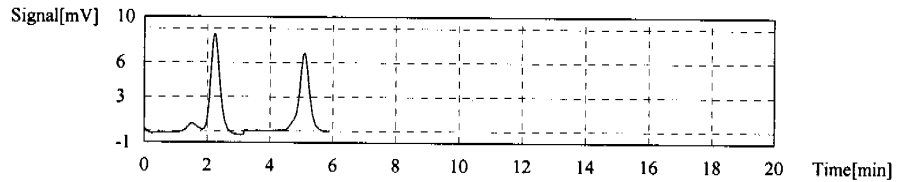
Sample

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%
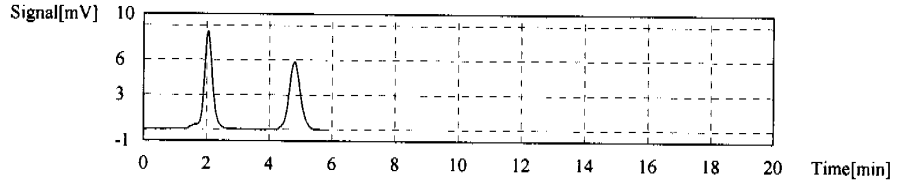
Signal[mV] — Time[min]

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%
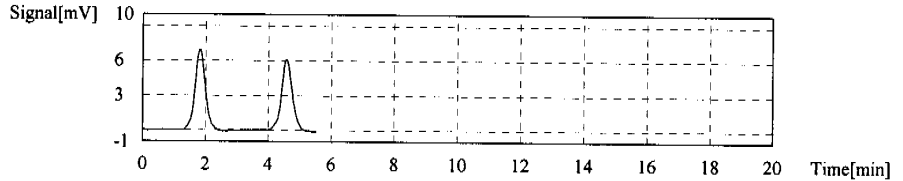
Signal[mV] — Time[min]

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%
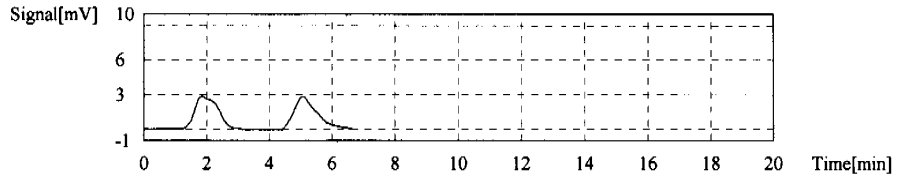
Signal[mV]

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%

Signal[mV]
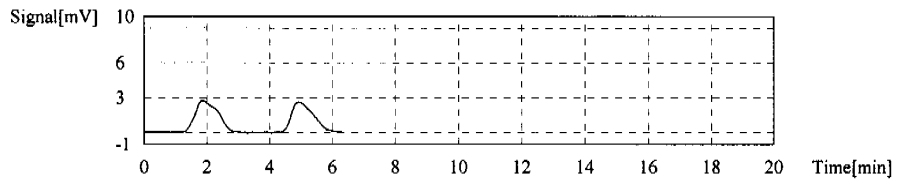
Sample

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%	
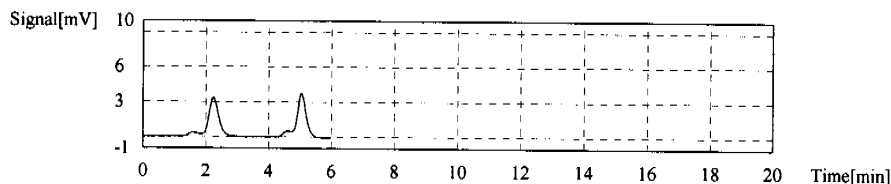
Sample

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%	

AECOM
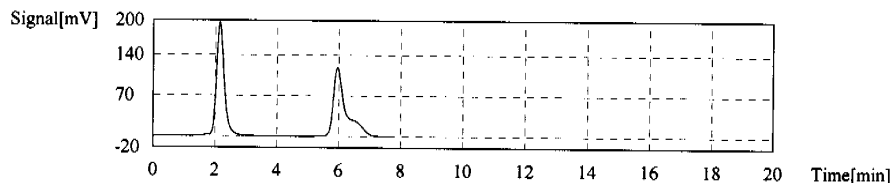
APPENDIX B

Data Validation Report

Data Validation Report

Project:	Metropolitan Family Health Network Property - Site 186 Borings
Laboratory:	Accutest, Dayton, NJ
Laboratory Job No.:	JB50090 and JB50090R
Analysis/Method:	Hexavalent Chromium SW846 3060A/7196
Validation Level:	Full
Site Location/Address:	947 Garfield Avenue, Jersey City, NJ
AECOM Project No:	60238842.NGA.186.RAM
Prepared by: Kristin Rutherford /AECOM	Completed on: 10/23/2013
Reviewed by: Mary Kozik /AECOM	File Name: 2013-10-23 DV Report_JB50090_R-F

Introduction

The data were reviewed in accordance with the FSP-QAPP and the following NJDEP validation Standard Operating Procedure (SOP):

- NJDEP Office of Data Quality SOP 5.A.10, Rev 3 (September 2009), SOP for Analytical Data Validation of Hexavalent Chromium - for USEPA SW-846 Method 3060A, USEPA SW-846 Method 7196A and USEPA SW-846 Method 7199.

The results of quality control data analyzed with site samples were used to assess the overall reliability of the data. The following qualifiers were used to identify data quality issues:

U: Indicates the analyte was not detected in the sample above the sample reporting limit.

J: Indicates the result was an estimated value; the associated numerical value was an approximate concentration of the analyte in the sample.

UJ: Indicates the analyte was not detected above the reporting limit and the reporting limit was approximate.

R: The sample result was rejected due to serious deficiencies; the presence or absence of the analyte could not be confirmed.

RA: The sample result was rejected but is still considered usable.

Sample Information

The samples listed below were collected by AECOM on October 14, 2013 as part of the Metropolitan Family Health Network property, Site 186, 947 Garfield Avenue, Jersey City, New Jersey. Only the samples that were validated are listed below:

Field ID	Laboratory ID	Matrix	Fraction
186-FB20131014 (Equipment Blank)	JB50090-1	Aqueous	Hexavalent Chromium
186-MFHT1-4-2.0-2.5	JB50090-2, -2R	Soil	Hexavalent Chromium
186-MFHT1-3-2.0-2.5	JB50090-3, -3R	Soil	Hexavalent Chromium
186-MFHT1-2-2.0-2.5	JB50090-4, -4R	Soil	Hexavalent Chromium
186-MFHT1-2.0-2.5X (Field Duplicate of 186-MFHT1-2.0-2.5)	JB50090-5, -5R	Soil	Hexavalent Chromium
186-MFHT1-2.0-2.5	JB50090-6, -6R	Soil	Hexavalent Chromium

The samples were collected following the procedures detailed in the Remedial Investigation Work Plan - Soil for Non-Residential Chromate Chemical Production Waste Site 186, Jersey City, New Jersey and the Field Sampling Plan/Quality Assurance Project Plan for Non-Residential and Residential Chromium Sites Hudson County, New Jersey (December 2011).

General Comments

The data package was complete. Quality control (QC) issues identified during validation are discussed below. Refer to the Soil Target Analyte Summary Hit List for a listing of all detected results, qualified results, and associated qualifications, where applicable.

Hexavalent Chromium

MS Results

Sample 186-MFHT1-2-2.0-2.5 (JB50090-4) was selected for the soil matrix spike analysis and used for supporting data quality recommendations. The soluble and insoluble matrix spike (MS) recoveries from the initial batch were 61.5% and 99.4%, respectively; the soluble MS recovery did not meet quality control criteria of 75-125%R. The post digestion spike (PDS) recovery was 85.8%, which met the PDS criteria of 85-115%.

Based on poor MS recoveries, less than 75%R, the MS and associated samples were reanalyzed using Method 7196. The soluble and insoluble matrix spike recoveries from the re-analysis were 60.8% and 132%, respectively; which did not meet the quality control criteria of 75-125%R. The post spike result for the re-analysis batch was recovered at 93.8%, which met the PDS criteria of 85-115%.

Since the soluble and/or insoluble MS recoveries were outside the acceptable QC limit of 75-125%, additional parameters were analyzed to determine if possible matrix interferences could be the cause for the poor matrix spike recoveries. All the soil samples were tested for pH and oxidation reduction potential (ORP) and plotted on an Eh/pH phase diagram chart. From this chart, the source sample for the matrix spike analysis was plotted below the phase change line, indicating reducing potential within the sample matrix, incapable of supporting hexavalent chromium. Analyses for ferrous iron, sulfide screen, and total organic carbon (TOC) were performed on the MS source sample to confirm the oxidizing/reducing potential within the sample matrix. The sulfide screen was reported as nondetect, indicating no reducing agents within the sample matrix; however, the ferrous iron (0.50%) and the TOC results (39,700 mg/Kg) were positive, indicating potential reducing agents within the sample matrix.

Since the MS recoveries from reanalysis batch showed no improvement, the soil hexavalent chromium results for all soil samples in this SDG were reported from the initial batch unless a higher result was reported in the reanalysis. The highest result for hexavalent chromium was reported for

each sample. The reported results for hexavalent chromium in the soil samples from this SDG were qualified as estimated (J/UJ) due to the poor MS recoveries.

Laboratory Duplicate Precision

Sample 186-MFHT1-2-2.0-2.5 (JB50090-4) was selected by the laboratory to demonstrate laboratory precision capabilities. The absolute difference from the initial analysis was 0.0, which met the absolute difference criteria of less than or equal to the reporting limit (RL) for results less than 4X the RL. The absolute difference from the reanalysis (0.63 mg/kg) did not meet the absolute difference criteria of less than or equal to the RL for results less than 4X the RL. Since laboratory duplicate criteria were not met for the reanalysis, all detect values for soil hexavalent chromium samples reported from the reanalysis in this SDG were qualified as estimated (J) with the potential for bias in an unknown direction.

Field Duplicate Results

The field duplicate pair associated with the samples in this SDG was 186-MFHT1-2.0-2.5 and 186-MFHT1-2.0-2.5X.

The reportable results for hexavalent chromium (refer to the MS discussion above and the Target Analyte Hitlist in Attachment A) in the initial analysis were greater than 4X the RL in the parent and field duplicate samples. The relative percent difference criteria (<20% RPD) were met. The results for hexavalent chromium in the reanalysis were greater than 4X the RL in the parent and field duplicate samples; RPD criteria were not met. Since the results for hexavalent chromium in the field duplicate pair were reported from the initial analysis, no qualifications were required.

Data Quality and Usability

In general, these data appear to be valid and may be used for decision-making purposes. No data were rejected. Qualified results, if applicable, are presented in Attachments A and B below.

All the reported hexavalent chromium soil results in this SDG are usable as estimated values with the potential for low bias due to low soluble MS recovery, and since the MS sample matrix appears to be reducing based on the Eh-pH plot and the presence of TOC and ferrous iron.

The soil hexavalent chromium samples reported from the reanalysis are usable as estimated values, with unknown directional bias due to the poor laboratory duplicate precision.

ATTACHMENTS

Attachment A: Target Analyte Summary Hitlist(s)

Attachment B: Data Validation Report Form

Attachment A

Target Analyte Summary Hitlist(s)

Soil Target Analyte Summary Hit List (Hexavalent Chromium)

Site Name   Metropolitan Family Health Network Property, Site 186 Borings
Sampling Date   October 14, 2013
Lab Name/ID   Accutest, Dayton, NJ
SDG No   JB50090 and JB50090R
Sample Matrix   Soil
Trip Blank ID   NA
Field Blank ID   186-FB20131014

Field Sample ID	Lab Sample ID	Analyte	Method Blank (mg/kg)	Laboratory Sample Result (mg/kg)	Validation Sample Result (mg/kg)	RL (mg/kg)	Quality Assurance Decision	NJDEP Validation Footnote
186-MFHT1-2.0-2.5	JB50090-6	CHROMIUM (HEXAVALENT)	U	4.7	4.7	0.45	Qualify	18
186-MFHT1-2.0-2.5X	JB50090-5	CHROMIUM (HEXAVALENT)	U	5.6	5.6	0.45	Qualify	18
186-MFHT1-2-2.0-2.5	JB50090-4R	CHROMIUM (HEXAVALENT)	U	1.4	1.4	0.44	Qualify	8,18
186-MFHT1-3-2.0-2.5	JB50090-3	CHROMIUM (HEXAVALENT)	U	24.1	24.1	0.47	Qualify	18
186-MFHT1-4-2.0-2.5	JB50090-2	CHROMIUM (HEXAVALENT)	U	5.8	5.8	0.47	Qualify	18

Note: A "U" under Method Blank column indicates a nondetect result.
A "U" under the Laboratory Sample Result and Validation Sample Result columns indicates a nondetect result at the RL.

NJDEP Laboratory Footnote

1. The value reported is less than or equal to 3x the value in the preparation/reagent blank. It is the policy of NJDEP-DPFSR to negate the reported value due to probable foreign contamination unrelated to the actual sample. The end-user, however, is alerted that a reportable quantity of the analyte was detected.

2. The value reported is greater than three (3) times but less than ten (10) times the value in the preparation/reagent blank and is considered "real". However, the reported value must be quantitatively qualified "J" due to the preparation/reagent blank contamination. The "B" qualifier alerts the end-user to the presence of this analyte in the preparation/reagent blank.

3. The value reported is less than or equal to three (3) times the value in the trip/field blank. It is the policy of NJDEP-DPFSR to negate the reported value as due to probable foreign contamination unrelated to the actual sample. The end-user, however, is alerted that a reportable quantity of the analyte was detected.

4. The value reported is greater than three (3) times but less than ten (10) times the value in the trip/field blanks and is considered "real". However, the reported value must be quantitatively qualified "J" due to trip/field blank contamination.

5. The concentration reported by the laboratory is incorrectly calculated.

6. The laboratory failed to report the presence of the analyte in the sample.

7. The reported Hexavalent Chromium value was qualified because the Calibration Check Standard was not within the recovery range (90-110 percent).

8. In the Duplicate Sample Analysis, Hexavalent Chromium fell outside the control limits of + 20 percent for sample results > 4xRL or + RL for sample results < 4xRL. Therefore, the result was qualified.

9. This analyte was rejected because the laboratory performed the Duplicate Analysis on a field blank.

10. The reported value was qualified because the PVS recovery was greater than 115 percent.

11. The reported value was qualified because the PVS recovery was less than 85 percent.

12. The non-detected value was qualified (UJ) because the PVS recovery was less than 85 percent. The possibility of a false negative exists.

13. The reported analyte was qualified because the associated Calibration Blank result was greater than the MDL.

14. The laboratory made a transcription error. No hits were found in the raw data.

15. This analyte is qualified or rejected because the laboratory exceeded the holding time for digestion and/or analysis.

16. The laboratory subtracted the preparation/reagent blank from the sample result. The Reviewer's calculation puts the preparation/reagent blank back into the result.

17. The photocopy is unreadable. Therefore, the QA reviewer cannot read the laboratory's reported concentration result.

18. The reported value was qualified because the predigestion spike recovery was less than 75 %, but greater than 50%.

19. The reported value was qualified because the predigestion spike recovery was greater than 125 percent.

20. The non-detected value was qualified (UJ) because the redigestion spike recovery was less than 75 percent. The possibility of a false negative exists.

21. The reported result was qualified or rejected because the laboratory did not record the pH value(s) of the sample in a laboratory notebook.

22. The reported value was qualified (J/UJ) because the sample moisture content exceeded 50 percent.

23. The sample result was rejected because the soluble and insoluble matrix spike recoveries were less than 50%.

24. The detected sample result was qualified (J) because the incorrect spike concentration was used.

25. The reported sample results were rejected because the predigestion spike recovery was greater than 150 percent.

26. The reported sample results were rejected because the redigestion spike recovery was greater than 150 percent.

27. The reported value was qualified (J) because the redigestion spike recovery was less than 75 percent.

28. The reported value was qualified (J/UJ) because the sample digestion temperature was less than 90C.

29. In the Field Duplicate Sample Analysis, Hexavalent Chromium fell outside the control limits of = 20% for sample results > 4xRL or + RL for sample results < 4xRL. Therefore, the result was qualified.

30. The reported value was qualified as estimated (J/UJ) but the bias is uncertain due to both high and low MS recoveries.

31. The reported result was greater than the MDL but less than the RL and qualified (J) as estimated by the laboratory.

32. The reported value was qualified because the sample replicate precision criterion of < 20% for method 7199 was exceeded.

33. The reported value was qualified (J/UJ) because the laboratory control sample (LCS) recovery was less than 80%.

34. The reported value was qualified (J) because the laboratory control sample (LCS) recovery was greater than 120%.

35. The reported result was qualified because the matrix spike analysis was not performed at the proper frequency.

36. The reported result was qualified because the laboratory duplicate analysis was not performed at the proper frequency.

37. The result was qualified because the cooler temperature upon sample receipt exceeded 6C.

38. The reported value was qualified because the redigestion spike recovery was greater than 125 percent.

39. The reported result was rejected because the laboratory failed to perform the reanalysis due to insufficient sample volume.

40. The reported results was qualified because the laboratory failed to analyze an ending CCB.

41. The reported result was qualified because the laboratory failed to make the proper method specific pH adjustment.

42. The reported result was rejected because the laboratory failed to reanalyze the MS and associated sample(s) due to failed MS recoveries.

Attachment B

Data Validation Report Form

Client Name: PPG Industries				Project Number: 60238842.NGA.186.RAM
Site Location: Metropolitan Family Health Network Property Site 186 Borings, Jersey City, NJ				Project Manager: Al LoPilato
Laboratory: Accutest, Dayton, NJ				Type of Validation: Full
Laboratory Job No: JB50090 and JB50090R				Date Checked: 10/23/13
Validator: Kristin Rutherford				Peer: Mary Kozik

ITEM	YES	NO	N/A	COMMENTS
Sample results included?	X			
Reporting Limits met project requirements?	X			
Field I.D. included?	X			
Laboratory I.D. included?	X			
Sample matrix included?	X			
Sample receipt temperature 2-6C?	X			
Signed COCs included?	X			
Date of sample collection included?	X			
Date of sample digestion included?	X			
Holding time to digestion met criteria? (Soils -30 days from collection to digestion.)	X			
Date of analysis included?	X			
Holding time to analysis met criteria? (Soils -168 hours from digestion to analysis; Aqueous - 24 hours from collection to analysis.	X			
Method reference included?	X			
Laboratory Case Narrative included?	X			

Definitions: MDL - Method Detection Limit; %R - Percent Recovery; RL - Reporting Limit; RPD - Relative Percent Difference; RSD - Relative Standard Deviation :Corr - Correlation Coefficient.

ITEM	YES	NO	N/A	COMMENTS
Initial calibration documentation included in lab package?	X			
1) Blank plus 4 standards (7196A) or blank plus 3 standards (7199)	X			
2) Correlation coefficient of >0.995 (7196A) or>0.999 (7199)	X			
3) Calibrate daily or each time instrument is set up.	X			
Calibration Check Standard (CCS) for 7196A and Quality Control Sample (QCS) for 7199 Included in Lab Package?	X			
1) %R criteria met? (90 - 110%)	X			
2) Correct frequency of one per every 10 samples	X			
3) CCS and QCS from independent source and at mid-level of calibration curve	X			
Calibration Blanks	X			
1) Analyzed prior to initial calibration standards and after each CCS/QCS?	X			
2) Absolute value should not exceed MDL.	X			Hexavalent chromium detected below the MDL; no qualifications.
Method Blank, Field Blanks and/or Equipment Blanks Included in Lab Package?	X			
1) Method blank analyzed with each preparation batch?	X			
2) Absolute value should not exceed MDL.	X			
Eh and pH Data	X			
1) Eh and pH data was included and plotted for all samples?	X			
Soluble Matrix Spike Data Included in Lab Package?	X			
1) Soluble Matrix %R criteria met? (75-125%R).		X		See nonconformance table below.
2) Was the spike concentration 40 mg/Kg or twice the sample concentration?		X		Spiked at 44.4 mg/kg and 44.6 mg/kg; no impact to data.
3) Was a sample spiked at the frequency of 1 per batch or 20 samples?	X			
Insoluble Matrix Spike Data Included in Lab Package?	X			
1) Insoluble Matrix %R criteria met? (75-125%R).		X		See nonconformance table below.
2) Was the spike concentration around 400 to 800 mg/Kg?		X		Spiked at 1020 mg/kg and 968 mg/kg; no impact to data.
3) Was a sample spiked at the frequency of 1 per batch or 20 samples?	X			

ITEM	YES	NO	N/A	COMMENTS
Post Digestion Spike	X			
1) Post Digestion Spike %R criteria met? (85-115%R).	X			
2) Was the spike concentration 40 mg/Kg or twice the sample concentration?	X			
3) Was a sample spiked at the frequency of 1 per batch or 20 samples?	X			
Sample Duplicate Data Included in Lab Package?	X			
1) RPD criteria met? (RPD < 20% if both results are >4x RL or control limit of RL if both results are <4x)		X		See nonconformance table below.
2) Was a sample duplicate run at the frequency of 1 per batch or 20 samples?	X			
Was a Laboratory Control Sample (LCS) Included in Lab Package?	X			
1) %R criteria met? (80-120%R).	X			
2) Was an LCS analyzed at the frequency of 1/batch or 20 samples?	X			
Were any Field Duplicate samples submitted with this SDG?	X			
1) Were Field duplicate RPD criteria met? (RPD<20% for sample results >4x the RL.)		X		See nonconformance table below. No qualification since RPD was acceptable for reported results.
Were all sample quantitation and reporting requirements met?	X			
1) Were all solid samples reported with percent solids >50%?	X			
2) Were any samples analyzed or reported with dilutions?		X		No dilutions.
Miscellaneous Items	X			
1) For soils by 7196A, was the pH within a range of 7.0-8.0?	X			
2) For soils by 7199, was the pH within a range of 9.0-9.5?			X	
3) For aqueous by 7196A, was the pH with a range of 1.5-2.5?	X			
4) For soils (3060A), was the digestion temperature 90-95C for at least 60 minutes?	X			
5) For 7199, was each sample injected twice and was the RPD <20?			X	

Matrix Spikes

Sample ID	Compound	Analysis Batch	Matrix Spike	% Recovery	Lower Limit	Upper Limit	PDS	PDS Limit
186-MFHT1-2-2.0-2.5	CHROMIUM (HEXAVALENT)	GP75260/GN93231	Soluble	61.5	75	125	85.8	85-115
186-MFHT1-2-2.0-2.5	CHROMIUM (HEXAVALENT)	GP75260/GN93231	Insoluble	99.4	75	125		
186-MFHT1-2-2.0-2.5	CHROMIUM (HEXAVALENT)	GP75278/GN93304	Soluble	60.8	75	125	93.8	85-115
186-MFHT1-2-2.0-2.5	CHROMIUM (HEXAVALENT)	GP75278/GN93304	Insoluble	132	75	125		

Lab Duplicates

Sample ID	Duplicate ID	Compound	Sample Result	Qual	Duplicate Result	Qual	QL	Units	Abs Diff
186-MFHT1-2-2.0-2.5	186-MFHT1-2-2.0-2.5	CHROMIUM (HEXAVALENT)	1.1		1.1		0.44	mg/kg	0
186-MFHT1-2-2.0-2.5	186-MFHT1-2-2.0-2.5	CHROMIUM (HEXAVALENT)	1.4		0.77		0.44	mg/kg	0.63

Field Duplicates

Sample ID	Duplicate ID	Compound	Sample Result	Qual	Duplicate Result	Qual	QL	Units	RPD
186-MFHT1-2.0-2.5	186-MFHT1-2.0-2.5X	CHROMIUM (HEXAVALENT)	4.7		5.6		0.45	mg/kg	17.5
186-MFHT1-2.0-2.5	186-MFHT1-2.0-2.5X	CHROMIUM (HEXAVALENT)	2.5		2.0		0.45	mg/kg	22.2

Percent Solids

Sample ID	Percent Solids (%)	Status
186-MFHT1-2-2.0-2.5	90.8	ok @50%
186-MFHT1-2.0-2.5	89.8	ok @50%
186-MFHT1-2.0-2.5X	88.8	ok @50%
186-MFHT1-3-2.0-2.5	84.9	ok @50%
186-MFHT1-4-2.0-2.5	85.5	ok @50%

SDG#: JB50090
Batch: GN93231
Cr+6 ICAL 10/15/13
Soil
(p. 49 of data pkg)

x - concentration	y - response
0	0
0.01	0.009
0.05	0.044
0.1	0.089
0.3	0.268
0.5	0.446
0.8	0.709
1	0.898

(p. 49 of data pkg)

AECOM Calculated Intercept	-0.0005	OK	Reported intercept	-0.0005
AECOM Slope	0.8939	OK	Reported Slope	0.8939
AECOM Calculated r	0.99997	OK	Reported r	0.99997

LCS calculation   **GP75260-B1 pgs. 49**

Background Absorbance	0
Total absorbance	0.787
Total absorbance - background	0.787
Instrument Concentration	0.881
Sample weight (mg/kg)	0.0025
Final Volume (L)	0.1
Dilution Factor	1

AECOM Calculated LCS Result (mg/Kg)	35.2	OK	Reported Result (mg/Kg)	35.2

%R = Found/True*100   **p. 24**

True Value (mg/kg)	40

AECOM Calculated %R	88.1	OK rounding	Reported %R	88.0

MS calculation   **JB50090-4 [186-MFHT1-2-2.0-2.5] pg. 46**

Background reading	0
Total absorbance	0.413
Total absorbance - background	0.413
Instrument Concentration	0.4626
Sample weight (mg/kg)	0.00249
Final Volume (L)	0.1
Percent solids	0.908
Dilution Factor	50

AECOM Calculated MS Result (mg/Kg)	1023	OK rounding	Reported Result (mg/Kg)	1020

%R = Found/True*100   **JB50090-4 [186-MFHT1-2-2.0-2.5] pg. 46**

True Value (mg/kg)	1020			
Native concentration (mg/Kg)	1.1			
AECOM%R	100.2	OK rounding	Reported %R	99.4

Percent Solids   **JB50090-4 [186-MFHT1-2-2.0-2.5] pg. 27**

Empty dish weight=	24.26			
Wet weight=	30.89			
Dry weight=	30.28			
AECOM%solids =	90.8	OK	reported %solids=	90.8

Reporting Limit   **JB50090-4 [186-MFHT1-2-2.0-2.5] pg. 46**

Low Standard	0.01			
Initial weight (mg/kg)	0.00247			
Final volume (L)	0.1			
Percent solids	0.908			
Dilution Factor	1			
Reporting Limit	0.45	OK rounding	Reported RL (mg/Kg)=	0.44

Sample Calculations

JB50090-4 [186-MFHT1-2-2.0-2.5] pg. 46

Background reading	0.009			
Total absorbance	0.031			
Total absorbance - background	0.022			
Instrument Response	0.025			
Sample weight (mg/kg)	0.00247			
Final Volume (L)	0.1			
Percent solids	0.908			
Dilution Factor	1			
AECOM Calculated Result (mg/Kg)	1.1	OK	Reported Result (mg/Kg)	1.1

SDG#: JB50090R

Batch: GN93304

Cr+6 ICAL 10/16/13

Soil

(p. 53 of data pkg)

x - concentration	y - response
0	0
0.01	0.009
0.05	0.044
0.1	0.091
0.3	0.267
0.5	0.448
0.8	0.701
1	0.901

(p. 53 of data pkg)

AECOM Calculated Intercept	-0.0002	OK	Reported intercept	-0.0002
AECOM Slope	0.8922	OK	Reported Slope	0.8922
AECOM Calculated r	0.99985	OK	Reported r	0.99985

LCS calculation   **GP75278-B1 pgs. 53**

Background Absorbance	0			
Total absorbance	0.852			
Total absorbance - background	0.852			
Instrument Concentration	0.955			
Sample weight (mg/kg)	0.0025			
Final Volume (L)	0.1			
Dilution Factor	1			
AECOM Calculated LCS Result (mg/Kg)	38.2	OK	Reported Result (mg/Kg)	38.2

%R = Found/True*100   **p. 24**

True Value (mg/kg)	40			
AECOM Calculated %R	95.5	OK	Reported %R	95.5

MS calculation   **JB50090-4R [186-MFHT1-2-2.0-2.5] pg. 53**

Background reading	0			
Total absorbance	0.511			
Total absorbance - background	0.511			
Instrument Concentration	0.5729			
Sample weight (mg/kg)	0.00247			
Final Volume (L)	0.1			
Percent solids	0.908			
Dilution Factor	50			
AECOM Calculated MS Result (mg/Kg)	1277	OK rounding	Reported Result (mg/Kg)	1280

%R = Found/True*100   **JB50090-4R [186-MFHT1-2-2.0-2.5] pg. 24**

True Value (mg/kg)	968			
Native concentration (mg/Kg)	1.4			
AECOM%R	131.8	OK rounding	Reported %R	132.0

Percent Solids   **JB50090-4R [186-MFHT1-2-2.0-2.5] pg. 30**

Empty dish weight=	24.26			
Wet weight=	30.89			
Dry weight=	30.28			
AECOM%solids =	90.8	OK	reported %solids=	90.8

Reporting Limit   **JB50090-4R [186-MFHT1-2-2.0-2.5] pg. 53**

Low Standard	0.01			
Initial weight (mg/kg)	0.00247			
Final volume (L)	0.1			
Percent solids	0.908			
Dilution Factor	1			
Reporting Limit	0.45	OK rounding	Reported RL (mg/Kg)=	0.44

Sample Calculations

   JB50090-4R [186-MFHT1-2-2.0-2.5] pg. 53

Background reading	0.011			
Total absorbance	0.038			
Total absorbance - background	0.027			
Instrument Response	0.030			
Sample weight (mg/kg)	0.00247			
Final Volume (L)	0.1			
Percent solids	0.908			
Dilution Factor	1			
AECOM Calculated Result (mg/Kg)	1.4	OK	Reported Result (mg/Kg)	1.4

AECOM

APPENDIX C

Sidewalk Closure Permit

JERSEY CITY TRAFFIC PERMIT # 10181318

575 Rt. 440, J C NJ 07305   Phone: 201.547.4470 Fax: 201.547.4703

GARFIELD#947   Eng Pmt 13-1086

sidewalk closed, also UNION side

0700-1630   10/22/2013-11/18/2013 F

by   of Entact LLC, 70 Carteret Av JC NJ 07305 (603) 204-8863

for replacement.

Call South pickmaster @201.376.3375 for offduty PD

THIS PERMIT MUST BE KEPT ONSITE SHOWN, IF REQUESTED, TO ENFORCEMENT PERSONNEL.

THIS PERMIT IS NOT VALID unless the applicant agrees to the following: traffic control devices shall be furnished, erected, maintained and removed by the contractor in accordance with the " Manual of Uniform Traffic Control Devices (FHWA)" and the "Barricade Manual (City of Jersey City)". Said applicant shall take precautions to prevent accident to life, limb or property. The applicant agrees to save the City, its officers, agents employees as their interest may appear, harmless from any and all loss or damage to any third person or party, or from any cost that may in any matter arise through the granting of this permit or the performance of any work done thereunder. All work must be done subject to all laws, ordinances and standards of the MUTCD.

UPON 3 DAYS NOTICE, CITY WORK WILL SUPERCEDE THIS PERMIT.

_____   Monte Zucker

Cc: Engineering, South District

CITY OF JERSEY CITY
Street/Sidewalk Opening and Occupancy Permit

No. 13-1086

Rev. 3/10

Work Requested	( ) Sewer	( ) Water ( ) Fiber Optical
	( ) Combined/Sanitary	( ) UST ( ) PS- Electric ( ) Other_____
	( ) Storm Sewer	( ) Sidewalk ( ) PS-Gas

SITE: **947** **GARFIELD AVE** **JERSEY CITY**
(House #)   (Street Name)   (Property Owner)   (Phone)

Cross Streets: **UNION AVE** & **CARTERET ST.**
(Street Name)   (Street Name)

Start Date: **10-22-13** Duration: **1 MONTH** days Hours from **700** am to **430** pm

Is excavation near signalized intersection ? ( ) Yes, ( ) No.

APPLICANT: **ENTACT LLC A. Rizzuto** Sign: _____

ENTACT LLC **K. GIMBEL**
(Company Name)   (Company owner's name)

70 CARTERET ST. **JERSEY CITY 07305**
(Company Address)   (City, State, Zip)

Phone: **603-204-8863** Fax: **724-520-8540**

Jobsite contact: **MATT BEMIS** Cell **603-2048863**

OFFICIAL USE ONLY

MUA:
    Water: ( ) under 2"   ( ) 3" & above (Approved Plan required)
    Sewer: ( ) under 6"   ( ) 8" & above (Approved Plan required)
    Disconnect: ( ) water / ( ) sewer   Water leak letter issued ( )
JCMUA Project No._____

| Approved by: _____ | (Date) **10/18/13** |

STREET/SIDWALK OPENING:

( ) Attached drawing   Fee: Up to 25 Sq Ft = $50. (additional $1.75 per sq ft increment) plus
                           Administration fee $50.00 (ALL PERMITS)
896.00   Borings/Pits amount _____   ($50.00 ea. + Adm. fee) Total $_____

PAID

$ **896** TOTAL FEE   PAID BY: ( ) Check No. **4086**

Issued by **Maureen Doyle** (Date) **10/18/2013**

STREET/SIDEWALK OCCUPANCY:

( ) Obtain Occupancy Permit within 30 days

Issued by: _____ (Date & No.) **10181318**

BUILDING CONSTRUCTION OFFICIAL:
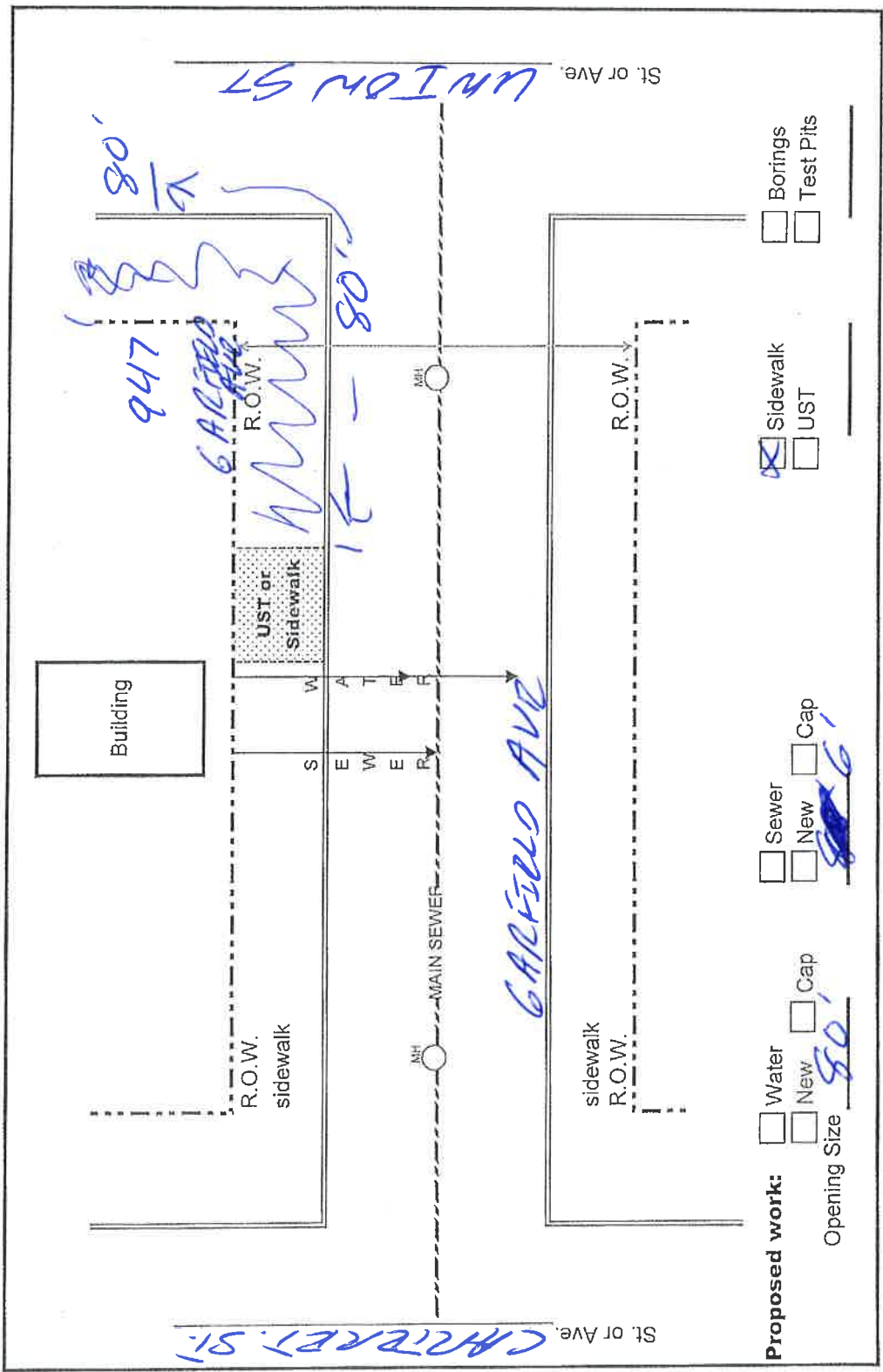
Review /Approved by: _____ Date: _____

13-1086

Permit No. _____

Date: 10-18-13

Address 947 GARFIELD AVE

Applicant ENTACT LLC

UNION ST
St. or Ave.

80'
947
6 ACTED AVE
R.O.W.
12 — 80'

Building

UST or
Sidewalk

S W
E
W
E
R
A
T
E
R

R.O.W.
sidewalk

MH — MAIN SEWER — MH

GARFIELD AVE

sidewalk
R.O.W.

R.O.W.

CHARLES ST.
St. or Ave.

☐ Borings
☐ Test Pits

☒ Sidewalk
☐ UST

Proposed work:

☐ Water   ☐ Sewer
☐ New ☐ Cap   ☐ New ☐ Cap
Opening Size 80'   6'

INSPECTOR _____   Date _____

☐ Approved   ☐ Disapproved

Comments: _____