Appendix D

Northern Morris Canal Investigation – Berry Lane Park to Communipaw Avenue Technical Memorandum

AECOM
30 Knightsbridge Road, Suite 520
Piscataway, NJ 08854

732.564.3600 tel
732.369.0122 fax

Technical Memorandum

To	Brian McPeak, Site Administrator Project Manager	Page 1
CC	Tom Cozzi (NJDEP), David Doyle (NJDEP), Prabal Amin (Weston), Mark Terril (PPG), Brian McGuire (PPG), Scott Mikaelian (AECOM), Al LoPilato (AECOM), Rich Feinberg (PPG), Carissa Johnson (AECOM)	
Subject	Northern Morris Canal Investigation – Berry Lane Park to Communipaw Avenue	

From	Bill Spronz and Bob Cataldo (AECOM)
Date	October 10, 2012

AECOM is providing this summary for our investigation of the former channel of the Morris Canal on behalf of PPG Industries, Inc. ("PPG"). The investigation was conducted from the northern boundary of Berry Lane Park north to Communipaw Avenue in Jersey City, New Jersey (**Figure 1**) to provide the following information:

- Identify the location and depth of the former Morris Canal in this area; and,
- Determine whether Chromium Chemical Production Waste ("CCPW") is present within the former channel of the former Morris Canal.

Background

The Morris Canal was formerly operated in this part of Jersey City in the late 1800s to early 1900s. Historic evidence indicated that the canal was abandoned and filled with miscellaneous fill material beginning sometime in the 1920s. Remedial Investigations ("RIs") conducted on Hudson County Chrome Site 114 by PPG, and within Berry Lane Park by the Jersey City Redevelopment Agency ("JCRA") reported that CCPW-impacted materials were identified within the fill used to abandon the former canal channel in several areas on and adjacent to Site 114.

JCRA conducted an RI within the former Morris Canal channel within Berry Lane Park in May and June 2011. The JCRA RI identified CCPW material, primarily green-gray mud, within the former canal channel from just north of the New Jersey Transit Hudson-Bergen Light Rail ("Light Rail") northward through Berry Lane Park. JCRA advanced soil borings within a series of transects crossing the former canal channel at approximately 200-foot intervals throughout Berry Lane Park. The northernmost soil boring transect completed by JCRA was located about 60 feet south of the northern Berry Lane Park Boundary. Green-gray mud was identified within the former canal channel and analytical sampling confirmed that CCPW material was present at this transect location.

Based upon the results of the Morris Canal RI conducted by JCRA, PPG initiated RI work to determine whether CCPW is present in the former Morris Canal channel north of Berry Lane Park.

Scope of Work

AECOM, at the request of PPG, conducted two phases of RI work along the former channel of the Morris Canal north of Berry Lane Park. RI work was conducted in 2011 to look for visual evidence of CCPW and a more focused phase of RI work was conducted in 2012 to include analytical sampling for hexavalent chromium ("Cr^{+6}").

PPG 2011 Northern Canal RI

The RI was conducted within and adjacent to the former Morris Canal channel north of Berry Lane Park in September 2011. The RI was conducted within the area bounded by the northern property line of Berry Lane Park at the southern end and extending to Communipaw Avenue at the northern end **(Figure 2)**. Three transects were completed across the former canal channel at a spacing of about 175 feet apart. Each transect consisted of five soil borings spaced about 20 feet apart. Each soil boring was advanced to a depth of approximately five feet below the bottom of the former Morris Canal channel (if identified) or to a depth of approximately 20 feet below ground surface ("bgs") if the bottom of the former canal channel could not be identified. Soil samples were collected continuously from ground surface to the total depth of each boring and visually evaluated for evidence of CCPW by an experienced field geologist trained in the identification of CCPW materials. The soil boring logs generated during this investigation are included in **Appendix A**.

The purpose of this investigation was to identify the former canal channel and to visually inspect the fill material within the former canal channel for the presence of CCPW. No CCPW was identified during this RI. Three soil samples were collected during this 2011 RI and analyzed hexavalent chromium ("Cr^{+6}").

PPG 2012 Northern Canal RI

Based upon the findings from the JCRA and PPG Morris Canal RI work in 2011, PPG proposed a more focused RI targeting the area from the northern Berry Lane Park boundary and extending northward to PPG's southernmost 2011 Morris Canal RI transect. This RI was conducted to characterize the nature and extent of CCPW and included both visual and analytical assessment of the fill material within and adjacent to the former Morris Canal channel.

Three transects spaced about 70 feet apart were completed across the former Morris Canal channel **(Figure 2)**. Each transect consisted of five soil borings spaced about 20 feet apart and advanced to a depth of 25 feet bgs. Soil samples were collected continuously from the ground surface to 25 feet bgs for visual characterization of the fill material. Analytical samples were collected at four foot depth intervals in each soil boring and submitted to an NJDEP certified laboratory for Cr^{+6} analysis. The analytical samples were biased toward visual evidence of potential CCPW or CCPW-impacted material if/when it was observed. The soil boring logs generated during this investigation are included in **Appendix A**.

Air Monitoring and Waste Disposal

Air monitoring for the 2011 and 2012 RIs was conducted by the AECOM field crew in accordance with the project Health and Safety Plan using two Thermo MIE Personal Data Ram ("DR") 1000 real time aerosol monitors for dust and particulate monitoring (action level 0.167 mg/m3) and a PID MiniRae 2000 to monitor for volatile organic compounds ("VOCs"). One DR 1000 and the PID were utilized within the work zone to monitor personal exposure. The remaining dust monitoring was placed slightly downwind to identify potential off-site impacts. Potential dust generating tasks were carefully monitored and dust was minimized by using a clean water mist during pavement cutting and soft-dig activities. Based on field and instrumental observations mitigation of dust was successful.

Investigation derived waste ("IDW") materials were placed in 55-gallon drums and transported to a secure drum pad on Site 114 (2011 RI) and Site 132 (2012 RI) for temporary storage prior to disposal. These drums were properly labeled and manifested off-site to a regulated disposal facility. Because this area is under the same EPA ID as Site 114, these wastes were handled as part of the larger Site 114 waste removal program. Therefore, there were no Northern Canal Boring site-specific manifests or bills-of-lading generated specific to this RI work.

Findings

PPG 2011 Northern Canal RI

The approximate limits of the canal were identified along the three transects completed during the 2011 northern canal RI **(Figure 2)**. The horizontal extent of the former Morris Canal Channel was defined by boring pairs NTB-A1/A2, NTB-B1/B2 and NTB-C5/C1 along the west side and NTB-A3/A4, NTB-B4/B5 and NTB-C3/C4 along the east side of the former canal channel.

Based upon observations during JCRA's Berry Lane Park RI and PPG's Northern Canal RIs, a soft black organic clay to silty clay was deemed the common marker for material deposited on the bottom of the former canal channel. Therefore, the canal bottom was considered the bottom of this black clay layer. The canal bottom was encountered at depths ranging from about 11.5 feet in borings NTB-A2 and B2 to about 18 feet in boring NTB-B3 **(Figure 3)**. The deepest area of the former canal appears to be located along the line of borings NTB-A3, B3 and C1.

Groundwater was encountered during drilling at depths ranging from 3 feet bgs at boring NTB-A5 to 10 feet bgs at borings NTB-A1, A3, and C1. Groundwater samples were not collected as part of this investigation.

No CCPW or CCPW-impacted materials were observed in any of the soil borings advanced during the 2011 investigation. Three analytical samples were collected from the fill material within the former Morris Canal channel on September 28, 2011 **(Table 2)**. Based upon the analytical results, Cr^{+6} was not detected above the laboratory method detection limit ("MDL") in two of the soil samples and was detected at an estimated concentration of 1.1 J milligrams-per-kilogram ("mg/kg") in one soil sample **(Table 3)**. The interim NJDEP Chromium Soil Cleanup Criteria ("CrSCC") concentration for Cr^{+6} is 20 mg/kg.

PPG 2012 Northern Canal RI

The approximate limits of the canal were identified along the three transects completed during the 2012 northern canal RI (**Figure 2**). The horizontal extent of the former Morris Canal Channel was defined by boring pairs NSB-D1/D2, NSB-E1/E2 and NSB-F1/F2 along the west side and NSB-D4/D5, NSB-E4/E5 and NSB-F4/F5 along the east side of the former canal channel.

The canal bottom was encountered at depths ranging from 10.5 feet in boring NSB-F2 to 17 feet in boring NSB-D2 **(Figure 3)**. The deepest area of the canal appears to be located along the line of borings NSB-D2, E3, and F4.

Groundwater was encountered during drilling at depths ranging from 4.5 feet bgs in boring NSB-D5 to 6.6 feet bgs in borings NSB-D1 and F5. Groundwater samples were not collected as part of this investigation.

No CCPW or CCPW-impacted materials were observed in any of the soil borings advanced during the 2012 investigation. Eighty-four analytical samples were collected from the 15 soil borings during August 20-28, 2012 **(Figure 2 and Table 2)**. Based upon the analytical results, Cr^{+6} was not detected at a concentration greater than the CrSCC in any of the samples **(Table 3)**.

Data Quality Assurance/Quality Control

Soil samples collected as part of the Northern Canal investigation were sent to Test America Laboratories in Edison, NJ (2011 RI) and Accutest Laboratories in Dayton, NJ (2012 RI), which are NJDEP certified laboratories. The Cr^{+6} analyses were performed in accordance with NJDEP-approved analytical protocols **(Table 4)**.

All laboratory data packages were reviewed in accordance with the FSP-QAPP (AECOM, 2010a) and the NJDEP validation Standard Operating Procedures ("SOPs") for Cr^{+6} and inorganic data. The validation procedures for all Cr^{+6} data included full validation, which involved a comprehensive review of both summary forms and raw data.

Quality control issues identified during validation are provided in the individual data validation reports that are included in **Appendix B**. Results of the data validation indicated that, in general, the analytical data were of adequate quality to meet the project objectives. There were some minor quality assurance/quality control ("QA/QC") issues identified during data validation that resulted in qualifying some of the data as estimated. These issues were related to Matrix Spike ("MS") results, high percent moisture, and laboratory and field duplicate precision issues. The majority of the QA/QC non-conformances resulted in potential low bias for reported analytical results for the soil samples.

Based upon the data validation results, the data are acceptable and usable for the purpose of this investigation.

Conclusions

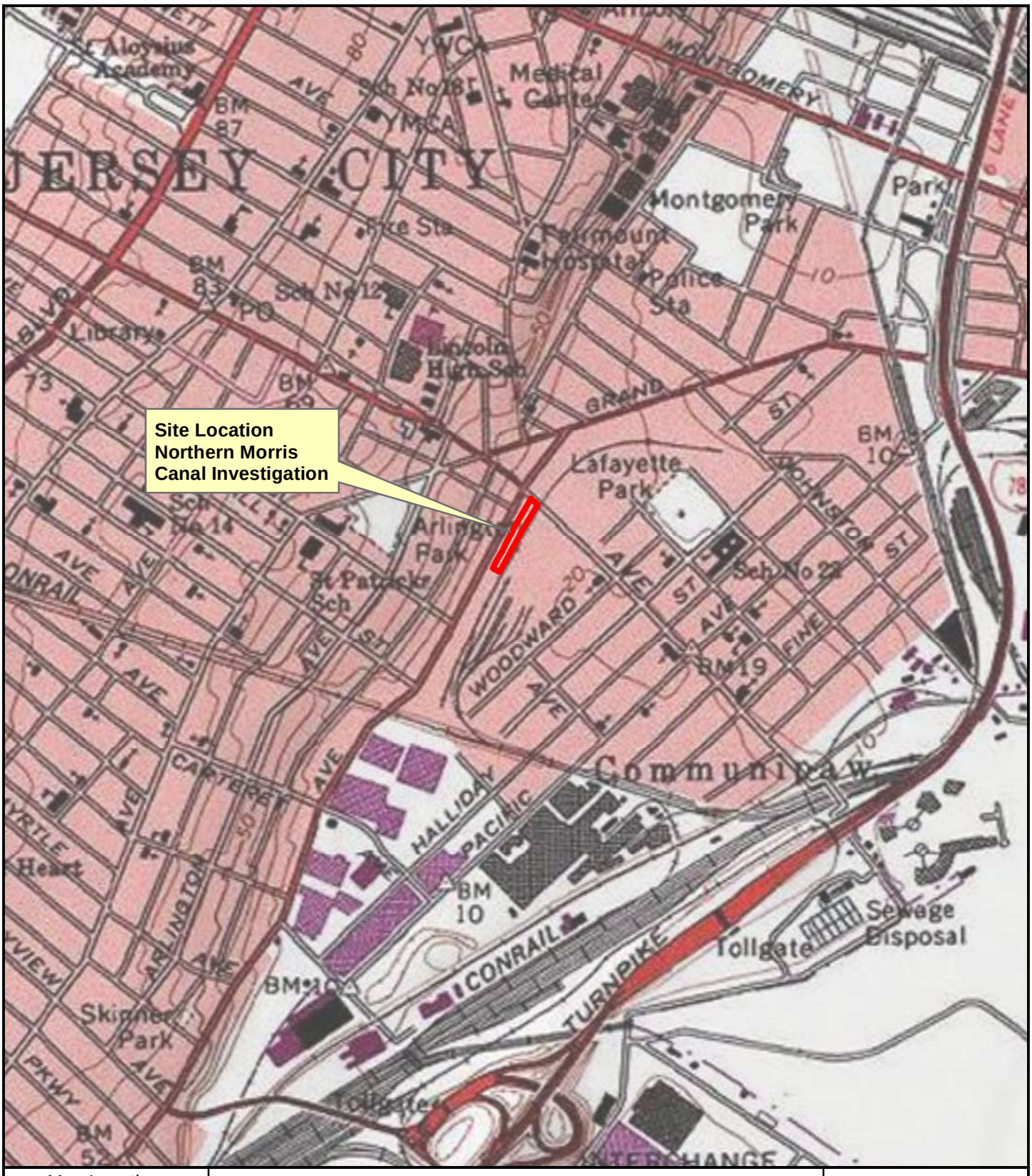
The former Morris Canal channel north of Berry Lane Park to Communipaw Avenue was identified and delineated within each of the six soil boring transects conducted during RI work that was completed in September 2011 and August 2012. No visual evidence of CCPW was identified in any of the borings. The fill material encountered within the former canal channel included a mixture of ash, cinder, sand, silt and other miscellaneous urban fill material, consistent with the non-indigenous fill common throughout this part of Jersey City. Groundwater was generally encountered between three feet and 10 feet bgs during the investigations.

Analytical results from the three soil samples collected during the 2011 investigation and the 84 soil samples collected during the 2012 investigation demonstrated that no evidence of CCPW-impacted material was present and that no Cr^{+6} is present at concentrations exceeding the NJDEP 20 mg/kg CrSCC within or adjacent to the former Morris Canal channel north of Berry Lane Park. Based upon the RI conducted by JCRA within Berry Lane Park and the Northern Canal RI conducted by PPG, it is evident that CCPW and CCPW impacted material is limited to Berry Lane Park and does not extend north of the Berry Lane Park boundary.

Attachments:

Figure 1:	USGS Site Location Map
Figure 2:	Soil Comparison to NJDEP CrSCC
Figure 3:	Northern Morris Canal – Former Channel Profiles
Table 1:	Sample Investigation Details
Table 2:	Soil Sample Summary
Table 3:	Analytical Results Summary Table
Table 4:	Analytical Methods/Quality Assurance Summary Table
Appendix A:	Soil Boring Logs
Appendix B:	Compiled Lab Reports, DV Reports, and NJDEP Full Data Deliverables Form

Figures



Map Location

USGS SITE LOCATION MAP

PPG INDUSTRIES

JERSEY CITY, HUDSON COUNTY, NEW JERSEY

NORTHERN MORRIS CANAL INVESTIGATION REPORT

0 250 500 1,000 1,500 2,000 2,500 3,000 Feet

Map Projection: NJ, State Plane, NAD 83, Feet.
Image Source: USGS Topographic Quadrangle: Jersey City, NJ, 1967 - Photorevised 1981.
Scale: 1:24,000 Contour Interval: 10'

Scale: 1:12,000

AECOM

Figure 1

Date: October 2012

Project #: 60213772

LEGEND

- ⊕ BORING LOCATION - VISUAL CHARACTERIZATION ONLY
- ● BORING LOCATION WITH ANALYTICAL SAMPLES - NO Cr+6 EXCEEDANCE
- ● BORING LOCATION WITH ANALYTICAL SAMPLES - Cr+6 EXCEEDANCE
- ▭ APPROXIMATE BOUNDARY OF FORMER MORRIS CANAL CHANNEL

NOTES:
1. HORIZONTAL DATUM - NJ STATE PLANE NAD83, FEET.
2. DATA ARE COMPARED TO THE NJDEP CHROMIUM SOIL CLEANUP CRITERIA ("CrSCC") DATED SEPTEMBER 2008, REVISED APRIL 2010.
3. RED FONT INDICATES AN EXCEEDANCE OF THE NJDEP CrSCC.
4. "FD" INDICATES FIELD DUPLICATE.

GARFIELD AVENUE
COMMUNIPAW AVENUE
BERRY LANE

NTB-A1 NTB-A2 NTB-A3 NTB-A4 NTB-A5
NTB-B1 NTB-B2 NTB-B3 NTB-B4 NTB-B5
NTB-C1 NTB-C2 NTB-C3 NTB-C4 NTB-C5
NSB-D1 NSB-D2 NSB-D3 NSB-D4 NSB-D5
NSB-E1 NSB-E2 NSB-E3 NSB-E4 NSB-E5
NSB-F1 NSB-F2 NSB-F3 NSB-F4 NSB-F5

N W E S

0 70 Feet

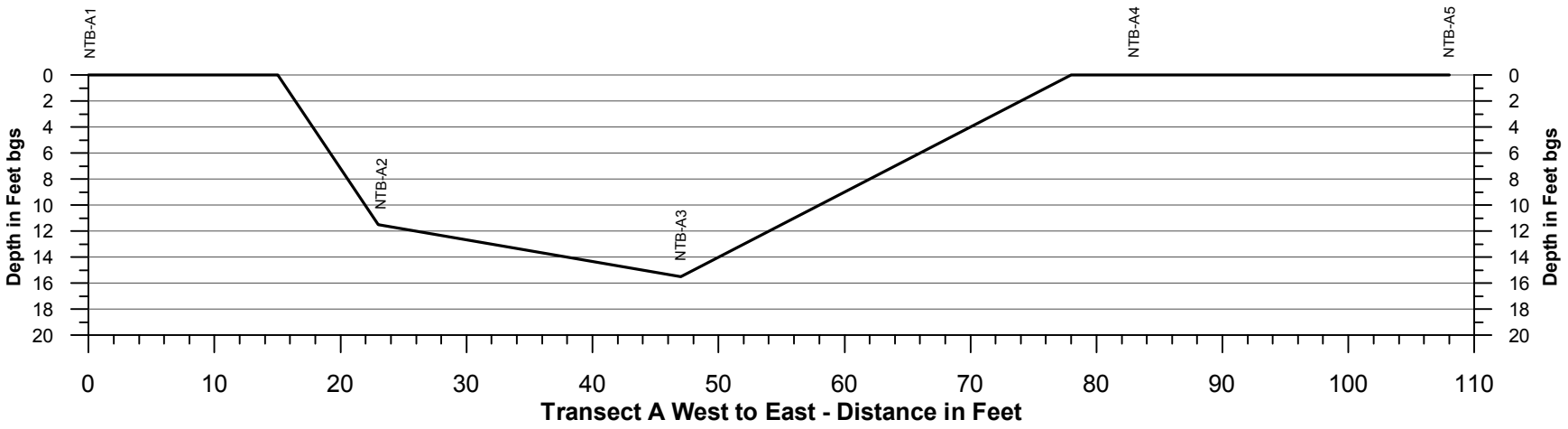
AECOM

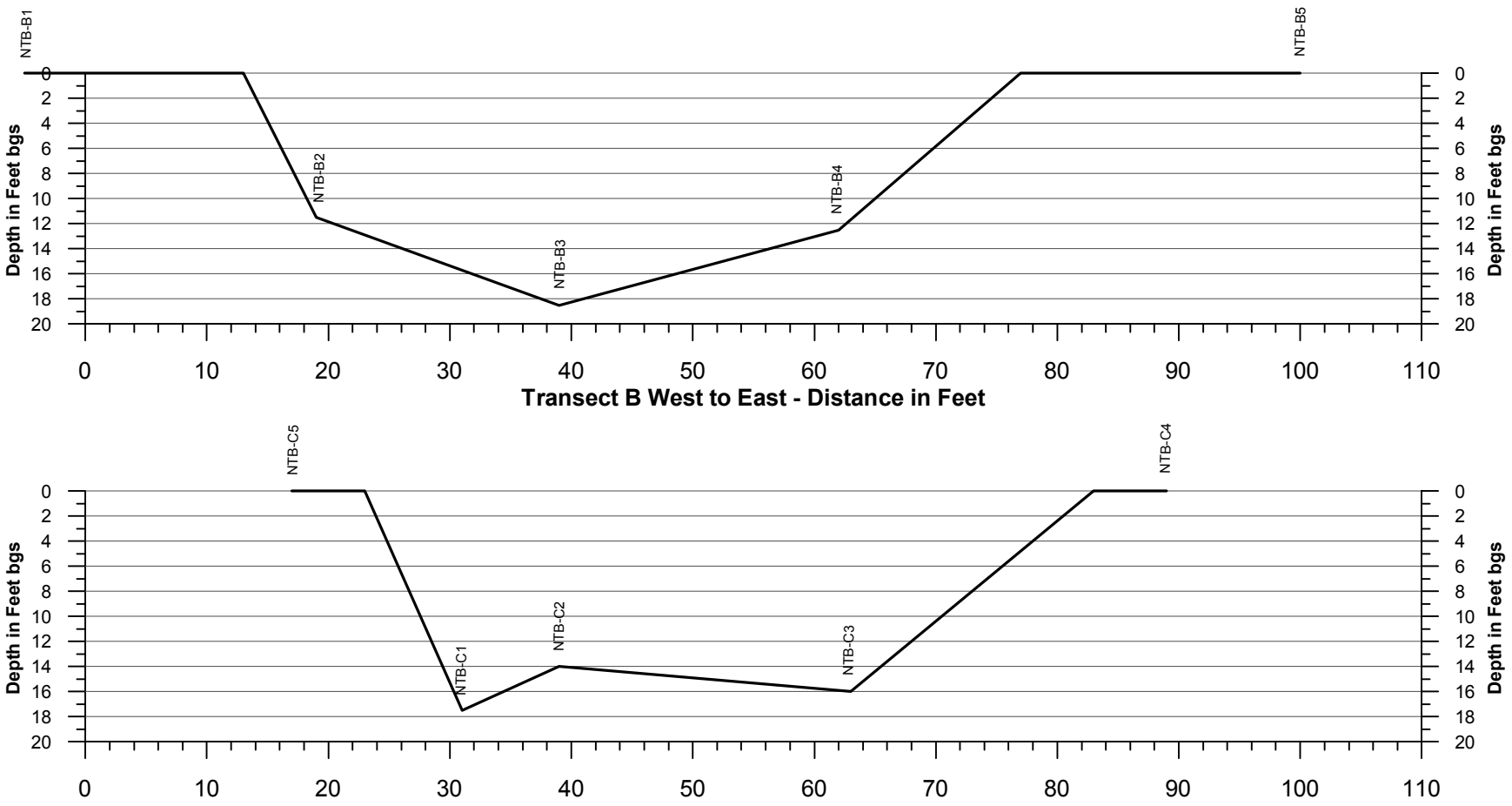
PPG INDUSTRIES JERSEY CITY, HUDSON COUNTY, NEW JERSEY NORTHERN MORRIS CANAL INVESTIGATION REPORT 60213772		
DATE: 10/04/12	DRWN: J.E.B.	CHKD: B.S.

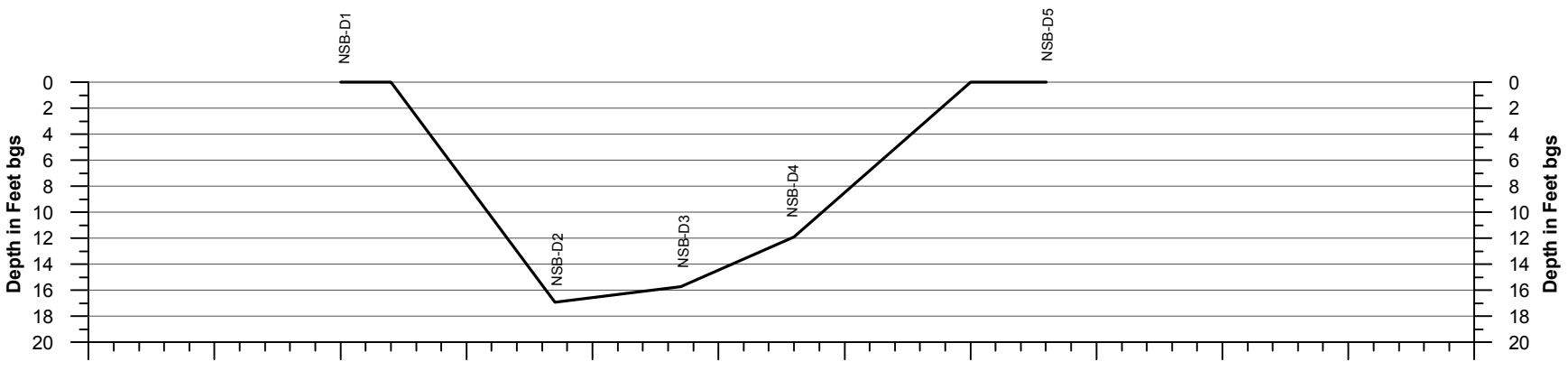
FIGURE 2
SOIL COMPARISON TO NJDEP CrSCC -
NORTHERN MORRIS CANAL INVESTIGATION
HEXAVALENT CHROMIUM (ppm)

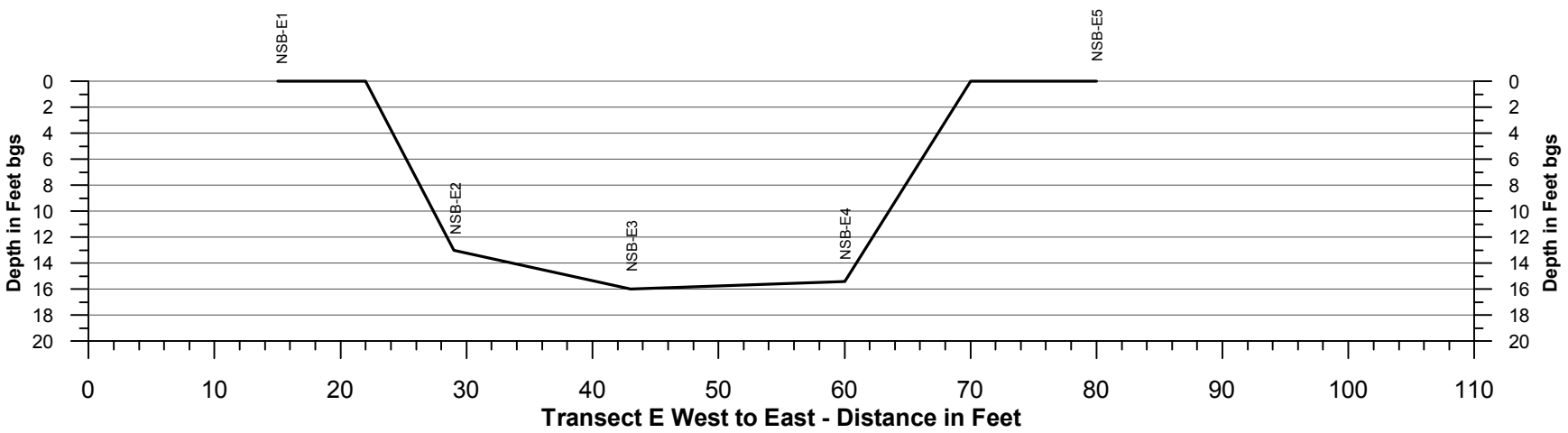
J:\Water\Project Files\P50\06510.PRG\100_JerseyCity\GIS\Projects\Forrest_Street\Chromium-Hex\Soil_Comparison_to_NJDEP_CrSCC_Hexavalent_Chromium.mxd

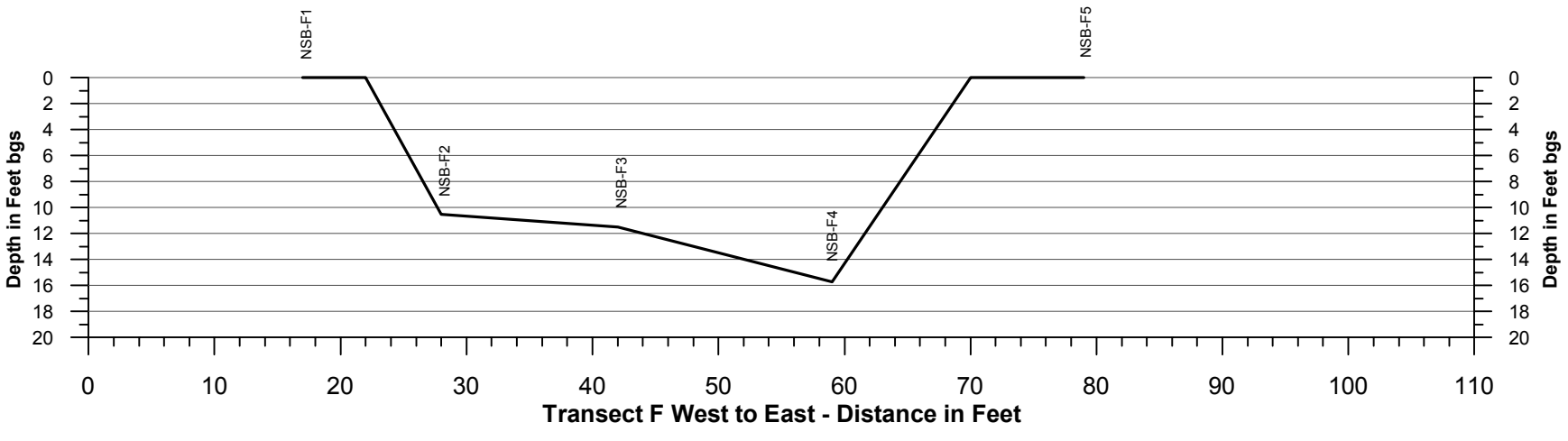
Figure 3
Northern Morris Canal - Former Channel Profiles
PPG Industries, Jersey City, New Jersey
Northern Morris Canal Investigation











Tables

Table 1
Sample Investigation Details
PPG Industries, Jersey City, New Jersey
Northern Morris Canal Investigation

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Location	Utility Markout Date	Soft Dig Date	GeoProbe Date	Total Boring Depth (ft bgs)	COPR Depth (ft bgs)	Green-Gray Mud (ft bgs)	Peat (ft bgs)	Coal Tar, Ash, Oil or other Petroleum	Comments
Northern Canal Borings									
NTB-A1	9/27/11	9/28/11	9/29/11	15	---	---	---	Ash, tar odor	No COPR/GGM. No Canal Bottom encountered
NTB-A2	9/27/11	9/27/11	9/29/11	20	---	---	---	Cinders	No COPR/GGM. Canal Bottom at 11.5 ft.
NTB-A3	9/27/11	9/27/11	9/29/11	20	---	---	---	Black Cinders, Ash, Naphthalene odor with sheen	No COPR/GGM. Canal Bottom at 15.5 ft.
NTB-A4	9/27/11	9/27/11	9/29/11	15	---	---	---	---	No COPR/GGM. No Canal Bottom encountered
NTB-A5	9/27/11	9/27/11	--	5	---	---	---		No COPR/GGM. No Canal Bottom encountered
NTB-B1	9/27/11	9/30/11	9/30/11	15	---	---	---	Ash	No COPR/GGM. No Canal Bottom encountered
NTB-B2	9/27/11	9/28/11	9/28/11	15	---	---	---	Cinders	No COPR/GGM. Canal Bottom at 11.5 ft.
NTB-B3	9/27/11	9/28/11	9/28/11	20	---	---	---	Cinders	No COPR/GGM. Canal Bottom at 18.5 ft.
NTB-B4	9/27/11	9/28/11	9/28/11	20	---	---	---	Black Cinders	No COPR/GGM. Canal Bottom at 12.5 ft.
NTB-B5	9/27/11	9/30/11	9/30/11	20	---	---	---	Coal	No COPR/GGM. No Canal Bottom encountered
NTB-C1	9/27/11	9/28/11	9/28/11	20	---	---	---	Naphthalene Odor	No COPR/GGM. Canal Bottom at 17.5 ft.
NTB-C2	9/27/11	9/28/11	9/28/11	15	---	---	---	Cinders and Ash	No COPR/GGM. Canal Bottom at 14 ft.
NTB-C3	9/27/11	9/28/11	9/28/11	20	---	---	---	Black Cinders, Ash	No COPR/GGM. Canal Bottom at 16 ft.
NTB-C4	9/27/11	9/29/11	9/29/11	15	---	---	---	Black Cinders, Ash and Silt	No COPR/GGM. No Canal Bottom encountered
NTB-C5	9/27/11	9/30/11	9/30/11	20	---	---	---	Ash	No COPR/GGM. No Canal Bottom encountered
NSB-D1	8/8/2012	8/21/12	8/21/12	25	---	---	---	Coal, ash, cinders	No COPR/GGM. No Canal Bottom encountered
NSB-D2	8/8/2012	8/21/12	8/21/12	25	---	---	---	Coal, slag, ash, cinders; strong petroleum odor	No COPR/GGM. Canal bottom at 16.9 ft
NSB-D3	8/8/2012	8/21/12	8/22/12	25	---	---	---	Coal, ash, cinders, slag, moderate petroleum odor, slight sheen	No COPR/GGM.. Canal bottom at 15.7 ft
NSB-D4	8/8/2012	8/22/12	8/22/12	25	---	---	---	Slight petroleum odor	No COPR/GGM. Canal bottom at 11.9 ft
NSB-D5	8/8/2012	8/20/12	8/20/12	25	---	---	---	Ash, cinders, slag, slight naphthalene odor	No COPR/GGM. No Canal Bottom encountered
NSB-E1	8/8/2012	8/24/12	8/24/12	25	---	---	---	Coal, slight petroleum odor	No COPR/GGM. No Canal Bottom encountered
NSB-E2	8/8/2012	8/24/12	8/24/12	25	---	---	---	Coal, ash	No COPR/GGM. Canal bottom at 13 ft
NSB-E3	8/8/2012	8/24/12	8/24/12	25	---	---	---	Coal, slight petroleum odor, tar paper	No COPR/GGM. Canal bottom at 16 ft
NSB-E4	8/8/2012	8/24/12	8/27/12	25	---	---	---	Coal	No COPR/GGM. Canal bottom at 15.4 ft
NSB-E5	8/8/2012	8/21/12	8/21/12	5.5	---	---	---	Coal, slag, ash, cinders	Refusal at 5.5 ft. No COPR/GGM. No Canal Bottom encountered
NSB-F1	8/8/2012	8/27/12	8/27/12	25	---	---	---	-	No COPR/GGM. No Canal Bottom encountered
NSB-F2	8/8/2012	8/28/12	8/28/12	25	---	---	---	Coal	No COPR/GGM. Canal bottom at 10.5 ft
NSB-F3	8/8/2012	8/28/12	8/28/12	25	---	---	---	Coal, ash, cinders	No COPR/GGM. Canal bottom at 11.5 ft
NSB-F4	8/8/2012	8/28/12	8/28/12	25	---	---	---	Coal, slight petroleum odor, slight sheen.	No COPR/GGM. Canal bottom at 15.7 ft
NSB-F5	8/8/2012	8/20/12	8/21/12	25	---	---	---	-	No COPR/GGM. No Canal Bottom encountered

Notes:
ft bgs = feet below ground surface
COPR = Chromium Ore Processing Residue
GGM = Green-Gray Mud
MGP = Manufactured Gas Plant
NA = Not Available
NAPL = Non-Aqueous Phase Liquids

Table 2
Soil Sample Summary
PPG Industries, Jersey City, New Jersey
Northern Morris Canal Investigation

							Coordinates[1]		Analysis[2]
Sample Location	Sample ID	Lab Sample ID	Sample Date	Sample Depth	Matrix	Sample Type	Easting	Northing	Cr^{+6}
GARIS-NSB									
NSB-D1	NSB-D1-1.0-1.5	JB14312-1R	8/21/2012	1 - 1.5 ft	SO	N	611992.7581	685153.5252	1
NSB-D1	NSB-D1-4.0-4.5	JB14312-5R	8/21/2012	4 - 4.5 ft	SO	N	611992.7581	685153.5252	1
NSB-D1	NSB-D1-7.7-8.2	JB14312-6R	8/21/2012	7.7 - 8.2 ft	SO	N	611992.7581	685153.5252	1
NSB-D1	NSB-D1-12.0-12.5	JB14312-2	8/21/2012	12 - 12.5 ft	SO	N	611992.7581	685153.5252	1
NSB-D1	NSB-D1-16.0-16.5	JB14312-3R	8/21/2012	16 - 16.5 ft	SO	N	611992.7581	685153.5252	1
NSB-D1	NSB-D1-20.0-20.5	JB14312-4R	8/21/2012	20 - 20.5 ft	SO	N	611992.7581	685153.5252	1
NSB-D2	NSB-D2-3.0-3.5	JB14312-8R	8/21/2012	3 - 3.5 ft	SO	N	612015.7078	685150.019	1
NSB-D2	NSB-D2-3.0-3.5X	JB14312-9R	8/21/2012	3 - 3.5 ft	SO	FD	612015.7078	685150.019	1
NSB-D2	NSB-D2-6.0-6.5	JB14312-10R	8/21/2012	6 - 6.5 ft	SO	N	612015.7078	685150.019	1
NSB-D2	NSB-D2-11.3-11.8	JB14312-7	8/21/2012	11.3 - 11.8 ft	SO	N	612015.7078	685150.019	1
NSB-D2	NSB-D2-15.0-15.5	JB14404-14	8/22/2012	15 - 15.5 ft	SO	N	612015.7078	685150.019	1
NSB-D2	NSB-D2-16.6-17.1	JB14404-13	8/22/2012	16.6 - 17.1 ft	SO	N	612015.7078	685150.019	1
NSB-D2	NSB-D2-20.0-20.5	JB14404-15	8/22/2012	20 - 20.5 ft	SO	N	612015.7078	685150.019	1
NSB-D3	NSB-D3-3.0-3.5	JB14312-11	8/21/2012	3 - 3.5 ft	SO	N	612027.2754	685145.1991	1
NSB-D3	NSB-D3-6.5-7.0	JB14404-12	8/22/2012	6.5 - 7 ft	SO	N	612027.2754	685145.1991	1
NSB-D3	NSB-D3-10.8-11.3	JB14404-11	8/22/2012	10.8 - 11.3 ft	SO	N	612027.2754	685145.1991	1
NSB-D3	NSB-D3-15.0-15.5	JB14404-10	8/22/2012	15 - 15.5 ft	SO	N	612027.2754	685145.1991	1
NSB-D3	NSB-D3-21.0-21.5	JB14404-9	8/22/2012	21 - 21.5 ft	SO	N	612027.2754	685145.1991	1
NSB-D4	NSB-D4-1.0-1.5	JB14312-12R	8/21/2012	1 - 1.5 ft	SO	N	612037.9996	685140.6203	1
NSB-D4	NSB-D4-6.0-6.5	JB14404-7	8/22/2012	6 - 6.5 ft	SO	N	612037.9996	685140.6203	1
NSB-D4	NSB-D4-10.5-11.0	JB14404-6	8/22/2012	10.5 - 11 ft	SO	N	612037.9996	685140.6203	1
NSB-D4	NSB-D4-12.0-12.5	JB14404-5	8/22/2012	12 - 12.5 ft	SO	N	612037.9996	685140.6203	1
NSB-D4	NSB-D4-16.5-17.0	JB14404-4	8/22/2012	16.5 - 17 ft	SO	N	612037.9996	685140.6203	1
NSB-D4	NSB-D4-20.0-20.5	JB14404-3	8/22/2012	20 - 20.5 ft	SO	N	612037.9996	685140.6203	1
NSB-D5	NSB-D5-3.0-3.5	JB14201-11R	8/20/2012	3 - 3.5 ft	SO	N	612050.9892	685112.8573	1
NSB-D5	NSB-D5-3.0-3.5X	JB14201-10	8/20/2012	3 - 3.5 ft	SO	FD	612050.9892	685112.8573	1
NSB-D5	NSB-D5-6.4-6.9	JB14201-9R	8/20/2012	6.4 - 6.9 ft	SO	N	612050.9892	685112.8573	1
NSB-D5	NSB-D5-12.0-12.5	JB14201-8R	8/20/2012	12 - 12.5 ft	SO	N	612050.9892	685112.8573	1
NSB-D5	NSB-D5-15.0-15.5	JB14201-7	8/20/2012	15 - 15.5 ft	SO	N	612050.9892	685112.8573	1
NSB-D5	NSB-D5-18.0-18.5	JB14201-6	8/20/2012	18 - 18.5 ft	SO	N	612050.9892	685112.8573	1
NSB-D5	NSB-D5-20.0-20.5	JB14201-5	8/20/2012	20 - 20.5 ft	SO	N	612050.9892	685112.8573	1
NSB-E1	NSB-E1-2.0-2.5	JB14656-21	8/24/2012	2 - 2.5 ft	SO	N	611951.8557	685089.5156	1
NSB-E1	NSB-E1-4.0-4.5	JB14656-19	8/24/2012	4 - 4.5 ft	SO	N	611951.8557	685089.5156	1
NSB-E1	NSB-E1-10.0-10.5	JB14656-15	8/24/2012	10 - 10.5 ft	SO	N	611951.8557	685089.5156	1
NSB-E1	NSB-E1-12.5-13.0	JB14656-14	8/24/2012	12.5 - 13 ft	SO	N	611951.8557	685089.5156	1
NSB-E1	NSB-E1-16.0-16.5	JB14656-13	8/24/2012	16 - 16.5 ft	SO	N	611951.8557	685089.5156	1
NSB-E1	NSB-E1-20.0-20.5	JB14656-12	8/24/2012	20 - 20.5 ft	SO	N	611951.8557	685089.5156	1
NSB-E2	NSB-E2-1.0-1.5	JB14656-18	8/24/2012	1 - 1.5 ft	SO	N	611967.4453	685084.064	1
NSB-E2	NSB-E2-1.0-1.5X	JB14656-17	8/24/2012	1 - 1.5 ft	SO	FD	611967.4453	685084.064	1
NSB-E2	NSB-E2-4.0-4.5	JB14656-16	8/24/2012	4 - 4.5 ft	SO	N	611967.4453	685084.064	1
NSB-E2	NSB-E2-12.5-13.0	JB14656-9	8/24/2012	12.5 - 13 ft	SO	N	611967.4453	685084.064	1
NSB-E2	NSB-E2-16.0-16.5	JB14656-8	8/24/2012	16 - 16.5 ft	SO	N	611967.4453	685084.064	1
NSB-E2	NSB-E2-21.0-21.5	JB14656-7	8/24/2012	21 - 21.5 ft	SO	N	611967.4453	685084.064	1
NSB-E3	NSB-E3-0.5-1.0	JB14656-11	8/24/2012	0.5 - 1 ft	SO	N	611984.8521	685077.7517	1
NSB-E3	NSB-E3-4.0-4.5	JB14656-10	8/24/2012	4 - 4.5 ft	SO	N	611984.8521	685077.7517	1
NSB-E3	NSB-E3-5.5-6.0	JB14656-6	8/24/2012	5.5 - 6 ft	SO	N	611984.8521	685077.7517	1
NSB-E3	NSB-E3-10.0-10.5	JB14656-5	8/24/2012	10 - 10.5 ft	SO	N	611984.8521	685077.7517	1
NSB-E3	NSB-E3-16.0-16.5	JB14656-4	8/24/2012	16 - 16.5 ft	SO	N	611984.8521	685077.7517	1
NSB-E3	NSB-E3-20.0-20.5	JB14656-3	8/24/2012	20 - 20.5 ft	SO	N	611984.8521	685077.7517	1
NSB-E4	NSB-E4-1.0-1.5	JB14656-2	8/24/2012	1 - 1.5 ft	SO	N	612004.1717	685070.3873	1
NSB-E4	NSB-E4-4.0-4.5	JB14656-1	8/24/2012	4 - 4.5 ft	SO	N	612004.1717	685070.3873	1
NSB-E4	NSB-E4-6.5-7.0	JB14769-11	8/27/2012	6.5 - 7 ft	SO	N	612004.1717	685070.3873	1
NSB-E4	NSB-E4-12.0-12.5	JB14769-9	8/27/2012	12 - 12.5 ft	SO	N	612004.1717	685070.3873	1
NSB-E4	NSB-E4-16.0-16.5	JB14769-8	8/27/2012	16 - 16.5 ft	SO	N	612004.1717	685070.3873	1
NSB-E4	NSB-E4-16.0-16.5X	JB14769-7	8/27/2012	16 - 16.5 ft	SO	FD	612004.1717	685070.3873	1
NSB-E4	NSB-E4-21.0-21.5	JB14769-6	8/27/2012	21 - 21.5 ft	SO	N	612004.1717	685070.3873	1
NSB-E5	NSB-E5-3.0-3.5	JB14201-12	8/20/2012	3 - 3.5 ft	SO	N	612026.3606	685058.2408	1
NSB-F1	NSB-F1-1.0-1.5	JB14769-5	8/27/2012	1 - 1.5 ft	SO	N	611925.2525	685036.5131	1
NSB-F1	NSB-F1-4.0-4.5	JB14769-4	8/27/2012	4 - 4.5 ft	SO	N	611925.2525	685036.5131	1
NSB-F1	NSB-F1-10.0-10.5	JB14769-3	8/27/2012	10 - 10.5 ft	SO	N	611925.2525	685036.5131	1
NSB-F1	NSB-F1-16.0-16.5	JB14769-2	8/27/2012	16 - 16.5 ft	SO	N	611925.2525	685036.5131	1
NSB-F1	NSB-F1-20.0-20.5	JB14769-1	8/27/2012	20 - 20.5 ft	SO	N	611925.2525	685036.5131	1
NSB-F2	NSB-F2-1.0-1.5	JB14858-7	8/28/2012	1 - 1.5 ft	SO	N	611937.7696	685031.1369	1
NSB-F2	NSB-F2-4.0-4.5	JB14858-6	8/28/2012	4 - 4.5 ft	SO	N	611937.7696	685031.1369	1
NSB-F2	NSB-F2-10.5-11.0	JB14858-5	8/28/2012	10.5 - 11 ft	SO	N	611937.7696	685031.1369	1
NSB-F2	NSB-F2-10.5-11.0X	JB14858-4R	8/28/2012	10.5 - 11 ft	SO	N	611937.7696	685031.1369	1
NSB-F2	NSB-F2-15.0-15.5	JB14858-3	8/28/2012	15 - 15.5 ft	SO	N	611937.7696	685031.1369	1
NSB-F2	NSB-F2-17.8-18.3	JB14858-2R	8/28/2012	17.8 - 18.3 ft	SO	N	611937.7696	685031.1369	1
NSB-F2	NSB-F2-21.5-22.0	JB14858-1	8/28/2012	21.5 - 22 ft	SO	N	611937.7696	685031.1369	1
NSB-F3	NSB-F3-1.0-1.5	JB14858-14R	8/28/2012	1 - 1.5 ft	SO	N	611953.4491	685023.9789	1
NSB-F3	NSB-F3-4.0-4.5	JB14858-13R	8/28/2012	4 - 4.5 ft	SO	N	611953.4491	685023.9789	1
NSB-F3	NSB-F3-10.0-10.5	JB14858-10R	8/28/2012	10 - 10.5 ft	SO	N	611953.4491	685023.9789	1
NSB-F3	NSB-F3-15.0-15.5	JB14858-9R	8/28/2012	15 - 15.5 ft	SO	N	611953.4491	685023.9789	1
NSB-F3	NSB-F3-20.0-20.5	JB14858-8R	8/28/2012	20 - 20.5 ft	SO	N	611953.4491	685023.9789	1
NSB-F4	NSB-F4-0.0-0.5	JB14858-18R	8/28/2012	0 - 0.5 ft	SO	N	611972.5371	685016.1391	1
NSB-F4	NSB-F4-6.0-6.5	JB14858-16	8/28/2012	6 - 6.5 ft	SO	N	611972.5371	685016.1391	1
NSB-F4	NSB-F4-10.0-10.5	JB14858-15R	8/28/2012	10 - 10.5 ft	SO	N	611972.5371	685016.1391	1
NSB-F4	NSB-F4-16.0-16.5	JB14858-12R	8/28/2012	16 - 16.5 ft	SO	N	611972.5371	685016.1391	1
NSB-F4	NSB-F4-20.0-20.5	JB14858-11	8/28/2012	20 - 20.5 ft	SO	N	611972.5371	685016.1391	1
NSB-F5	NSB-F5-0.0-0.5	JB14201-4R	8/20/2012	0 - 0.5 ft	SO	N	611992.8182	684999.0962	1
NSB-F5	NSB-F5-4.0-4.5	JB14201-3R	8/20/2012	4 - 4.5 ft	SO	N	611992.8182	684999.0962	1
NSB-F5	NSB-F5-8.0-8.5	JB14201-2R	8/20/2012	8 - 8.5 ft	SO	N	611992.8182	684999.0962	1
NSB-F5	NSB-F5-12.0-12.5	JB14201-1R	8/20/2012	12 - 12.5 ft	SO	N	611992.8182	684999.0962	1
NSB-F5	NSB-F5-16.0-16.5	JB14312-15R	8/21/2012	16 - 16.5 ft	SO	N	611992.8182	684999.0962	1
NSB-F5	NSB-F5-20.0-20.5	JB14312-13R	8/21/2012	20 - 20.5 ft	SO	N	611992.8182	684999.0962	1
NTB									
NTB-B2	NTB-B2-2.0	460-31791-3	9/28/2011	2 - 2.5 ft	SO	N	612111.56	685362.06	1
NTB-C1	NTB-C1-11.0	460-31791-2	9/28/2011	11 - 11.5 ft	SO	N	612022.95	685188.14	1
NTB-C2	NTB-C2-12.0	460-31791-1	9/28/2011	12 - 12.5 ft	SO	N	612040.59	685180.79	1

Notes:

1 - Coordinate datum New Jersey State Plane North American Datum 1983 (NAD83), feet

2 - Analyses include: Cr^{+6} = SW7196

Sample Type = N indicates normal original sample; FD indicates duplicate sample.

Cr^{+6} = Hexavalent Chromium

Table 3
Analytical Results Summary Table
PPG Industries, Jersey City, New Jersey
Northern Morris Canal Investigation

				Analyte	CHROMIUM (HEXAVALENT)	
				CAS RN	18540-29-9	
				Units	mg/kg	
				MSSRS	**20**	
Location ID	Sample ID	Lab ID	Depth Interval	Collection Date	R	Q
NSB-D1	NSB-D1-1.0-1.5	JB14312-1R	1 - 1.5 ft	8/21/2012	1.8	J
NSB-D1	NSB-D1-4.0-4.5	JB14312-5R	4 - 4.5 ft	8/21/2012	4.3	J
NSB-D1	NSB-D1-7.7-8.2	JB14312-6R	7.7 - 8.2 ft	8/21/2012	0.35	J
NSB-D1	NSB-D1-12.0-12.5	JB14312-2	12 - 12.5 ft	8/21/2012	0.42	J
NSB-D1	NSB-D1-16.0-16.5	JB14312-3R	16 - 16.5 ft	8/21/2012	1.6	J
NSB-D1	NSB-D1-20.0-20.5	JB14312-4R	20 - 20.5 ft	8/21/2012	0.46	J
NSB-D2	NSB-D2-3.0-3.5	JB14312-8R	3 - 3.5 ft	8/21/2012	3.0	J
NSB-D2	NSB-D2-3.0-3.5X	JB14312-9R	3 - 3.5 ft	8/21/2012	2.1	J
NSB-D2	NSB-D2-6.0-6.5	JB14312-10R	6 - 6.5 ft	8/21/2012	< 0.19	UJ
NSB-D2	NSB-D2-11.3-11.8	JB14312-7	11.3 - 11.8 ft	8/21/2012	0.41	J
NSB-D2	NSB-D2-15.0-15.5	JB14404-14	15 - 15.5 ft	8/22/2012	< 0.20	U
NSB-D2	NSB-D2-16.6-17.1	JB14404-13	16.6 - 17.1 ft	8/22/2012	0.27	J
NSB-D2	NSB-D2-20.0-20.5	JB14404-15	20 - 20.5 ft	8/22/2012	1.2	
NSB-D3	NSB-D3-3.0-3.5	JB14312-11	3 - 3.5 ft	8/21/2012	12.9	J
NSB-D3	NSB-D3-6.5-7.0	JB14404-12	6.5 - 7 ft	8/22/2012	0.43	J
NSB-D3	NSB-D3-10.8-11.3	JB14404-11	10.8 - 11.3 ft	8/22/2012	1.3	J
NSB-D3	NSB-D3-15.0-15.5	JB14404-10	15 - 15.5 ft	8/22/2012	< 0.22	U
NSB-D3	NSB-D3-21.0-21.5	JB14404-9	21 - 21.5 ft	8/22/2012	0.47	
NSB-D4	NSB-D4-1.0-1.5	JB14312-12R	1 - 1.5 ft	8/21/2012	2.3	J
NSB-D4	NSB-D4-6.0-6.5	JB14404-7	6 - 6.5 ft	8/22/2012	< 0.17	U
NSB-D4	NSB-D4-10.5-11.0	JB14404-6	10.5 - 11 ft	8/22/2012	0.57	
NSB-D4	NSB-D4-12.0-12.5	JB14404-5	12 - 12.5 ft	8/22/2012	1.1	
NSB-D4	NSB-D4-16.5-17.0	JB14404-4	16.5 - 17 ft	8/22/2012	0.64	
NSB-D4	NSB-D4-20.0-20.5	JB14404-3	20 - 20.5 ft	8/22/2012	1.1	
NSB-D5	NSB-D5-3.0-3.5	JB14201-11R	3 - 3.5 ft	8/20/2012	0.57	J
NSB-D5	NSB-D5-3.0-3.5X	JB14201-10	3 - 3.5 ft	8/20/2012	0.27	J
NSB-D5	NSB-D5-6.4-6.9	JB14201-9R	6.4 - 6.9 ft	8/20/2012	0.28	J
NSB-D5	NSB-D5-12.0-12.5	JB14201-8R	12 - 12.5 ft	8/20/2012	0.71	J
NSB-D5	NSB-D5-15.0-15.5	JB14201-7	15 - 15.5 ft	8/20/2012	0.22	J
NSB-D5	NSB-D5-18.0-18.5	JB14201-6	18 - 18.5 ft	8/20/2012	0.17	J
NSB-D5	NSB-D5-20.0-20.5	JB14201-5	20 - 20.5 ft	8/20/2012	0.71	J
NSB-E1	NSB-E1-2.0-2.5	JB14656-21	2 - 2.5 ft	8/24/2012	1.3	J
NSB-E1	NSB-E1-4.0-4.5	JB14656-19	4 - 4.5 ft	8/24/2012	9.2	J
NSB-E1	NSB-E1-10.0-10.5	JB14656-15	10 - 10.5 ft	8/24/2012	< 0.13	UJ
NSB-E1	NSB-E1-12.5-13.0	JB14656-14	12.5 - 13 ft	8/24/2012	0.17	J
NSB-E1	NSB-E1-16.0-16.5	JB14656-13	16 - 16.5 ft	8/24/2012	< 0.13	UJ
NSB-E1	NSB-E1-20.0-20.5	JB14656-12	20 - 20.5 ft	8/24/2012	< 0.13	UJ
NSB-E2	NSB-E2-1.0-1.5	JB14656-18	1 - 1.5 ft	8/24/2012	< 0.14	UJ
NSB-E2	NSB-E2-1.0-1.5X	JB14656-17	1 - 1.5 ft	8/24/2012	4.6	J
NSB-E2	NSB-E2-4.0-4.5	JB14656-16	4 - 4.5 ft	8/24/2012	4.8	J
NSB-E2	NSB-E2-12.5-13.0	JB14656-9	12.5 - 13 ft	8/24/2012	0.46	J
NSB-E2	NSB-E2-16.0-16.5	JB14656-8	16 - 16.5 ft	8/24/2012	< 0.13	UJ
NSB-E2	NSB-E2-21.0-21.5	JB14656-7	21 - 21.5 ft	8/24/2012	< 0.13	UJ
NSB-E3	NSB-E3-0.5-1.0	JB14656-11	0.5 - 1 ft	8/24/2012	1.2	J
NSB-E3	NSB-E3-4.0-4.5	JB14656-10	4 - 4.5 ft	8/24/2012	0.92	J
NSB-E3	NSB-E3-5.5-6.0	JB14656-6	5.5 - 6 ft	8/24/2012	< 0.17	UJ
NSB-E3	NSB-E3-10.0-10.5	JB14656-5	10 - 10.5 ft	8/24/2012	< 0.19	UJ
NSB-E3	NSB-E3-16.0-16.5	JB14656-4	16 - 16.5 ft	8/24/2012	< 0.14	UJ
NSB-E3	NSB-E3-20.0-20.5	JB14656-3	20 - 20.5 ft	8/24/2012	2.6	J
NSB-E4	NSB-E4-1.0-1.5	JB14656-2	1 - 1.5 ft	8/24/2012	1.3	J
NSB-E4	NSB-E4-4.0-4.5	JB14656-1	4 - 4.5 ft	8/24/2012	1.1	J
NSB-E4	NSB-E4-6.5-7.0	JB14769-11	6.5 - 7 ft	8/27/2012	< 0.18	U
NSB-E4	NSB-E4-12.0-12.5	JB14769-9	12 - 12.5 ft	8/27/2012	0.34	J
NSB-E4	NSB-E4-16.0-16.5	JB14769-8	16 - 16.5 ft	8/27/2012	0.21	J
NSB-E4	NSB-E4-16.0-16.5X	JB14769-7	16 - 16.5 ft	8/27/2012	0.39	J
NSB-E4	NSB-E4-21.0-21.5	JB14769-6	21 - 21.5 ft	8/27/2012	< 0.13	U
NSB-E5	NSB-E5-3.0-3.5	JB14201-12	3 - 3.5 ft	8/20/2012	0.82	J
NSB-F1	NSB-F1-1.0-1.5	JB14769-5	1 - 1.5 ft	8/27/2012	1.6	
NSB-F1	NSB-F1-4.0-4.5	JB14769-4	4 - 4.5 ft	8/27/2012	3.4	
NSB-F1	NSB-F1-10.0-10.5	JB14769-3	10 - 10.5 ft	8/27/2012	1.2	
NSB-F1	NSB-F1-16.0-16.5	JB14769-2	16 - 16.5 ft	8/27/2012	0.16	J
NSB-F1	NSB-F1-20.0-20.5	JB14769-1	20 - 20.5 ft	8/27/2012	< 0.14	U
NSB-F2	NSB-F2-1.0-1.5	JB14858-7	1 - 1.5 ft	8/28/2012	2.8	J
NSB-F2	NSB-F2-4.0-4.5	JB14858-6	4 - 4.5 ft	8/28/2012	2.6	J
NSB-F2	NSB-F2-10.5-11.0	JB14858-5	10.5 - 11 ft	8/28/2012	0.60	J
NSB-F2	NSB-F2-10.5-11.0X	JB14858-4R	10.5 - 11 ft	8/28/2012	3.3	J
NSB-F2	NSB-F2-15.0-15.5	JB14858-3	15 - 15.5 ft	8/28/2012	1.8	J
NSB-F2	NSB-F2-17.8-18.3	JB14858-2R	17.8 - 18.3 ft	8/28/2012	< 0.13	UJ
NSB-F2	NSB-F2-21.5-22.0	JB14858-1	21.5 - 22 ft	8/28/2012	0.74	J
NSB-F3	NSB-F3-1.0-1.5	JB14858-14R	1 - 1.5 ft	8/28/2012	1.3	J

Table 3
Analytical Results Summary Table
PPG Industries, Jersey City, New Jersey
Northern Morris Canal Investigation

				Analyte	CHROMIUM (HEXAVALENT)	
				CAS RN	18540-29-9	
				Units	mg/kg	
				MSSRS	**20**	
Location ID	Sample ID	Lab ID	Depth Interval	Collection Date	R	Q
NSB-F3	NSB-F3-4.0-4.5	JB14858-13R	4 - 4.5 ft	8/28/2012	7.7	J
NSB-F3	NSB-F3-10.0-10.5	JB14858-10R	10 - 10.5 ft	8/28/2012	1.3	J
NSB-F3	NSB-F3-15.0-15.5	JB14858-9R	15 - 15.5 ft	8/28/2012	1.8	J
NSB-F3	NSB-F3-20.0-20.5	JB14858-8R	20 - 20.5 ft	8/28/2012	3.8	J
NSB-F4	NSB-F4-0.0-0.5	JB14858-18R	0 - 0.5 ft	8/28/2012	3.1	J
NSB-F4	NSB-F4-6.0-6.5	JB14858-16	6 - 6.5 ft	8/28/2012	0.53	J
NSB-F4	NSB-F4-10.0-10.5	JB14858-15R	10 - 10.5 ft	8/28/2012	2.0	J
NSB-F4	NSB-F4-16.0-16.5	JB14858-12R	16 - 16.5 ft	8/28/2012	0.72	J
NSB-F4	NSB-F4-20.0-20.5	JB14858-11	20 - 20.5 ft	8/28/2012	0.60	J
NSB-F5	NSB-F5-0.0-0.5	JB14201-4R	0 - 0.5 ft	8/20/2012	0.67	J
NSB-F5	NSB-F5-4.0-4.5	JB14201-3R	4 - 4.5 ft	8/20/2012	0.86	J
NSB-F5	NSB-F5-8.0-8.5	JB14201-2R	8 - 8.5 ft	8/20/2012	< 0.14	UJ
NSB-F5	NSB-F5-12.0-12.5	JB14201-1R	12 - 12.5 ft	8/20/2012	2.5	J
NSB-F5	NSB-F5-16.0-16.5	JB14312-15R	16 - 16.5 ft	8/21/2012	0.40	J
NSB-F5	NSB-F5-20.0-20.5	JB14312-13R	20 - 20.5 ft	8/21/2012	0.49	J
NTB-B2	NTB-B2-2.0	460-31791-3	2 - 2.5 ft	9/28/2011	< 0.56	U
NTB-C1	NTB-C1-11.0	460-31791-2	11 - 11.5 ft	9/28/2011	< 0.61	U
NTB-C2	NTB-C2-12.0	460-31791-1	12 - 12.5 ft	9/28/2011	< 0.80	U

Notes:

All results are reported in milligrams per kilogram (mg/kg).

Depths are presented in feet below ground surface (bgs).

CAS-RN = Chemical Abstract Service Registry Number.

Sample Type = N indicates normal original sample; FD indicates duplicate sample.

CrSCC = Chromium Soil cleanup Criteria

Bold values indicate that the result exceeds the CrSCC.

B - Indicates that the analyte was detected at a concentration less than the Practical Quantitation Limit but greater than or equal to the Instrument Detection Limit.

E - Indicates that the value is estimated because of the presence of interference.

J - Indicates that the analyte was detected at a concentration less than the Method Detection Limit and is estimated.

M - Indicates a non-detect result exceeding either the CrSCC.

N - Indicates that the sample recovery is not within control limits.

R - Indicates that the result for this analyte has been rejected.

U - Indicates that the analyte was not detected at the reported Method Detection Limit.

* - Indicates that the duplicate analysis not within control limits.

A blank result value indicates the analysis was not requested.

AECOM

Table 4
Analytical Methods/Quality Assurance Summary Table
PPG Industries, Jersey City, New Jersey
Northern Morris Canal Investigation

Parameter	Laboratory	Method [1]	Container	Preservation	Holding Time	Number Collected				
						Samples	Field Duplicates	Trip Blanks[2]	Field Blanks[3]	MS/MSD
PPG North Canal Borings from 2011										
Hexavalent Chromium[4,5]	Test America Laboratories, Edison NJ	SW846 3060A/7196A	1 x 8 oz. glass	Cool 4°C (± 2 °C)	30 days to extract, 24 hr from extraction to analysis	3	0	-	0	1
Eh[5]		Standard Methods(SM) 2580	1 x 4-oz. glass jar	Cool 4°C (± 2 °C)	At time of extraction for Cr+6	3	0	-	0	-
pH[5]		SW846 9045C	1 x 4-oz. glass jar	Cool 4°C (± 2 °C)		3	0	-	0	-
TAL Metals		SW846 3050B/ 6020	1 x 4-oz. glass jar	Cool 4°C (± 2 °C)	180 days	3	0	-	0	1
Mercury		SW846 7471			28 days	3	0	-	0	1
PPG North Canal Borings from 2012										
Hexavalent Chromium[4,5]	Accutest Laboratories, Dayton, NJ	SW846 3060A/7196A	1 x 8 oz. glass	Cool 4°C (± 2 °C)	30 days to extract, 24 hr from extraction to analysis	122	6	-	6	6
Eh[5]		D1498-76	1 x 4-oz glass jar	Cool 4°C (± 2 °C)	At time of extraction for Cr+6	81	4	-	6	-
pH[5]		SM 4500B	1 x 4-oz. glass jar	Cool 4°C (± 2 °C)		81	4	-	6	-

Notes

1. The laboratory held NJ certification at the time of analysis for the methods indicated pursuant to N.J.A.C. 7:18.
2. Trip Blanks applicable to VOCs only.
3. For soils, field blanks were collected either once per day or 10% of the total number of samples collected, but not more than once per day.
4. Hexavalent chromium ("Cr^{+6}") sample analysis included pH and Eh (oxidation reduction potential). The pH and Eh were not validated, but rather the information was used in the Cr^{+6} validation.
5. Sulfide, Total Organic Carbon ("TOC"), pH, Eh, and Ferrous Iron were analyzed on a case-by-case basis when the Cr^{+6} MS analysis did not meet the acceptable QC criteria. These parameters were not validated, but rather the information was used in the Cr^{+6} validation.

Appendix A

Boring Logs

2011 Northern Canal Boring Logs

AECOM
30 Knightsbridge Road, Piscataway, NJ 08854
732.564.3200 office telephone

Boring ID: NTB-A1

Project Name: Northern Transect Borings	**Drilling Company:** SGS	
Project Number: 60213772	**Drilling Method:** Geoprobe/Vactor	**Coordinates (NJSPNAD83) x:**
Date Started Drilling: 9/28/2011	**Rig Type:** 6610DT/Vactor	**Coordinates (NJSPNAD83) y:**
Date Finished Drilling: 9/29/2011	**Core Size:** 2 in	**Boring Total Depth:** 15 ft
Logged By: M. Merdinger	**Project Manager:** Robert Cataldo	**Depth to Water:** 10.0 ft
Physical Location: Berry Lane		

(Note bgs = below ground surface)

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	GA Class	USCS	Graphic Log	Surface Cover and Thickness:	Sample Number
1		0	dry	1	Fill		White CONCRETE, dense. No odor.	
			dry	3	Fill		Tan (7.5YR 4/6) fine to medium SAND, little rounded fine Gravel, loose. No odor.	
2		0	moist	3	Fill		Brown (10YR 4/3) fine to medium SAND, some Silt, little fine to coarse Gravel and Fill (brick, concrete), trace Ash at 5.0 ft, loose. Slight sweet odor.	
3		0						
4		0						
5	0.9	0.2						
6								
7			moist	3	Fill		No Recovery	
8								
9								
10	3.3	43.2						
11		1.1	wet	3	Fill		Brown (10YR 4/3) fine to medium SAND, some Silt, little fine to coarse Gravel and Fill (brick, concrete), trace ash, loose. Tar odor.	
12		0	moist	10	SP-GP		Weak Red (10YR 4/4) fine SAND and rounded GRAVEL, dense. Slight Tar odor.	
			wet	10	SP		Reddish Brown (2.5YR 4/4) fine to medium SAND, trace coarse Sand, loose. Slight Tar odor.	
13								
14			wet	10	SP		No Recovery	
15								
16							End of boring at 15 ft.	
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								
32								
33								
34								
35								

Comments: No COPR/GGM identifited at this location. No canal bottom encountered.

AECOM
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Boring ID: NTB-A2

Project Name: Northern Transect Borings	**Drilling Company:** SGS	
Project Number: 60213772	**Drilling Method:** Geoprobe/Vactor	**Coordinates (NJSPNAD83) x:**
Date Started Drilling: 9/27/2011	**Rig Type:** 6610DT/Vactor	**Coordinates (NJSPNAD83) y:**
Date Finished Drilling: 9/29/2011	**Core Size:** 2 in	**Boring Total Depth:** 20 ft
Logged By: M. Merdinger	**Project Manager:** Robert Cataldo	**Depth to Water:** 6.5 ft
Physical Location: Berry Lane		

(Note bgs = below ground surface)

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	GA Class	USCS	Graphic Log	Surface Cover and Thickness:	Sample Number
1		0	dry	1	Fill		White CONCRETE, dense. No odor.	
			dry	3	Fill		Very Dark Grayish Brown (10YR 3/2) SILT, some fine Sand,	
2		0	dry	3	Fill		trace fine angular Gravel, loose. No odor.	
			moist	3	Fill		Black ASPHALT, dense. No odor.	
3		0					Reddish Gray (2.5YR 4/1) SILT, some to little fine to medium	
4		0					Sand, little Fill (concrete, cobbles, brick), loose. No odor.	
5	2	0						
6		0	moist	6	Fill		Very Dark Gray (Gley1 3/0) to Black fine SAND and Ash, some	
			to				Cinders, little Silt and Fill (glass, brick), soft/loose, moist to wet	
7			wet				at 6.5ft. No odor	
			wet	6	Fill		No Recovery	
8								
9								
10	1.8	0.1						
11		0	wet	6	Fill		Very Dark Gray (Gley1 3/0) to Black fine SAND and Ash, some	
							Cinders, little Silt and Fill (glass, brick), soft/loose. No odor	
			wet	12	CANAL		Black (2.5Y 2.5/1) Silty CLAY, little Cinders and Fill (glass), soft.	
12			moist	10	BOTTOM		No odor. (Canal bottom)	
			moist	10	SM		Dark Brown (10YR 3/3) fine SAND and Silt, slight mottling,	
13					SM		medium dense. No odor.	
14							No Recovery	
15	2.8	0						
16		0	wet	10	SM-SP		Dark Brown (10YR 3/3) fine to coarse SAND and fine to medium	
			moist	10	SM		angular Gravel, some Silt, dense. No odor.	
17		0					Weak Red (10YR 4/4) medium to fine SAND and Silt, some	
18							sub-round fine Gravel, dense. No odor.	
			moist	10	SM		No Recovery	
19								
20								
21							End of boring at 20 ft.	
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								
32								
33								
34								
35								

Comments: No COPR/GGM identifited at this location. Canal bottom encountered at 10.9 ft.

AECOM
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Boring ID: NTB-A3

Project Name: Northern Transect Borings	**Drilling Company:** SGS	
Project Number: 60213772	**Drilling Method:** Geoprobe/Vactor	**Coordinates (NJSPNAD83) x:**
Date Started Drilling: 9/27/2011	**Rig Type:** 6610DT/Vactor	**Coordinates (NJSPNAD83) y:**
Date Finished Drilling: 9/29/2011	**Core Size:** 2 in	**Boring Total Depth:** 20 ft
Logged By: M. Merdinger	**Project Manager:** Robert Cataldo	**Depth to Water:** 10.0 ft
Physical Location: Berry Lane		

(Note bgs = below ground surface)

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	GA Class	USCS	Graphic Log	Surface Cover and Thickness:	Sample Number
1		0	dry	1	Fill		White CONCRETE, dense. No odor.	
2		0	moist to wet	6	Fill		Dark Grayish Brown (10YR 4/2) SILT, some Ash, little fine Coal Fragments and coarse Fill (brick, concrete), loose, moist to wet at 4.5ft. No odor.	
3		0						
4		0						
5	2.25	0.1						
6		0.1	moist to wet	6	Fill		Black CINDERS and FILL Material (glass, brick, ceramics), little Silt and fine to medium Sand, trace Ash, medium dense. No odor.	
7		0.1						
8			wet	6	Fill		No Recovery	
9								
10	2	0.1						
11		0.1	wet	6	Fill		White to Gray (Gley1 5/0) ASH and SILT, soft. No odor.	
12			wet	3	Fill		Black SILT, soft. Slight Napthalene odor.	
13			wet	3	Fill		No Recovery	
14								
15	2.75	4.7						
16		0.1	wet	12	CANAL BOTTOM SP		Black (2.5Y 2.5/1) Silty CLAY, little medium angular Gravel, trace fine Sand, soft. Napthalene odor and sheen. (Canal bottom)	
17		0	wet	10			Dark Brown (10YR 3/3) fine to coarse SAND and fine to medium angular Gravel, some Silt, loose. No odor.	
18			moist	10	SM		Weak Red (10YR 4/4) medium to fine SAND and Silt, some sub-rounded fine Gravel, dense. No odor.	
19			moist	10	SM		No Recovery	
20								
21							End of boring at 20 ft.	
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								
32								
33								
34								
35								

Comments: No COPR/GGM identifited at this location. Canal bottom encountered at 17.5 ft.

PPG - GINT STD US LAB.GDT - 3/6/12 16:09 - C:\DOCUMENTS AND SETTINGS\STANCHAK\MMY DOCUMENTS\MY EQUIS WORK\PPG_JERSEY\GARFIELD AVENUE GROUP OF SITES\NTB BORINGS.GPJ

AECOM
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732.564.3200 office telephone

Boring ID: NTB-A4

Project Name: Northern Transect Borings	**Drilling Company:** SGS	
Project Number: 60213772	**Drilling Method:** Geoprobe/Vactor	**Coordinates (NJSPNAD83) x:**
Date Started Drilling: 9/27/2011	**Rig Type:** 6610DT/Vactor	**Coordinates (NJSPNAD83) y:**
Date Finished Drilling: 9/29/2011	**Core Size:** 2 in	**Boring Total Depth:** 15 ft
Logged By: M. Merdinger	**Project Manager:** Robert Cataldo	**Depth to Water:** 5.7 ft
Physical Location: Berry Lane		

(Note bgs = below ground surface)

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	GA Class	USCS	Graphic Log	Surface Cover and Thickness:	Sample Number
1		0	dry	1	Fill		White CONCRETE, dense. No odor.	
2		0	moist	3	Fill		Brown (10YR 4/3) SILT, some very fine Sand, little fine rounded Gravel, trace coarse Sand, loose. No odor	
3		0						
4		0	moist	3	Fill		Brown (10YR 3/3) SILT, some interbedded very fine Sand, little fine rounded Gravel, trace coarse Sand, loose. No odor	NTB-A4-5.0
5	2.3	0						
6		0	moist	3	Fill		COBBLE - Refusal for Soft Dig at 4.9 ft.	
7		0	moist	3	Fill		Dark Brown (10YR 3/3) to Reddish Brown (2.5YR 4/4) SILT, some fine Sand, little fine to medium angular Gravel, trace Fill (ceramic, brick), medium dense. No odor.	
8			wet to moist	9	SP-CL		Strong Brown (7.5YR 5/6) fine to medium SAND, graded to fine Sandy CLAY, loose to stiff, wet to moist at 6.8ft. No odor.	
9			moist	9	SP-CL		No Recovery	
10	5	0						
11		0	wet	9	CL		Strong Brown (7.5YR 5/6) fine Sandy CLAY, soft to stiff at 12.8ft. No odor.	
12		0						
13		0						
14		0	moist	10	SM-SP		Weak Red (10YR 4/4) fine to medium SAND, some fine to medium angular Gravel (red mudstone), trace Silt, trace Reddish Yellow (7.5YR 6/6) mottling, dense. No odor.	
15								
16							End of boring at 15 ft.	
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								
32								
33								
34								
35								

Comments: No COPR/GGM identifited at this location. No canal bottom encountered.

AECOM
30 Knightsbridge Road, Piscataway, NJ 08854
732.564.3200 office telephone

Boring ID: NTB-A5

Project Name: Northern Transect Borings	**Drilling Company:** SGS	
Project Number: 60213772	**Drilling Method:** Vactor	**Coordinates (NJSPNAD83) x:**
Date Started Drilling: 9/27/2011	**Rig Type:** Vactor	**Coordinates (NJSPNAD83) y:**
Date Finished Drilling: 9/27/2011	**Core Size:** 2 in	**Boring Total Depth:** 5 ft
Logged By: M. Merdinger	**Project Manager:** Robert Cataldo	**Depth to Water:** 3.0 ft
Physical Location: Berry Lane		

(Note bgs = below ground surface)

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	GA Class	USCS	Graphic Log	Surface Cover and Thickness:	Sample Number
1		0	dry	3	Fill		Black TOPSOIL and organics (grass), loose. No odor.	
			moist	3	Fill		Dark Grayish Brown (10YR 4/2), SILT, little fine to medium Sand, trace fine rounded Gravel and Fill (brick), loose. No odor.	
2		0						
3		0						
4		0	wet	3	Fill		Dark Grayish Brown (10YR 4/2), SILT, little fine to medium Sand, trace fine rounded Gravel and Fill (brick), loose. No odor.	
5								
							End of boring at 5 ft.	
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
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21								
22								
23								
24								
25								
26								
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28								
29								
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31								
32								
33								
34								
35								

Comments: No COPR/GGM identifited at this location. No canal bottom encountered.

AECOM
30 Knightsbridge Road, Piscataway, NJ 08854
732.564.3200 office telephone

Boring ID: NTB-B1

Project Name: Northern Transect Borings	**Drilling Company:** SGS	
Project Number: 60213772	**Drilling Method:** Geoprobe	**Coordinates (NJSPNAD83) x:**
Date Started Drilling: 9/30/2011	**Rig Type:** 7720DT	**Coordinates (NJSPNAD83) y:**
Date Finished Drilling: 9/30/2011	**Core Size:** 2 in	**Boring Total Depth:** 15 ft
Logged By: M. Merdinger	**Project Manager:** Robert Cataldo	**Depth to Water:** 6.5 ft
Physical Location: Berry Lane		

(Note bgs = below ground surface)

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	GA Class	USCS	Graphic Log	Surface Cover and Thickness:	Sample Number
1	2.25	0	dry	3	Fill		Black TOPSOIL and organics, loose. No odor.	
			dry	6	Fill		Grayish Brown (10YR 3/2) fine to medium Sandy SILT and FILL Material (brick, concrete, ash), interbedded, loose to dense, dry to moist at 1.5ft. No odor.	
2		0						
			moist	3	Fill			
3			moist	3	Fill		Brown (10YR3/3) SILT, little fine to medium Sand and crushed Fill Material (brick, glass), loose. No odor	
4							No Recovery	
5	2.5	0						
6		0	moist	3	Fill		Brown (10YR3/3) SILT, little fine to medium Sand and crushed Fill Material (brick, glass), loose. No odor.	
			moist	9	SM		Strong Brown (7.5YR 5/6) SILT and fine Sand, trace Clay, soft, moist to wet at 6.5ft. No odor.	
7			wet	11	GP-SM		Reddish Brown and Green (5YR 3/2) medium to coarse GRAVEL, little Silt and medium Sand, medium dense. No odor.	
8			wet	11	GP-SM		No Recovery	
9								
10	3.5	0						
11		0	wet	11	GP-SM		Reddish Brown and Green (5YR 3/2) medium to coarse GRAVEL, little fine-coarse Silty Sand, medium dense. No odor.	
12		0	wet	9	SM-CL		Grayish Brown (10YR 3/2) SILT and fine SAND, graded to Silty Clay, soft to medium stiff. No odor.	
13								
14			moist	7	PT		Dark Brown (10YR 4/3) SILT and Organics, trace Wood, very loose. No odor.	
			moist	7	PT		No Recovery	
15								
16							End of boring at 15 ft.	
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								
32								
33								
34								
35								

Comments: No COPR/GGM identifited at this location. No canal bottom encountered.

AECOM
30 Knightsbridge Road, Piscataway, NJ 08854
732.564.3200 office telephone

Boring ID: NTB-B2

Project Name: Northern Transect Borings	**Drilling Company:** SGS	
Project Number: 60213772	**Drilling Method:** Geoprobe	**Coordinates (NJSPNAD83) x:**
Date Started Drilling: 9/28/2011	**Rig Type:** 7720DT	**Coordinates (NJSPNAD83) y:**
Date Finished Drilling: 9/28/2011	**Core Size:** 2 in	**Boring Total Depth:** 15 ft
Logged By: M. Merdinger	**Project Manager:** Robert Cataldo	**Depth to Water:** 5.5 ft
Physical Location: Berry Lane		

(Note bgs = below ground surface)

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	GA Class	USCS	Graphic Log	Surface Cover and Thickness:	Sample Number
1	2.5	0	dry	3	Fill		Gray (2.5Y 5/1) fine to medium angular GRAVEL, loose. No odor.	
			dry	3	Fill			
2		0	moist	3	Fill		Black (2.5Y 2.5/1) SILT and fine angular Gravel, little Brick and Concrete, dense. No odor	NTB-B2-2.0
3			moist	3	Fill		Brown (10YR 4/3) SILT, some interbedded fine Sand, little Brick fragments, trace Shells, medium dense. No odor.	
4							No Recovery	
5	1	0						
6			wet	3	Fill		Reddish Brown (2.5YR 4/3) SILT, little fine angular Gravel, little interbedded Cinders, loose, moist to wet at 5.5ft. No odor.	
7			wet	3	Fill		No Recovery	
8								
9								
10	1.8	0						
11		0	wet	6	FILL		Black-stained SILT and Cinders, little coal fragments and fine to medium Sand, soft/loose. No odor	
			wet	12	CANAL			
12			wet	11	BOTTOM		Black (2.5Y 2.5/1) CLAY, little Silt, trace Gravel from 10.9 ft to 11.0 ft, soft, cohesive. No odor. (Canal bottom)	
13			wet	11	GP		Reddish Brown (5YR 3/2) medium angular GRAVEL, dense. No odor.	
14					GP		No Recovery	
15								
16							End of boring at 15 ft.	
17								
18								
19								
20								
21	2.5							
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								
32								
33								
34								
35								

Comments: No COPR/GGM identifited at this location. Canal bottom encountered at 10.9 ft.

AECOM
30 Knightsbridge Road, Piscataway, NJ 08854
732.564.3200 office telephone

Boring ID: NTB-B3

Project Name: Northern Transect Borings	**Drilling Company:** SGS	
Project Number: 60213772	**Drilling Method:** Geoprobe	**Coordinates (NJSPNAD83) x:**
Date Started Drilling: 9/28/2011	**Rig Type:** 7720DT	**Coordinates (NJSPNAD83) y:**
Date Finished Drilling: 9/28/2011	**Core Size:** 2 in	**Boring Total Depth:** 20 ft
Logged By: M. Merdinger	**Project Manager:** Robert Cataldo	**Depth to Water:** 7.0 ft
Physical Location: Berry Lane		

(Note bgs = below ground surface)

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	GA Class	USCS	Graphic Log	Surface Cover and Thickness:	Sample Number
1	3.4	0	dry	3	Fill		Gray (2.5Y 5/1) fine to medium angular GRAVEL, loose. No odor.	
2	3.4	0	dry	3	Fill		Reddish Brown (5YR 3/2) to Very Dark Gray (10YR 3/1) fine to medium SAND, little Cinders, Fill (concrete, brick, ceramics) and Silt, medium dense, dry to moist at 3.0ft. No odor.	
3		0						
4			moist	3	Fill		No Recovery	
5	3.4	0						
6		0	moist	3	Fill		Reddish Brown (5YR 3/2) to Very Dark Gray (10YR 3/1) fine to medium SAND, little Cinders, Fill (concrete, brick, ceramics) and Silt, medium dense. No odor.	
7		0	moist	6	Fill		White (10YR 8/1) SILT and ASH, soft. No odor.	
8			wet	3	Fill		Brown (10YR 4/3) SILT and fine to medium Sand, some fine angular Gravel (mudstone), soft. No odor.	
9			wet	3	Fill		No Recovery	
10	1.5	0						
11			wet	3	Fill		Brown (10YR 4/3) SILT and fine to medium Sand, some fine angular Gravel (mudstone), soft. No odor.	
12			wet	3	Fill		No Recovery	
13								
14								
15	3.5	0						
16		0	wet	3	Fill		Brown (10YR 4/3) fine to medium SAND, some Silt and fine sub-angular Gravel, soft. No odor.	
17		0						
18			wet	3	CANAL BOTTOM		Black (2.5Y 2.5/1) CLAY, little Silt, trace fine angular Gravel from 17.5ft to 17.7ft, medium stiff, cohesive. No odor. (Canal bottom)	
19			wet	3	Fill		No Recovery	
20							End of boring at 20 ft.	
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								
32								
33								
34								
35								

Comments: No COPR/GGM identifited at this location. Canal bottom encountered at 17.5 ft.

AECOM
30 Knightsbridge Road, Piscataway, NJ 08854
732.564.3200 office telephone

Boring ID: NTB-B4

Project Name: Northern Transect Borings	**Drilling Company:** SGS	
Project Number: 60213772	**Drilling Method:** Geoprobe	**Coordinates (NJSPNAD83) x:**
Date Started Drilling: 9/28/2011	**Rig Type:** 7720DT	**Coordinates (NJSPNAD83) y:**
Date Finished Drilling: 9/28/2011	**Core Size:** 2 in	**Boring Total Depth:** 20 ft
Logged By: M. Merdinger	**Project Manager:** Robert Cataldo	**Depth to Water:** 7.0 ft
Physical Location: Berry Lane		

(Note bgs = below ground surface)

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	GA Class	USCS	Graphic Log	Surface Cover and Thickness:	Sample Number
1	3.3	0	dry	3	Fill		Black (7.5YR 2.5/1) SILT and fine Sand, some fine angular Gravel, medium dense. No odor.	
2		0	dry	3	Fill		Weak Red (5YR 4/4) fine SAND, interbedded with some Concrete and little Black Cinders, medium dense. No odor.	
3		0						
4			dry	3	Fill		No Recovery	
5	3.6	0						
6		0	dry	3	Fill		Weak Red (5YR 4/4) fine SAND, interbedded with some Concrete and little Black Cinders, medium dense. No odor.	
7		0	moist	6	Fill		Black (7.5YR 2.5/1) and Brown (10YR 4/3) interbedded CINDERS and Silt, some fine angular Gravel, little fine to coarse Sand, medium dense. No odor.	
8								
9			moist	6	Fill		No Recovery	
10	3.4	0						
11		0	wet	6	Fill		Black (7.5YR 2.5/1) and Brown (10YR 4/3) interbedded CINDERS and SILT, some fine to coarse Sand, little fine angular Gravel, medium dense. No odor.	
12		0						
13			wet	12	CANAL BOTTOM		Black (2.5Y 2.5/1) CLAY, little Silt, soft, cohesive. No odor. (Canal bottom)	
			wet	8	CL		Reddish Brown-Gray (10R 3/1) Silty CLAY, little fine Sand, trace fine angular Gravel from 13.0ft to 13.4ft, medium dense. No odor.	
14			wet	8	CL			
15	2.5	0					No Recovery	
16		0	wet	10	SM-GP		Reddish Brown (5YR 4/3) mottled Green SILT and fine to medium angular Gravel, some fine Sand, dense. No odor.	
17								
18			wet	10	SM-GP		No Recovery	
19								
20								
21							End of boring at 20 ft.	
22								
23								
24								
25								
26								
27								
28								
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32								
33								
34								
35								

Comments: No COPR/GGM identifited at this location. Canal bottom encountered at 12.0 ft.

AECOM
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732.564.3200 office telephone

Boring ID: NTB-B5

Project Name: Northern Transect Borings	**Drilling Company:** SGS	
Project Number: 60213772	**Drilling Method:** Geoprobe	**Coordinates (NJSPNAD83) x:**
Date Started Drilling: 9/30/2011	**Rig Type:** 7720DT	**Coordinates (NJSPNAD83) y:**
Date Finished Drilling: 9/30/2011	**Core Size:** 2 in	**Boring Total Depth:** 15 ft
Logged By: M. Merdinger	**Project Manager:** Robert Cataldo	**Depth to Water:** 5.0 ft
Physical Location: Berry Lane		

(Note bgs = below ground surface)

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	GA Class	USCS	Graphic Log	Surface Cover and Thickness:	Sample Number
1	3	0	dry	6	Fill		Black (7.5YR 2.5/1) SILT, some Fill (coal, brick, wood, glass), trace to little fine angular Gravel, loose, dry to moist at 1.4ft. No odor.	
2		0						
3		0.3	moist	6	Fill		Brown (10YR 3/3) fine crushed FILL (glass, coal, ceramics, brick) and Silt, little fine to coarse Sand, loose. No odor.	
4			moist	6	Fill		No Recovery	
5	3.5	0						
6		0	wet	6	Fill		Brown (10YR 3/3) fine crushed FILL (glass, coal, ceramics, brick) and SILT, little fine to coarse Sand, loose. No odor.	
7		0	wet	8	ML-SM		Grayish Brown (10YR 3/2) fine to medium SILT and Sand, graded, trace Shells at 5.7ft, soft/loose. No odor.	
8			moist	9	CH		Grayish Brown (10YR 3/2) CLAY, trace to little Silt, cohesive, stiff. No odor.	
9			moist	9	CH		No Recovery	
10	4	0						
11		0	moist	9	ML		Gray (Gley1 5/0) SILT, trace to little Clay, trace fine angular Shell fragments, mottled, very stiff. No odor.	
12		0						
13		0						
14			wet	10	SM-SP		Strong Brown (7.5YR 5/6) fine to medium SAND, little Silt, Weak Red (10R 4/4) mottling, loose. No odor.	
15			wet	10	SM-SP		No Recovery	
16							End of boring at 20 ft.	
17								
18								
19								
20								
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23								
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Comments: No COPR/GGM identifited at this location. No canal bottom encountered.

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Boring ID: NTB-C1

Project Name: Northern Transect Borings	**Drilling Company:** SGS	
Project Number: 60213772	**Drilling Method:** Geoprobe	**Coordinates (NJSPNAD83) x:**
Date Started Drilling: 9/28/2011	**Rig Type:** 6610DT	**Coordinates (NJSPNAD83) y:**
Date Finished Drilling: 9/28/2011	**Core Size:** 2 in	**Boring Total Depth:** 20 ft
Logged By: M. Merdinger	**Project Manager:** Robert Cataldo	**Depth to Water:** 10.0 ft
Physical Location: Berry Lane		

(Note bgs = below ground surface)

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	GA Class	USCS	Graphic Log	Surface Cover and Thickness:	Sample Number
1	2.5	0	dry	3	Fill		Grayish Brown (2.5Y 5/2) medium angular GRAVEL, loose. No odor.	
			dry	6	Fill			
2		0	moist	3	Fill		Reddish Brown (2.5YR 4/3) fine to medium SAND, some Cinders and Coal fragments, little Silt, loose. No odor.	
3			moist	3	Fill		Red BRICK foundation interbedded with Dark Reddish Brown (5YR 3/2) fine SAND and fine rounded Gravel, medium dense. No odor.	
4								
5	2.4	0					No Recovery	
6		0	moist	3	Fill		Red BRICK foundation interbedded with Dark Reddish Brown (5YR 3/2) fine SAND and fine rounded Gravel, medium dense. No odor.	
7			moist	3	Fill		Dark Brown (7.5YR 3/2) SILT and fine Sand, little sub-rounded Gravel, medium dense. Slight napthalene odor.	
8			moist	3	Fill		No Recovery	
9								
10	3	0						
11		0	wet	3	Fill		Dark Brown (7.5YR 3/2) SILT and fine Sand, little sub-rounded Gravel, soft. Slight napthalene odor.	NTB-C1-11.0
12		0						
13								
14			wet	3	Fill		No Recovery	
15	3	0						
16		0	wet	3	Fill		Dark Brown (7.5YR 3/2) SILT and fine Sand, little sub-rounded Gravel, soft. Slight napthalene odor.	
17		12.4						
18			wet	12	CANAL		Black-stained CLAY and fine angular Gravel, some Wood, soft. Strong napthalene odor and sheen. (Canal bottom)	
			moist	10	BOTTOM			
19			moist	10	SM-GP		Dark Reddish Brown (5YR 3/2) and Teal fine to medium SAND, little fine angular Gravel and Silt, dense. No odor.	
20					SM-GP		No Recovery	
21							End of boring at 20 ft.	
22								
23								
24								
25								
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35								

Comments: No COPR/GGM identifited at this location. Canal bottom encountered at 17.0 ft.

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Boring ID: NTB-C2

Project Name: Northern Transect Borings	**Drilling Company:** SGS	
Project Number: 60213772	**Drilling Method:** Geoprobe	**Coordinates (NJSPNAD83) x:**
Date Started Drilling: 9/28/2011	**Rig Type:** 7720DT	**Coordinates (NJSPNAD83) y:**
Date Finished Drilling: 9/28/2011	**Core Size:** 2 in	**Boring Total Depth:** 15 ft
Logged By: M. Merdinger	**Project Manager:** Robert Cataldo	**Depth to Water:** 6.5 ft
Physical Location: Berry Lane		

(Note bgs = below ground surface)

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	GA Class	USCS	Graphic Log	Surface Cover and Thickness:	Sample Number
1	2.8	0	dry	3	Fill		Dark Brown (7.5YR 3/2) SILT, some fine angular Gravel, loose. No odor.	
2		0	moist	6	Fill		Reddish Brown (2.5YR 4/3) fine SAND, little fine angular Gravel, interbedded with some Cinders and Brick, medium dense, dry to moist at 1.0ft. No odor.	
3								
4			moist	6	Fill		No Recovery	
5	3.5	0						
6		0	moist	6	Fill		Reddish Brown (2.5YR 4/3) fine SAND, little fine angular Gravel, interbedded with some Cinders and Brick, medium dense. No odor.	
7		0	wet	6	Fill		Gray (Gley1 5/0) to White medium to coarse CINDERS and ASH, some interbedded White Silt and Ash, loose/soft. No odor.	
8								
9			wet	6	Fill		No Recovery	
10	4	0						
11		0	wet	6	Fill		Gray (Gley 1 5/0) to White CINDERS and ASH, some interbedded White Silt and Ash, loose/soft, wet. No odor.	
12		0						NTB-C2-12.0
13		0						
14			wet	12	CANAL		Black CLAY, soft. No odor. (Canal bottom)	
15			wet	12	BOTTOM Fill		No Recovery	
16							End of boring at 15 ft.	
17								
18								
19								
20								
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22								
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33								
34								
35								

Comments: No COPR/GGM identifited at this location. Canal bottom encountered at 13.5 ft.

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Boring ID: NTB-C3

Project Name: Northern Transect Borings	**Drilling Company:** SGS	
Project Number: 60213772	**Drilling Method:** Geoprobe	**Coordinates (NJSPNAD83) x:**
Date Started Drilling: 9/28/2011	**Rig Type:** 7720DT	**Coordinates (NJSPNAD83) y:**
Date Finished Drilling: 9/28/2011	**Core Size:** 2 in	**Boring Total Depth:** 20 ft
Logged By: M. Merdinger	**Project Manager:** Robert Cataldo	**Depth to Water:** 6.5 ft
Physical Location: Berry Lane		

(Note bgs = below ground surface)

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	GA Class	USCS	Graphic Log	Surface Cover and Thickness:	Sample Number
1	2.2	0	dry	3	Fill		Black (2.5Y 2.5/1) fine angular GRAVEL and Silt, little fine to medium Sand, loose. No odor.	
2		0	moist	6	Fill		Black (2.5Y 2.5/1) medium to coarse CINDERS interbedded with Reddish Brown (2.5YR 4/3) SILT and fine rounded Gravel, some Concrete and Brick, dense. No odor.	
3			moist	6	Fill		No Recovery	
4								
5	4	0						
6		0	moist to wet	6	Fill		Black (2.5Y 2.5/1) medium to coarse CINDERS interbedded with Reddish Brown (2.5YR 4/3) SILT and fine rounded Gravel, some Concrete and Brick, dense. Wet at 6.5 ft. No odor.	
7		0						
8		0	wet	6	Fill		Black (2.5Y 2.5/1) medium to coarse CINDERS interbedded with White SILT and Ash, soft to loose. No odor.	
9								
10	3.2	0	wet	6	Fill		No Recovery	
11		0	wet	6	Fill		Black (2.5Y 2.5/1) medium to coarse CINDERS interbedded with White SILT and Ash, soft to loose. No odor.	
12		0.4						
13			wet	6	Fill		Black (2.5Y 2.5/1) CLAY and medium to coarse CINDERS, little Wood Fragments and fine to medium Sand, soft. No odor.	
14			wet	6	Fill		No Recovery	
15	3	0						
16		0	wet	6	Fill		Black (2.5Y 2.5/1) CLAY and medium to coarse CINDERS, little Wood Fragments and fine to medium Sand, soft. No odor.	
			wet	12	Fill			
17		0	wet	9	SP		Stained-Black CLAY, soft. No odor. (Canal bottom)	
18			moist	10	CL		Reddish Brown (5YR 4/4) and Gray (Gley 1 5/0) very fine Sand, trace Silt, medium dense. No odor.	
19			moist	10	CL		Strong Brown (7.5YR 5/6) CLAY and very fine Sand, dense. No odor.	
20							No Recovery	
21							End of boring at 20 ft.	
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								
32								
33								
34								
35								

Comments: No COPR/GGM identifited at this location. Canal bottom encountered at 15.5 ft.

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Boring ID: NTB-C4

Project Name: Northern Transect Borings	**Drilling Company:** SGS	
Project Number: 60213772	**Drilling Method:** Geoprobe	**Coordinates (NJSPNAD83) x:**
Date Started Drilling: 9/29/2011	**Rig Type:** 7720DT	**Coordinates (NJSPNAD83) y:**
Date Finished Drilling: 9/29/2011	**Core Size:** 2 in	**Boring Total Depth:** 15 ft
Logged By: M. Merdinger	**Project Manager:** Robert Cataldo	**Depth to Water:** 5.5 ft
Physical Location: Berry Lane		

(Note bgs = below ground surface)

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	GA Class	USCS	Graphic Log	Surface Cover and Thickness:	Sample Number
1	2.5	0	dry	3	Fill		Brown (10YR 3/3) SILT, some fine to coarse Sand and Brick Foundation, medium dense. No odor.	
2		0	dry	6	Fill		Black (2.5Y 2.5/1) ASH and medium to coarse Cinders, loose. No odor.	
3			dry	6	Fill		No Recovery	
4								
5	2.5	0						
6		0	wet	6	Fill		Black (2.5Y 2.5/1) medium to coarse CINDERS interbedded with White SILT and Ash, soft to loose. Wet at 5.5 ft. No odor.	
7								
8			wet	6	Fill		No Recovery	
9								
10	3.5	0						
11		0	wet	6	Fill		Black (2.5Y 2.5/1) medium to coarse CINDERS interbedded with White SILT and Ash, soft to loose. No odor.	
12		0	wet to moist	9	CL-ML		Dark Brown (7.5YR 3/2) fine Sandy CLAY graded to interbedded SILT and CLAY, soft to stiff, wet to moist at 12ft. No odor.	
13								
14			moist	9	ML		Gray (Gley1 5/0) SILT, little very fine Sand, slight mottling,	
15			moist	9	ML		dense, stiff. No odor. No Recovery	
16							End of boring at 15 ft.	
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								
32								
33								
34								
35								

Comments: No COPR/GGM identifited at this location. No canal bottom encountered.

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Boring ID: NTB-C5

Project Name: Northern Transect Borings	**Drilling Company:** SGS	
Project Number: 60213772	**Drilling Method:** Geoprobe	**Coordinates (NJSPNAD83) x:**
Date Started Drilling: 9/30/2011	**Rig Type:** 7720DT	**Coordinates (NJSPNAD83) y:**
Date Finished Drilling: 9/30/2011	**Core Size:** 2 in	**Boring Total Depth:** 20 ft
Logged By: M. Merdinger	**Project Manager:** Robert Cataldo	**Depth to Water:** 6.8 ft
Physical Location: Berry Lane		

(Note bgs = below ground surface)

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	GA Class	USCS	Graphic Log	Surface Cover and Thickness:	Sample Number
1	1.3	0	dry	2	Fill		Black ASPHALT, dense. No odor.	
			dry	3	Fill		Very Dark Gray (10YR 3/1) fine to medium SAND, some fine to medium angular Gravel, little Silt, loose. No odor.	
2		0	moist	3	Fill		Strong Brown (7.5YR 5/6) and Brown (7.5YR 4/2) SILT, some fine Sand, little interbedded Ash, soft. No odor.	
3			moist	3	Fill		No Recovery	
4								
5	3	0						
6		0	moist	3	Fill		Strong Brown (7.5YR 5/6) and Brown (7.5YR 4/2) SILT, some fine to coarse Sand, little interbedded Ash, soft. No odor.	
7		0	moist to wet	3	Fill		Reddish Brown (2.5YR 4/4) to Brown (2.5YR 4/1) SILT and fine to medium Sand, little coarse Sand and fine angular Gravel, moist and dense. Wet and soft at 6.8ft. No odor.	
8								
9			wet	3	Fill		No Recovery	
10	4.2	0						
11		0	wet	3	Fill		Reddish Brown (2.5YR 4/4) to Brown (2.5YR 4/1) SILT and fine to medium Sand, little coarse Sand and fine angular Gravel, soft. No odor.	
12		0	moist	9	ML		Very Dark Gray (10YR 3/1) with slight Light Gray (10YR 7/1) mottling SILT, little to trace Clay, trace fine Sand from 11ft to 11.5ft, medium stiff to stiff. No odor.	
13		0						
14								
15	3.5	0	moist	9	ML		No Recovery	
16		0	moist	8	SP		Gray (Gley1 5/0) very fine to fine SAND, little Silt, medium dense. No odor.	
17		0	moist	10	SM-SP		Reddish Gray (2.5YR 5/1) fine SAND and SILT, trace Clay, semi-cohesive. No odor.	
18			moist	10	SM-SP		Reddish Brown (5YR 4/3) fine to medium SAND, little Silt, some medium Gravel (rock fragments) from 18ft to 18.5ft, medium dense to dense. No odor.	
19			moist	10	SM-SP		No Recovery	
20								
21							End of boring at 20 ft.	
22								
23								
24								
25								
26								
27								
28								
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32								
33								
34								
35								

Comments: No COPR/GGM identifited at this location. No canal bottom encountered.

2012 Northern Canal Boring Logs

AECOM
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Boring ID: NSB-D1

Project Name: PPG Garfield Ave	**Drilling Company:** SGS North America	
Project Number: 60213772	**Drilling Method:** Soft Dig/Geoprobe	**Coordinates (NJSPNAD83) x:** 611992.75
Date Started Drilling: 8/21/2012 10:10:00 AM	**Rig Type:** Vacmaster 4000/66DT	**Coordinates (NJSPNAD83) y:** 685153.5
Date Finished Drilling: 8/21/2012 12:00:00 PM	**Core Size:** 2 in	**Boring Total Depth:** 25 ft
Logged By: Ben Daniels	**Project Manager:** Chris Martell	**Depth to Water:** 6.6
Physical Location: NORTHERN CANAL		

(Note bgs = below ground surface)

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	GA Class	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
		0.0		1	CONCRETE		CONCRETE	
		0.0	dry	3	FILL		fine to coarse FILL MATERIAL, dry , no odor	
1		0.0	dry	3	FILL		fine to coarse SAND, and fine to coarse gravel with coal, (7.5YR 3/1) very dark gray, dry , no odor, angular	NSB-D1-1.0-1.5
2		0.0	dry	3	FILL		COBBLES, little fine to coarse sand and fine to coarse gravel, (7.5YR 3/1) very dark gray, dry , no odor, angular	
3								
4		0.0	dry	3	FILL		ASH, and cinders little fine to medium sand, dry , no odor	NSB-D1-4.0-4.5
5	3.2							
		0.0	moist	3	FILL		fine to coarse SAND, little fill material and fine to medium gravel, (7.5YR 3/2) dark brown, dense, moist , no odor, subangular	
6								
		0.0	moist	3	FILL		SILT, little fine to coarse sand trace fine to medium gravel, (7.5YR 5/1) gray, soft, moist to wet , no odor, Wet at 6.6	
7								
8								NSB-D1-7.7-8.2
					FILL		NO RECOVERY	
9								
10	3							
		0.0	wet	3	FILL		FILL MATERIAL, fine to coarse sand and fine to medium gravel, (7.5YR 6/1) gray, dense, wet, angular, Coal, glass and crushed fill.	
11								
12		0.0	wet	3	FILL		silty CLAY, and fine to coarse sand, (5YR 2.5/1) black, medium dense, wet , no odor, interbedded	NSB-D1-12.0-12.5
13					FILL		NO RECOVERY	
14								
15	3.7							
		0.0	wet	8	SM		fine SAND, some silt, (7.5YR 5/1) gray, dense, wet , no odor	
16		0.0	wet	8	SM		fine SAND, some silt, (7.5YR 5/4) brown, dense, wet , no odor, Interbedded with gray (7.5YR 6/1) silty sand.	NSB-D1-16.0-16.5
17		0.0	wet	11	SW		fine to coarse SAND, some fine to coarse gravel, (2.5YR 4/3) reddish brown, dense, wet , no odor, angular	
18		0.0	wet	8	SW		fine SAND, fine to medium gravel, medium dense, wet , no odor, angular, Mottled Brownish yellow (10YR6/6)	
19					SW		Light greenish gray (Gley 2 7/1)	
	3.1						NO RECOVERY	
20		0.0	wet	10	SM		silty SAND, (7.5YR 5/4) brown, medium dense, wet , no odor	NSB-D1-20.0-20.5
21			wet	10	SW		fine to coarse SAND, trace fine gravel, (2.5YR 4/3)	
			wet	10	SM		reddish brown, dense, wet , no odor, subrounded	
22							fine SAND, little silt trace fine to coarse gravel, (7.5YR 5/4) brown, dense, wet , no odor, angular	
23								
24								
25							End of boring at 25 ft.	

Comments: No GGM/COPR identified at this location. No canal bottom encountered.

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Boring ID: NSB-D2

Project Name: PPG Garfield Ave	**Drilling Company:** SGS North America	
Project Number: 60213772	**Drilling Method:** Soft Dig/Geoprobe	**Coordinates (NJSPNAD83) x:** 612015.6875
Date Started Drilling: 8/21/2012 11:30:00 AM	**Rig Type:** Vacmaster 4000/66DT	**Coordinates (NJSPNAD83) y:** 685150
Date Finished Drilling: 8/21/2012 2:30:00 PM	**Core Size:** 2 in	**Boring Total Depth:** 25 ft
Logged By: Ben Daniels	**Project Manager:** Chris Martell	**Depth to Water:** 5.9
Physical Location: NORTHERN CANAL		

(Note bgs = below ground surface)

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	GA Class	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
0		0.0	dry	3	FILL		fine to medium GRAVEL, some silty sand little fill material, (7.5YR 5/1) gray, dry , no odor, angular, trace organics	
1		0.0	dry	3	FILL		fine to coarse SAND, little silt trace organics, (7.5YR 3/1) very dark gray, dry , no odor, medium to fine angular gravel.	
2		0.0	dry	6	FILL		fine to coarse SAND, with ash and cinders, dry no odor, Various colors (brown, white and black).	
3		0.0		6	FILL		FILL MATERIAL, Slag, coal, ash and cinders.	NSB-D2-3.0-3.5
4								
5	2.3							
5		0.0	dry	3	FILL		fine to coarse SAND, little fine to coarse gravel trace fill material, (7.5YR 3/2) dark brown, medium dense, dry , no odor, angular	
6		0.0	wet	3	FILL		CLAY, trace silt, (N 8/) white, stiff, wet , no odor, Wet at 5.9, chalky.	NSB-D2-6.0-6.5
6		0.0			FILL		NO RECOVERY	
7								
8								
9								
10	1.8							
10		0.0	wet	3	FILL		fine to coarse SAND, and silt trace fine to medium gravel, (7.5YR 3/1) very dark gray, medium dense, wet, subrounded	
11		1.8	wet	3	FILL		FILL MATERIAL, (5YR 2.5/1) black, wet , strong petroleum odor, Wood fragments.	NSB-D2-11.3-11.8
11		0.0	wet	3	FILL		fine silty SAND, little fine to medium gravel, (7.5YR 2.5/2) very dark brown, medium dense, wet , no odor, angular	
12					FILL		NO RECOVERY	
13								
14								
15	2.1							
15		1.8	moist	3	FILL		CLAY, trace wood fragments and fill material, (5YR 2.5/1) black, soft, moist , moderate organic odor, (Canal Bottom)	NSB-D2-15.0-15.5
16								
17		0.0	wet	11	GW		fine to coarse GRAVEL, some fine to coarse sand, (2.5YR 4/4) reddish brown (7.5YR 2.5/3) very dark brown, medium dense, wet , no odor, angular	NSB-D2-16.6-17.1
17					GW		NO RECOVERY	
18								
19								
20	3.3							
20		0.0	wet	9	ML		clayey SILT, little fine sand and fine to medium gravel, (7.5YR 5/1) gray, medium stiff, wet , no odor, angular	NSB-D2-20.0-20.5
21								
22		0.0	wet	8	SP		fine SAND, (7.5YR 5/1) gray, dense, wet , no odor	
23		0.0	wet	10	SW		fine to medium SAND, some fine to medium gravel, (5YR 4/3) reddish brown, wet , no odor, angular	
23					SW		NO RECOVERY	
24								
25								
							End of boring at 25 ft.	

Comments: No GGM/COPR identified at this location. Canal bottom encountered at 16.9 ft.

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Boring ID: NSB-D3

Project Name: PPG Garfield Ave	**Drilling Company:** SGS North America	
Project Number: 60213772	**Drilling Method:** Soft Dig/Geoprobe	**Coordinates (NJSPNAD83) x:** 612027.25
Date Started Drilling: 8/21/2012 1:15:00 PM	**Rig Type:** Vacmaster 4000/66DT	**Coordinates (NJSPNAD83) y:** 685145.1875
Date Finished Drilling: 8/22/2012 9:30:00 AM	**Core Size:** 2 in	**Boring Total Depth:** 25 ft
Logged By: Ben Daniels	**Project Manager:** Chris Martell	**Depth to Water:** 6.0
Physical Location: NORTHERN CANAL		

(Note bgs = below ground surface)

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	GA Class	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
0		0.0	dry	3	FILL		fine to coarse GRAVEL, and fine to medium sand little fill material, (7.5YR 4/1) dark gray, dry , no odor, angular, Trace organics.	
1		0.0	dry	3	FILL		fine to coarse SAND, and fine to coarse gravel, (7.5YR 3/1) very dark gray, dry no odor, angular, ASH and CINDERS	
2		0.0	dry	3	FILL		fine to coarse SAND, and fine to coarse gravel, (7.5YR 3/1) very dark gray, (5Y 3/1) very dark gray, dry , no odor, angular, ASH and CINDERS, FILL MATERIAL, TRACE SLAG.	NSB-D3-3.0-3.5
3		0.0	moist	3	FILL		fine to coarse SAND, little fine to medium gravel and silt, (7.5YR 3/2) dark brown, moist no odor, angular, Some slag, little fill, glass, coal	
4	3	0.0	moist	3	FILL		fine to coarse SAND, little fine to coarse gravel and fill material, (7.5YR 3/2) dark brown, medium dense, moist no odor, angular	
5		0.0	wet	3	FILL		CLAY, little silt and fine sand, (N 7/) lght gray, stiff, wet , no odor, Chalky	NSB-D3-6.5-7.0
6					FILL		NO RECOVERY	
7								
8								
9	1.3							
10		0.0	wet	3	FILL		CLAY, (N 7/) lght gray, stiff, wet , no odor, Chalky	
		0.0	wet	3	FILL		FILL MATERIAL, coarse sand and fine gravel, loose, wet , no odor, angular	
11		9.6	wet	3	FILL		CLAY, little wood fragments, (5YR 2.5/1) black, soft, wet , moderate petroleum odor, Slight sheen.	NSB-D3-10.8-11.3
12					FILL		NO RECOVERY	
13								
14								
15	0.7	3.2	wet	3	FILL		CLAY, trace wood fragments, (5YR 2.5/1) black, soft, wet , moderate petroleum odor, Slight sheen. (Canal Bottom)	NSB-D3-15.0-15.5
16					FILL		NO RECOVERY	
17								
18								
19								
20	2.6	0.0	wet	9	ML		SILT, (N 5/) gray, medium stiff, wet , no odor	
21		0.0	wet	10	SW		fine to medium SAND, (2.5YR 4/4) reddish brown, dense, wet , no odor	NSB-D3-21.0-21.5
22		0.0	wet	11	GW		fine to coarse GRAVEL, some fine to coarse sand, (2.5YR 4/4) reddish brown, dense, wet , no odor, angular	
23					GW		NO RECOVERY	
24								
25							End of boring at 25 ft.	

Comments: No GGM/COPR identified at this location. Canal bottom encountered at 15.7 ft.

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Boring ID: NSB-D4

Project Name: PPG Garfield Ave	**Drilling Company:** SGS North America	
Project Number: 60213772	**Drilling Method:** Soft Dig/Geoprobe	**Coordinates (NJSPNAD83) x:** 612038
Date Started Drilling: 8/21/2012 8:35:00 AM	**Rig Type:** Vacmaster 4000/66DT	**Coordinates (NJSPNAD83) y:** 685140.625
Date Finished Drilling: 8/21/2012 2:15:00 PM	**Core Size:** 2 in	**Boring Total Depth:** 25 ft
Logged By: Ben Daniels	**Project Manager:** Chris Martell	**Depth to Water:** 5.0
Physical Location: NORTHERN CANAL		

(Note bgs = below ground surface)

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	GA Class	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
		0.0	dry	3	FILL		fine to coarse GRAVEL, little silt trace organics, (7.5YR 4/1) dark gray, dry , no odor, angular	
1		0.0		3	FILL		fine to coarse SAND, some fine to coarse gravel little silt, (7.5YR 4/2) brown, angular, some fill material and cobbles, trace organics.	NSB-D4-1.0-1.5
2								
3								
4								
5	1.8							
		0.0	wet	3	FILL		fine to coarse SAND, little clay and fine to medium gravel, (7.5YR 6/1) gray, dense, wet , no odor, angular	
6		0.0	wet	3	FILL		CLAY, (7.5YR 7/1) light gray, soft, wet , no odor, Chalky.	NSB-D4-6.0-6.5
7		0.0			FILL		NO RECOVERY	
8								
9								
10	2.5							
		0.0	wet	3	FILL		fine to coarse SAND, little silt, (7.5YR 6/1) gray, wet , no odor	
11		0.0	wet	3	FILL		CLAY, (7.5YR 7/1) light gray, medium soft, wet , no odor	NSB-D4-10.5-11.0
12		4.3	wet	3	FILL		CLAY, trace coarse sand, (7.5YR 2.5/1) black, soft, wet slight petroleum odor, (Canal Bottom)	NSB-D4-12.0-12.5
		0.0	wet	8	ML			
13					ML		SILT, little fine sand, (7.5YR 4/1) dark gray, soft, wet , no odor	
14							NO RECOVERY	
15	2.8							
		0.0	wet	9	CL		silty CLAY, (5GY 5/1) greenish gray, stiff, wet , no odor	
16								
		0.0	wet	10	ML		SILT, little fine to medium gravel, (7.5YR 5/4) brown, very stiff, wet , no odor, subangular	NSB-D4-16.5-17.0
17		0.0	wet	11	SW		fine to medium SAND, little fine to medium gravel, (2.5YR 5/4) reddish brown, dense, wet , no odor, angular	
18					SW		NO RECOVERY	
19								
20	3.9							
			wet	10	SM		fine to medium SAND, little silt, (2.5YR 4/4) reddish brown, medium dense, wet , no odor	NSB-D4-20.0-20.5
21		0.0	wet	11	GW		fine to coarse GRAVEL, some fine to coarse sand, (2.5YR 4/4) reddish brown, dense, wet , no odor	
22			wet	11	GW		fine to coarse GRAVEL, (2.5YR 4/4) reddish brown, dense, wet , no odor, angular	
23								
24					GW		NO RECOVERY	
25							End of boring at 25 ft.	

Comments: No GGM/COPR identified at this location. Canal bottom encountered at 11.9 ft.

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Boring ID: NSB-D5

Project Name: PPG Garfield Ave	**Drilling Company:** SGS North America	
Project Number: 60213772	**Drilling Method:** Soft Dig/Geoprobe	**Coordinates (NJSPNAD83) x:** 612051
Date Started Drilling: 8/20/2012 9:10:00 AM	**Rig Type:** Vacmaster 4000/66DT	**Coordinates (NJSPNAD83) y:** 685112.875
Date Finished Drilling: 8/20/2012 11:40:00 AM	**Core Size:** 2 in	**Boring Total Depth:** 25 ft
Logged By: Ben Daniels	**Project Manager:** Chris Martell	**Depth to Water:** 4.5
Physical Location: NORTHERN CANAL		

(Note bgs = below ground surface)

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	GA Class	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
0		0.0	dry	3	FILL		fine to coarse silty SAND, some fine to coarse gravel trace Organics and trace brick, (7.5YR 3/2) dark brown, loose, dry no odor, angular	
1		0.0	dry	6	FILL		ASH, CINDERS, SLAG fine to coarse SAND, little fine to coarse gravel trace glass, organics, (7.5YR 3/1) very dark gray, dry to wet , no odor, wet @ 4.5'	
2								
3								NSB-D5-3.0-3.5
4								
5	1.9							
		11.1	wet	3	FILL		fine to coarse GRAVEL, dense, wet , slight napthalene odor, angular	
6		0.0		3	FILL		fine to medium SAND, little fine gravel, (5YR 2.5/1) black, wet , no odor, angular	
		0.0	moist	3	FILL		clayey SILT, (10YR 3/2) very dark grayish brown, moist , no odor	NSB-D5-6.4-6.9
7		0.0			FILL		NO RECOVERY	
8								
9								
10	3.8							
		0.0	dry	12	OL		clayey SILT, (10YR 3/2) very dark grayish brown, dry , no odor	
11								
12		0.0	dry	9	OH		CLAY, (5GY 4/1) dark greenish gray, dry , no odor	NSB-D5-12.0-12.5
13								
		0.0	dry	8	SW		fine to medium SAND, (5GY 6/1) greenish gray, dry , no odor	
14					SW		NO RECOVERY	
15	3.7							
		0.0	moist	10	SW		fine to coarse SAND, some fine to medium gravel, (5YR 4/3) reddish brown, moist , no odor, angular	NSB-D5-15.0-15.5
16		0.0	moist	8	SW		fine to medium SAND, (5YR 6/1) gray, moist , no odor	
17		0.0	wet	11	GP		coarse GRAVEL, (7.5YR 4/3) brown, wet , no odor, subangular	
		0.0	wet	10	SW		fine to coarse SAND, little gravel, (5YR 4/3) reddish brown, wet , no odor, subangular, little medium to fine sub angular gravel	
18								NSB-D5-18.0-18.5
19					SW		NO RECOVERY	
20	3							
		0.0	wet	10	SW		fine to coarse SAND, some gravel, (5YR 4/3) reddish brown, wet , no odor, subangular	NSB-D5-20.0-20.5
21								
22								
23					SW		NO RECOVERY	
24								
25							End of boring at 25 ft.	

Comments: No GGM/COPR identified at this location. No canal bottom encountered.

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Boring ID: NSB-E1

Project Name: PPG Garfield Ave	**Drilling Company:** SGS North America	
Project Number: 60213772	**Drilling Method:** Soft Dig/Geoprobe	**Coordinates (NJSPNAD83) x:** 611951.875
Date Started Drilling: 8/24/2012 9:20:00 AM	**Rig Type:** Vacmaster 4000/66DT	**Coordinates (NJSPNAD83) y:** 685089.5
Date Finished Drilling: 8/24/2012 10:45:00 AM	**Core Size:** 2 in	**Boring Total Depth:** 25 ft
Logged By: Ben Daniels	**Project Manager:** Chris Martell	**Depth to Water:** 5.2
Physical Location: NORTHERN CANAL		

(Note bgs = below ground surface)

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	GA Class	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
0				2	ASPHALT		ASPHALT	
		0.0		3	FILL		2 inch road gravel	
1		0.0	dry	3	FILL		fine to coarse SAND, some fine to coarse gravel and fill material, (7.5YR 4/3) brown, dry , no odor, angular, Glass, brick, concrete.	
		0.0	dry	3	FILL			
2		0.0	moist	3	FILL		fine to medium SAND, some silt and fine to coarse gravel, (7.5YR 4/3) brown, dry , no odor, angular, Little brick, glass, coal	NSB-E1-2.0-2.5
		0.0	moist	3	FILL			
3		0.0	moist	3	FILL		silty SAND, little fine to medium gravel and fill material, (7.5YR 4/3) brown, moist , no odor, subangular	
4		0.0	moist	3	FILL		silty SAND, some fine to coarse gravel and fill material, (7.5YR 4/2) brown, moist , no odor, angular, Fill material (glass, brick, debris, shells)	NSB-E1-4.0-4.5
	1	0.0	moist	3	FILL			
5		0.0	moist	3	FILL		FILL MATERIAL, moist , no odor, (brick, cobble, construction debris)	
		0.0	wet	3	FILL			
6		0.0		3	FILL		silty SAND, and fine to coarse gravel some fill material, (7.5YR 3/2) dark brown, moist , no odor, (coal, metal, debris, brick)	
					FILL			
7							silty SAND, little fine to medium gravel trace fill material, (7.5YR 4/2) brown, moist , no odor, angular	
8							silty SAND, (7.5YR 3/2) dark brown, loose, moist to wet , no odor, wet at 5.2 ft.	
9							CLAY, (9.5/2.5Y_/1) white, stiff, wet , no odor, Chalky	
							SILT, some fine to coarse sand little fine gravel, soft	
10	3.5						NO RECOVERY	
		5.9	wet	3	FILL		silty SAND, and wood fragments trace coal, (7.5YR 3/2) dark brown, medium dense, wet , slight petroleum odor	NSB-E1-10.0-10.5
11		0.0	moist	9	CL		silty CLAY, trace medium gravel, (7.5YR 4/1) dark gray, medium stiff, moist , no odor, angular, Trace gravel at 10.5 ft. to 10.8 ft.	
12								
13								NSB-E1-12.5-13.0
14					CL		NO RECOVERY	
	3.2							
15		0.0	moist	9	ML		SILT, (7.5YR 4/1) dark gray, moist , no odor	
		0.0	moist	9	ML		SILT, (7.5YR 5/1) gray, moist , no odor	
16		0.0	wet	8	SW		fine to medium SAND, little fine to medium gravel, (7.5YR 5/1) gray, medium dense, wet , no odor, subangular	NSB-E1-16.0-16.5
17		0.0	wet	8	SW			
							fine to medium SAND, little fine to medium gravel, (10G 6/1) greenish gray, dense, wet , no odor, subangular	
18		0.0	moist	10	SP		fine SAND, (10YR 5/6) yellowish brown, dense, moist , no odor	
					SP		NO RECOVERY	
19								
	2.8							
20		0.0	wet	11	GW		fine to medium SAND, and fine to medium GRAVEL, (2.5YR 4/3) reddish brown, dense, wet , no odor, subangular	NSB-E1-20.0-20.5
21		0.0	wet	10	SP		medium SAND, (2.5YR 4/4) reddish brown, dense, wet , no odor	
22		0.0	wet	11	GW		fine to medium GRAVEL, little fine to coarse sand, (2.5YR 4/3) reddish brown, dense, wet , no odor, angular	
23					GW		NO RECOVERY	
24								
25							End of boring at 25 ft.	

Comments: No GGM/COPR identified at this location. No canal bottom encountered.

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Boring ID: NSB-E2

Project Name: PPG Garfield Ave	**Drilling Company:** SGS North America	
Project Number: 60213772	**Drilling Method:** Soft Dig/Geoprobe	**Coordinates (NJSPNAD83) x:** 611967.4375
Date Started Drilling: 8/24/2012 10:05:00 AM	**Rig Type:** Vacmaster 4000/66DT	**Coordinates (NJSPNAD83) y:** 685084.0625
Date Finished Drilling: 8/24/2012 1:40:00 PM	**Core Size:** 2 in	**Boring Total Depth:** 25 ft
Logged By: Ben Daniels	**Project Manager:** Chris Martell	**Depth to Water:** 5.3
Physical Location: NORTHERN CANAL		

(Note bgs = below ground surface)

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	GA Class	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
0				2	ASPHALT		ASPHALT	
1		0.0	dry	3	FILL		silty SAND, little fine to coarse gravel and fill material, (7.5YR 4/2) brown, dry , no odor, angular, (Glass, brick, coal, debris)	NSB-E2-1.0-1.5
2		0.0	moist	3	FILL		silty SAND, some fine to coarse gravel and cobbles, (7.5YR 4/1) dark gray, moist , no odor, little glass, debris, brick	
3		0.0	moist	3	FILL		fine to medium SAND, some fine to medium gravel and fill material, (7.5YR 5/1) gray, moist , no odor, angular, (Glass, wood fragments, ash, debris)	
4		0.0	moist	3	FILL		silty SAND, some fine to coarse gravel and fill material, (7.5YR 4/1) dark gray, moist , no odor, angular, (Coal, ash, debris, slag)	NSB-E2-4.0-4.5
5	2	0.0	moist	3	FILL		fine to medium SAND, little fine to medium gravel, (7.5YR 4/1) dark gray, medium dense, moist to wet no odor, angular, Wet at 5.3	
6		0.0	wet	3	FILL		SILT, and fine sand little fine to medium gravel, (7.5YR 4/2) brown, soft, wet , no odor, angular	
7					FILL		NO RECOVERY	
8								
9								
10	3	0.0	wet	3	FILL		silty SAND, some fine to medium gravel, (7.5YR 3/1) very dark gray, dense, wet , no odor, angular, little coal	
11		0.0	wet	3	FILL		fine to coarse SAND, and fine gravel trace coal, (7.5YR 4/1) dark gray, medium dense, wet , no odor, angular	
12		0.0	moist	3	FILL		CLAY, trace wood fragments and coal, (7.5YR 4/1) dark gray, moist , no odor, (Canal bottom)	NSB-E2-12.5-13.0
13					FILL		NO RECOVERY	
14								
15	3.2		wet	3	FILL		fine SAND, trace wood fragments little silt, (7.5YR 5/1) gray, medium dense, wet , no odor	
16			wet	11	GM		fine to medium SAND, some fine to medium gravel little silt, (2.5YR 4/3) reddish brown, very dense, wet , no odor, angular	NSB-E2-16.0-16.5
17								
18					GM		NO RECOVERY	
19								
20	2.8		wet	11	GW		fine to coarse SAND, and fine to medium GRAVEL, (2.5YR 4/3) reddish brown, dense, wet , no odor, angular	
21			wet	8	SW		fine to medium SAND, (10G 7/1) light greenish gray, dense, wet , no odor	NSB-E2-21.0-21.5
22			wet	11	GW		fine to medium SAND, and fine to medium gravel, (2.5YR 4/3) reddish brown, dense, wet , no odor, angular	
23								
24								
25							End of boring at 25 ft.	

Comments: No GGM/COPR identified at this location. Canal bottom encountered at 13.0 ft.

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Boring ID: NSB-E3

Project Name: PPG Garfield Ave	**Drilling Company:** SGS North America	
Project Number: 60213772	**Drilling Method:** Soft Dig/Geoprobe	**Coordinates (NJSPNAD83) x:** 611984.875
Date Started Drilling: 8/24/2012 10:50:00 AM	**Rig Type:** Vacmaster 4000/66DT	**Coordinates (NJSPNAD83) y:** 685077.75
Date Finished Drilling: 8/24/2012 11:41:00 AM	**Core Size:** 2 in	**Boring Total Depth:** 25 ft
Logged By: Ben Daniels	**Project Manager:** Chris Martell	**Depth to Water:** 5.1
Physical Location: NORTHERN CANAL		

(Note bgs = below ground surface)

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	GA Class	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
0		0.0		2	ASPHALT		ASPHALT	
		0.0	dry	1	CONCRETE		CONCRETE, and BRICK	NSB-E3-0.5-1.0
1		0.0		3	FILL		fine to coarse SAND, some fine to coarse gravel little silt, (7.5YR 3/2) dark brown, dry , no odor, angular, Some glass, brick, concrete, coal, debris	
2								
3								
4								NSB-E3-4.0-4.5
5	2.6							
		0.0	moist	3	FILL		silty SAND, some medium gravel, (5YR 3/3) dark reddish brown, dense, moist to wet , no odor, angular, Wet at 5.1	
6		0.0	moist	3	FILL			NSB-E3-5.5-6.0
		0.0	wet	3	FILL		CLAY, (7.5YR 7/1) light gray, stiff, moist , no odor, Chalky, light gray to white at 5.8 ft.	
7		0.0	wet	3	FILL			
		0.0	wet	3	FILL		fine to coarse SAND, (7.5YR 6/1) gray, dense, wet , no odor	
8		0.0	wet	3	FILL			
					FILL		CLAY, (9/2.5Y_/1) white, stiff, wet , no odor, Chalky	
9							fine to coarse SAND, (7.5YR 6/1) gray, medium dense, wet , no odor	
							CLAY, (9.5/N) white, stiff, wet , no odor, Chalky	
10	0.8						NO RECOVERY	
		2.2	wet	3	FILL		silty CLAY, trace fill material, (5YR 2.5/1) black, soft, wet , slight petroleum odor, Trace shredded tar paper, ceramic.	NSB-E3-10.0-10.5
11		0.0			FILL		NO RECOVERY	
12								
13								
14								
15	2							
		0.0	wet	3	FILL		silty CLAY, trace fill material, (5YR 2.5/1) black, soft, wet , moderate petroleum odor, (glass, rubber) (Canal Bottom)	
16		0.0	moist	3	FILL			NSB-E3-16.0-16.5
		0.0	wet	8	SM		silty CLAY, trace fill material, (7.5YR 4/1) dark gray, soft, moist , no odor, (rubber)	
17					SM		fine silty SAND, trace fine to medium gravel, (7.5YR 5/1) gray, dense, wet , no odor, angular	
18							NO RECOVERY	
19								
20	2.6							
		0.0	wet	8	SW		fine to medium SAND, (7.5YR 6/2) pinkish gray, dense, wet , no odor	NSB-E3-20.0-20.5
21		0.0	wet	10	GW		fine to coarse SAND, some fine to coarse gravel, (2.5YR 4/3) reddish brown, dense, wet , no odor	
22								
23					GW		NO RECOVERY	
24								
25							End of boring at 25 ft.	

Comments: No GGM/COPR identified at this location. Canal bottom encountered at 16.0 ft.

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Boring ID: NSB-E4

Project Name: PPG Garfield Ave	**Drilling Company:** SGS North America	
Project Number: 60213772	**Drilling Method:** Soft Dig/Geoprobe	**Coordinates (NJSPNAD83) x:** 612004.1875
Date Started Drilling: 8/24/2012 9:51:00 AM	**Rig Type:** Vacmaster 4000/66DT	**Coordinates (NJSPNAD83) y:** 685070.375
Date Finished Drilling: 8/27/2012 9:51:00 AM	**Core Size:** 2 in	**Boring Total Depth:** 25 ft
Logged By: Ben Daniels	**Project Manager:** Chris Martell	**Depth to Water:** 5.6
Physical Location: NORTHERN CANAL		

(Note bgs = below ground surface)

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	GA Class	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
1		0.0	dry	3	FILL		fine to coarse SAND, and fine to coarse GRAVEL with cobbles, (7.5YR 3/2) dark brown, dry , no odor, angular, (concrete, brick debris, scrap metal, coal, glass)	NSB-E4-1.0-1.5
2								
3		0.0	dry	3	FILL		silty SAND, some fine to coarse gravel with cobbles, (7.5YR 4/2) brown, dry , no odor, angular, Trace fill material (coal, metal, slag, brick,)	
4								NSB-E4-4.0-4.5
5	3.1	0.0	moist	3	FILL		ASH, and CINDERS, medium dense, moist , no odor, Trace slag, no color.	
6		0.0	wet	3	FILL		CLAY, (7.5YR 8/1) white, stiff, wet, Chalky, crushed fill at 6.2 ft- 6.3ft, and 7.2 ft. to 7.3 ft. Wet 5.6 ft.	
7								NSB-E4-6.5-7.0
8					FILL		NO RECOVERY	
9								
10	3.1	0.0	wet	3	FILL		clayey SAND, some fine to medium gravel, (10YR 7/1) light gray, medium dense, wet , no odor, angular	
11		0.0	wet	3	FILL		CLAY, (7.5YR 8/1) white, stiff, wet , no odor, Chalky	
12		0.0		3	FILL		silty SAND, little clay trace fine to medium gravel, (7.5YR 2.5/1) black, slight petroleum odor, angular, Slight sheen. Some wood fragments at 12.6 ft.-13.1 ft.	NSB-E4-12.0-12.5
13								
14					FILL		NO RECOVERY	
15	3	0.0	wet	3	FILL		CLAY, some wood fragments trace coal, (5YR 3/1) very dark gray, soft, wet , no odor, (Canal Bottom)	
16		0.0	moist	9	ML		SILT, (10Y 5/1) greenish gray, stiff, moist , no odor	NSB-E4-16.0-16.5
17		0.0	wet	10	SW-SM		fine to medium silty SAND, some fine to medium gravel, (2.5YR 4/3) reddish brown, dense, wet , no odor, angular	
18					UNKNOWN		NO RECOVERY	
19								
20	3.5	0.0	wet	10	SW-SM		silty SAND, some fine to medium gravel, (2.5YR 4/4) reddish brown, dense, wet , no odor, angular	
21								NSB-E4-21.0-21.5
22								
23								
24					SW-SM		NO RECOVERY	
25							End of boring at 25 ft.	

Comments: No GGM/COPR identified at this location. Canal bottom encountered at 15.4 ft.

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AECOM
30 Knightsbridge Road, Piscataway, NJ 08854
732.564.3200 office telephone

Boring ID: NSB-E5

Project Name: PPG Garfield Ave	**Drilling Company:** SGS North America	
Project Number: 60213772	**Drilling Method:** Soft Dig/Geoprobe	**Coordinates (NJSPNAD83) x:** 612026.375
Date Started Drilling: 8/20/2012 10:00:00 AM	**Rig Type:** Vacmaster 4000/66DT	**Coordinates (NJSPNAD83) y:** 685058.25
Date Finished Drilling: 8/21/2012 8:50:00 AM	**Core Size:** 2 in	**Boring Total Depth:** 6 ft
Logged By: Ben Daniels	**Project Manager:** Chris Martell	**Depth to Water:** 5.5
Physical Location: NORTHERN CANAL		

(Note bgs = below ground surface)

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	GA Class	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
1		0.0	moist	3	FILL		fine to coarse SAND, some silt and fine to coarse gravel, (10YR 4/3) brown, non plastic loose, moist , no odor, angular, Trace organics	
2		0.0	dry	3	FILL		fine to coarse SAND, some gravel coal, (5Y 2.5/1) black, dry no odor, angular, Some gravel, fill (coal, slag, ash, cinders)	
3								NSB-E5-3.0-3.5
4								
5								
6							Refusal at 6 ft.	

Comments: No GGM/COPR identified at this location. No canal bottom encountered.

AECOM
30 Knightsbridge Road, Piscataway, NJ 08854
732.564.3200 office telephone

Boring ID: NSB-F1

Project Name: PPG Garfield Ave	**Drilling Company:** SGS North America	
Project Number: 60213772	**Drilling Method:** Soft Dig/Geoprobe	**Coordinates (NJSPNAD83) x:** 611925.25
Date Started Drilling: 8/27/2012 1:35:00 PM	**Rig Type:** Vacmaster 4000/66DT	**Coordinates (NJSPNAD83) y:** 685036.5
Date Finished Drilling: 8/27/2012 2:55:00 PM	**Core Size:** 2 in	**Boring Total Depth:** 25 ft
Logged By: Ben Daniels	**Project Manager:** Chris Martell	**Depth to Water:** 5.1
Physical Location: NORTHERN CANAL		

(Note bgs = below ground surface)

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	GA Class	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
0				2	ASPHALT		ASPHALT	
1		0.0	moist	3	FILL		silty SAND, some fine to coarse gravel and fill material, (7.5YR 4/2) brown, moist to dry , no odor, angular, (Brick, ceramic, debris, metal, coal, wood fragments)	NSB-F1-1.0-1.5
2		0.0		3	FILL		BRICK, Remains of brick wall.	
3		0.0	dry	3	FILL		silty SAND, little fine to medium gravel and fill material, (7.5YR 4/1) dark gray, dry , no odor, angular, glass, coal,	
4		0.0	moist	3	FILL		sandy SILT, trace fine to medium gravel, (7.5YR 3/2) dark brown, moist , no odor, subangular, (wood	NSB-F1-4.0-4.5
5	1.8	0.0	moist	3	FILL		fragments, coal, brck)	
6		0.0	wet	3	FILL		fine to coarse SAND, little silt, (7.5YR 4/1) dark gray, medium dense, moist to wet , no odor, (wood fragments, coal,), wet at 5.1 ft.	
7					FILL		CLAY, trace wood fragments, (5Y 8/1) white, stiff, wet , no odor, Chalky.	
8							NO RECOVERY	
9								
10	1.5	0.0	wet	3	FILL		silty CLAY, little wood fragments and brick, (7.5YR 4/1) dark gray, soft, wet , no odor, Trace nails.	NSB-F1-10.0-10.5
11		0.0	wet	3	FILL		COAL, trace wood fragments, dense, wet , no odor	
12		0.0	wet	3	FILL		fine to coarse SAND, little fine to medium gravel, (7.5YR 6/2) pinkish gray, medium dense, wet , no odor	
13		0.0			FILL		fine to coarse SAND, some fine to medium gravel and brick, (2.5YR 4/8) red, medium dense, wet , no odor, subangular	
14							NO RECOVERY	
15	2.9	0.0	moist	3	CL		CLAY, (7.5YR 4/1) dark gray, stiff, moist , no odor	
16		0.0	moist	9	CL		silty CLAY, (7.5YR 6/1) gray, very stiff, moist , no odor	NSB-F1-16.0-16.5
17		0.0	moist	10	ML		SILT, little fine gravel, (2.5YR 3/1) dark reddish gray (7.5YR 5/6) strong brown, very stiff, moist no odor, angular, Mottled Strong Brown and Gray (7.5YR 5/1)	
18		0.0	wet	10	SP		fine SAND, (7.5YR 5/6) strong brown, medium dense, wet , no odor	
19		0.0	moist	9	ML		clayey SILT, (7.5YR 6/2) pinkish gray, stiff, moist , no odor	
20	3.2				ML		NO RECOVERY	
21		0.0	wet	10	SP		fine SAND, little silt, (7.5YR 5/4) brown, dense, wet , no odor	NSB-F1-20.0-20.5
22		0.0	wet	11	GW		fine SAND, and fine to medium gravel, (2.5YR 5/4) reddish brown, wet , no odor, subangular	
23		0.0	wet	11	SW		fine to medium SAND, some fine to medium gravel, (2.5YR 5/4) reddish brown, dense, wet , no odor, angular	
24					SW		NO RECOVERY	
25							End of boring at 25 ft.	

Comments: No GGM/COPR identified at this location. No canal bottom encountered.

AECOM
30 Knightsbridge Road, Piscataway, NJ 08854
732.564.3200 office telephone

Boring ID: NSB-F2

Project Name: PPG Garfield Ave	**Drilling Company:** SGS North America	
Project Number: 60213772	**Drilling Method:** Soft Dig/Geoprobe	**Coordinates (NJSPNAD83) x:** 611937.75
Date Started Drilling: 8/28/2012 12:57:00 PM	**Rig Type:** Vacmaster 4000/66DT	**Coordinates (NJSPNAD83) y:** 685031.125
Date Finished Drilling: 8/28/2012 2:05:00 PM	**Core Size:** 2 in	**Boring Total Depth:** 25 ft
Logged By: Ben Daniels	**Project Manager:** Chris Martell	**Depth to Water:** 5.0
Physical Location: NORTHERN CANAL		

(Note bgs = below ground surface)

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	GA Class	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
0		0.0	dry	2	ASPHALT			
		0.0	dry	3	FILL		medium to coarse GRAVEL, little silty sand, (7.5YR 4/2) brown, dry , no odor, angular	
1				3	FILL		silty SAND, some fine to coarse gravel little cobbles, (7.5YR 4/2) brown, dry , no odor, Some brick, coal, glass, debris	NSB-F2-1.0-1.5
2		0.0	moist	3	FILL		silty SAND, little fine to coarse gravel and fill material, (7.5YR 4/3) brown, moist , no odor, angular, (Glass, brick, coal, metal) Trace organics	
3								
4								NSB-F2-4.0-4.5
5	1.1	0.0	wet	3	FILL		silty SAND, little fine to medium gravel and fill material, (5YR 4/1) dark gray, loose, wet , no odor, angular, (Brick, coal, wood fragments) Wet at 5ft.	
6					FILL		NO RECOVERY	
7								
8								
9								
10	2.2	0.0	wet	3	FILL		silty SAND, some wood fragments little clay, (7.5YR 4/1) dark gray, loose, wet , no odor, (Dark gray to black) (Canal Bottom)	
		0.0	wet	7	OH		CLAY, (7.5YR 4/1) dark gray, medium stiff, wet , no odor	NSB-F2-10.5-11.0
11								
12					OH		NO RECOVERY	
13								
14								
15	3.3		moist	7	OH		CLAY, (7.5YR 3/1) very dark gray, stiff, moist , no odor, Trace organics.	NSB-F2-15.0-15.5
16			moist		ML		SILT, (7.5YR 5/6) strong brown, very stiff, moist , no odor, Mottled strong brown and light greenish gray (Gley 2 5BG 7/1).	
17			wet	8	SM		fine silty SAND, (5YR 5/2) reddish gray, very dense, wet , no odor	
			wet	10	ML		SILT, little fine gravel, (7.5YR 5/6) strong brown, stiff, wet , no odor, subangular	
18			wet	10	GM		fine SAND, little fine to medium gravel and silt, (2.5YR 5/2) weak red, dense, wet , no odor, angular	NSB-F2-17.8-18.3
					GM		NO RECOVERY	
19								
20	3.3		wet	10	SP		fine SAND, (2.5YR 5/2) weak red, dense, wet , no odor	
			wet	11	GW		fine to coarse SAND, and fine to coarse gravel, (2.5YR 5/3) reddish brown, dense, wet , no odor, angular	
21								
22								NSB-F2-21.5-22.0
23								
24					GW		NO RECOVERY	
25							End of boring at 25 ft.	

Comments: No GGM/COPR identified at this location. Canal bottom encountered at 10.5 ft.

AECOM
30 Knightsbridge Road, Piscataway, NJ 08854
732.564.3200 office telephone

Boring ID: NSB-F3

Project Name: PPG Garfield Ave	**Drilling Company:** SGS North America	
Project Number: 60213772	**Drilling Method:** Soft Dig/Geoprobe	**Coordinates (NJSPNAD83) x:** 611953.4375
Date Started Drilling: 8/28/2012 10:00:00 AM	**Rig Type:** Vacmaster 4000/66DT	**Coordinates (NJSPNAD83) y:** 685024
Date Finished Drilling: 8/28/2012 11:10:00 AM	**Core Size:** 2 in	**Boring Total Depth:** 25 ft
Logged By: Ben Daniels	**Project Manager:** Chris Martell	**Depth to Water:** 5.5
Physical Location: NORTHERN CANAL		

(Note bgs = below ground surface)

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	GA Class	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
0		0.0	dry	2	ASPHALT		ASPHALT	
		0.0	dry	3	FILL		silty SAND, some fine to coarse gravel and fill material, (7.5YR 4/4) brown, dry , no odor, angular, (ceramic, coal, brick), trace organics.	NSB-F3-1.0-1.5
1								
2		0.0	dry	3	FILL		ASH, and CINDERS, dry , no odor, Little slag.	
3								
4		0.0	moist	3	FILL		silty SAND, little fine to medium gravel and fill material, (7.5YR 4/1) dark gray, moist , no odor, angular, (Ash,	NSB-F3- 4.0-4.5
5	2.9						cinders, coal, brick, glass, metal)	
		0.0	moist	3	FILL		silty SAND, little fine to medium gravel, (7.5YR 4/2)	
6		0.0	wet	3	FILL		brown, loose, moist to wet , no odor, angular, Wet at 5.5	
			wet	3	FILL		ft,. Trace slag.	
7							fine to coarse SAND, (7.5YR 4/1) dark gray, medium dense, wet , no odor	
			wet	3	FILL		CLAY, (7.5YR 6/1) gray, medium stiff, wet , no odor,	
8					FILL		Chalky.	
							fine to coarse SAND, (7.5YR 5/1) gray, medium dense,	
9							wet , no odor, Crushed fill.	
							NO RECOVERY	
10	1.3							
		131	wet	3	FILL		fine to coarse SAND, some fine to medium gravel little	NSB-F3-10.0-10.5
11		0.0	wet	3	FILL		fill material, loose, wet , strong sulfur odor, angular,	
		5.3	wet	3	FILL		(Wood fragments, paper)	
12					FILL		CLAY, (2.5YR 8/1) white, stiff, wet , no odor	
							CLAY, little fill material, (5YR 2.5/1) black, soft, wet , no	
13							odor, (Rubber), (Canal bottom)	
							NO RECOVERY	
14								
15	0.7							
		0.0	wet	10	SM		silty SAND, some fine to medium gravel, (2.5YR 4/2)	NSB-F3-15.0-15.5
16					SM		weak red, dense, wet , no odor, angular	
							NO RECOVERY	
17								
18								
19								
20	3.2							
			wet	10	SM		silty SAND, little fine gravel, (5YR 5/2) reddish gray,	NSB-F3-20.0-20.5
21			wet	9	ML		dense, wet , no odor, angular	
							SILT, (5YR 5/1) gray, stiff, wet , no odor	
22			wet	11	GW		fine to coarse SAND, and fine to coarse gravel, (2.5YR 4/3) reddish brown, dense, wet , no odor, angular	
23								
					GW		NO RECOVERY	
24								
25							End of boring at 25 ft.	

Comments: No GGM/COPR identified at this location. Canal bottom encountered at 11.5 ft.

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732.564.3200 office telephone

Boring ID: NSB-F4

Project Name: PPG Garfield Ave	**Drilling Company:** SGS North America	
Project Number: 60213772	**Drilling Method:** Soft Dig/Geoprobe	**Coordinates (NJSPNAD83) x:** 611972.5625
Date Started Drilling: 8/28/2012 9:05:00 AM	**Rig Type:** Vacmaster 4000/66DT	**Coordinates (NJSPNAD83) y:** 685016.125
Date Finished Drilling: 8/28/2012 10:40:00 AM	**Core Size:** 2 in	**Boring Total Depth:** 25 ft
Logged By: Ben Daniels	**Project Manager:** Chris Martell	**Depth to Water:** 5.0
Physical Location: NORTHERN CANAL		

(Note bgs = below ground surface)

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	GA Class	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
0		0.0	dry	3	FILL		silty SAND, little fine to medium gravel and fill material, (7.5YR 3/2) dark brown, dry , no odor, angular, Trace organics. Debris.	NSB-F4-0.0-0.5
1		0.0	dry	3	FILL		fine silty SAND, little fine to medium gravel and fill material, (7.5YR 3/1) very dark gray, dry , no odor, angular, (Metal, coal, trace organics)	
2								
3		0.0	dry	3	FILL		fine to coarse GRAVEL, some cobbles and silty sand, dry , no odor, angular, slag, coal, metal	
4								
5	2.6	0.0	wet	3	FILL		silty SAND, some fine to medium gravel, (7.5YR 2.5/2) very dark brown, loose, wet , no odor, Wet at 5 ft.	
		0.0	wet	3	FILL		CLAY, (2.5YR 8/1) white, soft, wet , no odor, Chalky.	NSB-F4-6.0-6.5
6								
7								
8					FILL		NO RECOVERY	
9								
10	2.4	0.0	wet	3	FILL		CLAY, (2.5YR 8/1) white, medium soft, wet , no odor, Chalky.	NSB-F4-10.0-10.5
		0.0	wet	3	FILL		fine to coarse SAND, (5YR 4/1) dark gray, medium dense, wet , no odor, Crushed fill.	
11		0.0	wet	3	FILL		CLAY, (2.5YR 8/1) white, medium stiff, wet , no odor, Chalky.	
		0.7	wet	3	FILL		clayey SILT, some fine to medium gravel trace fill material, (5YR 2.5/1) black, soft, wet , slight petroleum odor, and staining, angular, Trace metal	
12							NO RECOVERY	
13								
14								
15	2.3	0.0	wet	3	FILL		fine to medium SAND, little silt and fine to medium gravel, (5YR 2.5/1) black, soft, wet , no odor, angular, Little fill material (slag, metal)	
		0.0	wet	3	FILL		CLAY, trace wood fragments, (5YR 2.5/1) black, soft, wet , no odor, (Canal Bottom)	NSB-F4-16.0-16.5
16		0.0	wet	3	FILL		fine to coarse SAND, little silt and fine gravel, (5YR 2.5/1) black, dense, wet , no odor, subrounded, Slight sheen.	
		0.0	moist	7	OH		CLAY, (7.5YR 3/1) very dark gray, soft, moist , no odor	
17		0.0	moist	9	ML		SILT, (10G 6/1) greenish gray, stiff, moist , no odor	
		0.0	wet	10	SP		fine SAND, (2.5YR 5/2) weak red, dense, wet , no odor	
		0.0	moist	9	ML		SILT, (10BG 5/1) greenish gray, stiff, moist , no odor	
18		0.0			ML		NO RECOVERY	
19								
20	3.1	0.0	wet	10	SM		fine silty SAND, (7.5YR 5/2) brown, dense, wet , no odor	NSB-F4-20.0-20.5
		0.0	moist	9	ML		clayey SILT, (10YR 5/6) yellowish brown, very stiff, moist , no odor, Mottled Yellowish brown and greenish gray (Gley 2 5BG 6/1)	
21		0.0	wet	8	SM		fine silty SAND, (5YR 5/2) reddish gray, stiff, wet , no odor	
22		0.0	wet	11	SW		fine to coarse SAND, some fine to medium gravel, (2.5YR 5/3) reddish brown, dense, wet , no odor, angular	
23					SW		NO RECOVERY	
24								
25							End of boring at 25 ft.	

Comments: No GGM/COPR identified at this location. Canal bottom encountered at 15.7 ft.

AECOM
30 Knightsbridge Road, Piscataway, NJ 08854
732.564.3200 office telephone

Boring ID: NSB-F5

Project Name: PPG Garfield Ave	**Drilling Company:** SGS North America	
Project Number: 60213772	**Drilling Method:** Soft Dig/Geoprobe	**Coordinates (NJSPNAD83) x:** 611992.8125
Date Started Drilling: 8/20/2012 1:45:00 PM	**Rig Type:** Vacmaster 4000/66DT	**Coordinates (NJSPNAD83) y:** 684999.125
Date Finished Drilling: 8/21/2012 8:35:00 AM	**Core Size:** 2 in	**Boring Total Depth:** 25 ft
Logged By: Ben Daniels	**Project Manager:** Chris Martell	**Depth to Water:** 6.6
Physical Location: NORTHERN CANAL		

(Note bgs = below ground surface)

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	GA Class	USCS	Graphic Log	Surface Cover and Thickness:	Sample ID
0		0.0	dry	3	FILL		fine to coarse SAND, little fine to coarse gravel trace organics, (10YR 5/3) brown, non plastic medium dense, dry , no odor, angular, Trace organics.	NSB-F5-0.0-0.5
2		0.0	dry	3	FILL		fine to coarse SAND, some fine to coarse gravel trace organics, (10YR 4/1) dark gray, non plastic medium dense, dry , no odor, angular, Little fine to coarse angular gravel. Debris (brick, trash).	
4	3.9							NSB-F5-4.0-4.5
5		0.0	moist	3	FILL		fine to coarse SAND, some silt, (7.5YR 3/1) very dark gray, non plastic dense, moist to wet , no odor, Moist to wet at 6.6ft. Very Dark Gray (7.5YR 3/1) to black.	
8								NSB-F5-8.0-8.5
9					FILL		NO RECOVERY	
10	3	0.0	moist	3	OL		silty CLAY, (7.5YR 4/1) dark gray, stiff, moist , no odor	
		0.0	wet	3	SW		fine to medium SAND, dense, wet , no odor	
12		0.0	moist	3	OL		silty CLAY, (7.5YR 4/1) dark gray, stiff, moist , no odor	NSB-F5-12.0-12.5
13					OL		NO RECOVERY	
15	3.8	0.0	wet	10	SM		fine to medium silty SAND, little fine to medium gravel,	
16		0.0	wet	12	CH		(7.5YR 3/2) dark brown, medium dense, wet , no odor, subrounded, at 15ft silty sand little medium to fine sub rounded gravel wet	NSB-F5-16.0-16.5
17							CLAY, (5BG 5/1) greenish gray, stiff, wet to moist no odor	
18		0.0	wet	10	ML		SILT, (7.5YR 5/6) strong brown, stiff, wet to moist no odor	
19					ML		NO RECOVERY	
20	3.8	0.0	wet	10	SW		fine to medium SAND, little coarse sand and silt, (5YR 4/3) reddish brown, dense, wet , no odor	NSB-F5-20.0-20.5
24					SW		NO RECOVERY	
25							End of boring at 25 ft.	

Comments: No GGM/COPR identified at this location. No canal bottom encountered.

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Appendix B

NJDEP Full Data Deliverables Form, Lab Reports, and Data Validation Reports

New Jersey Department of Environmental Protection
Site Remediation Program

FULL LABORATORY DATA DELIVERABLES FORM

☒ Non-LSRP (Existing Cases) ☐ LSRP ☐ Subsurface Evaluator

Date Stamp
(For Department use only)

SECTION A. SITE NAME AND LOCATION

Site Name: Morris Canal North of Berry Lane Park

List all AKAs: PPG Northern Canal Borings

Street Address: 1028 & 1040 Garfield Avenue, 1 Berry Road, and Communipaw Avenue East of Garfield Avenue

Municipality: Jersey City (Township, Boro or City)

County: Hudson Zip Code: 07305

Mailing Address if different than street address: PPG, 4325 Rosanna Drive, Allison Park, PA 15101, Att. Brian McGuire

Program Interest (PI) Number(s): NA Case Tracking Number(s): N/A

SECTION B. NJDEP CASE MANAGER

Do you have an assigned Case Manager? ☒ Yes ☐ No

If "Yes," please list the Case Manager: Tom Cozzi

SECTION C. REMEDIAL PHASE

☐ Immediate Environmental Concern
☒ Site Investigation Report
☐ Remedial Action Report
☐ Preliminary Assessment Report
☐ Remedial Investigation/Remedial Action Work Plan
☐ Response Action Outcome

SECTION D. Matrix Type/Analysis and Number of Samples

☐ Potable Well Water # of samples: _____ Sampling Date: _____
Analytical Method(s) _____

☐ Indoor Air # of samples: _____ Sampling Date: _____
Analytical Method _____

☐ Polychlorinated dibenzo-p-dioxins/polychlorinated dibenzofurans # of samples: _____ Sampling Date: _____
Analytical Method _____

☒ Hexavalent chromium soil sample # of samples: 94 Sampling Date: 08/20/2012
Analytical Method Method 3060A/7196

☐ Other sampling 9/28/11, 8/20-22/12, 8/24/12, 8/27-28/12 # of samples: _____ Sampling Date: _____
Analytical Method _____

☐ Other _____ # of samples: _____ Sampling Date: _____
Analytical Method _____

☐ Other _____ # of samples: _____ Sampling Date: _____
Analytical Method _____

SECTION E. GENERAL

1. Was a full laboratory data deliverables package provided? ☒ Yes ☐ No
2. Was a certified laboratory(s) used for the analyses? ☒ Yes ☐ No
   Provide name of laboratory(s): Test America, Edison, NJ (2011 data) & Accutest, Dayton, NJ (2012 data)
3. Were data summaries provided for all samples? ☒ Yes ☐ No
4. Were electronic deliverables submitted? ☒ Yes ☐ No
5. For air sample data, were the TO-15 Conversion Tables (hit-lists) provided on disc in the appropriate Excel format pursuant to the VIG? ☐ Yes ☐ No

Section F. Data Quality Assurance/Quality Control

1. Were the appropriate sample preservation requirements met? ☒ Yes ☐ No
2. Were appropriate sample holding times (for both extraction/sample preparation and analysis) met? ☒ Yes ☐ No
   If "No," provide a brief explanation.

3. Were the samples diluted? ☐ Yes ☒ No
   Indicate the identity of the samples and why.

4. If applicable, did sample dilutions result in elevated reporting limits that exceed applicable standards? ☐ Yes ☒ No
   If "Yes," list the affected samples.

5. Were any applicable standards exceeded for any samples? ☐ Yes ☒ No
   If "Yes," include the number of samples and laboratory sample identification numbers.

6. Were the laboratory reporting limits below the applicable remediation standards/criteria required for the site? ☒ Yes ☐ No
   If "No," provide a brief explanation of action taken.

7. Were qualifications noted in the non-conformance summary? ☒ Yes ☐ No
   Provide a brief explanation.

64 of the 94 hexavalent chromium sample results were qualified due to matrix spike, field duplicate, laboratory duplicate, and percent moisture non-conformances. See attached spreadsheet for qualified data and refer to the data validation reports for explanation of the qualifications.

8. Were qualified data used? ☒ Yes ☐ No
9. Were rejections noted in the non-conformance summary? ☐ Yes ☒ No
   Provide a brief explanation.

No hexavalent chromium data were rejected.

10. Were rejected data used? ☐ Yes ☒ No

If "Yes," please indicate reasons rejected data were used:

- ☐ For Hex Chrome, data were rejected because spike recovery was less than 50%.
- ☐ Data were rejected due to missing deliverables.
- ☐ Data were rejected but an applicable standard exceedance exists.
- ☐ Data were rejected in an early phase of a remediation; however, additional sampling and analysis are scheduled to be performed.
- ☐ Other reasons not noted directly above. Explain:

No hexavalent chromium data were rejected.

11. Were the quality control criteria associated with the compounds of concern at the site met?	☐ Yes	☒ No
12. Were the QC Summary Forms reviewed?	☒ Yes	☐ No
13. Surrogate recoveries acceptable	☐ Yes	☐ No
14. Internal Standards acceptable	☐ Yes	☐ No
15. MS/MSDs acceptable	☐ Yes	☒ No
16. Tune summaries acceptable	☐ Yes	☐ No
17. Calibration summaries acceptable	☒ Yes	☐ No
18. Serial dilutions acceptable	☐ Yes	☐ No
19. Inorganic duplicates acceptable	☐ Yes	☒ No
20. LCS recovery acceptable	☒ Yes	☐ No
21. Other QC acceptable?	☐ Yes	☒ No

Provide a brief explanation if applicable:

Item 11. MS recovery was not met for some samples. See attached spreadsheet and refer to the DV reports.
Items 13, 14, 16, and 18. Not applicable to Hexavalent chromium analysis.
Item 15. Due to low MS recoveries, 43 of the 94 hexavalent chromium sample results were qualified as estimated due to low MS %Rs.
Item 19. Poor laboratory duplicate precision affected the hexavalent chromium result for 17 of the 94 hexavalent chromium results.
Item 21. One hexavalent chromium result was qualified due to high % moisture. 51 of the 94 hexavalent chromium results were qualified as estimated due to poor FD precision. See attached spreadsheet and refer to the data validation reports.

SECTION G. PERSON RESPONSIBLE FOR CONDUCTING THE REMEDIATION INFORMATION AND CERTIFICATION

Full Legal Name of the Person Responsible for Conducting the Remediation: PPG Industries, Inc.

Representative First Name: Mark Representative Last Name: Terril

Title: Global Manager, Remediation

Phone Number: (412) 492-5466 Ext: Fax: (412) 492-5277

Mailing Address: PPG Industries, Inc., Building C, 4325 Rosanna Drive

City/Town: Allison Park State: PA Zip Code: 15101

Email Address: terril@ppg.com

This certification shall be signed by the person responsible for conducting the remediation who is submitting this notification in accordance with Administrative Requirements for the Remediation of Contaminated Sites rule at N.J.A.C. 7:26C-1.5(a).

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein, including all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, to the best of my knowledge, I believe that the submitted information is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties.

Signature: Date:

Name/Title: **No Changes Since Last Submittal** ☐

SECTION H. NON-LSRP SITE REMEDIATION PROFESSIONAL STATEMENT

First Name: Robert Last Name: Cataldo

Phone Number: (978) 905-2154 Ext: Fax: (978) 905-2101

Mailing Address: 250 Apollo Drive

City/Town: Chelmsford State: MA Zip Code: 01824

Email Address: robert.cataldo@aecom.com

I believe that the information contained herein, and including all attached documents, is true, accurate and complete.

Signature: Date:

Name/Title: Robert M. Cataldo, Project Manager **No Changes Since Last Submittal** ☐

Company Name: AECOM

Submit this form to the assigned case manager. If there is no assigned case manager, submit this form to:

Bureau of Case Assignment & Initial Notice
Site Remediation Program
NJ Department of Environmental Protection
401-05H
PO Box 420
Trenton, NJ 08625-0420

Field ID	Sample Date	Sample Type	Matrix	SDG	Lab ID	Method	Lab SDG	percent moisture	DF	chemical_name	Result	Detect Flag	DV Qual	Lab Qual	MDL	RL	Units	reason code
NTB-C2-12.0	9/28/2011	N	SO	460317911	460-31791-1	SW7196	460317911	35.9	1	CHROMIUM (HEXAVALENT)	3.2	N	U	U	0.8	3.2	mg/kg	
NTB-C1-11.0	9/28/2011	N	SO	460317911	460-31791-2	SW7196	460317911	18.6	1	CHROMIUM (HEXAVALENT)	2.5	N	U	U	0.61	2.5	mg/kg	
NTB-B2-2.0	9/28/2011	N	SO	460317911	460-31791-3	SW7196	460317911	13.1	1	CHROMIUM (HEXAVALENT)	2.2	Y	U	U	0.56	2.2	mg/kg	
NSB-EB20120820	8/20/2012	EB	WQ	JB14201	JB14201-13	SW7196	JB14201		1	CHROMIUM (HEXAVALENT)	0.01	N	U	U	0.0014	0.010	mg/l	
NSB-D5-3.0-3.5X	8/20/2012	FD	SO	JB14201	JB14201-10	SW7196	JB14201	14.8	1	CHROMIUM (HEXAVALENT)	0.27	Y	J	B	0.14	0.47	mg/kg	m
NSB-D5-18.0-18.5	8/20/2012	N	SO	JB14201	JB14201-6	SW7196	JB14201	11.9	1	CHROMIUM (HEXAVALENT)	0.17	Y	J	B	0.13	0.45	mg/kg	m
NSB-D5-15.0-15.5	8/20/2012	N	SO	JB14201	JB14201-7	SW7196	JB14201	12.0	1	CHROMIUM (HEXAVALENT)	0.22	Y	J	B	0.13	0.45	mg/kg	m
NSB-E5-3.0-3.5	8/20/2012	N	SO	JB14201	JB14201-12	SW7196	JB14201	17.1	1	CHROMIUM (HEXAVALENT)	0.82	Y	J		0.14	0.48	mg/kg	m
NSB-D5-20.0-20.5	8/20/2012	N	SO	JB14201	JB14201-5	SW7196	JB14201	11.7	1	CHROMIUM (HEXAVALENT)	0.71	Y	J		0.13	0.45	mg/kg	m
NSB-D5-6.4-6.9	8/20/2012	N	SO	JB14201	JB14201-9R	SW7196	JB14201R	21.6	1	CHROMIUM (HEXAVALENT)	0.28	Y	J	B	0.15	0.51	mg/kg	m
NSB-F5-8.0-8.5	8/20/2012	N	SO	JB14201	JB14201-2R	SW7196	JB14201R	16.0	1	CHROMIUM (HEXAVALENT)	0.48	N	UJ	U	0.14	0.48	mg/kg	m
NSB-D5-3.0-3.5	8/20/2012	N	SO	JB14201	JB14201-11R	SW7196	JB14201R	16.9	1	CHROMIUM (HEXAVALENT)	0.57	Y	J		0.14	0.48	mg/kg	m
NSB-F5-12.0-12.5	8/20/2012	N	SO	JB14201	JB14201-1R	SW7196	JB14201R	32.2	1	CHROMIUM (HEXAVALENT)	2.5	Y	J		0.17	0.59	mg/kg	m
NSB-F5-4.0-4.5	8/20/2012	N	SO	JB14201	JB14201-3R	SW7196	JB14201R	16.3	1	CHROMIUM (HEXAVALENT)	0.86	Y	J		0.14	0.48	mg/kg	m
NSB-F5-0.0-0.5	8/20/2012	N	SO	JB14201	JB14201-4R	SW7196	JB14201R	9.6	1	CHROMIUM (HEXAVALENT)	0.67	Y	J		0.13	0.44	mg/kg	m
NSB-D5-12.0-12.5	8/20/2012	N	SO	JB14201	JB14201-8R	SW7196	JB14201R	21.3	1	CHROMIUM (HEXAVALENT)	0.71	Y	J		0.15	0.51	mg/kg	m
NSB-EB20120821	8/21/2012	EB	WQ	JB14312	JB14312-14	SW7196	JB14312		1	CHROMIUM (HEXAVALENT)	0.01	N	U	U	0.0014	0.010	mg/l	
NSB-D1-12.0-12.5	8/21/2012	N	SO	JB14312	JB14312-2	SW7196	JB14312	17.3	1	CHROMIUM (HEXAVALENT)	0.42	Y	J	B	0.14	0.48	mg/kg	m.fd
NSB-D2-11.3-11.8	8/21/2012	N	SO	JB14312	JB14312-7	SW7196	JB14312	17.3	1	CHROMIUM (HEXAVALENT)	0.41	Y	J	B	0.14	0.48	mg/kg	m.fd
NSB-D3-3.0-3.5	8/21/2012	N	SO	JB14312	JB14312-11	SW7196	JB14312	15.7	1	CHROMIUM (HEXAVALENT)	12.9	Y	J		0.14	0.47	mg/kg	m.fd
NSB-F5-16.0-16.5	8/21/2012	N	SO	JB14312	JB14312-15R	SW7196	JB14312R	16.9	1	CHROMIUM (HEXAVALENT)	0.4	Y	J	B	0.14	0.48	mg/kg	m.fd
NSB-D1-20.0-20.5	8/21/2012	N	SO	JB14312	JB14312-4R	SW7196	JB14312R	16.1	1	CHROMIUM (HEXAVALENT)	0.46	Y	J	B	0.14	0.48	mg/kg	m.fd
NSB-D1-7.7-8.2	8/21/2012	N	SO	JB14312	JB14312-6R	SW7196	JB14312R	16.6	1	CHROMIUM (HEXAVALENT)	0.35	Y	J	B	0.14	0.48	mg/kg	m.fd
NSB-D2-6.0-6.5	8/21/2012	N	SO	JB14312	JB14312-10R	SW7196	JB14312R	39.5	1	CHROMIUM (HEXAVALENT)	0.66	N	UJ	U	0.19	0.66	mg/kg	m.fd
NSB-D2-3.0-3.5X	8/21/2012	FD	SO	JB14312	JB14312-9R	SW7196	JB14312R	12.4	1	CHROMIUM (HEXAVALENT)	2.1	Y	J		0.13	0.46	mg/kg	m.fd
NSB-D4-1.0-1.5	8/21/2012	N	SO	JB14312	JB14312-12R	SW7196	JB14312R	9.9	1	CHROMIUM (HEXAVALENT)	2.3	Y	J		0.13	0.44	mg/kg	m.fd
NSB-F5-20.0-20.5	8/21/2012	N	SO	JB14312	JB14312-13R	SW7196	JB14312R	16.2	1	CHROMIUM (HEXAVALENT)	0.49	Y	J		0.14	0.48	mg/kg	m.fd
NSB-D1-1.0-1.5	8/21/2012	N	SO	JB14312	JB14312-1R	SW7196	JB14312R	10.0	1	CHROMIUM (HEXAVALENT)	1.8	Y	J		0.13	0.44	mg/kg	m.fd
NSB-D1-16.0-16.5	8/21/2012	N	SO	JB14312	JB14312-3R	SW7196	JB14312R	17.8	1	CHROMIUM (HEXAVALENT)	1.6	Y	J		0.14	0.49	mg/kg	m.fd
NSB-D1-4.0-4.5	8/21/2012	N	SO	JB14312	JB14312-5R	SW7196	JB14312R	16.9	1	CHROMIUM (HEXAVALENT)	4.3	Y	J		0.14	0.48	mg/kg	m.fd
NSB-D2-3.0-3.5	8/21/2012	N	SO	JB14312	JB14312-8R	SW7196	JB14312R	10.9	1	CHROMIUM (HEXAVALENT)	3	Y	J		0.13	0.45	mg/kg	m.fd
NSB-EB20120822	8/22/2012	EB	WQ	JB14404	JB14404-2	SW7196	JB14404		1	CHROMIUM (HEXAVALENT)	0.01	N	U	U	0.0014	0.010	mg/l	
NSB-D3-6.5-7.0	8/22/2012	N	SO	JB14404	JB14404-12	SW7196	JB14404	35.0	1	CHROMIUM (HEXAVALENT)	0.43	Y	J	B	0.18	0.62	mg/kg	
NSB-D2-16.6-17.1	8/22/2012	N	SO	JB14404	JB14404-13	SW7196	JB14404	28.5	1	CHROMIUM (HEXAVALENT)	0.27	Y	J	B	0.16	0.56	mg/kg	
NSB-D3-15.0-15.5	8/22/2012	N	SO	JB14404	JB14404-10	SW7196	JB14404	46.8	1	CHROMIUM (HEXAVALENT)	0.75	N	U	U	0.22	0.75	mg/kg	
NSB-D2-15.0-15.5	8/22/2012	N	SO	JB14404	JB14404-14	SW7196	JB14404	40.4	1	CHROMIUM (HEXAVALENT)	0.67	N	U	U	0.20	0.67	mg/kg	
NSB-D2-20.0-20.5	8/22/2012	N	SO	JB14404	JB14404-15	SW7196	JB14404	19.8	1	CHROMIUM (HEXAVALENT)	1.2	Y			0.15	0.50	mg/kg	
NSB-D4-20.0-20.5	8/22/2012	N	SO	JB14404	JB14404-3	SW7196	JB14404	11.2	1	CHROMIUM (HEXAVALENT)	1.1	Y			0.13	0.45	mg/kg	
NSB-D4-16.5-17.0	8/22/2012	N	SO	JB14404	JB14404-4	SW7196	JB14404	13.0	1	CHROMIUM (HEXAVALENT)	0.64	Y			0.13	0.46	mg/kg	
NSB-D4-12.0-12.5	8/22/2012	N	SO	JB14404	JB14404-5	SW7196	JB14404	21.0	1	CHROMIUM (HEXAVALENT)	1.1	Y			0.15	0.51	mg/kg	
NSB-D4-10.5-11.0	8/22/2012	N	SO	JB14404	JB14404-6	SW7196	JB14404	28.4	1	CHROMIUM (HEXAVALENT)	0.57	Y			0.16	0.56	mg/kg	
NSB-D4-6.0-6.5	8/22/2012	N	SO	JB14404	JB14404-7	SW7196	JB14404	32.1	1	CHROMIUM (HEXAVALENT)	0.59	N	U	U	0.17	0.59	mg/kg	
NSB-D3-21.0-21.5	8/22/2012	N	SO	JB14404	JB14404-9	SW7196	JB14404	13.9	1	CHROMIUM (HEXAVALENT)	0.47	Y			0.14	0.46	mg/kg	
NSB-D3-10.8-11.3	8/22/2012	N	SO	JB14404	JB14404-11	SW7196	JB14404	57.4	1	CHROMIUM (HEXAVALENT)	1.3	Y	J		0.27	0.94	mg/kg	x
NSB-EB20120824	8/24/2012	EB	WQ	JB14656	JB14656-20	SW7196	JB14656		1	CHROMIUM (HEXAVALENT)	0.01	N	U	U	0.0014	0.010	mg/l	
NSB-E1-12.5-13.0	8/24/2012	N	SO	JB14656	JB14656-14	SW7196	JB14656	15.3	1	CHROMIUM (HEXAVALENT)	0.17	Y	J	B	0.14	0.47	mg/kg	fd
NSB-E2-12.5-13.0	8/24/2012	N	SO	JB14656	JB14656-9	SW7196	JB14656	31.0	1	CHROMIUM (HEXAVALENT)	0.46	Y	J	B	0.17	0.58	mg/kg	fd
NSB-E1-20.0-20.5	8/24/2012	N	SO	JB14656	JB14656-12	SW7196	JB14656	12.6	1	CHROMIUM (HEXAVALENT)	0.46	N	UJ	U	0.13	0.46	mg/kg	fd
NSB-E1-16.0-16.5	8/24/2012	N	SO	JB14656	JB14656-13	SW7196	JB14656	12.7	1	CHROMIUM (HEXAVALENT)	0.46	N	UJ	U	0.13	0.46	mg/kg	fd
NSB-E1-10.0-10.5	8/24/2012	N	SO	JB14656	JB14656-15	SW7196	JB14656	9.6	1	CHROMIUM (HEXAVALENT)	0.44	N	UJ	U	0.13	0.44	mg/kg	fd

Field ID	Sample Date	Sample Type	Matrix	SDG	Lab ID	Method	Lab SDG	percent moisture	DF	chemical_name	Result	Detect Flag	DV Qual	Lab Qual	MDL	RL	Units	reason code
NSB-E2-1.0-1.5	8/24/2012	N	SO	JB14656	JB14656-18	SW7196	JB14656	15.6	1	CHROMIUM (HEXAVALENT)	0.47	N	UJ	U	0.14	0.47	mg/kg	fd
NSB-E3-16.0-16.5	8/24/2012	N	SO	JB14656	JB14656-4	SW7196	JB14656	14.1	1	CHROMIUM (HEXAVALENT)	0.47	N	UJ	U	0.14	0.47	mg/kg	fd
NSB-E3-10.0-10.5	8/24/2012	N	SO	JB14656	JB14656-5	SW7196	JB14656	39.5	1	CHROMIUM (HEXAVALENT)	0.66	N	UJ	U	0.19	0.66	mg/kg	fd
NSB-E3-5.5-6.0	8/24/2012	N	SO	JB14656	JB14656-6	SW7196	JB14656	33.0	1	CHROMIUM (HEXAVALENT)	0.6	N	UJ	U	0.17	0.60	mg/kg	fd
NSB-E2-21.0-21.5	8/24/2012	N	SO	JB14656	JB14656-7	SW7196	JB14656	11.9	1	CHROMIUM (HEXAVALENT)	0.45	N	UJ	U	0.13	0.45	mg/kg	fd
NSB-E2-16.0-16.5	8/24/2012	N	SO	JB14656	JB14656-8	SW7196	JB14656	11.5	1	CHROMIUM (HEXAVALENT)	0.45	N	UJ	U	0.13	0.45	mg/kg	fd
NSB-E2-1.0-1.5X	8/24/2012	FD	SO	JB14656	JB14656-17	SW7196	JB14656	14.9	1	CHROMIUM (HEXAVALENT)	4.6	Y	J		0.14	0.47	mg/kg	fd
NSB-E4-4.0-4.5	8/24/2012	N	SO	JB14656	JB14656-1	SW7196	JB14656	8.3	1	CHROMIUM (HEXAVALENT)	1.1	Y	J		0.13	0.44	mg/kg	fd
NSB-E3-4.0-4.5	8/24/2012	N	SO	JB14656	JB14656-10	SW7196	JB14656	12.5	1	CHROMIUM (HEXAVALENT)	0.92	Y	J		0.13	0.46	mg/kg	fd
NSB-E3-0.5-1.0	8/24/2012	N	SO	JB14656	JB14656-11	SW7196	JB14656	13.5	1	CHROMIUM (HEXAVALENT)	1.2	Y	J		0.14	0.46	mg/kg	fd
NSB-E2-4.0-4.5	8/24/2012	N	SO	JB14656	JB14656-16	SW7196	JB14656	34.3	1	CHROMIUM (HEXAVALENT)	4.8	Y	J		0.18	0.61	mg/kg	fd
NSB-E1-4.0-4.5	8/24/2012	N	SO	JB14656	JB14656-19	SW7196	JB14656	18.9	1	CHROMIUM (HEXAVALENT)	9.2	Y	J		0.14	0.49	mg/kg	fd
NSB-E4-1.0-1.5	8/24/2012	N	SO	JB14656	JB14656-2	SW7196	JB14656	10.5	1	CHROMIUM (HEXAVALENT)	1.3	Y	J		0.13	0.45	mg/kg	fd
NSB-E1-2.0-2.5	8/24/2012	N	SO	JB14656	JB14656-21	SW7196	JB14656	14.1	1	CHROMIUM (HEXAVALENT)	1.3	Y	J		0.14	0.47	mg/kg	fd
NSB-E3-20.0-20.5	8/24/2012	N	SO	JB14656	JB14656-3	SW7196	JB14656	10.3	1	CHROMIUM (HEXAVALENT)	2.6	Y	J		0.13	0.45	mg/kg	fd
NSB-EB20120827	8/27/2012	EB	WQ	JB14769	JB14769-10	SW7196	JB14769		1	CHROMIUM (HEXAVALENT)	0.01	N	U	U	0.0014	0.010	mg/l	
NSB-E4-16.0-16.5X	8/27/2012	FD	SO	JB14769	JB14769-7	SW7196	JB14769	20.4	1	CHROMIUM (HEXAVALENT)	0.39	Y	J	B	0.15	0.50	mg/kg	
NSB-F1-16.0-16.5	8/27/2012	N	SO	JB14769	JB14769-2	SW7196	JB14769	18.4	1	CHROMIUM (HEXAVALENT)	0.16	Y	J	B	0.14	0.49	mg/kg	
NSB-E4-16.0-16.5	8/27/2012	N	SO	JB14769	JB14769-8	SW7196	JB14769	17.1	1	CHROMIUM (HEXAVALENT)	0.21	Y	J	B	0.14	0.48	mg/kg	
NSB-E4-12.0-12.5	8/27/2012	N	SO	JB14769	JB14769-9	SW7196	JB14769	23.1	1	CHROMIUM (HEXAVALENT)	0.34	Y	J	B	0.15	0.52	mg/kg	
NSB-F1-20.0-20.5	8/27/2012	N	SO	JB14769	JB14769-1	SW7196	JB14769	15.9	1	CHROMIUM (HEXAVALENT)	0.48	N	U	U	0.14	0.48	mg/kg	
NSB-E4-6.5-7.0	8/27/2012	N	SO	JB14769	JB14769-11	SW7196	JB14769	36.6	1	CHROMIUM (HEXAVALENT)	0.63	N	U	U	0.18	0.63	mg/kg	
NSB-F1-10.0-10.5	8/27/2012	N	SO	JB14769	JB14769-3	SW7196	JB14769	27.3	1	CHROMIUM (HEXAVALENT)	1.2	Y			0.16	0.55	mg/kg	
NSB-F1-4.0-4.5	8/27/2012	N	SO	JB14769	JB14769-4	SW7196	JB14769	26.9	1	CHROMIUM (HEXAVALENT)	3.4	Y			0.16	0.55	mg/kg	
NSB-F1-1.0-1.5	8/27/2012	N	SO	JB14769	JB14769-5	SW7196	JB14769	9.7	1	CHROMIUM (HEXAVALENT)	1.6	Y			0.13	0.44	mg/kg	
NSB-E4-21.0-21.5	8/27/2012	N	SO	JB14769	JB14769-6	SW7196	JB14769	12.3	1	CHROMIUM (HEXAVALENT)	0.46	N	U	U	0.13	0.46	mg/kg	
NSB-EB20120828	8/28/2012	EB	WQ	JB14858	JB14858-17	SW7196	JB14858		1	CHROMIUM (HEXAVALENT)	0.01	N	U	U	0.0014	0.010	mg/l	
NSB-F4-6.0-6.5	8/28/2012	N	SO	JB14858	JB14858-16	SW7196	JB14858	37.8	1	CHROMIUM (HEXAVALENT)	0.53	Y	J	B	0.19	0.63	mg/kg	m,fd,ld
NSB-F2-21.5-22.0	8/28/2012	N	SO	JB14858	JB14858-1	SW7196	JB14858	14.9	1	CHROMIUM (HEXAVALENT)	0.74	Y	J		0.14	0.47	mg/kg	m,fd,ld
NSB-F4-20.0-20.5	8/28/2012	N	SO	JB14858	JB14858-11	SW7196	JB14858	14.4	1	CHROMIUM (HEXAVALENT)	0.6	Y	J		0.14	0.47	mg/kg	m,fd,ld
NSB-F2-15.0-15.5	8/28/2012	N	SO	JB14858	JB14858-3	SW7196	JB14858	23.4	1	CHROMIUM (HEXAVALENT)	1.8	Y	J		0.15	0.52	mg/kg	m,fd,ld
NSB-F2-10.5-11.0	8/28/2012	N	SO	JB14858	JB14858-5	SW7196	JB14858	22.4	1	CHROMIUM (HEXAVALENT)	0.6	Y	J		0.15	0.52	mg/kg	m,fd,ld
NSB-F2-4.0-4.5	8/28/2012	N	SO	JB14858	JB14858-6	SW7196	JB14858	12.4	1	CHROMIUM (HEXAVALENT)	2.6	Y	J		0.13	0.46	mg/kg	m,fd,ld
NSB-F2-1.0-1.5	8/28/2012	N	SO	JB14858	JB14858-7	SW7196	JB14858	16.9	1	CHROMIUM (HEXAVALENT)	2.8	Y	J		0.14	0.48	mg/kg	m,fd,ld
NSB-F2-17.8-18.3	8/28/2012	N	SO	JB14858	JB14858-2R	SW7196	JB14858R	11.6	1	CHROMIUM (HEXAVALENT)	0.45	N	UJ	U	0.13	0.45	mg/kg	m,fd,ld
NSB-F3-10.0-10.5	8/28/2012	N	SO	JB14858	JB14858-10R	SW7196	JB14858R	41.7	1	CHROMIUM (HEXAVALENT)	1.3	Y	J		0.20	0.69	mg/kg	m,fd,ld
NSB-F4-16.0-16.5	8/28/2012	N	SO	JB14858	JB14858-12R	SW7196	JB14858R	23.6	1	CHROMIUM (HEXAVALENT)	0.72	Y	J		0.15	0.52	mg/kg	m,fd,ld
NSB-F3-4.0-4.5	8/28/2012	N	SO	JB14858	JB14858-13R	SW7196	JB14858R	18.2	1	CHROMIUM (HEXAVALENT)	7.7	Y	J		0.14	0.49	mg/kg	m,fd,ld
NSB-F3-1.0-1.5	8/28/2012	N	SO	JB14858	JB14858-14R	SW7196	JB14858R	13.1	1	CHROMIUM (HEXAVALENT)	1.3	Y	J		0.13	0.46	mg/kg	m,fd,ld
NSB-F4-10.0-10.5	8/28/2012	N	SO	JB14858	JB14858-15R	SW7196	JB14858R	38.7	1	CHROMIUM (HEXAVALENT)	2	Y	J		0.19	0.65	mg/kg	m,fd,ld
NSB-F4-0.0-0.5	8/28/2012	N	SO	JB14858	JB14858-18R	SW7196	JB14858R	18.3	1	CHROMIUM (HEXAVALENT)	3.1	Y	J		0.14	0.49	mg/kg	m,fd,ld
NSB-F2-10.5-11.0X	8/28/2012	N	SO	JB14858	JB14858-4R	SW7196	JB14858R	24.7	1	CHROMIUM (HEXAVALENT)	3.3	Y	J		0.16	0.53	mg/kg	m,fd,ld
NSB-F3-20.0-20.5	8/28/2012	N	SO	JB14858	JB14858-8R	SW7196	JB14858R	13.5	1	CHROMIUM (HEXAVALENT)	3.8	Y	J		0.14	0.46	mg/kg	m,fd,ld
NSB-F3-15.0-15.5	8/28/2012	N	SO	JB14858	JB14858-9R	SW7196	JB14858R	13.3	1	CHROMIUM (HEXAVALENT)	1.8	Y	J		0.13	0.46	mg/kg	m,fd,ld

AECOM
250 Apollo Drive
Chelmsford, MA 01824

978-905-2100 tel
978-905-2101 fax

Data Validation Report

Project:	PPG – Garfield Avenue Supplemental Remedial Investigation (GARIS) Northern Canal Borings
Laboratory:	Accutest, Dayton, NJ
Laboratory Job No.:	JB14201 and JB14201R
Analysis/Method:	Hexavalent Chromium SW846 3060A/7196A
Validation Level:	Full (Hexavalent Chromium)
Site Location/Address:	PPG Site 114 – Garfield Avenue, Jersey City, NJ
AECOM Project Number:	60213772.5.A
Prepared by: Kristin Rutherford/AECOM	Completed on: September 12, 2012
Reviewed by: Lisa Krowitz/AECOM	File Name: 2012-09-12 DV Report JB14201-F.docx

Introduction

The data were reviewed in accordance with the FSP-QAPP and the following NJDEP and/or Region 2 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.

Sample Information

The sample listed below was collected by AECOM on August 20, 2012 as part of the Garfield Avenue Supplemental Remedial Investigation (GARIS) Northern Canal Boring Sampling at the PPG Site - 114 Jersey City, New Jersey.

Field ID	Laboratory ID	Matrix	Fraction
NSB-F5-12.0-12.5	JB14201-1, -1R	Soil	Hexavalent Chromium
NSB-F5-8.0-8.5	JB14201-2, -2R	Soil	Hexavalent Chromium
NSB-F5-4.0-4.5	JB14201-3, -3R	Soil	Hexavalent Chromium
NSB-F5-0.0-0.5	JB14201-4, -4R	Soil	Hexavalent Chromium
NSB-D5-20.0-20.5	JB14201-5, -5R	Soil	Hexavalent Chromium
NSB-D5-18.0-18.5	JB14201-6, -6R	Soil	Hexavalent Chromium
NSB-D5-15.0-15.5	JB14201-7, -7R	Soil	Hexavalent Chromium
NSB-D5-12.0-12.5	JB14201-8, -8R	Soil	Hexavalent Chromium
NSB-D5-6.4-6.9	JB14201-9, -9R	Soil	Hexavalent Chromium
NSB-D5-3.0-3.5X (field duplicate of NSB-D5-3.0-3.5)	JB14201-10, -10R	Soil	Hexavalent Chromium
NSB-D5-3.0-3.5	JB14201-11, -11R	Soil	Hexavalent Chromium
NSB-E5-3.0-3.5	JB14201-12, -12R	Soil	Hexavalent Chromium
NSB-EB20120820 (equipment blank)	JB14201-13	Aqueous	Hexavalent Chromium

The samples were collected following the procedures detailed in the Remedial Investigation Work Plan – Soil for Non-Residential Chromate Chemical Production Waste Sites 114, 132, 133, 135, 137, 143, and 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

Matrix Spike Results

Sample NSB-E5-3.0-3.5 (JB14201-12) 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 (GN71458) were 47.3% and 108.7%, respectively; the soluble MS recovery did not meet quality control criteria of 75-125%R, and was <50%R. The post digestion spike (PDS) recovery was 92.9%, which met the PDS criteria of 85-115%.

The soluble and insoluble matrix spike recoveries from the re-analysis (batch GN71549) were 66.5% and 94.2%, respectively; again the soluble MS recovery did not meet the quality control criteria of 75-125%R. The post spike result for the re-analysis batch was recovered at 94%, which met the PDS criteria of 85-115%.

Due to low MS recoveries, additional parameters were analyzed to determine if possible matrix interferences could be the cause for the poor matrix spike recoveries. The sample was 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 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 result was (1.4%) and the TOC (293,000 mg/Kg) were positive, indicating potential reducing agents within the sample matrix.

The soil hexavalent chromium results were reported from the re-analysis since the soluble MS recovery showed improvement from the initial analysis. However, the highest result for hexavalent chromium was reported for each sample so some results were reported from the initial analysis. Since the soluble MS recoveries in the initial and reanalysis were below 75%R, the reported positive and nondetect hexavalent chromium results for all soil samples in this SDG were qualified as estimated (J and UJ, respectively).

Sample Results

Reported results (flagged B by the laboratory) that were less than the reporting limit (RL), but greater than or equal to the method detection limit (MDL) are approximate values and have been qualified as estimated (J).

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 discussed in attachments A and B below.

The reported hexavalent chromium results in all soil samples are usable as estimated values with the potential for bias low due to poor MS recoveries.

Some sample results are usable as estimated values since they were detected between the RL and MDL.

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 PPG –GARIS Northern Canal Borings at PPG Site 114, Jersey City, NJ
Sampling Date August 20, 2012
Lab Name/ID Accutest Laboratories, Dayton, NJ
SDG No JB14201 and JB14201R
Sample Matrix Soil
Trip Blank ID NA
Field Blank ID NSB-EB20120820

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
NSB-F5-12.0-12.5	JB14201-1R	CHROMIUM (HEXAVALENT)	U	2.5	2.5	0.59	Qualify	18
NSB-F5-8.0-8.5	JB14201-2R	CHROMIUM (HEXAVALENT)	U	U	U	0.48	Qualify	18
NSB-F5-4.0-4.5	JB14201-3R	CHROMIUM (HEXAVALENT)	U	0.86	0.86	0.48	Qualify	18
NSB-F5-0.0-0.5	JB14201-4R	CHROMIUM (HEXAVALENT)	U	0.67	0.67	0.44	Qualify	18
NSB-D5-20.0-20.5	JB14201-5	CHROMIUM (HEXAVALENT)	U	0.71	0.71	0.45	Qualify	18
NSB-D5-18.0-18.5	JB14201-6	CHROMIUM (HEXAVALENT)	U	0.17	0.17	0.45	Qualify	18,31
NSB-D5-15.0-15.5	JB14201-7	CHROMIUM (HEXAVALENT)	U	0.22	0.22	0.45	Qualify	18,31
NSB-D5-12.0-12.5	JB14201-8R	CHROMIUM (HEXAVALENT)	U	0.71	0.71	0.51	Qualify	18
NSB-D5-6.4-6.9	JB14201-9R	CHROMIUM (HEXAVALENT)	U	0.28	0.28	0.51	Qualify	18,31
NSB-D5-3.0-3.5X	JB14201-10	CHROMIUM (HEXAVALENT)	U	0.27	0.27	0.47	Qualify	18,31
NSB-D5-3.0-3.5	JB14201-11R	CHROMIUM (HEXAVALENT)	U	0.57	0.57	0.48	Qualify	18
NSB-E5-3.0-3.5	JB14201-12	CHROMIUM (HEXAVALENT)	U	0.82	0.82	0.48	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 $\pm$ 20 percent for sample results > 4xRL or $\pm$ 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 rejected because the laboratory exceeded the holding time for digestion and 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 90°C.

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 6ºC.

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.

Attachment B

Data Validation Report Form

Client Name: PPG Industries	**Project Number:** 60213772.5.A
Site Location: PPG- GARIS Northern Canal Borings	**Project Manager:** Robert Cataldo
Laboratory: Accutest, Dayton, New Jersey	**Limited or Full Validation (circle one)**
Laboratory Job No: JB14201 and JB14201R	**Date Checked:** 09/12/2012
Validator: Kristin Rutherford	**Peer:** Lisa Krowitz

ITEM	YES	NO	N/A	COMMENTS
Sample results included?	x			12 soils and 1 EB
Reporting Limits met project requirements?	x			
Field I.D. included?	x			
Laboratory I.D. included?	x			
Sample matrix included?	x			
Sample receipt temperature 2-6ºC?	x			5.0°C
Signed COCs included?	x			
Date of sample collection included?	x			08/20/2012
Date of sample digestion included?	x			Soil: JB14201 HxCr prepped on 09/01/2012 Soil: JB14201R HxCr prepped on 09/04/2012
Holding time to digestion met criteria? Soils -30 days from collection to digestion.	x			Yes
Date of analysis included?	x			Soil: JB14201: HxCr analyzed on 09/01/2012. Soil: JB14201R: HxCr analyzed on 09/05/2012. AQ: 8/20/12
Holding time to analysis met criteria? Soils -168 hours from digestion to analysis. Aqueous – 24 hours from collection to analysis.	x			Yes
Method reference included?	x			3060A/7196A
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.

Comments

Field Duplicates: NSB-D5-3.0-3.5 and NSB-D5-3.0-3.5X. RPD criteria met for results in JB14201 and JB14201R (difference ±20% for results ≤4X RL). No qualifications required.

Sample Dilutions: None for this SDG.

ITEM	YES	NO	N/A	COMMENTS
Initial Calibration Documentation Included in Lab Package?	x			Cal source (soil – Absolute lot # 041212); AQ Absolute Lot #011212
1. Blank plus 4 standards (7196A) or blank plus 3 standards (7199), 2. Correlation coefficient of ≥0.995 (7196A) or ≥0.999 (7199). 3. Calibrate daily or each time instrument is set up.	x x x			1. Each analysis 1 blank and 7 cal STDs 2. All analyses meet CC 3. Yes
Calibration Check Standard (CCS) for 7196A and Quality Control Sample (QCS) for 7199 Included in Lab Package?	x			Check source (soil and AQ – Ultra lot # L00439)
1. %R criteria met? (90 - 110%). 2. Correct frequency of once every 10 samples 3. CCS and QCS from independent source and at mid level of calibration curve.	x x x			1. All met %R 2. Analyzed every 10 samples 3. Yes
Calibration Blanks	x			
1. Analyzed prior to initial calibration standards and after each CCS/QCS? 2. Absolute value should not exceed MDL.	x x			1. Yes 2. Yes
Method Blank and Field Blanks Included in Lab Package?	x			Equipment Blank NSB-EB20120820
1. Method blank analyzed with each preparation batch? 2. Absolute value should not exceed MDL.	x x			1. Yes, Soil – JB14201 GP66938-MB1, JB14201R GP66961-MB1, AQ GN70764 2. Yes, all method and field blanks were less than MDL.
Eh and pH data.	x			
Eh and pH data was included and plotted for all samples?	x			
Soluble Matrix Spike Data Included in Lab Package?	x			JB14201-12 [NSB-E5-3.0-3.5]; JB14201-12R [NSB-E5-3.0-3.5]
1. %R criteria met? (75-125%R).		x x		1. a. JB14201 – No (47.3 %); qualify results (J/UJ) b. JB14201R – No (66.5 %); qualify results (J/UJ)
2. Was the spike concentration 40 mg/Kg or twice the sample concentration, whichever is greater?	x x			2. a. JB14201 Yes, 48.6 mg/kg b. JB14201R Yes, 47.1 mg/kg
3. Was a sample spiked at the frequency of 1/batch or 20 samples?	x			3. Yes for all batches.
Insoluble Matrix Spike Data Included in Lab Package?	x			JB14201-12 [NSB-E5-3.0-3.5]; JB14201-12R [NSB-E5-3.0-3.5]
1. %R criteria met? (75-125%R).	x x			1. a. JB14201: Yes (108.7%) b. JB14201R: Yes (94.2 %)
2. Was the spike concentration around 400 to 800 mg/Kg?		x x		2. a. JB14201 No (974 mg/kg). No impact to data. b. JB14201R No (1020 mg/kg). No impact to data.
3. Was a sample spiked at the frequency of 1/batch or 20 samples?	x			3. Yes for all batches.
Post Digestion Spike	x			JB14201-12 [NSB-E5-3.0-3.5]; JB14201-12R [NSB-E5-3.0-3.5]
1. %R criteria met? (85-115%R).	x x			1. a. JB14201 Yes (92.9%) b. JB14201R Yes (94.0%)
2. Was the spike concentration 40 mg/Kg or twice the sample concentration?	x x			2. a. JB14201 Yes, 41.55 mg/kg b. JB14201R Yes, 41.51 mg/kg
3. Was a sample spiked at the frequency of 1/batch or 20 samples?	x			3. Yes for all batches.
Sample Duplicate Data Included in Lab Package?	x			JB14201-12 [NSB-E5-3.0-3.5]; JB14201-12R [NSB-E5-3.0-3.5]
1. RPD criteria met? (RPD < 20%) of both results are ≥4x RL or control limit of ±RL if both results are <4x RL.	x x			1. a. JB14201 - Yes, RPD 17.8% b. JB14201R – Yes, RPD 13.2%
2. Was a sample spiked at the frequency of 1/batch or 20 samples?	x			2. Yes
Was a Laboratory Control Sample (LCS) Included in Lab Package?	x			
1. %R criteria met? (80-120%R). 2. Was an LCS analyzed at the frequency of 1/batch or 20 samples?	x x			1. Yes, all LCS recoveries were within quality control criteria. 2. Yes
Miscellaneous Items.				
1. For soils by 3060A, was the initial pH within a range of 7.0-8.0? 2. For soils by 7199, was the pH within a range of 9.0-9.5? 3. For aqueous by 7196A, was the pH with a range of 1.5-2,5? 4. For soils (3060A), was the digestion temperature 90-95°C for at least 60 minutes? 5. For 7199, was each sample injected twice and was the RPD ≤20?	x x x 		 x x	1. Yes 2. NA 3. Yes 4. Yes 5. NA

Holding Time

Sample ID	Method	Days from Sampling to Prep	Days from Prep to Analysis	Days from Sampling to Analysis	Sample to Prep Status	Prep to Analysis Status	Sample to Analysis Status
NSB-EB20120820	SW7196			0			OK @1 days
NSB-D5-12.0-12.5	SW7196	12	0	12	OK @30 days	OK @7 days	OK @37 days
NSB-D5-12.0-12.5R	SW7196	15	1	16	OK @30 days	OK @7 days	OK @37 days
NSB-D5-15.0-15.5	SW7196	12	0	12	OK @30 days	OK @7 days	OK @37 days
NSB-D5-15.0-15.5R	SW7196	15	1	16	OK @30 days	OK @7 days	OK @37 days
NSB-D5-18.0-18.5	SW7196	12	0	12	OK @30 days	OK @7 days	OK @37 days
NSB-D5-18.0-18.5R	SW7196	15	1	16	OK @30 days	OK @7 days	OK @37 days
NSB-D5-20.0-20.5	SW7196	12	0	12	OK @30 days	OK @7 days	OK @37 days
NSB-D5-20.0-20.5R	SW7196	15	1	16	OK @30 days	OK @7 days	OK @37 days
NSB-D5-3.0-3.5	SW7196	12	0	12	OK @30 days	OK @7 days	OK @37 days
NSB-D5-3.0-3.5R	SW7196	15	1	16	OK @30 days	OK @7 days	OK @37 days
NSB-D5-3.0-3.5X	SW7196	12	0	12	OK @30 days	OK @7 days	OK @37 days
NSB-D5-3.0-3.5XR	SW7196	15	1	16	OK @30 days	OK @7 days	OK @37 days
NSB-D5-6.4-6.9	SW7196	12	0	12	OK @30 days	OK @7 days	OK @37 days
NSB-D5-6.4-6.9R	SW7196	15	1	16	OK @30 days	OK @7 days	OK @37 days
NSB-E5-3.0-3.5	SW7196	12	0	12	OK @30 days	OK @7 days	OK @37 days
NSB-E5-3.0-3.5R	SW7196	15	1	16	OK @30 days	OK @7 days	OK @37 days
NSB-F5-0.0-0.5	SW7196	12	0	12	OK @30 days	OK @7 days	OK @37 days
NSB-F5-0.0-0.5R	SW7196	15	1	16	OK @30 days	OK @7 days	OK @37 days
NSB-F5-12.0-12.5	SW7196	12	0	12	OK @30 days	OK @7 days	OK @37 days
NSB-F5-12.0-12.5R	SW7196	15	1	16	OK @30 days	OK @7 days	OK @37 days
NSB-F5-4.0-4.5	SW7196	12	0	12	OK @30 days	OK @7 days	OK @37 days
NSB-F5-4.0-4.5R	SW7196	15	1	16	OK @30 days	OK @7 days	OK @37 days
NSB-F5-8.0-8.5	SW7196	12	0	12	OK @30 days	OK @7 days	OK @37 days
NSB-F5-8.0-8.5R	SW7196	15	1	16	OK @30 days	OK @7 days	OK @37 days

Matrix Spike

Sample ID	Compound	Soluble MS % Recovery	Insoluble MS % Recovery	Lower Limit	Upper Limit	PDS % Recovery	PDS Lower Limit	PDS Upper Limit
NSB-E5-3.0-3.5	CHROMIUM (HEXAVALENT)	47.3	108.7	75	125	92.9	85	115
NSB-E5-3.0-3.5R	CHROMIUM (HEXAVALENT)	66.5	94.2	75	125	94.0	85	115

Percent Solids

Sample ID	Percent Solids (%)	Status
NSB-D5-12.0-12.5	78.7	ok @50%
NSB-D5-15.0-15.5	88.0	ok @50%
NSB-D5-18.0-18.5	88.1	ok @50%
NSB-D5-20.0-20.5	88.3	ok @50%
NSB-D5-3.0-3.5	83.1	ok @50%
NSB-D5-3.0-3.5X	85.2	ok @50%
NSB-D5-6.4-6.9	78.4	ok @50%
NSB-E5-3.0-3.5	82.9	ok @50%
NSB-F5-0.0-0.5	90.4	ok @50%
NSB-F5-12.0-12.5	67.8	ok @50%
NSB-F5-4.0-4.5	83.7	ok @50%
NSB-F5-8.0-8.5	84.0	ok @50%

Field Duplicate

Sample ID	Duplicate ID	Compound	Sample Result	Duplicate Result	QL	Units	RPD
NSB-D5-3.0-3.5	NSB-D5-3.0-3.5X	CHROMIUM (HEXAVALENT)	0.53	0.27	0.48	mg/kg	65.0
NSB-D5-3.0-3.5R	NSB-D5-3.0-3.5XR	CHROMIUM (HEXAVALENT)	0.57	0.20	0.48	mg/kg	96.1

PPG GARIS Soils by Method 7196	x - concentration	y - response
SDG#: JB14201		
Batch: GN71458	0	0
Cr+6 ICAL 09/01/12	0.01	0.01
(p. 61 of data pkg)	0.05	0.046
	0.1	0.092
	0.3	0.278
	0.5	0.461
	0.8	0.744
	1	0.917

(p. 61 of data pkg)

AECOM Calculated Intercept	0.0006	OK	Reported intercept	0.0006
AECOM Slope	0.9214	OK	Reported Slope	0.9214
AECOM Calculated r	0.99996	OK	Reported r	0.99996

LCS calculation	**GP66938-B1 pg. 61, 40**			
Background Absorbance	0			
Total absorbance	0.822			
Total absorbance - background	0.822			
Instrument Concentration (mg/L)	0.8914			
Sample weight (Kg)	0.0025			
Final Volume (L)	0.1			
Dilution Factor	1			
AECOM Calculated LCS Result (mg/Kg)	35.7	OK	Reported Result (mg/Kg)	35.7

%R = Found/True*100	**pg. 40**			
True Value (mg/Kg)	40			
AECOM Calculated %R	89.1	OK rounding	Reported %R	89.3

MS calculation	**GP66938-S2 NSB-E5-3.0-3.5 (JB14201-12) pgs. 61**			
Background absorbance reading	0.001			
Total absorbance	0.404			
Total absorbance - background	0.403			
Instrument Concentration (mg/L)	0.4367			
Sample weight (Kg)	0.00249			
Final Volume (L)	0.1			
Percent solids	0.829			
Dilution Factor	50			
AECOM Calculated MS Result (mg/Kg)	1058	OK rounding	Reported Result (mg/Kg)	1060

%R = Found/True*100	**NSB-E5-3.0-3.5 (JB14201-12) pgs. 61**			
True Value (mg/Kg)	974			
Native concentration (mg/Kg)	0.82			
AECOM%R	108.5	OK rounding	Reported %R	108.7

Percent Solids	**NSB-E5-3.0-3.5 (JB14201-12) pgs. 44**			
Empty dish weight (g)	21.6			
Wet weight (g)	27.90			
Dry weight (g)	26.82			
AECOM%solids =	82.9	OK	reported %solids=	82.9

Reporting Limit	**NSB-E5-3.0-3.5 (JB14201-12) pgs. 61**			
Low Standard (mg/L)	0.01			
Initial weight (Kg)	0.00246			
Final volume (L)	0.1			
Percent solids	0.829			
Dilution Factor	1			
Reporting Limit (mg/Kg)	0.49	OK rounding	Reported RL (mg/Kg)=	0.48

Sample Calculations

	NSB-E5-3.0-3.5 (JB14201-12) pgs. 61			
Background absorbance reading	0.012			
Total absorbance	0.028			
Total absorbance - background	0.016			
Instrument Response (mg/L)	0.017			
Sample weight (Kg)	0.00246			
Final Volume (L)	0.1			
Percent solids	0.829			
Dilution Factor	1			
AECOM Calculated Result (mg/Kg)	0.82	OK	Reported Result (mg/Kg)	0.82

PPG GARIS Soils by Method 7196	x - concentration	y - response
SDG#: JB14201R		
Batch: GN71549	0	0
Cr+6 ICAL 09/05/12	0.01	0.008
(p. 120 of data pkg)	0.05	0.043
	0.1	0.089
	0.3	0.267
	0.5	0.455
	0.8	0.71
	1	0.891

(p. 120 of data pkg)

AECOM Calculated Intercept	0.0001	OK	Reported intercept	0.0001
AECOM Slope	0.8920	OK	Reported Slope	0.892
AECOM Calculated r	0.99994	OK	Reported r	0.99994

LCS calculation	**GP66961-B1 pgs. 120, 37**			
Background Absorbance	0			
Total absorbance	0.848			
Total absorbance - background	0.848			
Instrument Concentration (mg/L)	0.9505			
Sample weight (Kg)	0.0025			
Final Volume (L)	0.1			
Dilution Factor	1			
AECOM Calculated LCS Result (mg/Kg)	38.0	OK rounding	Reported Result (mg/Kg)	37.9

%R = Found/True*100	**pg. 37**			
True Value (mg/Kg)	40			
AECOM Calculated %R	95.1	OK rounding	Reported %R	94.8

MS calculation	**GP66961-S2 NSB-E5-3.0-3.5 (JB14201-12R) pgs. 120, 39**			
Background absorbance reading	0			
Total absorbance	0.363			
Total absorbance - background	0.363			
Instrument Concentration (mg/L)	0.4068			
Sample weight (Kg)	0.00256			
Final Volume (L)	0.1			
Percent solids	0.829			
Dilution Factor	50			
AECOM Calculated MS Result (mg/Kg)	958	OK	Reported Result (mg/Kg)	958

%R = Found/True*100	**GP66920-S2 NSB-E5-3.0-3.5 (JB14201-12R) pgs. 120, 39**			
True Value (mg/Kg)	1020			
Native concentration (mg/Kg)	0.78			
AECOM%R	93.9	OK rounding	Reported %R	94.2

Percent Solids	**NSB-E5-3.0-3.5 (JB14201-12R) pgs. 46**			
Empty dish weight (g)	21.6			
Wet weight (g)	27.90			
Dry weight (g)	26.82			
AECOM%solids =	82.9	OK	reported %solids=	82.9

Reporting Limit	**NSB-E5-3.0-3.5 (JB14201-12R) pgs. 120**			
Low Standard (mg/L)	0.01			
Initial weight (Kg)	0.00257			
Final volume (L)	0.1			
Percent solids	0.829			
Dilution Factor	1			
Reporting Limit (mg/Kg)	0.47	OK rounding	Reported RL (mg/Kg)=	0.48

Sample Calculations

	NSB-E5-3.0-3.5 (JB14201-12R) pgs. 125, 23			
Background absorbance reading	0.007			
Total absorbance	0.022			
Total absorbance - background	0.015			
Instrument Response (mg/L)	0.017			
Sample weight (Kg)	0.00257			
Final Volume (L)	0.1			
Percent solids	0.829			
Dilution Factor	1			
AECOM Calculated Result (mg/Kg)	0.78	OK	Reported Result (mg/Kg)	0.78

New Jersey ACCUTEST LABORATORIES

09/05/12

Technical Report for

AECOM, INC.

PPG Northern Canal Borings, Jersey City, NJ

60213772.5.A

Accutest Job Number: JB14201

Sampling Date: 08/20/12

Report to:

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

Total number of pages in report: **71**

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.

Paul Ioannidis
Lab 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

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Sample Summary

AECOM, INC.

Job No: JB14201

PPG Northern Canal Borings, Jersey City, NJ
Project No: 60213772.5.A

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JB14201-1	08/20/12	14:30	CM	08/20/12	SO	Soil	NSB-F5-12.0-12.5
JB14201-2	08/20/12	14:15	CM	08/20/12	SO	Soil	NSB-F5-8.0-8.5
JB14201-3	08/20/12	13:45	CM	08/20/12	SO	Soil	NSB-F5-4.0-4.5
JB14201-4	08/20/12	12:30	CM	08/20/12	SO	Soil	NSB-F5-0.0-0.5
JB14201-5	08/20/12	12:45	CM	08/20/12	SO	Soil	NSB-D5-20.0-20.5
JB14201-6	08/20/12	12:20	CM	08/20/12	SO	Soil	NSB-D5-18.0-18.5
JB14201-7	08/20/12	12:10	CM	08/20/12	SO	Soil	NSB-D5-15.0-15.5
JB14201-8	08/20/12	11:35	CM	08/20/12	SO	Soil	NSB-D5-12.0-12.5
JB14201-9	08/20/12	10:45	CM	08/20/12	SO	Soil	NSB-D5-6.4-6.9
JB14201-10	08/20/12	09:35	CM	08/20/12	SO	Soil	NSB-D5-3.0-3.5X
JB14201-11	08/20/12	09:30	CM	08/20/12	SO	Soil	NSB-D5-3.0-3.5
JB14201-12	08/20/12	10:50	CM	08/20/12	SO	Soil	NSB-E5-3.0-3.5
JB14201-12D	08/20/12	10:50	CM	08/20/12	SO	Soil Dup/MSD	NSB-E5-3.0-3.5

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

Sample Summary
(continued)

AECOM, INC.

Job No: JB14201

PPG Northern Canal Borings, Jersey City, NJ
Project No: 60213772.5.A

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JB14201-12S	08/20/12	10:50	CM	08/20/12	SO	Soil Matrix Spike	NSB-E5-3.0-3.5
JB14201-13	08/20/12	15:15	CM	08/20/12	AQ	Equipment Blank	NSB-EB20120820

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

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: AECOM, INC. **Job No** JB14201

Site: PPG Northern Canal Borings, Jersey City, NJ **Report Date** 9/4/2012 10:54:02 AM

On 08/20/2012, 12 Sample(s), 0 Trip Blank(s) and 1 Equipment Blank(s) were received at Accutest Laboratories at a temperature of 5 C. Samples were intact and chemically preserved, unless noted below. An Accutest Job Number of JB14201 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:** GN71296

- Sample(s) JB14201-13DUP were used as the QC samples for Redox Potential Vs H2.

Wet Chemistry By Method ASTM D1498-76M

Matrix: SO **Batch ID:** GN71304

- Sample(s) JB14201-12DUP were used as the QC samples for Redox Potential Vs H2.

Wet Chemistry By Method SM18 2540G

Matrix: SO **Batch ID:** GN70853

- The data for SM18 2540G meets quality control requirements.

Wet Chemistry By Method SM20 4500H B

Matrix: AQ **Batch ID:** R115321

- The data for SM20 4500H B meets quality control requirements.
- JB14201-13 for pH: Sample received out of holding time for pH analysis.

Wet Chemistry By Method SW846 3060A/7196A

Matrix: SO **Batch ID:** GP66938

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB14201-12DUP, JB14201-12MS 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 (92.9%) on this sample.
- GP66938-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:	GN70764

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB14205-5DUP, JB14205-5MS were used as the QC samples for Chromium, Hexavalent.
- Matrix Spike Recovery(s) for Chromium, Hexavalent are outside control limits. Low recovery on XCR matrix spike. Low recovery (54%) on the pH-adjusted post-spike.

Wet Chemistry By Method SW846 9045C,D

Matrix:	SO	Batch ID:	GN71303

- Sample(s) JB14201-12DUP 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: JB14201
Account: AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Collected: 08/20/12

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JB14201-1	**NSB-F5-12.0-12.5**					
Chromium, Hexavalent		0.34 B	0.59	0.17	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		322			mv	ASTM D1498-76M
pH		7.07			su	SW846 9045C,D
JB14201-2	**NSB-F5-8.0-8.5**					
Redox Potential Vs H2		195			mv	ASTM D1498-76M
pH		7.44			su	SW846 9045C,D
JB14201-3	**NSB-F5-4.0-4.5**					
Chromium, Hexavalent		0.34 B	0.48	0.14	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		395			mv	ASTM D1498-76M
pH		6.99			su	SW846 9045C,D
JB14201-4	**NSB-F5-0.0-0.5**					
Redox Potential Vs H2		364			mv	ASTM D1498-76M
pH		7.96			su	SW846 9045C,D
JB14201-5	**NSB-D5-20.0-20.5**					
Chromium, Hexavalent		0.71	0.45	0.13	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		336			mv	ASTM D1498-76M
pH		8.67			su	SW846 9045C,D
JB14201-6	**NSB-D5-18.0-18.5**					
Chromium, Hexavalent		0.17 B	0.45	0.13	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		341			mv	ASTM D1498-76M
pH		8.16			su	SW846 9045C,D
JB14201-7	**NSB-D5-15.0-15.5**					
Chromium, Hexavalent		0.22 B	0.45	0.13	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		246			mv	ASTM D1498-76M
pH		8.52			su	SW846 9045C,D
JB14201-8	**NSB-D5-12.0-12.5**					
Chromium, Hexavalent		0.30 B	0.51	0.15	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		164			mv	ASTM D1498-76M
pH		7.92			su	SW846 9045C,D

Summary of Hits

Job Number: JB14201
Account: AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Collected: 08/20/12

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JB14201-9	**NSB-D5-6.4-6.9**					
Redox Potential Vs H2		188			mv	ASTM D1498-76M
pH		7.63			su	SW846 9045C,D
JB14201-10	**NSB-D5-3.0-3.5X**					
Chromium, Hexavalent		0.27 B	0.47	0.14	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		395			mv	ASTM D1498-76M
pH		7.47			su	SW846 9045C,D
JB14201-11	**NSB-D5-3.0-3.5**					
Chromium, Hexavalent		0.53	0.48	0.14	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		384			mv	ASTM D1498-76M
pH		7.70			su	SW846 9045C,D
JB14201-12	**NSB-E5-3.0-3.5**					
Chromium, Hexavalent		0.82	0.48	0.14	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		378			mv	ASTM D1498-76M
pH		7.39			su	SW846 9045C,D
JB14201-13	**NSB-EB20120820**					
Redox Potential Vs H2		327			mv	ASTM D1498-76
pH [a]		6.45			su	SM20 4500H B

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

New Jersey ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID: NSB-F5-12.0-12.5
Lab Sample ID: JB14201-1
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/20/12
Date Received: 08/20/12
Percent Solids: 67.8

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.34 B	0.59	0.17	mg/kg	1	09/01/12 16:17	AD	SW846 3060A/7196A
Redox Potential Vs H2	322			mv	1	08/30/12	SA	ASTM D1498-76M
Solids, Percent	67.8			%	1	08/22/12 13:05	KP	SM18 2540G
pH	7.07			su	1	08/30/12 11:27	SA	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: NSB-F5-8.0-8.5
Lab Sample ID: JB14201-2
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/20/12
Date Received: 08/20/12
Percent Solids: 84.0

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.14 U	0.48	0.14	mg/kg	1	09/01/12 16:17	AD	SW846 3060A/7196A
Redox Potential Vs H2	195			mv	1	08/30/12	SA	ASTM D1498-76M
Solids, Percent	84			%	1	08/22/12 13:05	KP	SM18 2540G
pH	7.44			su	1	08/30/12 11:27	SA	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: NSB-F5-4.0-4.5
Lab Sample ID: JB14201-3
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/20/12
Date Received: 08/20/12
Percent Solids: 83.7

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.34 B	0.48	0.14	mg/kg	1	09/01/12 16:17	AD	SW846 3060A/7196A
Redox Potential Vs H2	395			mv	1	08/30/12	SA	ASTM D1498-76M
Solids, Percent	83.7			%	1	08/22/12 13:05	KP	SM18 2540G
pH	6.99			su	1	08/30/12 11:27	SA	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: NSB-F5-0.0-0.5
Lab Sample ID: JB14201-4
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/20/12
Date Received: 08/20/12
Percent Solids: 90.4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.13 U	0.44	0.13	mg/kg	1	09/01/12 16:17	AD	SW846 3060A/7196A
Redox Potential Vs H2	364			mv	1	08/30/12	SA	ASTM D1498-76M
Solids, Percent	90.4			%	1	08/22/12 13:05	KP	SM18 2540G
pH	7.96			su	1	08/30/12 11:27	SA	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: NSB-D5-20.0-20.5
Lab Sample ID: JB14201-5
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/20/12
Date Received: 08/20/12
Percent Solids: 88.3

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.71	0.45	0.13	mg/kg	1	09/01/12 16:17	AD	SW846 3060A/7196A
Redox Potential Vs H2	336			mv	1	08/30/12	SA	ASTM D1498-76M
Solids, Percent	88.3			%	1	08/22/12 13:05	KP	SM18 2540G
pH	8.67			su	1	08/30/12 11:27	SA	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: NSB-D5-18.0-18.5
Lab Sample ID: JB14201-6
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/20/12
Date Received: 08/20/12
Percent Solids: 88.1

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.17 B	0.45	0.13	mg/kg	1	09/01/12 16:17	AD	SW846 3060A/7196A
Redox Potential Vs H2	341			mv	1	08/30/12	SA	ASTM D1498-76M
Solids, Percent	88.1			%	1	08/22/12 13:05	KP	SM18 2540G
pH	8.16			su	1	08/30/12 11:27	SA	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: NSB-D5-15.0-15.5
Lab Sample ID: JB14201-7
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/20/12
Date Received: 08/20/12
Percent Solids: 88.0

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.22 B	0.45	0.13	mg/kg	1	09/01/12 16:17	AD	SW846 3060A/7196A
Redox Potential Vs H2	246			mv	1	08/30/12	SA	ASTM D1498-76M
Solids, Percent	88			%	1	08/22/12 13:05	KP	SM18 2540G
pH	8.52			su	1	08/30/12 11:27	SA	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: NSB-D5-12.0-12.5
Lab Sample ID: JB14201-8
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/20/12
Date Received: 08/20/12
Percent Solids: 78.7

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.30 B	0.51	0.15	mg/kg	1	09/01/12 16:17	AD	SW846 3060A/7196A
Redox Potential Vs H2	164			mv	1	08/30/12	SA	ASTM D1498-76M
Solids, Percent	78.7			%	1	08/22/12 13:05	KP	SM18 2540G
pH	7.92			su	1	08/30/12 11:27	SA	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: NSB-D5-6.4-6.9
Lab Sample ID: JB14201-9
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/20/12
Date Received: 08/20/12
Percent Solids: 78.4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.15 U	0.51	0.15	mg/kg	1	09/01/12 16:17	AD	SW846 3060A/7196A
Redox Potential Vs H2	188			mv	1	08/30/12	SA	ASTM D1498-76M
Solids, Percent	78.4			%	1	08/22/12 13:05	KP	SM18 2540G
pH	7.63			su	1	08/30/12 11:27	SA	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: NSB-D5-3.0-3.5X
Lab Sample ID: JB14201-10
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/20/12
Date Received: 08/20/12
Percent Solids: 85.2

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.27 B	0.47	0.14	mg/kg	1	09/01/12 16:17	AD	SW846 3060A/7196A
Redox Potential Vs H2	395			mv	1	08/30/12	SA	ASTM D1498-76M
Solids, Percent	85.2			%	1	08/22/12 13:05	KP	SM18 2540G
pH	7.47			su	1	08/30/12 11:27	SA	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: NSB-D5-3.0-3.5
Lab Sample ID: JB14201-11
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/20/12
Date Received: 08/20/12
Percent Solids: 83.1

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.53	0.48	0.14	mg/kg	1	09/01/12 16:19	AD	SW846 3060A/7196A
Redox Potential Vs H2	384			mv	1	08/30/12	SA	ASTM D1498-76M
Solids, Percent	83.1			%	1	08/22/12 13:05	KP	SM18 2540G
pH	7.70			su	1	08/30/12 11:27	SA	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: NSB-E5-3.0-3.5
Lab Sample ID: JB14201-12
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/20/12
Date Received: 08/20/12
Percent Solids: 82.9

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.82	0.48	0.14	mg/kg	1	09/01/12 15:25	AD	SW846 3060A/7196A
Redox Potential Vs H2	378			mv	1	08/30/12	SA	ASTM D1498-76M
Solids, Percent	82.9			%	1	08/22/12 13:05	KP	SM18 2540G
pH	7.39			su	1	08/30/12 11:27	SA	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:	NSB-EB20120820		
Lab Sample ID:	JB14201-13	**Date Sampled:**	08/20/12
Matrix:	AQ - Equipment Blank	**Date Received:**	08/20/12
		Percent Solids:	n/a
Project:	PPG Northern Canal Borings, Jersey City, NJ		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.0014 U	0.010	0.0014	mg/l	1	08/20/12 20:55	MM	SW846 7196A
Redox Potential Vs H2	327			mv	1	08/30/12	SA	ASTM D1498-76
pH [a]	6.45			su	1	08/20/12 18:52	TH	SM20 4500H B

(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

New Jersey ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

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

AECOM

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CHAIN-OF-CUSTODY / Analytical Request Document

2012-08-20_ACCUTEST_COC_RI

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

Lab Information:		Project Information:			Other Information:			
Lab:	ACCUTEST	Site ID #:	PPG Garfield Ave		Send Invoice to:	Lisa Krowitz		
Address:	2235 Route 130 , Dayton NJ 08810	Project #:	60213772.5.A		Address:	250 Apollo Drive		
		Site Address:	70 Carteret Avenue		City/State.	Chelmsford, MA 01824	Phone #:	978-905-2278
Lab PM:	Matt Cordova	City	Jersey City	State, Zip NJ 07304	PO #:	40256ACM		
Phone/Fax:	732-329-0200/	PM Name:	Chris Martell		Send EDD to:	NJLABDATA@aecom.com		
PM email:		Phone/Fax:	732-564-3633		CC Hardcopy to	Erin Farrell, AECOM, Piscataway, NJ		
		PM Email:	Christopher.Martell@aecom.com					

Task: GARIS- Northern Canal Borings

Total # of Samples: 13

JB14201

TAT: see Spec. Instructions — Rush

Notes: F= Field Filtered , H= Hold

Lab Notes

Preservative

ITEM #	Field Sample No. /Identification	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comment	Analysis: GARA-HexChrom	GARA-pH-ORP
1	NSB-F5-12-12.5 -1	SO	G	08/20/2012 14:30	1		1	X
2	NSB-F5-8-8.5 -2	SO	G	08/20/2012 14:15	1		1	X
3	NSB-F5-4-4.5 -3	SO	G	08/20/2012 13:45	1		1	X
4	NSB-F5-0-0.5 -4	SO	G	08/20/2012 12:30	1		1	X
5	NSB-D5-20-20.5 -5	SO	G	08/20/2012 12:45	1	HC29	1	X
6	NSB-D5-18-18.5 -6	SO	G	08/20/2012 12:20	1	WC47 ME40	1	X
7	NSB-D5-15-15.5 -7	SO	G	08/20/2012 12:10	1		1	X
8	NSB-D5-12-12.5 -8	SO	G	08/20/2012 11:35	1		1	X
9	NSB-D5-6.4-6.9 -9	SO	G	08/20/2012 10:45	1		1	X
10	NSB-D5-3.0-3.5X -10	SO	G	08/20/2012 09:35	1		1	X
11	NSB-D5-3.0-3.5 -11	SO	G	08/20/2012 09:30	1		1	X

Additional Comments/Special Instructions:

Standard TAT

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Robin Perry	8/20/12	1555		8/20/12	1555
	8/20/12	1815		8/20/12	1815

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

Shipper:		DATE/TIME:	
Tracking #:		Custody Seal(s):	

Temp in 0C | Samples on Ice? | Sample intact? | Trip Blank?

1B 1 Cooler B

5.0C GF

5.1

5

JB14201: Chain of Custody

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AECOM

SO FB

CHAIN-OF-CUSTODY / Analytical Request Document

2012-08-20_ACCUTEST_COC_RI

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

Task:	GARIS- Northern Canal Borings
Total # of Samples:	13
TAT	see Spec. Instructions
Rush	

JB14201

Notes: F= Field Filtered , H= Hold

Lab Information:		Project Information:				Other Information:			
Lab:	ACCUTEST	Site ID #:	PPG Garfield Ave			Send Invoice to:	Lisa Krowitz		
Address:	2235 Route 130 , Dayton NJ 08810	Project #:	60213772.5.A			Address:	250 Apollo Drive		
		Site Address:	70 Carteret Avenue			City/State.	Chelmsford, MA 01824	Phone #:	978-905-2278
Lab PM:	Matt Cordova	City	Jersey City	State, Zip	NJ 07304	PO #:	40256ACM		
Phone/Fax:	732-329-0200/	PM Name:	Chris Martell			Send EDD to:	NJLABDATA@aecom.com		
PM email:		Phone/Fax:	732-564-3633			CC Hardcopy to	Erin Farrell, AECOM, Piscataway, NJ		
		PM Email:	Christopher.Martell@aecom.com						

ITEM #	Field Sample No. /Identification	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comment	Analysis	GARA-HexChrom	GARA-pH-ORP
12	NSB-E5-3-3.5 ~ 12	SO	G	08/20/2012 10:50	3	MS/MSD		3	X
13	EB082012 13 pH = 6.45	WQ	G	08/20/2012 15:15	2	Preserved: None		2	X

5.1 5

JB14201: Chain of Custody

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Accutest Laboratories Sample Receipt Summary

Accutest Job Number: JB14201 **Client:** **Project:**

Date / Time Received: 8/20/2012 **Delivery Method:** **Airbill #'s:**

Cooler Temps (Initial/Adjusted): #1: (5/5); 0

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

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

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

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

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

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

Comments

Job Change Order: JB14201_8/23/2012

Requested Date:	8/23/2012	**Received Date:**	8/20/2012
Account Name:	AECOM, INC.	**Due Date:**	9/3/2012
Project	PPG Northern Canal Borings 70 Caven Point	**Deliverable:**	FULT1
CSR:	MJ	**TAT (Days):**	14

Sample #: JB14201-1
Change: Revise ID to NSB-F5-12.0-12.5

NSB-F5-12-12.5

Sample #: JB14201-2
Change: Revise ID to NSB-F5-8.0-8.5

NSB-F5-8-8.5

Sample #: JB14201-3
Change: Revise ID to NSB-F5-4.0-4.5

NSB-F5-4-4.5

Sample #: JB14201-4
Change: Revise ID to NSB-F5-0.0-0.5

NSB-F5-0-0.5

Above Changes Per: Lisa Krowitz **Date:** 8/23/2012

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

JB14201: Chain of Custody
Page 4 of 7

Job Change Order: JB14201_8/23/2012

Requested Date:	8/23/2012	**Received Date:**	8/20/2012
Account Name:	AECOM, INC.	**Due Date:**	9/3/2012
Project	PPG Northern Canal Borings 70 Caven Point	**Deliverable:**	FULT1
CSR:	MJ	**TAT (Days):**	14

Sample #: JB14201-5
NSB-D5-20-20.5
Change: Revise ID to NSB-D5-20.0-20.5

Sample #: JB14201-6
NSB-D5-18-18.5
Change: Revise ID to NSB-D5-18.0-18.5

Sample #: JB14201-7
NSB-D5-15-15.5
Change: Revise ID to NSB-D5-15.0-15.5

Sample #: JB14201-8
NSB-D5-12-12.5
Change: Revise ID to NSB-D5-12.0-12.5

Above Changes Per: Lisa Krowitz **Date:** 8/23/2012

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

JB14201: Chain of Custody
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Job Change Order: JB14201_8/23/2012

Requested Date:	8/23/2012	**Received Date:**	8/20/2012
Account Name:	AECOM, INC.	**Due Date:**	9/3/2012
Project	PPG Northern Canal Borings 70 Caven Point	**Deliverable:**	FULT1
CSR:	MJ	**TAT (Days):**	14

Sample #: JB14201-12, -12D, -12S
Change: Revise ID to NSB-E5-3.0-3.5

Sample #: JB14201-13
Change: Revise ID to NSB-EB20120820

EB082012

Above Changes Per: Lisa Krowitz **Date:** 8/23/2012

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

JB14201: Chain of Custody
Page 6 of 7

Job Change Order: JB14201_9/4/2012

Requested Date:	9/4/2012	**Received Date:**	8/20/2012
Account Name:	AECOM, INC.	**Due Date:**	9/4/2012
Project	PPG Northern Canal Borings, Jersey City, NJ	**Deliverable:**	FULT1
CSR:	MC	**TAT (Days):**	2

Sample #: JB14201-12 **Change:** Due to XCR spike recovery log in FE2/7,SULFS,TOCLK

NSB-E5-3.0-3.5

Sample #: JB14201-1 thru 12 **Change:** due to XCR spike recovery log in XXCRAR

Above Changes Per: **Date:** 9/4/2012

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

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JB14201: Chain of Custody
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Internal Sample Tracking Chronicle

AECOM, INC.

Job No: JB14201

PPG Northern Canal Borings, Jersey City, NJ
Project No: 60213772.5.A

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB14201-1	Collected: 20-AUG-12 14:30 By: CM		Received: 20-AUG-12 By: MPC			
NSB-F5-12.0-12.5						
JB14201-1	SM18 2540G	22-AUG-12 13:05	KP			SOL104
JB14201-1	ASTM D1498-76M	30-AUG-12	SA			EH
JB14201-1	SW846 9045C,D	30-AUG-12 11:27	SA			PH
JB14201-1	SW846 3060A/7196A	01-SEP-12 16:17	AD	01-SEP-12	MP	XCRA
JB14201-2	Collected: 20-AUG-12 14:15 By: CM		Received: 20-AUG-12 By: MPC			
NSB-F5-8.0-8.5						
JB14201-2	SM18 2540G	22-AUG-12 13:05	KP			SOL104
JB14201-2	ASTM D1498-76M	30-AUG-12	SA			EH
JB14201-2	SW846 9045C,D	30-AUG-12 11:27	SA			PH
JB14201-2	SW846 3060A/7196A	01-SEP-12 16:17	AD	01-SEP-12	MP	XCRA
JB14201-3	Collected: 20-AUG-12 13:45 By: CM		Received: 20-AUG-12 By: MPC			
NSB-F5-4.0-4.5						
JB14201-3	SM18 2540G	22-AUG-12 13:05	KP			SOL104
JB14201-3	ASTM D1498-76M	30-AUG-12	SA			EH
JB14201-3	SW846 9045C,D	30-AUG-12 11:27	SA			PH
JB14201-3	SW846 3060A/7196A	01-SEP-12 16:17	AD	01-SEP-12	MP	XCRA
JB14201-4	Collected: 20-AUG-12 12:30 By: CM		Received: 20-AUG-12 By: MPC			
NSB-F5-0.0-0.5						
JB14201-4	SM18 2540G	22-AUG-12 13:05	KP			SOL104
JB14201-4	ASTM D1498-76M	30-AUG-12	SA			EH
JB14201-4	SW846 9045C,D	30-AUG-12 11:27	SA			PH
JB14201-4	SW846 3060A/7196A	01-SEP-12 16:17	AD	01-SEP-12	MP	XCRA
JB14201-5	Collected: 20-AUG-12 12:45 By: CM		Received: 20-AUG-12 By: MPC			
NSB-D5-20.0-20.5						
JB14201-5	SM18 2540G	22-AUG-12 13:05	KP			SOL104
JB14201-5	ASTM D1498-76M	30-AUG-12	SA			EH
JB14201-5	SW846 9045C,D	30-AUG-12 11:27	SA			PH
JB14201-5	SW846 3060A/7196A	01-SEP-12 16:17	AD	01-SEP-12	MP	XCRA

Internal Sample Tracking Chronicle

AECOM, INC.

Job No: JB14201

PPG Northern Canal Borings, Jersey City, NJ
Project No: 60213772.5.A

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB14201-6	Collected: 20-AUG-12 12:20 By: CM		Received: 20-AUG-12 By: MPC			
NSB-D5-18.0-18.5						
JB14201-6	SM18 2540G	22-AUG-12 13:05	KP			SOL104
JB14201-6	ASTM D1498-76M	30-AUG-12	SA			EH
JB14201-6	SW846 9045C,D	30-AUG-12 11:27	SA			PH
JB14201-6	SW846 3060A/7196A	01-SEP-12 16:17	AD	01-SEP-12	MP	XCRA
JB14201-7	Collected: 20-AUG-12 12:10 By: CM		Received: 20-AUG-12 By: MPC			
NSB-D5-15.0-15.5						
JB14201-7	SM18 2540G	22-AUG-12 13:05	KP			SOL104
JB14201-7	ASTM D1498-76M	30-AUG-12	SA			EH
JB14201-7	SW846 9045C,D	30-AUG-12 11:27	SA			PH
JB14201-7	SW846 3060A/7196A	01-SEP-12 16:17	AD	01-SEP-12	MP	XCRA
JB14201-8	Collected: 20-AUG-12 11:35 By: CM		Received: 20-AUG-12 By: MPC			
NSB-D5-12.0-12.5						
JB14201-8	SM18 2540G	22-AUG-12 13:05	KP			SOL104
JB14201-8	ASTM D1498-76M	30-AUG-12	SA			EH
JB14201-8	SW846 9045C,D	30-AUG-12 11:27	SA			PH
JB14201-8	SW846 3060A/7196A	01-SEP-12 16:17	AD	01-SEP-12	MP	XCRA
JB14201-9	Collected: 20-AUG-12 10:45 By: CM		Received: 20-AUG-12 By: MPC			
NSB-D5-6.4-6.9						
JB14201-9	SM18 2540G	22-AUG-12 13:05	KP			SOL104
JB14201-9	ASTM D1498-76M	30-AUG-12	SA			EH
JB14201-9	SW846 9045C,D	30-AUG-12 11:27	SA			PH
JB14201-9	SW846 3060A/7196A	01-SEP-12 16:17	AD	01-SEP-12	MP	XCRA
JB14201-10	Collected: 20-AUG-12 09:35 By: CM		Received: 20-AUG-12 By: MPC			
NSB-D5-3.0-3.5X						
JB14201-10	SM18 2540G	22-AUG-12 13:05	KP			SOL104
JB14201-10	ASTM D1498-76M	30-AUG-12	SA			EH
JB14201-10	SW846 9045C,D	30-AUG-12 11:27	SA			PH
JB14201-10	SW846 3060A/7196A	01-SEP-12 16:17	AD	01-SEP-12	MP	XCRA

Internal Sample Tracking Chronicle

AECOM, INC.

Job No: JB14201

PPG Northern Canal Borings, Jersey City, NJ
Project No: 60213772.5.A

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB14201-11	Collected: 20-AUG-12 09:30 By: CM		Received: 20-AUG-12 By: MPC			
NSB-D5-3.0-3.5						
JB14201-11	SM18 2540G	22-AUG-12 13:05	KP			SOL104
JB14201-11	ASTM D1498-76M	30-AUG-12	SA			EH
JB14201-11	SW846 9045C,D	30-AUG-12 11:27	SA			PH
JB14201-11	SW846 3060A/7196A	01-SEP-12 16:19	AD	01-SEP-12	MP	XCRA
JB14201-12	Collected: 20-AUG-12 10:50 By: CM		Received: 20-AUG-12 By: MPC			
NSB-E5-3.0-3.5						
JB14201-12	SM18 2540G	22-AUG-12 13:05	KP			SOL104
JB14201-12	ASTM D1498-76M	30-AUG-12	SA			EH
JB14201-12	SW846 9045C,D	30-AUG-12 11:27	SA			PH
JB14201-12	SW846 3060A/7196A	01-SEP-12 15:25	AD	01-SEP-12	MP	XCRA
JB14201-13	Collected: 20-AUG-12 15:15 By: CM		Received: 20-AUG-12 By: MPC			
NSB-EB20120820						
JB14201-13	SM20 4500H B	20-AUG-12 18:52	TH			PH
JB14201-13	SW846 7196A	20-AUG-12 20:55	MM			XCR
JB14201-13	ASTM D1498-76	30-AUG-12	SA			EH

Accutest Internal Chain of Custody

Job Number: JB14201
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Received: 08/20/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB14201-1.1	Secured Storage	Todd Shoemaker	08/22/12 08:52	Retrieve from Storage
JB14201-1.1	Todd Shoemaker	Krimesh Patel	08/22/12 08:54	Custody Transfer
JB14201-1.1	Krimesh Patel	Secured Storage	08/22/12 13:13	Return to Storage
JB14201-1.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14201-1.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14201-1.1	Sanjay Advani	Matt Del Ciello	08/29/12 16:07	Custody Transfer
JB14201-1.1	Matt Del Ciello	Secured Storage	08/29/12 18:17	Return to Storage
JB14201-1.1	Secured Storage	Adam Scott	09/01/12 08:50	Retrieve from Storage
JB14201-1.1	Adam Scott	Secured Staging Area	09/01/12 08:51	Return to Storage
JB14201-1.1	Secured Staging Area	Mayur Patel	09/01/12 09:00	Retrieve from Storage
JB14201-1.1	Mayur Patel	Secured Storage	09/01/12 11:26	Return to Storage
JB14201-1.1	Secured Storage	Ching Wong	09/04/12 15:28	Retrieve from Storage
JB14201-1.1	Ching Wong	Secured Storage	09/04/12 23:29	Return to Storage
JB14201-2.1	Secured Storage	Todd Shoemaker	08/22/12 08:52	Retrieve from Storage
JB14201-2.1	Todd Shoemaker	Krimesh Patel	08/22/12 08:54	Custody Transfer
JB14201-2.1	Krimesh Patel	Secured Storage	08/22/12 13:13	Return to Storage
JB14201-2.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14201-2.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14201-2.1	Sanjay Advani	Matt Del Ciello	08/29/12 16:07	Custody Transfer
JB14201-2.1	Matt Del Ciello	Secured Storage	08/29/12 18:17	Return to Storage
JB14201-2.1	Secured Storage	Adam Scott	09/01/12 08:50	Retrieve from Storage
JB14201-2.1	Adam Scott	Secured Staging Area	09/01/12 08:51	Return to Storage
JB14201-2.1	Secured Staging Area	Mayur Patel	09/01/12 09:00	Retrieve from Storage
JB14201-2.1	Mayur Patel	Secured Storage	09/01/12 11:26	Return to Storage
JB14201-2.1	Secured Storage	Ching Wong	09/04/12 15:28	Retrieve from Storage
JB14201-2.1	Ching Wong	Secured Storage	09/04/12 23:29	Return to Storage
JB14201-3.1	Secured Storage	Todd Shoemaker	08/22/12 08:52	Retrieve from Storage
JB14201-3.1	Todd Shoemaker	Krimesh Patel	08/22/12 08:54	Custody Transfer
JB14201-3.1	Krimesh Patel	Secured Storage	08/22/12 13:13	Return to Storage
JB14201-3.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14201-3.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14201-3.1	Sanjay Advani	Matt Del Ciello	08/29/12 16:07	Custody Transfer
JB14201-3.1	Matt Del Ciello	Secured Storage	08/29/12 18:17	Return to Storage
JB14201-3.1	Secured Storage	Adam Scott	09/01/12 08:50	Retrieve from Storage
JB14201-3.1	Adam Scott	Secured Staging Area	09/01/12 08:51	Return to Storage
JB14201-3.1	Secured Staging Area	Mayur Patel	09/01/12 09:00	Retrieve from Storage
JB14201-3.1	Mayur Patel	Secured Storage	09/01/12 11:26	Return to Storage
JB14201-3.1	Secured Storage	Ching Wong	09/04/12 15:28	Retrieve from Storage
JB14201-3.1	Ching Wong	Secured Storage	09/04/12 23:29	Return to Storage
JB14201-4.1	Secured Storage	Todd Shoemaker	08/22/12 08:52	Retrieve from Storage
JB14201-4.1	Todd Shoemaker	Krimesh Patel	08/22/12 08:54	Custody Transfer

Accutest Internal Chain of Custody

Job Number: JB14201
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Received: 08/20/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB14201-4.1	Krimesh Patel	Secured Storage	08/22/12 13:13	Return to Storage
JB14201-4.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14201-4.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14201-4.1	Sanjay Advani	Matt Del Ciello	08/29/12 16:07	Custody Transfer
JB14201-4.1	Matt Del Ciello	Secured Storage	08/29/12 18:17	Return to Storage
JB14201-4.1	Secured Storage	Adam Scott	09/01/12 08:50	Retrieve from Storage
JB14201-4.1	Adam Scott	Secured Staging Area	09/01/12 08:51	Return to Storage
JB14201-4.1	Secured Staging Area	Mayur Patel	09/01/12 09:00	Retrieve from Storage
JB14201-4.1	Mayur Patel	Secured Storage	09/01/12 11:26	Return to Storage
JB14201-4.1	Secured Storage	Ching Wong	09/04/12 15:28	Retrieve from Storage
JB14201-4.1	Ching Wong	Secured Storage	09/04/12 23:29	Return to Storage
JB14201-5.1	Secured Storage	Todd Shoemaker	08/22/12 08:52	Retrieve from Storage
JB14201-5.1	Todd Shoemaker	Krimesh Patel	08/22/12 08:54	Custody Transfer
JB14201-5.1	Krimesh Patel	Secured Storage	08/22/12 13:13	Return to Storage
JB14201-5.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14201-5.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14201-5.1	Sanjay Advani	Matt Del Ciello	08/29/12 16:07	Custody Transfer
JB14201-5.1	Matt Del Ciello	Secured Storage	08/29/12 18:17	Return to Storage
JB14201-5.1	Secured Storage	Adam Scott	09/01/12 08:50	Retrieve from Storage
JB14201-5.1	Adam Scott	Secured Staging Area	09/01/12 08:51	Return to Storage
JB14201-5.1	Secured Staging Area	Mayur Patel	09/01/12 09:00	Retrieve from Storage
JB14201-5.1	Mayur Patel	Secured Storage	09/01/12 11:26	Return to Storage
JB14201-5.1	Secured Storage	Ching Wong	09/04/12 15:28	Retrieve from Storage
JB14201-5.1	Ching Wong	Secured Storage	09/04/12 23:29	Return to Storage
JB14201-6.1	Secured Storage	Todd Shoemaker	08/22/12 08:52	Retrieve from Storage
JB14201-6.1	Todd Shoemaker	Krimesh Patel	08/22/12 08:54	Custody Transfer
JB14201-6.1	Krimesh Patel	Secured Storage	08/22/12 13:13	Return to Storage
JB14201-6.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14201-6.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14201-6.1	Sanjay Advani	Matt Del Ciello	08/29/12 16:07	Custody Transfer
JB14201-6.1	Matt Del Ciello	Secured Storage	08/29/12 18:17	Return to Storage
JB14201-6.1	Secured Storage	Adam Scott	09/01/12 08:50	Retrieve from Storage
JB14201-6.1	Adam Scott	Secured Staging Area	09/01/12 08:51	Return to Storage
JB14201-6.1	Secured Staging Area	Mayur Patel	09/01/12 09:00	Retrieve from Storage
JB14201-6.1	Mayur Patel	Secured Storage	09/01/12 11:26	Return to Storage
JB14201-6.1	Secured Storage	Ching Wong	09/04/12 15:28	Retrieve from Storage
JB14201-6.1	Ching Wong	Secured Storage	09/04/12 23:29	Return to Storage
JB14201-7.1	Secured Storage	Todd Shoemaker	08/22/12 08:52	Retrieve from Storage
JB14201-7.1	Todd Shoemaker	Krimesh Patel	08/22/12 08:54	Custody Transfer
JB14201-7.1	Krimesh Patel	Secured Storage	08/22/12 13:13	Return to Storage
JB14201-7.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage

Accutest Internal Chain of Custody

Job Number: JB14201
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Received: 08/20/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB14201-7.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14201-7.1	Sanjay Advani	Matt Del Ciello	08/29/12 16:07	Custody Transfer
JB14201-7.1	Matt Del Ciello	Secured Storage	08/29/12 18:17	Return to Storage
JB14201-7.1	Secured Storage	Adam Scott	09/01/12 08:50	Retrieve from Storage
JB14201-7.1	Adam Scott	Secured Staging Area	09/01/12 08:51	Return to Storage
JB14201-7.1	Secured Staging Area	Mayur Patel	09/01/12 09:00	Retrieve from Storage
JB14201-7.1	Mayur Patel	Secured Storage	09/01/12 11:26	Return to Storage
JB14201-7.1	Secured Storage	Ching Wong	09/04/12 15:28	Retrieve from Storage
JB14201-7.1	Ching Wong	Secured Storage	09/04/12 23:29	Return to Storage
JB14201-8.1	Secured Storage	Todd Shoemaker	08/22/12 08:52	Retrieve from Storage
JB14201-8.1	Todd Shoemaker	Krimesh Patel	08/22/12 08:54	Custody Transfer
JB14201-8.1	Krimesh Patel	Secured Storage	08/22/12 13:13	Return to Storage
JB14201-8.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14201-8.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14201-8.1	Sanjay Advani	Matt Del Ciello	08/29/12 16:07	Custody Transfer
JB14201-8.1	Matt Del Ciello	Secured Storage	08/29/12 18:17	Return to Storage
JB14201-8.1	Secured Storage	Adam Scott	09/01/12 08:50	Retrieve from Storage
JB14201-8.1	Adam Scott	Secured Staging Area	09/01/12 08:51	Return to Storage
JB14201-8.1	Secured Staging Area	Mayur Patel	09/01/12 09:00	Retrieve from Storage
JB14201-8.1	Mayur Patel	Secured Storage	09/01/12 11:26	Return to Storage
JB14201-8.1	Secured Storage	Ching Wong	09/04/12 15:28	Retrieve from Storage
JB14201-8.1	Ching Wong	Secured Storage	09/04/12 23:29	Return to Storage
JB14201-9.1	Secured Storage	Todd Shoemaker	08/22/12 08:52	Retrieve from Storage
JB14201-9.1	Todd Shoemaker	Krimesh Patel	08/22/12 08:54	Custody Transfer
JB14201-9.1	Krimesh Patel	Secured Storage	08/22/12 13:13	Return to Storage
JB14201-9.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14201-9.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14201-9.1	Sanjay Advani	Matt Del Ciello	08/29/12 16:07	Custody Transfer
JB14201-9.1	Matt Del Ciello	Secured Storage	08/29/12 18:17	Return to Storage
JB14201-9.1	Secured Storage	Adam Scott	09/01/12 08:50	Retrieve from Storage
JB14201-9.1	Adam Scott	Secured Staging Area	09/01/12 08:51	Return to Storage
JB14201-9.1	Secured Staging Area	Mayur Patel	09/01/12 09:00	Retrieve from Storage
JB14201-9.1	Mayur Patel	Secured Storage	09/01/12 11:26	Return to Storage
JB14201-9.1	Secured Storage	Ching Wong	09/04/12 15:28	Retrieve from Storage
JB14201-9.1	Ching Wong	Secured Storage	09/04/12 23:29	Return to Storage
JB14201-10.1	Secured Storage	Todd Shoemaker	08/22/12 08:52	Retrieve from Storage
JB14201-10.1	Todd Shoemaker	Krimesh Patel	08/22/12 08:54	Custody Transfer
JB14201-10.1	Krimesh Patel	Secured Storage	08/22/12 13:13	Return to Storage
JB14201-10.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14201-10.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14201-10.1	Sanjay Advani	Matt Del Ciello	08/29/12 16:07	Custody Transfer

Accutest Internal Chain of Custody

Job Number: JB14201
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Received: 08/20/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB14201-10.1	Matt Del Ciello	Secured Storage	08/29/12 18:17	Return to Storage
JB14201-10.1	Secured Storage	Adam Scott	09/01/12 08:50	Retrieve from Storage
JB14201-10.1	Adam Scott	Secured Staging Area	09/01/12 08:51	Return to Storage
JB14201-10.1	Secured Staging Area	Mayur Patel	09/01/12 09:00	Retrieve from Storage
JB14201-10.1	Mayur Patel	Secured Storage	09/01/12 11:26	Return to Storage
JB14201-10.1	Secured Storage	Adam Scott	09/04/12 14:02	Retrieve from Storage
JB14201-10.1	Adam Scott	Secured Staging Area	09/04/12 14:02	Return to Storage
JB14201-11.1	Secured Storage	Todd Shoemaker	08/22/12 08:52	Retrieve from Storage
JB14201-11.1	Todd Shoemaker	Krimesh Patel	08/22/12 08:54	Custody Transfer
JB14201-11.1	Krimesh Patel	Secured Storage	08/22/12 13:13	Return to Storage
JB14201-11.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14201-11.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14201-11.1	Sanjay Advani	Matt Del Ciello	08/29/12 16:07	Custody Transfer
JB14201-11.1	Matt Del Ciello	Secured Storage	08/29/12 18:17	Return to Storage
JB14201-11.1	Secured Storage	Adam Scott	09/01/12 08:50	Retrieve from Storage
JB14201-11.1	Adam Scott	Secured Staging Area	09/01/12 08:51	Return to Storage
JB14201-11.1	Secured Staging Area	Mayur Patel	09/01/12 09:00	Retrieve from Storage
JB14201-11.1	Mayur Patel	Secured Storage	09/01/12 11:26	Return to Storage
JB14201-11.1	Secured Storage	Ching Wong	09/04/12 15:28	Retrieve from Storage
JB14201-11.1	Ching Wong	Secured Storage	09/04/12 23:29	Return to Storage
JB14201-12.1	Secured Storage	Todd Shoemaker	08/22/12 08:52	Retrieve from Storage
JB14201-12.1	Todd Shoemaker	Krimesh Patel	08/22/12 08:54	Custody Transfer
JB14201-12.1	Krimesh Patel	Secured Storage	08/22/12 13:13	Return to Storage
JB14201-12.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14201-12.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14201-12.1	Sanjay Advani	Matt Del Ciello	08/29/12 16:07	Custody Transfer
JB14201-12.1	Matt Del Ciello	Secured Storage	08/29/12 18:17	Return to Storage
JB14201-12.1	Secured Storage	Adam Scott	09/01/12 08:50	Retrieve from Storage
JB14201-12.1	Adam Scott	Secured Staging Area	09/01/12 08:51	Return to Storage
JB14201-12.1	Secured Staging Area	Mayur Patel	09/01/12 09:00	Retrieve from Storage
JB14201-12.1	Mayur Patel	Secured Storage	09/01/12 11:26	Return to Storage
JB14201-12.1	Secured Storage	Shirley Grzybowski	09/04/12 13:01	Retrieve from Storage
JB14201-12.1	Shirley Grzybowski	Secured Storage	09/04/12 14:17	Return to Storage
JB14201-12.1	Secured Storage	Dave Hunkele	09/04/12 14:19	Retrieve from Storage
JB14201-12.1	Dave Hunkele	Secured Staging Area	09/04/12 14:20	Return to Storage
JB14201-12.1	Secured Staging Area	Ching Wong	09/04/12 15:07	Retrieve from Storage
JB14201-12.1	Ching Wong	Secured Storage	09/04/12 23:29	Return to Storage
JB14201-12.2	Secured Storage	Todd Shoemaker	08/22/12 08:52	Retrieve from Storage
JB14201-12.2	Todd Shoemaker	Krimesh Patel	08/22/12 08:54	Custody Transfer
JB14201-12.2	Krimesh Patel	Secured Storage	08/22/12 13:13	Return to Storage
JB14201-12.2	Secured Storage	Adam Scott	09/01/12 08:50	Retrieve from Storage

Accutest Internal Chain of Custody

Job Number: JB14201
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Received: 08/20/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB14201-12.2	Adam Scott	Secured Staging Area	09/01/12 08:51	Return to Storage
JB14201-12.2	Secured Staging Area	Mayur Patel	09/01/12 09:00	Retrieve from Storage
JB14201-12.2	Mayur Patel	Secured Storage	09/01/12 11:26	Return to Storage
JB14201-12.2	Secured Storage	Ching Wong	09/04/12 15:28	Retrieve from Storage
JB14201-12.2	Ching Wong	Secured Storage	09/04/12 23:29	Return to Storage
JB14201-12.2	Secured Storage	Dave Hunkele	09/05/12 10:31	Retrieve from Storage
JB14201-12.2	Dave Hunkele	Jayshree Amin	09/05/12 10:32	Custody Transfer
JB14201-12.3	Secured Storage	Todd Shoemaker	08/22/12 08:52	Retrieve from Storage
JB14201-12.3	Todd Shoemaker	Krimesh Patel	08/22/12 08:54	Custody Transfer
JB14201-12.3	Krimesh Patel	Secured Storage	08/22/12 13:13	Return to Storage
JB14201-12.3	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14201-12.3	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14201-12.3	Sanjay Advani	Matt Del Ciello	08/29/12 16:07	Custody Transfer
JB14201-12.3	Matt Del Ciello	Secured Storage	08/29/12 18:17	Return to Storage
JB14201-12.3	Secured Storage	Adam Scott	09/01/12 08:50	Retrieve from Storage
JB14201-12.3	Adam Scott	Secured Staging Area	09/01/12 08:51	Return to Storage
JB14201-12.3	Secured Staging Area	Mayur Patel	09/01/12 09:00	Retrieve from Storage
JB14201-12.3	Mayur Patel	Secured Storage	09/01/12 11:26	Return to Storage
JB14201-12.3	Secured Storage	Ching Wong	09/04/12 15:28	Retrieve from Storage
JB14201-12.3	Ching Wong	Secured Storage	09/04/12 23:29	Return to Storage
JB14201-13.2	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14201-13.2	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14201-13.2	Sanjay Advani	Secured Storage	08/29/12 17:01	Return to Storage
JB14201-13.2	Secured Storage	Dave Hunkele	08/30/12 08:39	Retrieve from Storage
JB14201-13.2	Dave Hunkele	Secured Staging Area	08/30/12 08:41	Return to Storage
JB14201-13.2	Secured Staging Area	Sanjay Advani	08/30/12 08:53	Retrieve from Storage
JB14201-13.2	Sanjay Advani	Secured Storage	08/30/12 15:58	Return to Storage

New Jersey ACCUTEST LABORATORIES

General Chemistry

QC Data Summaries

Includes the following where applicable:

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

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: JB14201
Account: ENSRNJ - AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GN70764	0.010	0.0	mg/l	0.15	0.15	100.0	90-110%
Chromium, Hexavalent	GP66938/GN71458			mg/kg	40	35.7	89.3	80-120%
Chromium, Hexavalent	GP66938/GN71458	0.40	0.0	mg/kg	740	706	95.4	80-120%

Associated Samples:
Batch GN70764: JB14201-13
Batch GP66938: JB14201-1, JB14201-2, JB14201-3, JB14201-4, JB14201-5, JB14201-6, JB14201-7, JB14201-8, JB14201-9, JB14201-10, JB14201-11, JB14201-12
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: JB14201
Account: ENSRNJ - AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GN70764	JB14205-5	mg/l	0.0	0.0	0.0	0-20%
Chromium, Hexavalent	GP66938/GN71458	JB14201-12	mg/kg	0.82	0.98	17.8	0-20%
Redox Potential Vs H2	GN71296	JB14201-13	mv	327	310	5.3	0-10%
Redox Potential Vs H2	GN71304	JB14201-12	mv	378	347	8.6	0-13%
pH	GN71303	JB14201-12	su	7.39	7.37	0.3	0-5%

Associated Samples:
Batch GN70764: JB14201-13
Batch GN71296: JB14201-13
Batch GN71303: JB14201-1, JB14201-2, JB14201-3, JB14201-4, JB14201-5, JB14201-6, JB14201-7, JB14201-8, JB14201-9, JB14201-10, JB14201-11, JB14201-12
Batch GN71304: JB14201-1, JB14201-2, JB14201-3, JB14201-4, JB14201-5, JB14201-6, JB14201-7, JB14201-8, JB14201-9, JB14201-10, JB14201-11, JB14201-12
Batch GP66938: JB14201-1, JB14201-2, JB14201-3, JB14201-4, JB14201-5, JB14201-6, JB14201-7, JB14201-8, JB14201-9, JB14201-10, JB14201-11, JB14201-12
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: JB14201
Account: ENSRNJ - AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chromium, Hexavalent	GN70764	JB14205-5	mg/l	0.0	0.15	0.072	48.0N(a)	85-115%
Chromium, Hexavalent	GP66938/GN71458	JB14201-12	mg/kg	0.82	974	1060	108.7(b)	75-125%
Chromium, Hexavalent	GP66938/GN71458	JB14201-12	mg/kg	0.82	48.6	23.8	47.3N(c)	75-125%

Associated Samples:
Batch GN70764: JB14201-13
Batch GP66938: JB14201-1, JB14201-2, JB14201-3, JB14201-4, JB14201-5, JB14201-6, JB14201-7, JB14201-8, JB14201-9, JB14201-10, JB14201-11, JB14201-12
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(a) Low recovery on XCR matrix spike. Low recovery (54%) on the pH-adjusted post-spike.
(b) Good recovery on insoluble XCR matrix spike. See additional comments on soluble matrix spike recovery.
(c) Soluble XCR matrix spike recovery indicates possible matrix interference. Good post spike recovery (92.9%) on this sample.

Percent Solids Raw Data Summary

Job Number: JB14201
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Sample: JB14201-1 **Analyzed:** 22-AUG-12 by KP **Method:** SM18 2540G
ClientID: NSB-F5-12.0-12.5

Wet Weight (Total)	33.16	g
Tare Weight	27.51	g
Dry Weight (Total)	31.34	g
Solids, Percent	67.8	%

Sample: JB14201-2 **Analyzed:** 22-AUG-12 by KP **Method:** SM18 2540G
ClientID: NSB-F5-8.0-8.5

Wet Weight (Total)	34.25	g
Tare Weight	25.94	g
Dry Weight (Total)	32.92	g
Solids, Percent	84	%

Sample: JB14201-3 **Analyzed:** 22-AUG-12 by KP **Method:** SM18 2540G
ClientID: NSB-F5-4.0-4.5

Wet Weight (Total)	31.99	g
Tare Weight	26.17	g
Dry Weight (Total)	31.04	g
Solids, Percent	83.7	%

Sample: JB14201-4 **Analyzed:** 22-AUG-12 by KP **Method:** SM18 2540G
ClientID: NSB-F5-0.0-0.5

Wet Weight (Total)	31.39	g
Tare Weight	25.14	g
Dry Weight (Total)	30.79	g
Solids, Percent	90.4	%

Sample: JB14201-5 **Analyzed:** 22-AUG-12 by KP **Method:** SM18 2540G
ClientID: NSB-D5-20.0-20.5

Wet Weight (Total)	30.34	g
Tare Weight	23.07	g
Dry Weight (Total)	29.49	g
Solids, Percent	88.3	%

Sample: JB14201-6 **Analyzed:** 22-AUG-12 by KP **Method:** SM18 2540G
ClientID: NSB-D5-18.0-18.5

Wet Weight (Total)	26.46	g
Tare Weight	19.3	g
Dry Weight (Total)	25.61	g
Solids, Percent	88.1	%

Percent Solids Raw Data Summary

Job Number: JB14201
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Sample: JB14201-7 **Analyzed:** 22-AUG-12 by KP **Method:** SM18 2540G
ClientID: NSB-D5-15.0-15.5

Wet Weight (Total)	29.93	g
Tare Weight	22.34	g
Dry Weight (Total)	29.02	g
Solids, Percent	88	%

Sample: JB14201-8 **Analyzed:** 22-AUG-12 by KP **Method:** SM18 2540G
ClientID: NSB-D5-12.0-12.5

Wet Weight (Total)	30.58	g
Tare Weight	20.88	g
Dry Weight (Total)	28.51	g
Solids, Percent	78.7	%

Sample: JB14201-9 **Analyzed:** 22-AUG-12 by KP **Method:** SM18 2540G
ClientID: NSB-D5-6.4-6.9

Wet Weight (Total)	30.55	g
Tare Weight	22.02	g
Dry Weight (Total)	28.71	g
Solids, Percent	78.4	%

Sample: JB14201-10 **Analyzed:** 22-AUG-12 by KP **Method:** SM18 2540G
ClientID: NSB-D5-3.0-3.5X

Wet Weight (Total)	29.07	g
Tare Weight	22.66	g
Dry Weight (Total)	28.12	g
Solids, Percent	85.2	%

Sample: JB14201-11 **Analyzed:** 22-AUG-12 by KP **Method:** SM18 2540G
ClientID: NSB-D5-3.0-3.5

Wet Weight (Total)	32.76	g
Tare Weight	26.71	g
Dry Weight (Total)	31.74	g
Solids, Percent	83.1	%

Sample: JB14201-12 **Analyzed:** 22-AUG-12 by KP **Method:** SM18 2540G
ClientID: NSB-E5-3.0-3.5

Wet Weight (Total)	27.9	g
Tare Weight	21.6	g
Dry Weight (Total)	26.82	g
Solids, Percent	82.9	%

New Jersey ACCUTEST LABORATORIES

General Chemistry

Raw Data

Hexavalent Chromium

Test Title:	XCr
GN Batch:	GN70764
Analyst:	MM/CKW
Prep Date:	NA
Analysis Date:	8/20/2012
Instrument ID:	H

1

Method: SW846 7196A

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

Corr. Coef:	0.99988
Slope:	0.883
Y Intercept:	0.0017

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	20:45	0.000	0.0000							
	STD1	0.009	NA	NA	0.009	0.0100							
	STD2	0.043	NA	NA	0.043	0.0500							
	STD3	0.089	NA	NA	0.089	0.1000							
	STD4	0.271	NA	NA	0.271	0.3000							
	STD5	0.454	NA	NA	0.454	0.5000							
	STD6	0.701	NA	NA	0.701	0.8000							
	STD7	0.884	NA	20:48	0.884	1.0000							
	CCV	0.439	NA	20:48	0.439	0.4952	NA	NA	NA	NA	mg/l	0.001	0.010
	CCB	0.000	NA	20:48	0.000	-0.0020	NA	NA	NA	NA	mg/l	0.0013	0.010
	GN70764-MB1	0.000	0.000	20:53	0.000	-0.0020	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
	GN70764-B1	0.134	0.000	20:53	0.134	0.1498	50.0	50.0	1	0.150	mg/l	0.0014	0.010
	GN70764-S1	0.073	0.008	20:53	0.065	0.0716	50.0	50.0	1	0.072	mg/l	0.0014	0.010
	GN70764-D1	0.008	0.008	20:53	0.000	-0.0020	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
5	JB14205-1	0.013	0.027	20:53	0.000	-0.0020	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
7	JB14205-2	0.017	0.016	20:53	0.001	-0.0008	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
5	JB14205-3	0.079	0.069	20:53	0.010	0.0093	50.0	50.0	1	0.009	mg/l	0.0014	0.010
5	JB14205-4	0.009	0.010	20:53	0.000	-0.0020	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
5	JB14205-5	0.008	0.008	20:53	0.000	-0.0020	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
5	JB14205-6	0.014	0.040	20:53	0.000	-0.0020	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
	CCV	0.431	NA	20:53	0.431	0.4861	NA	NA	NA	NA	mg/l	0.0013	0.010
	CCB	0.000	NA	20:53	0.000	-0.0020	NA	NA	NA	NA	mg/l	0.0013	0.010
3	JB14196-3	0.000	0.000	20:55	0.000	-0.0020	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
1	JB14201-13	0.000	0.000	20:55	0.000	-0.0020	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
	JB14205-5DILCONF	0.002	0.005	20:55	0.000	-0.0020	50.0	50.0	5	-0.010	mg/l	0.0070	0.050
	JB14205-5PHADJPSCO	0.085	0.012	20:55	0.073	0.0807	50.0	50.0	1	0.081	mg/l	0.0014	0.010
					FALSE	-0.0020	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0020	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0020	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0020	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0020	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0020	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
	CCV	0.428	NA	20:55	0.428	0.4827	NA	NA	NA	NA	mg/l	0.0013	0.010
	CCB	0.000	NA	20:55	0.000	-0.0020	NA	NA	NA	NA	mg/l	0.0013	0.010
					FALSE	-0.0020	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0020	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0020	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0020	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0020	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0020	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0020	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0020	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0020	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0020	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
	CCV		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.0013	0.010
	CCB		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.0013	0.010
					FALSE	-0.0020	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0020	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0020	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0020	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0020	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0020	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0020	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0020	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0020	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0020	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
	CCV		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.0013	0.010
	CCB		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.0013	0.010
					FALSE	-0.0020	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0020	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0020	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0020	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0020	50.0	50.0	1	-0.002	mg/l	0.0014	0.010

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ACCUTEST

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

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

GNBatch ID: GN70764
Date: 8/20/202

Digestion Batch QC Summary Units = mg/l

Method Blank ID: MB1 Date: 8/20/202 Result: <MDL RDL: .010 <RDL: NR
Spike Blank ID: B1 Date: " Result: .15 Spike: .15 %Rec.: 100%
Duplicate ID: D1 Samp. Result: 0 Dup. Result: 0 %RPD: 0
MS ID: S1 Samp. Result: 0 MS Result: .072 Spike: .15 %Rec: 48%
Diluted Sample ID: JB14205.5 Samp. Result: 0 Dil. Result: 0 %RPD: 0
pH adj. PS ID: " Samp. Result: 0 MS Result: .081 Spike: .15 %Rec: 54%

Analysis Batch QC Summary Units = mg/l

CCV: 8/20/202 Result: .495 TV: .50 %Rec.: 99%
CCV: " Result: .486 TV: " %Rec.: 97.2%
CCV: " Result: .483 TV: " %Rec.: 96.6%
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: NM/CKW Date: 8/20/20

Comments:

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

ACCUTEST

Hexavalent Chromium pH Adjustment Log

Method: SW846 7196A

pH adj. start time: 20:30

pH adj. end time: 20:38

pH Adjust. Date: 8/20/2012

GN Batch ID: GN70764

Sample ID	Initial Sample Volume (ml)	Final Volume (ml)	pH after H2SO4	bkg pH after H2SO4	Spike Info	Comments
CCV	45	50	1.92		5mL	5ppm Ultra
CCV						
CCV						
CCV						
CCB	45	50	1.83			
CCB						
CCB						
CCB						
MS JB14205-5	45	50	1.93	1.86	1mL	75 ppm Mos Ultra
DUP ↓	↓	↓	1.99	1.82		
SB B1			1.87	1.73	1mL	75 ppm Mos Ultra
PB MB1			1.85	1.74		
1. JB14205-1			1.83	1.79		
2. -2			1.94	1.85		
3. -3			1.98	1.83		
4. -4			1.97	1.81		
5. -5			1.94	1.78		
6. -6			1.95	1.87		
7. JB14916-3			1.98	1.85		
8. JB14201-13	↓	↓	1.81	1.76		
9.						
10.						
11.						
12.						
13.						
14.						
15.						
16.						
17.						
18.						
19.						
20.						
PS JB14205-5	45	50	1.83	1.72	pH 8.1 w/ 1N	1mL 75 ppm Mos
DIL ↓	↓	↓	1.96	1.87		1:5 dilution
DIL						

Reagent Information:

Analyst: MM/CKN Date: 8/20/2012 QC Reviewer: ____________ Date: ____________

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

ACCUTEST

Hexavalent Chromium pH Adjustment Log
Method: SW846 7196A

pH adj. start time: 20:30 _____ pH Adjust. Date: 8/20/20

pH adj. end time: 20:38 _____ GN Batch ID: GN 70764

Sample ID	Initial Sample Volume (ml)	Final Volume (ml)	pH after H2SO4	Comments	Spike Info.
Calibration Blank	45	50	2.01		
0.010 mg/l standard	↓	↓	1.98	5 ppm Absolute.	0.10 ml of 5 mg/l to 50 ml FV
0.050 mg/l standard			1.76	↓	0.50 ml of 5 mg/l to 50 mL FV
0.100 mg/l standard			1.82		1.00 ml of 5 mg/l to 50 mL FV
0.300 mg/l standard			1.89		3.00 ml of 5 mg/l to 50 mL FV
0.500 mg/l standard			1.93		5.00 ml of 5 mg/l to 50 mL FV
0.800 mg/l standard			1.90		8.00 ml of 5 mg/l to 50 mL FV
1.00 mg/l standard	↓	↓	1.84	↓	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: [signature] Date: 8/20/20

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

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ACCUTEST LABORATORIES

Tracking #: JB14196

Immediate Analysis Record

Date Generated: 8/20/2012 **Sampling Date/Time:** 8/20/12 1500 **Rcv'd in HT:** YES

Client Name: AECOM **# of Samples:** 1 **# of Bottles:** 1

Locations: ME 40, **Delv:**

Comments:

Sample info reliquished from sample management by: MATTCA Date / Time: 8/20/2012 7:12:36 PM

Sample info received in general chemistry by: Date / Time:

Sample Number	Analysis	Matrix
3	XCR7196	FB

Requested by: Date/Time:

The following samples have been depleted / broken:

Relinquished by (Sample Mgt): Rcv'd by (Lab): Date/Time:

Relinquished by (Lab): Rcv'd by (Sample Mgt): Date/Time:

ACCUTEST LABORATORIES

Tracking #: JB14201

Immediate Analysis Record

Date Generated: 8/20/2012 **Sampling Date/Time:** 8/20/12 1515 **Rcv'd in HT:** YES

Client Name: AECOM **# of Samples:** 1 **# of Bottles:** 1

Locations: ME 40, **Delv:**

Comments:

Sample info reliquished from sample management by: MATTCA Date / Time: 8/20/2012 8:00:03 PM

Sample info received in general chemistry by: Date / Time:

Sample Number	Analysis	Matrix
13	XCR7196	FB

Requested by: Date/Time:

The following samples have been depleted / broken:

Relinquished by (Sample Mgt): Rcv'd by (Lab): Date/Time:

Relinquished by (Lab): Rcv'd by (Sample Mgt): Date/Time:

ACCUTEST LABORATORIES

Tracking #: JB14205

Immediate Analysis Record

Date Generated: 8/20/2012 **Sampling Date/Time:** 8/20/12 1030 **Rcv'd in HT:** YES

Client Name: LANGAN **# of Samples:** 6 **# of Bottles:** 16

Locations: WC 33, WC 22, ME 40, **Delv:**

Comments: LAB FILTER

Sample info reliquished from sample management by: MATTCA Date / Time: 8/20/2012 8:24:09 PM

Sample info received in general chemistry by: Date / Time:

Sample Number	Analysis	Matrix
1-6	XCR7196	AQ
1-6	NO2 (Nitrite)	AQ
1F,2F,3F,6F	OPO4 (Orthophosphate)	AQ

Requested by: Date/Time:

The following samples have been depleted / broken:

Relinquished by (Sample Mgt): Rcv'd by (Lab): Date/Time:

Relinquished by (Lab): Rcv'd by (Sample Mgt): Date/Time:

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GN70764

ACCUTEST

Reagent Information Log - XCR - water - 7196A

Reagent	Exp. Date	Reagent # or Manufacturer/Lot
Calibration Source: Hexavalent Chromium, 1000 mg/L Stock	1/12/2015	Absolute Grade Lot# 011212
Calibration Checks: Hexavalent Chromium, 1000 mg/L Stock	5/31/2017	Ultra Scientific Lot# L00439
External Check	NA	NA
Spiking Solution Source	1/12/2015	Absolute Grade Lot# 011212
Diphenyl carbazide Solution	9/17/202	GNE0-3334-XCR
Sulfuric Acid, 10%	2/11/203	GNE0-3324-XCR

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

ACCUTEST.

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

Matrix: Aqueous ○ | Method: ASTM D1498-76 | **Date:** 08/30/12

Matrix: Solid ◉ | Method: ASTM D1498-76 Mod. | **GN Batch ID:** GN71296

Temp (Deg C): 25

Quality Control Summary

Sample ID:	GN71296-D1	Results: **327.2**	Dup: **309.9**	% RPD:	**5.43%**
Ferrous-Ferric True: 675			Found **648.3**	% Rec	**96.04%**
pH 4 Quinhydrone True: 462			Found **456.9**	% Rec	**98.90%**
pH 4 Quinhydrone True: 462			Found **443.7**	% Rec	**96.04%**
pH 4 Quinhydrone True: 462			Found	% Rec	
pH 7 Quinhydrone True: 285			Found **271.2**	% Rec	**95.16%**
pH 7 Quinhydrone True: 285			Found **262.4**	% Rec	**92.07%**
pH 7 Quinhydrone True: 285			Found	% Rec	

Sample #:	**mv vs. Ag/AgCl Electrode**	**Corrected results (mv vs. Hydrogen electrode) *****
Ferrous-Ferric Solution	473	648.3
pH 4 Quinhydrone	281.5	456.9
pH 7 Quinhydrone	95.6	271.2
Dup GN71296-D1	134.6	309.9
1. JB14201-13	151.9	327.2
2. JB14312-14	178.7	354.3
3.		
4.		
5.		
6.		
7.		
8.		
9.		
pH 4 Quinhydrone	268.3	443.7
pH 7 Quinhydrone	87	262.4
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: Redox Standard: GNE-31456-ORP Exp:9/15/12

Comments:

Analyst: S.A. Date: 08/30/12 QC Reviewer: Date:

F/N GN141.DOC

Rev. Date: 3/27/2007

ACCUTEST

Analyst S.A

Method E4

Prep Date 8/30/12

Balance # 38

GP # GN71296-E4

Sample Prep Log

	Sample ID	Sample Size	Final Volume
2	B14201-13	60mL	
2	-13Dup	60mL	
2	B14312-14	60mL	

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

QC Review_____

ACCUTEST LABORATORIES

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

Product: PH CORR
Analyst: SANJAYA
GN Batch ID: GN71303
Analysis Date: 8/30/2012
pH Meter ID: 50

Thermometer ID: 6539
Correction Factor: 0

QC Summary

Duplicate ID: GN71303-D1
Dup Result: 7.37
Sample ID: JB14201-12
% RPD: 0.27%

Sample ID	Wt./Vol. used for solids	Uncorrected/ Corrected Temp in Deg C.	Result	Corrosivity	Read time
Buffer Check: 4		25	4.01		10:00
Buffer Check: 7		25	6.97		
Buffer Check: 10		25	10		
GN71303-D1		25	7.37		
JB14201-1		25	7.07		
JB14201-10		25	7.47		
JB14201-11		25	7.70		
JB14201-12		25	7.39		
JB14201-2		25	7.44		
JB14201-3		25	6.99		
JB14201-4		25	7.96		
JB14201-5		25	8.67		
JB14201-6		25	8.16		
Buffer Check: 4		25	4.05		
Buffer Check: 10		25	10.05		
JB14201-7		25	8.52		
JB14201-8		25	7.92		
JB14201-9		25	7.63		
JB14270-11		25	8.10		
JB14270-5		25	8.83		
JB14271-12		25	7.69		
JB14271-6		25	8.80		
JB14874-1		25	9.38		
JB14874-2		25	7.68		
JB14874-5		25	8.07		
Buffer Check: 7		25	7.03		
Buffer Check:10		25	10.03		11:27
Buffer Check:					
Buffer Check:					

Comments:

Validated By: Nancy Cole
Validated Date: 8/7/2012

Document Control #: AGN-PH CORR-AQ-01

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GN71303

ACCUTEST

Analyst SA

Method EH/PH

Prep Date 8/29/12

GP # GN71303-PH
GN71304-EH

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Balance #_____

Sample Prep Log

Sample ID	Sample Size	Final Volume
3B14874-1	50.5g	added 50mL DI H2O
-2	50.8g	
-5	50.5g	
3B14201-1	50.1g	
-2	50.6g	
-3	50.1g	
-4	50.5g	
-5	50.6g	
-6	50.6g	
-7	50.0g	
-8	50.4g	
-9	50.2g	
-10	50.5g	
-11	50.3g	
-12	50.6g	
-12DUP	50.9g	
3B14270-5	50.1g	
-11	50.2g	
3B14271-6	50.4g	
-12	50.8g	

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

QC Review_____

Reagent Information Log
Test Name:_____pH_____

GN71303

Reagent

pH 2 Buffer Solution	FICHER LOT#115910 EXP 11/30/13
pH 4 Buffer Solution	BDH LOT#2110255 EXP 9/30/13
pH 7 Buffer Solution	RICCA LOT#2111388 EXP 10/30/13
pH 10 Buffer Solution	FISCHER LOT#105427 EXP 09/30/12
pH 13 Buffer Solution	AQUA SOL. LOT#1080516 EXP 08/30/

7.3

7

Form: GN087-01
Rev. Date:8/30/2012

ACCUTEST.

Test: Redox Potential
Matrix: Aqueous ○
Matrix: Solid ◉

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

Analyst: SANJAYA
Date: 08/30/12
GN Batch ID: GN71304
Temp (Deg C): 25

Quality Control Summary

Sample ID:	GN71304-D1	Results:	**378.3**	Dup:	**346.8**
Ferrous-Ferric True: 675				Found	**638.8**
pH 4 Quinhydrone True: 462				Found	**482.6**
pH 4 Quinhydrone True: 462				Found	**447.3**
pH 4 Quinhydrone True: 462				Found	**447.9**
pH 7 Quinhydrone True: 285				Found	**290.1**
pH 7 Quinhydrone True: 285				Found	**266.7**
pH 7 Quinhydrone True: 285				Found	**263.1**

	% RPD:	**8.69%**
	% Rec	**94.64%**
	% Rec	**104.46%**
	% Rec	**96.82%**
	% Rec	**96.95%**
	% Rec	**101.79%**
	% Rec	**93.58%**
	% Rec	**92.32%**

Sample #:	mv vs. Ag/AgCl Electrode	Corrected results (mv vs. Hydrogen electrode) ***
Ferrous-Ferric Solution	463.4	638.8
pH 4 Quinhydrone	307.1	482.6
pH 7 Quinhydrone	114.6	290.1
Dup GN71304-D1	171.6	346.8
1. JB14201-1	146.4	321.8
2. JB14201-10	219	394.6
3. JB14201-11	208.4	383.9
4. JB14201-12	203	378.3
5. JB14201-2	19.5	195
6. JB14201-3	219.2	394.6
7. JB14201-4	188.1	363.5
8. JB14201-5	160.8	336.3
9. JB14201-6	165.5	340.8
pH 4 Quinhydrone	272	447.3
pH 7 Quinhydrone	91.3	266.7
10. JB14201-7	70.3	245.9
11. JB14201-8	-11.2	164.2
12. JB14201-9	12.6	187.8
13. JB14270-11	78	253.4
14. JB14270-5	56.3	231.7
15. JB14271-12	130.9	306.4
16. JB14271-6	120.2	295.6
17. JB14874-1	72.7	248.1
18. JB14874-2	-58	117.4
19. JB14874-5	-62.3	113.2
pH 4 Quinhydrone	272.6	447.9
pH 7 Quinhydrone	87.7	263.1

*** 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: Redox Standard: GNE-31456-ORP Exp:9/15/12

Comments:

Analyst: S.A. Date: 08/30/12 QC Reviewer: Date:

F/N GN141.DOC
Rev. Date: 3/27/2007

GN71304

ACCUTEST.

Analyst SA

Method EH/pH

Prep Date 8/29/12

GP # GN71303-pH
GN71304-eH

38

Balance #

Sample Prep Log

Sample ID	Sample Size	Final Volume
3B14874-1	50.5g	added 50mL DI H2O
-2	50.8g	
-5	50.5g	
3B14201-1	50.1g	
-2	50.6g	
-3	50.1g	
-4	50.5g	
-5	50.6g	
-6	50.6g	
-7	50.0g	
-8	50.4g	
-9	50.3g	
-10	50.5g	
-11	50.3g	
-12	50.6g	
-12DUP	50.9g	
3B14270-5	50.1g	
-11	50.2g	
3B14271-6	50.4g	
-12	50.8g	

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

QC Review

7.4.7

Test Title:	XCRA
GN Batch:	GN71458
Analyst:	AD
Prep Date:	9/1/2012
Analysis Date:	9/1/2012
Instrument ID:	D

Method: SW846 3060A, 7196A

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

Corr. Coef:	0.99996
Slope:	0.9214
Y intercept:	0.0006

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	8:23	0.000	0.0000							
STD 1	0.010	NA	NA	0.010	0.0100							
STD 2	0.046	NA	NA	0.046	0.0500							
STD 3	0.092	NA	NA	0.092	0.1000							
STD 4	0.278	NA	NA	0.278	0.3000							
STD 5	0.461	NA	NA	0.461	0.5000							
STD 6	0.744	NA	NA	0.744	0.8000							
STD 7	0.917	NA	8:27	0.917	1.0000							
CCV	0.432	NA	15:16	0.432	0.4682	NA	NA	NA	NA	mg/l	0.003	0.010
CCB	0.000	NA	15:16	0.000	-0.0007	NA	NA	NA	NA	mg/l	0.003	0.010
GP66938-MB1	0.000	0.000	15:25	0.000	-0.0007	100.0	2.5000	1	-0.027	mg/kg	0.117	0.400
GP66938-B1	0.822	0.000	15:25	0.822	0.8914	100.0	2.5000	1	35.658	mg/kg	0.117	0.400
GP66938-S1	0.464	0.013	15:25	0.451	0.4888	100.0	2.4800	1	19.710	mg/kg	0.118	0.403
GP66938-D1	0.033	0.014	15:25	0.019	0.0200	100.0	2.4500	1	0.815	mg/kg	0.120	0.408
JB14201-12	0.028	0.012	15:25	0.016	0.0167	100.0	2.4600	1	0.679	mg/kg	0.119	0.407
JB14201-12PSCONF	0.453	0.007	15:25	0.446	0.4834	100.0	2.4600	2	39.299	mg/kg	0.238	0.813
GP66938-B2	>3	OVR		FALSE	-0.0007	100.0	2.5000	1	-0.027	mg/kg	0.117	0.400
GP66938-S2	>3	OVR		FALSE	-0.0007	100.0	2.4900	1	-0.027	mg/kg	0.118	0.402
GP66938-B2	0.326	0.000	15:25	0.326	0.3531	100.0	2.5000	50	706.279	mg/kg	5.860	20.000
GP66938-S2	0.404	0.001	15:25	0.403	0.4367	100.0	2.4900	50	876.921	mg/kg	5.884	20.080
CCV	0.433	NA	15:25	0.433	0.4693	NA	NA	NA	NA	mg/l	0.003	0.010
CCB	0.000	NA	15:25	0.000	-0.0007	NA	NA	NA	NA	mg/l	0.003	0.010
				FALSE	-0.0007	100.0	2.4700	5	-0.134	mg/kg	0.593	2.024
				FALSE	-0.0007	100.0	2.4700	2	-0.054	mg/kg	0.237	0.810
				FALSE	-0.0007	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
				FALSE	-0.0007	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
				FALSE	-0.0007	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
				FALSE	-0.0007	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
				FALSE	-0.0007	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
				FALSE	-0.0007	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
				FALSE	-0.0007	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
				FALSE	-0.0007	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
CCV	0.426	NA	16:08	0.426	0.4617	NA	NA	NA	NA	mg/l	0.003	0.010
CCB	0.000	NA	16:08	0.000	-0.0007	NA	NA	NA	NA	mg/l	0.003	0.010
JB14201-1	0.165	0.159	16:17	0.006	0.0058	100.0	2.5500	1	0.229	mg/kg	0.115	0.392
JB14201-2	0.003	0.002	16:17	0.001	0.0004	100.0	2.5600	1	0.016	mg/kg	0.114	0.391
JB14201-3	0.017	0.010	16:17	0.007	0.0069	100.0	2.4500	1	0.283	mg/kg	0.120	0.408
JB14201-4	0.020	0.019	16:17	0.001	0.0004	100.0	2.5600	1	0.016	mg/kg	0.114	0.391
JB14201-5	0.015	0.000	16:17	0.015	0.0156	100.0	2.5000	1	0.625	mg/kg	0.117	0.400
JB14201-6	0.008	0.004	16:17	0.004	0.0037	100.0	2.5100	1	0.146	mg/kg	0.117	0.398
JB14201-7	0.007	0.002	16:17	0.005	0.0048	100.0	2.4900	1	0.191	mg/kg	0.118	0.402
JB14201-8	0.008	0.002	16:17	0.006	0.0058	100.0	2.5000	1	0.234	mg/kg	0.117	0.400
JB14201-9	0.028	0.027	16:17	0.001	0.0004	100.0	2.5200	1	0.017	mg/kg	0.116	0.397
JB14201-10	0.015	0.009	16:17	0.006	0.0058	100.0	2.5400	1	0.230	mg/kg	0.115	0.394
CCV	0.425	NA	16:17	0.425	0.4606	NA	NA	NA	NA	mg/l	0.003	0.010
CCB	0.000	NA	16:17	0.000	-0.0007	NA	NA	NA	NA	mg/l	0.003	0.010
JB14201-11	0.022	0.011	16:19	0.011	0.0113	100.0	2.5500	1	0.442	mg/kg	0.115	0.392
				FALSE	-0.0007	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
				FALSE	-0.0007	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
				FALSE	-0.0007	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
				FALSE	-0.0007	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
				FALSE	-0.0007	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
				FALSE	-0.0007	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
				FALSE	-0.0007	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
				FALSE	-0.0007	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
				FALSE	-0.0007	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
CCV	0.425	NA	16:19	0.425	0.4606	NA	NA	NA	NA	mg/l	0.003	0.010
CCB	0.000	NA	16:19	0.000	-0.0007	NA	NA	NA	NA	mg/l	0.003	0.010
				FALSE	-0.0007	100.0	2.5000	1	-0.027	mg/kg	0.117	0.400
				FALSE	-0.0007	100.0	2.5000	1	-0.027	mg/kg	0.117	0.400
				FALSE	-0.0007	100.0	2.5000	1	-0.027	mg/kg	0.117	0.400
				FALSE	-0.0007	100.0	2.5000	1	-0.027	mg/kg	0.117	0.400
				FALSE	-0.0007	100.0	2.5000	1	-0.027	mg/kg	0.117	0.400

AD 9/5/12

7.5

7

ACCUTEST LABS
DAYTON, NJ

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

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?
JB14201-12	2.46	1.107	0.67	0.443	yes	1	2	0.222	0.23	0.519	41.554	efault (40 mg/kg) spike
		0		0.000	no	0	2	0	0.23	#DIV/0!	#DIV/0!	efault (40 mg/kg) spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike

3060A/7196A INSOLUBLE SPIKE CALCULATION

Weight of PbCrO4	Weight of Sample	Amount Spiked
0.0115	2.5	740.099
0.0125	2.49	807.686
		#VALUE!
		#VALUE!
		#VALUE!
		#VALUE!
		#VALUE!
		#VALUE!
		#VALUE!

ACCUTEST

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

pH Meter ID: U8
Digestion Date: 9/1/12
pH adj. Date: 9-1-12
GN Batch ID: GN 71458

adj. start time:	16:30	14:42		14:56	15:47			
adj. end time:	15:41	14:51		15:07	15:59			
669388 mple ID	Sample Weight in g	pH after HNO3	Final Volume (ml)	pH after H2SO4	bkg pH after H2SO4	Spike Amounts	Spike Solution	Digestate Description/Comments
		7.16	100	2.03	—	5.0ml	10 ppm Ultra	
		7.66	↓	1.95	—	↓	↓	
		7.25	100	1.86	—			
		7.35	↓	1.91	—			
Sol)	TB14201-12	2.48	7.19	100	2.03	1.93	1.0ml	100 ppm Aqua Sol
nsol.)	↓ -12	2.49	7.24		1.91	1.87	0.0125	Regia
	-12	2.45	7.38		1.86	1.71		
Sol)		2.50	7.25		1.92	1.99	1.0ml	100 ppm Aqua
nsol)		↓	7.12		1.87	OVR	0.0115	Regia
			7.58		1.95	2.06		
14201-12		2.46	7.26		2.11	1.98		Light Brown
-1		2.55	7.51		1.92	1.77		Brown
-2		2.56	7.25		1.86	1.92		Clear
-3		2.45	7.10		1.75	1.83		ml # Clear light yellow
-4		2.56	7.38		2.01	1.91		4 Cl ↓
-5		2.50	7.21		1.85	1.93		Clear
-6		2.51	7.55		1.97	1.88		Clear
-7		2.49	7.29		1.88	1.90		Clear
-8		2.50	7.17		1.84	1.85		Clear
-9		2.52	7.26		2.07	1.70		Light Brown
-10		2.54	7.18		1.79	1.83		↓
-11		2.55	7.55	↓	1.91	1.88		
#4 MP ~~-12~~								
nsol)		2.50	7.12	100	1.92	1.81		dilution 1:50
nsol.)		2.49	7.24	↓	2.03	1.92		dilution 1:50
		2.46	7.26		1.95	1.81	0.23ml of 100 ppm Absolute in 1:2 Dilution	
djusted PS							150ml DI H2O	
l.								
14201-12		2.51						

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

)0000 ug/g x Insoluble spike wt(g) x 52/323.2)/ms sample wt(g) = Insoluble spike amount of PbCrO4

analyst check: 9/1/12

Analyst:
Date: 9/1/12

Form: GN-067

ACCUTEST

Test: **Hexavalent Chromium** MDL = 0.117 mg/kg GNBatch ID: GN 71458
Product: **XCr** RDL = 0.40 mg/kg Date: 9-1-12
Method: **SW846 3060A/7196A**

Digestion Batch QC Summary Units = mg/kg

Method Blank ID: GP66938-MB1 Date: 9-1-12 Result: <MDL RDL: 0.4 <RDL: Yes
Sol. Spike Blank ID: -B1 Date: Result: 35.65 Spike: 40 %Rec.: 89.1
Insol. Spike Blank ID: -B2 Date: Result: 706.2 Spike: 740 %Rec.: 95.4
Duplicate ID: -D1 Samp. Result: 0.679 Dup. Result: 0.815 %RPD: 18.2
Sol. MS ID: -S1 Samp. Result: 0.679 MS Result: 19.71 Spike: 40.3 %Rec: 47
Insol. MS ID: -S2 Samp. Result: 0.679 MS Result: 876.9 Spike: 807.6 %Rec: 108.4
Post Spike ID: JB14201-12 Samp. Result: 0.679 PS Result: 39.29 Spike: 41.55 %Rec: 92.9
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: 9-1-12	Result: 0.468	TV: 0.500	%Rec.: 93.6	
CCV:	Result: 0.469	TV: 0.500	%Rec.: 93.8	
CCV:	Result: 0.461	TV: 0.500	%Rec.: 92.2	
CCV:	Result: 0.460	TV: 0.500	%Rec.: 92	
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: 9-1-12	Result: <MDL	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: Date: 9/1/12

Comments:

Form: GN066-01

ACCUTEST.

HEXAVALENT CHROMIUM TEMPERATURE AND TIME DIGESTON LOG - METHOD 3060A

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

Thermometer ID: 381/395/182/175
Thermometer Correction factor: 01-2/210

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
	Starting Time	9:35	90/90	92/90	90/92	
	Time 1	10:05	90/90	92/90	90/92	
	Ending Time	10:35	90/90	92/90	90/92	
	Starting Time	10:40	90/90	92/90	90/92	90/90
	Time 1	11:10	90/90	92/90	90/92	90/90
	Ending Time	11:40	90/90	92/90	90/92	90/90
	Starting Time	11:50	90/90	92/90		
	Time 1	12:20	90/90	92/90		
	Ending Time	12:50	90/90	92/90		

Analyst: mp
2nd Analyst Check: [signature]

Date: 8/2 9/11/12
#1 mp

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

ACCUTEST

GN/GP Batch ID: GP66938

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

Reagent	Exp. Date	Reagent # or Manufacturer/Lot
Calibration Source: Hexavalent Chromium, 1000 mg/L Stock	4/12/2015	Absolute Grade Lot # 041212
Calibration Checks: Hexavalent Chromium, 1000 mg/L Stock	5/31/2017	Ultra lot # L00439
Spiking Solution Source	4/12/2015	Absolute Grade Lot # 041212
Lead Chromate (Insoluble Hexavalent Chromium Spike)	7/26/2017	Sigma Aldrich Lot # BCBG0578V
Magnesium Chloride, Anhydrous	7/11/2016	Alfa Aesar Lot # B17X012
1N NaOH	NA	
Digestion Solution	9/30/2012	GNE8-33421-XCR/XCRA
Phosphate Buffer Solution	2/14/2013	GNE8-33273-XCRA
5.0 M Nitric Acid	3-3-13	Code 8 - 33425 -XCRA
Diphenylcarbazide Solution	9-22-12	Code 8 - 33360-XCR
Sulfuric Acid, 10%	2-21-13	Code 8 - 33334 - XCR
Filter	N/A	F2EA19811
Teflon Chips	NA	919120

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

ACCUTEST.

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

pH adj. start time: f=07 f=13
pH adj. end time: f=09 f=16

pH adjustment Date: 9-1-2012
GN Batch ID: GN71458

Sample ID	Sample Weight in g	pH after HNO3	Final Volume (ml)	pH after H2SO4	Comments	Spike Info.
Calibration Blank	NA	7.25	100	2.10	0	
0.010 mg/l standard	NA	7.81		2.01	10 ppb Absorbtn	0.10 ml of 10 mg/l
0.050 mg/l standard	NA	7.36		2.04		0.50 ml of 10 mg/l
0.100 mg/l standard	NA	7.21		2.03		1.00 ml of 10 mg/l
0.300 mg/l standard	NA	7.64		1.95		3.00 ml of 10 mg/l
0.500 mg/l standard	NA	7.75		1.99		5.00 ml of 10 mg/l
0.800 mg/l standard	NA	7.95		1.92		8.00 ml of 10 mg/l
1.00 mg/l standard	NA	7.77	↓	2.01	↓	10.0 ml of 10 mg/l

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

000000 ug/g x Insoluble spike wt(g) x 52/323.2}/ms sample wt(g) = Insoluble spike amount of PbCrO4

Anayst: RZ
Date: 9-1-2012

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

ACCUTEST.

HEXAVALENT CHROMIUM STANDARD PREPARATION LOG

Product: XCR

GN or GP Number: GN 71458

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 # 041215	1000 ppm	1.0 ml	DI	100 mls	10 mg/l	4/12/2015	RZ	~~9-2-12~~ 9-1-12
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		

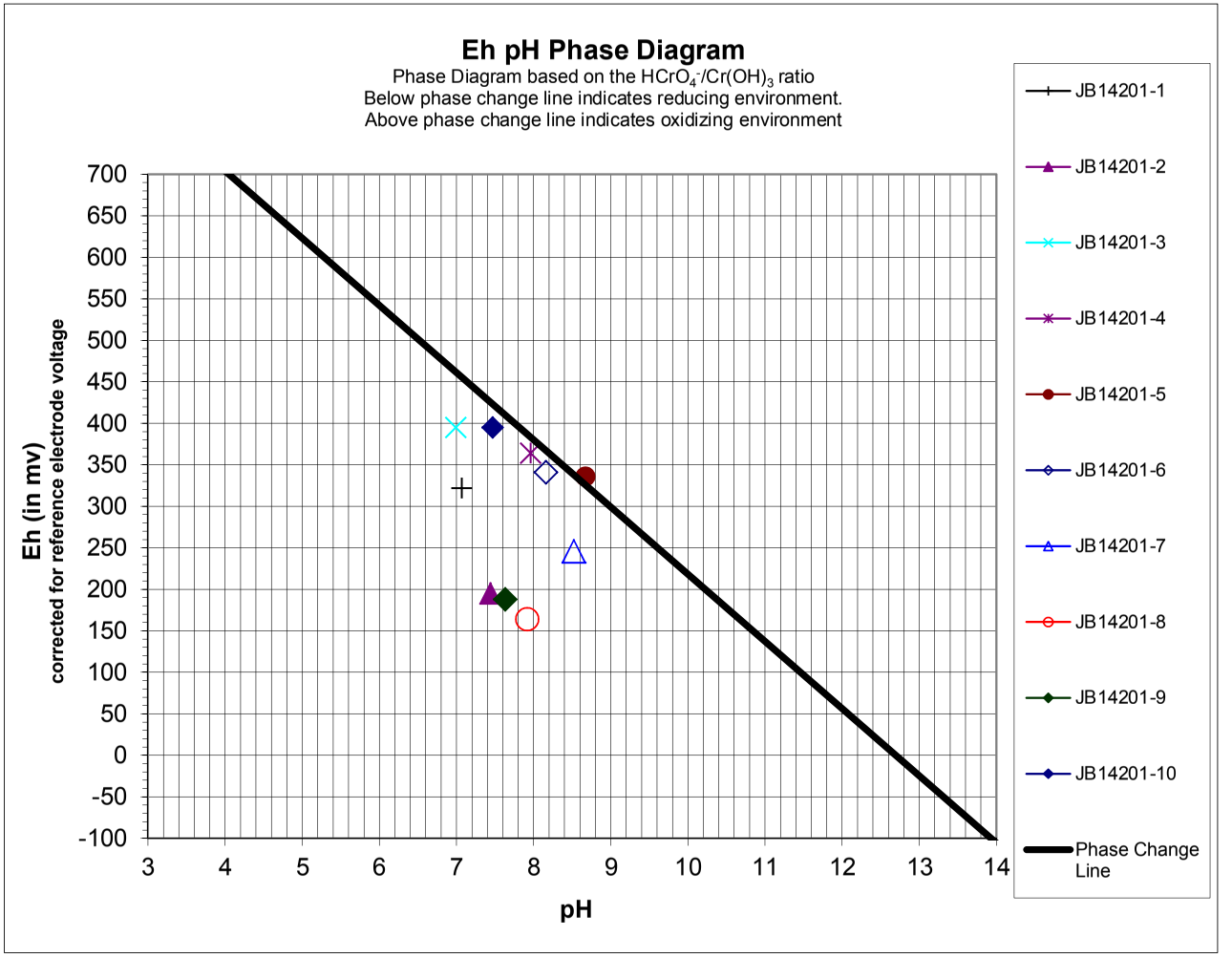
Standard Description	Intermediate or Stock used to prepare standard	Intermediate or Stock concentration	Intermediate or Stock volume used in ml	Diluent	Final Volume	Final Conc. Of Standard (mg/l)	Expiration Date	Analyst	Date
.010 ppm	10.0 ppm abs	10.0 ppm	0.1 ppm	DI	100 mls	0.01 mg/l	9-2-2012	RZ	9-1-2012
.050 ppm			0.5 ppm	DI		0.05 mg/l			
.10 ppm			1.0 ppm	DI		0.10 mg/l			
.30 ppm			3.0 ppm	DI		0.30 mg/l			
.50 ppm			5.0 ppm	DI		0.50 mg/l			
.80 ppm			8.0 ppm	DI		0.80 mg/l			
1.00 ppm			10.0 ppm	DI		1.0 mg/l			

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

ACCUTEST

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

Sample Number	pH	eH (mv)
JB14201-1	7.07	322
JB14201-2	7.44	195
JB14201-3	6.99	395
JB14201-4	7.96	364
JB14201-5	8.67	336
JB14201-6	8.16	341
JB14201-7	8.52	246
JB14201-8	7.92	164
JB14201-9	7.63	188
JB14201-10	7.47	395



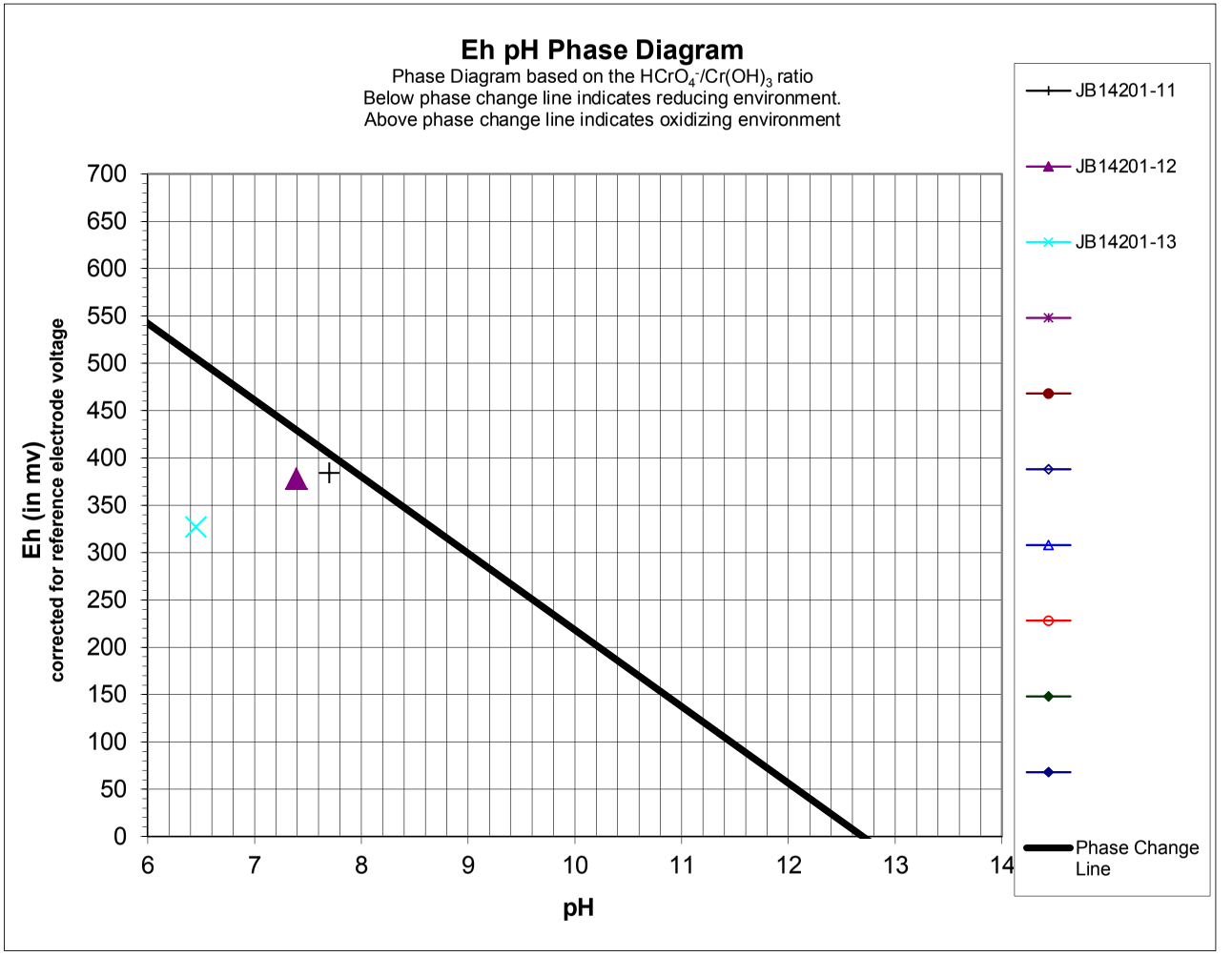
Note that the Eh values plotted on this diagram are corrected for the reference electrode voltage and the values shown are versus the standard hydrogen electrode

Reference for graph: SW846 method 3060A

ACCUTEST

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

Sample Number	pH	eH (mv)
JB14201-11	7.7	384
JB14201-12	7.39	378
JB14201-13	6.45	327



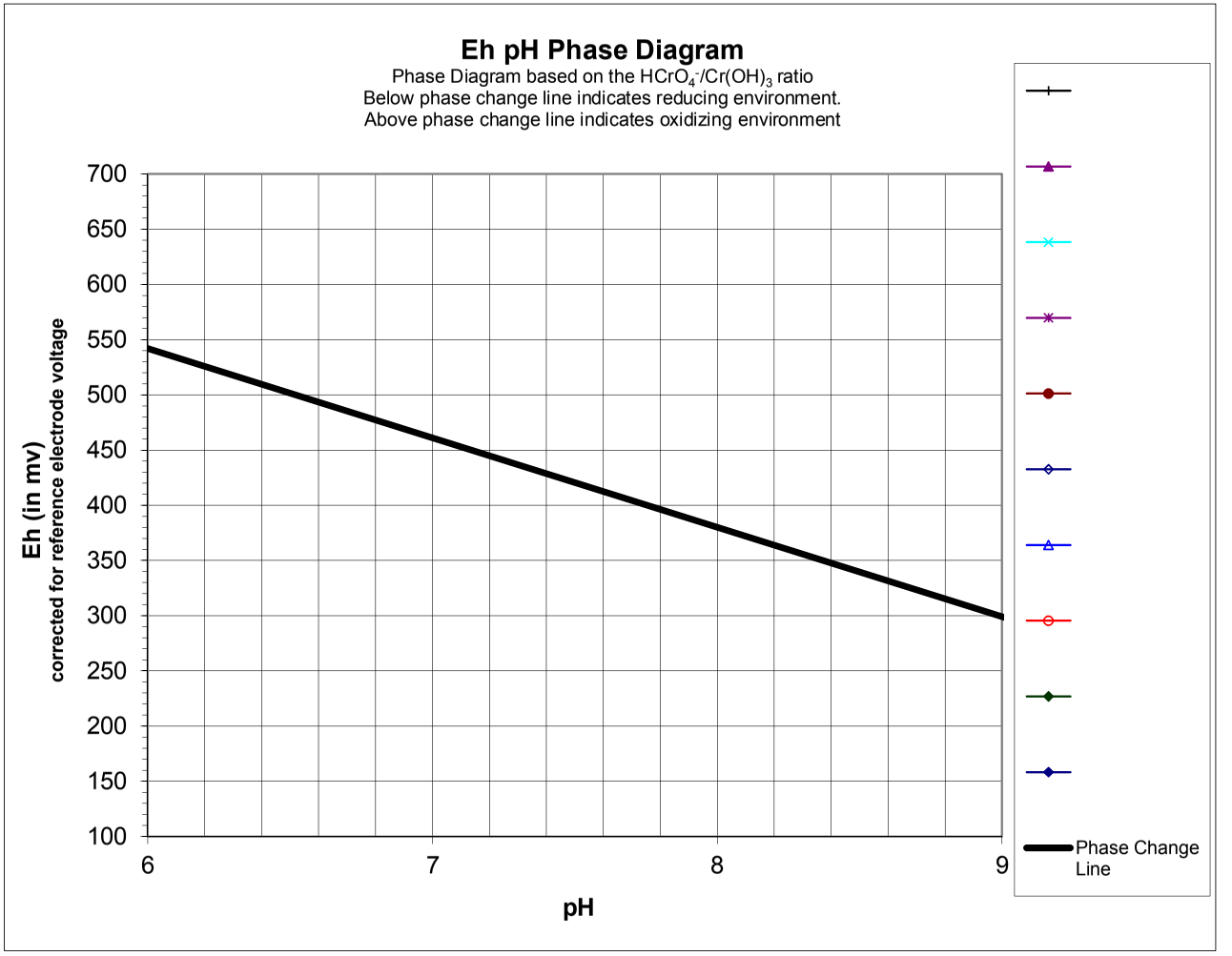
Note that the Eh values plotted on this diagram are corrected for the reference electrode voltage and the values shown are versus the standard hydrogen electrode

Reference for graph: SW846 method 3060A

ACCUTEST

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

Sample Number	pH	eH (mv)



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

Reference for graph: SW846 method 3060A

New Jersey ACCUTEST LABORATORIES

09/10/12

Technical Report for

AECOM, INC.

PPG Northern Canal Borings, Jersey City, NJ

60213772.5.A

Accutest Job Number: JB14201R

Sampling Date: 08/20/12

Report to:

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

Total number of pages in report: **127**

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.

Paul Ioannidis
Lab Director

Client Service contact: Matt Cordova 732-329-0200

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

Sections: 1 2 3 4 5 6 7

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Sample Summary

AECOM, INC.

Job No: JB14201R

PPG Northern Canal Borings, Jersey City, NJ
Project No: 60213772.5.A

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JB14201-1R	08/20/12	14:30	CM	08/20/12	SO	Soil	NSB-F5-12.0-12.5
JB14201-2R	08/20/12	14:15	CM	08/20/12	SO	Soil	NSB-F5-8.0-8.5
JB14201-3R	08/20/12	13:45	CM	08/20/12	SO	Soil	NSB-F5-4.0-4.5
JB14201-4R	08/20/12	12:30	CM	08/20/12	SO	Soil	NSB-F5-0.0-0.5
JB14201-5R	08/20/12	12:45	CM	08/20/12	SO	Soil	NSB-D5-20.0-20.5
JB14201-6R	08/20/12	12:20	CM	08/20/12	SO	Soil	NSB-D5-18.0-18.5
JB14201-7R	08/20/12	12:10	CM	08/20/12	SO	Soil	NSB-D5-15.0-15.5
JB14201-8R	08/20/12	11:35	CM	08/20/12	SO	Soil	NSB-D5-12.0-12.5
JB14201-9R	08/20/12	10:45	CM	08/20/12	SO	Soil	NSB-D5-6.4-6.9
JB14201-10R	08/20/12	09:35	CM	08/20/12	SO	Soil	NSB-D5-3.0-3.5X
JB14201-11R	08/20/12	09:30	CM	08/20/12	SO	Soil	NSB-D5-3.0-3.5
JB14201-12R	08/20/12	10:50	CM	08/20/12	SO	Soil	NSB-E5-3.0-3.5

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

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	AECOM, INC.	**Job No**	JB14201R
Site:	PPG Northern Canal Borings, Jersey City, NJ	**Report Date**	9/10/2012 10:24:29 A

On 08/20/2012, 13 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at Accutest Laboratories at a temperature of 5 C. Samples were intact and chemically preserved, unless noted below. An Accutest Job Number of JB14201R 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. 12 Samples were active for this report.

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:** GN71538

- All method blanks for this batch meet method specific criteria.
- Sample(s) JB14312-15RDUP, JB14312-15RMS were used as the QC samples for Iron, Ferrous.
- The following samples were run outside of holding time for method ASTM D3872-86: JB14201-12R 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:** GP66744

- All method blanks for this batch meet method specific criteria.
- Sample(s) JB13733-20DUP, JB13733-20MS were used as the QC samples for Total Organic Carbon.
- The following samples were prepared outside of holding time for method LLOYD KAHN 1988 MOD: JB14201-12R Multiple injections indicate possible sample non-homogeneity. This analysis done out of holding time to help evaluate the reducing nature of the sample for the hexavalent chromium analysis.

Wet Chemistry By Method SM18 4500S2-A

Matrix: SO **Batch ID:** GN71534

- The data for SM18 4500S2-A meets quality control requirements.
- The following samples were run outside of holding time for method SM18 4500S2-A: JB14201-12R 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:** GP66961

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB14201-12RDUP, JB14201-12RMS 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 (94_%) on this sample.
- GP66961-S2 for Chromium, Hexavalent: Good recovery on insoluble XCR matrix spike. See additional comments on soluble matrix spike recovery.

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: JB14201R
Account: AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Collected: 08/20/12

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JB14201-1R	**NSB-F5-12.0-12.5**					
Chromium, Hexavalent		2.5	0.59	0.17	mg/kg	SW846 3060A/7196A
JB14201-2R	**NSB-F5-8.0-8.5**					
No hits reported in this sample.						
JB14201-3R	**NSB-F5-4.0-4.5**					
Chromium, Hexavalent		0.86	0.48	0.14	mg/kg	SW846 3060A/7196A
JB14201-4R	**NSB-F5-0.0-0.5**					
Chromium, Hexavalent		0.67	0.44	0.13	mg/kg	SW846 3060A/7196A
JB14201-5R	**NSB-D5-20.0-20.5**					
Chromium, Hexavalent		0.40 B	0.45	0.13	mg/kg	SW846 3060A/7196A
JB14201-6R	**NSB-D5-18.0-18.5**					
No hits reported in this sample.						
JB14201-7R	**NSB-D5-15.0-15.5**					
Chromium, Hexavalent		0.20 B	0.45	0.13	mg/kg	SW846 3060A/7196A
JB14201-8R	**NSB-D5-12.0-12.5**					
Chromium, Hexavalent		0.71	0.51	0.15	mg/kg	SW846 3060A/7196A
JB14201-9R	**NSB-D5-6.4-6.9**					
Chromium, Hexavalent		0.28 B	0.51	0.15	mg/kg	SW846 3060A/7196A
JB14201-10R	**NSB-D5-3.0-3.5X**					
Chromium, Hexavalent		0.20 B	0.47	0.14	mg/kg	SW846 3060A/7196A
JB14201-11R	**NSB-D5-3.0-3.5**					
Chromium, Hexavalent		0.57	0.48	0.14	mg/kg	SW846 3060A/7196A

Summary of Hits

Job Number: JB14201R
Account: AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Collected: 08/20/12

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JB14201-12R	**NSB-E5-3.0-3.5**					
Chromium, Hexavalent		0.78	0.48	0.14	mg/kg	SW846 3060A/7196A
Iron, Ferrous [a]		1.4	0.20		%	ASTM D3872-86
Total Organic Carbon [b]		293000	120	59	mg/kg	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) Multiple injections indicate possible sample non-homogeneity. This analysis done out of holding time to help evaluate the reducing nature of the sample for the hexavalent chromium analysis.

New Jersey ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID: NSB-F5-12.0-12.5
Lab Sample ID: JB14201-1R
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/20/12
Date Received: 08/20/12
Percent Solids: 67.8

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	2.5	0.59	0.17	mg/kg	1	09/05/12 16:35	MM	SW846 3060A/7196A

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID: NSB-F5-8.0-8.5
Lab Sample ID: JB14201-2R
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/20/12
Date Received: 08/20/12
Percent Solids: 84.0

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.14 U	0.48	0.14	mg/kg	1	09/05/12 16:35	MM	SW846 3060A/7196A

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID: NSB-F5-4.0-4.5
Lab Sample ID: JB14201-3R
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/20/12
Date Received: 08/20/12
Percent Solids: 83.7

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.86	0.48	0.14	mg/kg	1	09/05/12 16:35	MM	SW846 3060A/7196A

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID:	NSB-F5-0.0-0.5		
Lab Sample ID:	JB14201-4R	**Date Sampled:**	08/20/12
Matrix:	SO - Soil	**Date Received:**	08/20/12
		Percent Solids:	90.4
Project:	PPG Northern Canal Borings, Jersey City, NJ		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.67	0.44	0.13	mg/kg	1	09/05/12 16:35	MM	SW846 3060A/7196A

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID: NSB-D5-20.0-20.5
Lab Sample ID: JB14201-5R
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/20/12
Date Received: 08/20/12
Percent Solids: 88.3

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.40 B	0.45	0.13	mg/kg	1	09/05/12 16:35	MM	SW846 3060A/7196A

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID:	NSB-D5-18.0-18.5		
Lab Sample ID:	JB14201-6R	**Date Sampled:**	08/20/12
Matrix:	SO - Soil	**Date Received:**	08/20/12
		Percent Solids:	88.1
Project:	PPG Northern Canal Borings, Jersey City, NJ		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.13 U	0.45	0.13	mg/kg	1	09/05/12 16:35	MM	SW846 3060A/7196A

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID:	NSB-D5-15.0-15.5		
Lab Sample ID:	JB14201-7R	**Date Sampled:**	08/20/12
Matrix:	SO - Soil	**Date Received:**	08/20/12
		Percent Solids:	88.0
Project:	PPG Northern Canal Borings, Jersey City, NJ		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.20 B	0.45	0.13	mg/kg	1	09/05/12 16:35	MM	SW846 3060A/7196A

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID:	NSB-D5-12.0-12.5		
Lab Sample ID:	JB14201-8R	**Date Sampled:**	08/20/12
Matrix:	SO - Soil	**Date Received:**	08/20/12
		Percent Solids:	78.7
Project:	PPG Northern Canal Borings, Jersey City, NJ		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.71	0.51	0.15	mg/kg	1	09/05/12 16:35	MM	SW846 3060A/7196A

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID:	NSB-D5-6.4-6.9		
Lab Sample ID:	JB14201-9R	**Date Sampled:**	08/20/12
Matrix:	SO - Soil	**Date Received:**	08/20/12
		Percent Solids:	78.4
Project:	PPG Northern Canal Borings, Jersey City, NJ		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.28 B	0.51	0.15	mg/kg	1	09/05/12 16:35	MM	SW846 3060A/7196A

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID:	NSB-D5-3.0-3.5X		
Lab Sample ID:	JB14201-10R	**Date Sampled:**	08/20/12
Matrix:	SO - Soil	**Date Received:**	08/20/12
		Percent Solids:	85.2
Project:	PPG Northern Canal Borings, Jersey City, NJ		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.20 B	0.47	0.14	mg/kg	1	09/05/12 16:35	MM	SW846 3060A/7196A

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID:	NSB-D5-3.0-3.5		
Lab Sample ID:	JB14201-11R	**Date Sampled:**	08/20/12
Matrix:	SO - Soil	**Date Received:**	08/20/12
		Percent Solids:	83.1
Project:	PPG Northern Canal Borings, Jersey City, NJ		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.57	0.48	0.14	mg/kg	1	09/05/12 16:35	MM	SW846 3060A/7196A

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID:	NSB-E5-3.0-3.5		
Lab Sample ID:	JB14201-12R	**Date Sampled:**	08/20/12
Matrix:	SO - Soil	**Date Received:**	08/20/12
		Percent Solids:	82.9
Project:	PPG Northern Canal Borings, Jersey City, NJ		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.78	0.48	0.14	mg/kg	1	09/05/12 15:58	MM	SW846 3060A/7196A
Iron, Ferrous [a]	1.4	0.20		%	1	09/05/12	JA	ASTM D3872-86
Sulfide Screen [b]	NEGATIVE				1	09/05/12	JA	SM18 4500S2-A
Total Organic Carbon [c]	293000	120	59	mg/kg	1	09/04/12 14:22	SJG	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.
(c) Multiple injections indicate possible sample non-homogeneity. This analysis done out of holding time to help evaluate the reducing nature of the sample for the hexavalent chromium analysis.

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

New Jersey ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

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

AECOM

CHAIN-OF-CUSTODY / Analytical Request Document
2012-08-20_ACCUTEST_COC_RI

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

Task:	GARIS- Northern Canal Borings
Total # of Samples: 13	JB14201
TAT	see Spec. Instructions — Rush
Notes: F= Field Filtered , H= Hold	

Lab Information:

Lab:	ACCUTEST
Address:	2235 Route 130 , Dayton NJ 08810
Lab PM:	Matt Cordova
Phone/Fax:	732-329-0200/
PM email:	

Project Information:

Site ID #:	PPG Garfield Ave
Project #:	60213772.5.A
Site Address:	70 Carteret Avenue
City	Jersey City
State, Zip	NJ 07304
PM Name:	Chris Martell
Phone/Fax:	732-564-3633
PM Email:	Christopher.Martell@aecom.com

Other Information:

Send Invoice to:	Lisa Krowitz
Address:	250 Apollo Drive
City/State.	Chelmsford, MA 01824
Phone #:	978-905-2278
PO #:	40256ACM
Send EDD to:	NJLABDATA@aecom.com
CC Hardcopy to	Erin Farrell, AECOM, Piscataway, NJ

ITEM #	Field Sample No. /Identification		MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comment	GARA-HexChrom	GARA-pH-ORP
1	NSB-F5-12-12.5	-1	SO	G	08/20/2012 14:30	1		1	X
2	NSB-F5-8-8.5	-2	SO	G	08/20/2012 14:15	1		1	X
3	NSB-F5-4-4.5	-3	SO	G	08/20/2012 13:45	1		1	X
4	NSB-F5-0-0.5	-4	SO	G	08/20/2012 12:30	1		1	X
5	NSB-D5-20-20.5	-5	SO	G	08/20/2012 12:45	1	HC29	1	X
6	NSB-D5-18-18.5	-6	SO	G	08/20/2012 12:20	1	WC47 ME40	1	X
7	NSB-D5-15-15.5	-7	SO	G	08/20/2012 12:10	1		1	X
8	NSB-D5-12-12.5	-8	SO	G	08/20/2012 11:35	1		1	X
9	NSB-D5-6.4-6.9	-9	SO	G	08/20/2012 10:45	1		1	X
10	NSB-D5-3.0-3.5X	-10	SO	G	08/20/2012 09:35	1		1	X
11	NSB-D5-3.0-3.5	-11	SO	G	08/20/2012 09:30	1		1	X

Additional Comments/Special Instructions:

Standard TAT

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
[signature]	8/20/12	1555	[signature]	8/20/12	1550
[signature]	8/20/12	1815	[signature]	8/20/12	1815

Shipper: DATE/TIME:

Tracking #: Custody Seal(s):

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

1 Cooler 5.0C 6.6

JB14201R: Chain of Custody

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AECOM

SO
FB

CHAIN-OF-CUSTODY / Analytical Request Document

2012-08-20_ACCUTEST_COC_RI

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

Lab Information:		Project Information:			Other Information:			
Lab:	ACCUTEST	Site ID #:	PPG Garfield Ave		Send Invoice to:	Lisa Krowitz		
Address:	2235 Route 130 , Dayton NJ 08810	Project #:	60213772.5.A		Address:	250 Apollo Drive		
		Site Address:	70 Carteret Avenue		City/State.	Chelmsford, MA 01824	Phone #:	978-905-2278
Lab PM:	Matt Cordova	City	Jersey City	State, Zip NJ 07304	PO #:	40256ACM		
Phone/Fax:	732-329-0200/	PM Name:	Chris Martell		Send EDD to:	NJLABDATA@aecom.com		
PM email:		Phone/Fax:	732-564-3633		CC Hardcopy to	Erin Farrell, AECOM, Piscataway, NJ		
		PM Email:	Christopher.Martell@aecom.com					

Task:	GARIS- Northern Canal Borings
Total # of Samples:	13

JB14201

TAT	see Spec. Instructions	Rush

Notes: F= Field Filtered , H= Hold

Lab Notes

Preservative

Analysis

ITEM #	Field Sample No. /Identification	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comment	GARA-HexChrom	GARA-pH-ORP
12	NSB-E5-3-3.5 ~ 12	SO	G	08/20/2012 10:50	3	MS/MSD	3	X
13	EB082012 13 pH = 6.45	WQ	G	08/20/2012 15:15	2	Preserved: None	2	X

5.1
5

JB14201R: Chain of Custody

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Accutest Laboratories Sample Receipt Summary

Accutest Job Number: JB14201 **Client:** **Project:**

Date / Time Received: 8/20/2012 **Delivery Method:** **Airbill #'s:**

Cooler Temps (Initial/Adjusted): #1: (5/5); 0

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

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

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

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

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

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

Comments

Job Change Order: JB14201_8/23/2012

Requested Date:	8/23/2012	**Received Date:**	8/20/2012
Account Name:	AECOM, INC.	**Due Date:**	9/3/2012
Project	PPG Northern Canal Borings 70 Caven Point	**Deliverable:**	FULT1
CSR:	MJ	**TAT (Days):**	14

Sample #: JB14201-1 **Change:** Revise ID to NSB-F5-12.0-12.5

NSB-F5-12-12.5

Sample #: JB14201-2 **Change:** Revise ID to NSB-F5-8.0-8.5

NSB-F5-8-8.5

Sample #: JB14201-3 **Change:** Revise ID to NSB-F5-4.0-4.5

NSB-F5-4-4.5

Sample #: JB14201-4 **Change:** Revise ID to NSB-F5-0.0-0.5

NSB-F5-0-0.5

Above Changes Per: Lisa Krowitz **Date:** 8/23/2012

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

JB14201R: Chain of Custody
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Job Change Order: JB14201_8/23/2012

Requested Date:	8/23/2012	**Received Date:**	8/20/2012
Account Name:	AECOM, INC.	**Due Date:**	9/3/2012
Project	PPG Northern Canal Borings 70 Caven Point	**Deliverable:**	FULT1
CSR:	MJ	**TAT (Days):**	14

Sample #: JB14201-5 **Change:** Revise ID to NSB-D5-20.0-20.5

NSB-D5-20-20.5

Sample #: JB14201-6 **Change:** Revise ID to NSB-D5-18.0-18.5

NSB-D5-18-18.5

Sample #: JB14201-7 **Change:** Revise ID to NSB-D5-15.0-15.5

NSB-D5-15-15.5

Sample #: JB14201-8 **Change:** Revise ID to NSB-D5-12.0-12.5

NSB-D5-12-12.5

Above Changes Per: Lisa Krowitz **Date:** 8/23/2012

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

Job Change Order: JB14201_8/23/2012

Requested Date:	8/23/2012	**Received Date:**	8/20/2012
Account Name:	AECOM, INC.	**Due Date:**	9/3/2012
Project	PPG Northern Canal Borings 70 Caven Point	**Deliverable:**	FULT1
CSR:	MJ	**TAT (Days):**	14

Sample #: JB14201-12, -12D, -12S
Change: Revise ID to NSB-E5-3.0-3.5

Sample #: JB14201-13
Change: Revise ID to NSB-EB20120820

EB082012

Above Changes Per: Lisa Krowitz **Date:** 8/23/2012

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

Job Change Order: JB14201_9/4/2012

Requested Date:	9/4/2012	**Received Date:**	8/20/2012
Account Name:	AECOM, INC.	**Due Date:**	9/4/2012
Project	PPG Northern Canal Borings, Jersey City, NJ	**Deliverable:**	FULT1
CSR:	MC	**TAT (Days):**	2

Sample #:
JB14201-12

Change: Due to XCR spike recovery log in FE2/7,SULFS,TOCLK

NSB-E5-3.0-3.5

Sample #:
JB14201-1 thru 12

Change: due to XCR spike recovery log in XXCRAR

Above Changes Per:

Date: 9/4/2012

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

Page 1 of 1

JB14201R: Chain of Custody
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Internal Sample Tracking Chronicle

AECOM, INC.

Job No: JB14201R

PPG Northern Canal Borings, Jersey City, NJ
Project No: 60213772.5.A

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB14201-1R	Collected: 20-AUG-12 14:30 By: CM NSB-F5-12.0-12.5			Received: 20-AUG-12	By: MPC	
JB14201-1R	SW846 3060A/7196A	05-SEP-12 16:35	MM	04-SEP-12	CW	XCRA
JB14201-2R	Collected: 20-AUG-12 14:15 By: CM NSB-F5-8.0-8.5			Received: 20-AUG-12	By: MPC	
JB14201-2R	SW846 3060A/7196A	05-SEP-12 16:35	MM	04-SEP-12	CW	XCRA
JB14201-3R	Collected: 20-AUG-12 13:45 By: CM NSB-F5-4.0-4.5			Received: 20-AUG-12	By: MPC	
JB14201-3R	SW846 3060A/7196A	05-SEP-12 16:35	MM	04-SEP-12	CW	XCRA
JB14201-4R	Collected: 20-AUG-12 12:30 By: CM NSB-F5-0.0-0.5			Received: 20-AUG-12	By: MPC	
JB14201-4R	SW846 3060A/7196A	05-SEP-12 16:35	MM	04-SEP-12	CW	XCRA
JB14201-5R	Collected: 20-AUG-12 12:45 By: CM NSB-D5-20.0-20.5			Received: 20-AUG-12	By: MPC	
JB14201-5R	SW846 3060A/7196A	05-SEP-12 16:35	MM	04-SEP-12	CW	XCRA
JB14201-6R	Collected: 20-AUG-12 12:20 By: CM NSB-D5-18.0-18.5			Received: 20-AUG-12	By: MPC	
JB14201-6R	SW846 3060A/7196A	05-SEP-12 16:35	MM	04-SEP-12	CW	XCRA
JB14201-7R	Collected: 20-AUG-12 12:10 By: CM NSB-D5-15.0-15.5			Received: 20-AUG-12	By: MPC	
JB14201-7R	SW846 3060A/7196A	05-SEP-12 16:35	MM	04-SEP-12	CW	XCRA
JB14201-8R	Collected: 20-AUG-12 11:35 By: CM NSB-D5-12.0-12.5			Received: 20-AUG-12	By: MPC	
JB14201-8R	SW846 3060A/7196A	05-SEP-12 16:35	MM	04-SEP-12	CW	XCRA

Internal Sample Tracking Chronicle

AECOM, INC.

Job No: JB14201R

PPG Northern Canal Borings, Jersey City, NJ
Project No: 60213772.5.A

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB14201-9R	Collected: 20-AUG-12 10:45 By: CM			Received: 20-AUG-12	By: MPC	
NSB-D5-6.4-6.9						
JB14201-9R	SW846 3060A/7196A	05-SEP-12 16:35	MM	04-SEP-12	CW	XCRA
JB14201-10R	Collected: 20-AUG-12 09:35 By: CM			Received: 20-AUG-12	By: MPC	
NSB-D5-3.0-3.5X						
JB14201-10R	SW846 3060A/7196A	05-SEP-12 16:35	MM	04-SEP-12	CW	XCRA
JB14201-11R	Collected: 20-AUG-12 09:30 By: CM			Received: 20-AUG-12	By: MPC	
NSB-D5-3.0-3.5						
JB14201-11R	SW846 3060A/7196A	05-SEP-12 16:35	MM	04-SEP-12	CW	XCRA
JB14201-12R	Collected: 20-AUG-12 10:50 By: CM			Received: 20-AUG-12	By: MPC	
NSB-E5-3.0-3.5						
JB14201-12R	LLOYD KAHN 1988 MOD	04-SEP-12 14:22	SJG	04-SEP-12	SJG	TOCLK
JB14201-12R	ASTM D3872-86	05-SEP-12	JA			FE2/7
JB14201-12R	SM18 4500S2-A	05-SEP-12	JA			SULFS
JB14201-12R	SW846 3060A/7196A	05-SEP-12 15:58	MM	04-SEP-12	CW	XCRA

Accutest Internal Chain of Custody

Job Number: JB14201R
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Received: 08/20/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB14201-1.1	Secured Storage	Todd Shoemaker	08/22/12 08:52	Retrieve from Storage
JB14201-1.1	Todd Shoemaker	Krimesh Patel	08/22/12 08:54	Custody Transfer
JB14201-1.1	Krimesh Patel	Secured Storage	08/22/12 13:13	Return to Storage
JB14201-1.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14201-1.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14201-1.1	Sanjay Advani	Matt Del Ciello	08/29/12 16:07	Custody Transfer
JB14201-1.1	Matt Del Ciello	Secured Storage	08/29/12 18:17	Return to Storage
JB14201-1.1	Secured Storage	Adam Scott	09/01/12 08:50	Retrieve from Storage
JB14201-1.1	Adam Scott	Secured Staging Area	09/01/12 08:51	Return to Storage
JB14201-1.1	Secured Staging Area	Mayur Patel	09/01/12 09:00	Retrieve from Storage
JB14201-1.1	Mayur Patel	Secured Storage	09/01/12 11:26	Return to Storage
JB14201-1.1	Secured Storage	Ching Wong	09/04/12 15:28	Retrieve from Storage
JB14201-1.1	Ching Wong	Secured Storage	09/04/12 23:29	Return to Storage
JB14201-2.1	Secured Storage	Todd Shoemaker	08/22/12 08:52	Retrieve from Storage
JB14201-2.1	Todd Shoemaker	Krimesh Patel	08/22/12 08:54	Custody Transfer
JB14201-2.1	Krimesh Patel	Secured Storage	08/22/12 13:13	Return to Storage
JB14201-2.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14201-2.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14201-2.1	Sanjay Advani	Matt Del Ciello	08/29/12 16:07	Custody Transfer
JB14201-2.1	Matt Del Ciello	Secured Storage	08/29/12 18:17	Return to Storage
JB14201-2.1	Secured Storage	Adam Scott	09/01/12 08:50	Retrieve from Storage
JB14201-2.1	Adam Scott	Secured Staging Area	09/01/12 08:51	Return to Storage
JB14201-2.1	Secured Staging Area	Mayur Patel	09/01/12 09:00	Retrieve from Storage
JB14201-2.1	Mayur Patel	Secured Storage	09/01/12 11:26	Return to Storage
JB14201-2.1	Secured Storage	Ching Wong	09/04/12 15:28	Retrieve from Storage
JB14201-2.1	Ching Wong	Secured Storage	09/04/12 23:29	Return to Storage
JB14201-3.1	Secured Storage	Todd Shoemaker	08/22/12 08:52	Retrieve from Storage
JB14201-3.1	Todd Shoemaker	Krimesh Patel	08/22/12 08:54	Custody Transfer
JB14201-3.1	Krimesh Patel	Secured Storage	08/22/12 13:13	Return to Storage
JB14201-3.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14201-3.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14201-3.1	Sanjay Advani	Matt Del Ciello	08/29/12 16:07	Custody Transfer
JB14201-3.1	Matt Del Ciello	Secured Storage	08/29/12 18:17	Return to Storage
JB14201-3.1	Secured Storage	Adam Scott	09/01/12 08:50	Retrieve from Storage
JB14201-3.1	Adam Scott	Secured Staging Area	09/01/12 08:51	Return to Storage
JB14201-3.1	Secured Staging Area	Mayur Patel	09/01/12 09:00	Retrieve from Storage
JB14201-3.1	Mayur Patel	Secured Storage	09/01/12 11:26	Return to Storage
JB14201-3.1	Secured Storage	Ching Wong	09/04/12 15:28	Retrieve from Storage
JB14201-3.1	Ching Wong	Secured Storage	09/04/12 23:29	Return to Storage
JB14201-4.1	Secured Storage	Todd Shoemaker	08/22/12 08:52	Retrieve from Storage
JB14201-4.1	Todd Shoemaker	Krimesh Patel	08/22/12 08:54	Custody Transfer

Accutest Internal Chain of Custody

Job Number: JB14201R
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Received: 08/20/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB14201-4.1	Krimesh Patel	Secured Storage	08/22/12 13:13	Return to Storage
JB14201-4.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14201-4.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14201-4.1	Sanjay Advani	Matt Del Ciello	08/29/12 16:07	Custody Transfer
JB14201-4.1	Matt Del Ciello	Secured Storage	08/29/12 18:17	Return to Storage
JB14201-4.1	Secured Storage	Adam Scott	09/01/12 08:50	Retrieve from Storage
JB14201-4.1	Adam Scott	Secured Staging Area	09/01/12 08:51	Return to Storage
JB14201-4.1	Secured Staging Area	Mayur Patel	09/01/12 09:00	Retrieve from Storage
JB14201-4.1	Mayur Patel	Secured Storage	09/01/12 11:26	Return to Storage
JB14201-4.1	Secured Storage	Ching Wong	09/04/12 15:28	Retrieve from Storage
JB14201-4.1	Ching Wong	Secured Storage	09/04/12 23:29	Return to Storage
JB14201-5.1	Secured Storage	Todd Shoemaker	08/22/12 08:52	Retrieve from Storage
JB14201-5.1	Todd Shoemaker	Krimesh Patel	08/22/12 08:54	Custody Transfer
JB14201-5.1	Krimesh Patel	Secured Storage	08/22/12 13:13	Return to Storage
JB14201-5.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14201-5.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14201-5.1	Sanjay Advani	Matt Del Ciello	08/29/12 16:07	Custody Transfer
JB14201-5.1	Matt Del Ciello	Secured Storage	08/29/12 18:17	Return to Storage
JB14201-5.1	Secured Storage	Adam Scott	09/01/12 08:50	Retrieve from Storage
JB14201-5.1	Adam Scott	Secured Staging Area	09/01/12 08:51	Return to Storage
JB14201-5.1	Secured Staging Area	Mayur Patel	09/01/12 09:00	Retrieve from Storage
JB14201-5.1	Mayur Patel	Secured Storage	09/01/12 11:26	Return to Storage
JB14201-5.1	Secured Storage	Ching Wong	09/04/12 15:28	Retrieve from Storage
JB14201-5.1	Ching Wong	Secured Storage	09/04/12 23:29	Return to Storage
JB14201-6.1	Secured Storage	Todd Shoemaker	08/22/12 08:52	Retrieve from Storage
JB14201-6.1	Todd Shoemaker	Krimesh Patel	08/22/12 08:54	Custody Transfer
JB14201-6.1	Krimesh Patel	Secured Storage	08/22/12 13:13	Return to Storage
JB14201-6.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14201-6.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14201-6.1	Sanjay Advani	Matt Del Ciello	08/29/12 16:07	Custody Transfer
JB14201-6.1	Matt Del Ciello	Secured Storage	08/29/12 18:17	Return to Storage
JB14201-6.1	Secured Storage	Adam Scott	09/01/12 08:50	Retrieve from Storage
JB14201-6.1	Adam Scott	Secured Staging Area	09/01/12 08:51	Return to Storage
JB14201-6.1	Secured Staging Area	Mayur Patel	09/01/12 09:00	Retrieve from Storage
JB14201-6.1	Mayur Patel	Secured Storage	09/01/12 11:26	Return to Storage
JB14201-6.1	Secured Storage	Ching Wong	09/04/12 15:28	Retrieve from Storage
JB14201-6.1	Ching Wong	Secured Storage	09/04/12 23:29	Return to Storage
JB14201-7.1	Secured Storage	Todd Shoemaker	08/22/12 08:52	Retrieve from Storage
JB14201-7.1	Todd Shoemaker	Krimesh Patel	08/22/12 08:54	Custody Transfer
JB14201-7.1	Krimesh Patel	Secured Storage	08/22/12 13:13	Return to Storage
JB14201-7.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage

Accutest Internal Chain of Custody

Job Number: JB14201R
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Received: 08/20/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB14201-7.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14201-7.1	Sanjay Advani	Matt Del Ciello	08/29/12 16:07	Custody Transfer
JB14201-7.1	Matt Del Ciello	Secured Storage	08/29/12 18:17	Return to Storage
JB14201-7.1	Secured Storage	Adam Scott	09/01/12 08:50	Retrieve from Storage
JB14201-7.1	Adam Scott	Secured Staging Area	09/01/12 08:51	Return to Storage
JB14201-7.1	Secured Staging Area	Mayur Patel	09/01/12 09:00	Retrieve from Storage
JB14201-7.1	Mayur Patel	Secured Storage	09/01/12 11:26	Return to Storage
JB14201-7.1	Secured Storage	Ching Wong	09/04/12 15:28	Retrieve from Storage
JB14201-7.1	Ching Wong	Secured Storage	09/04/12 23:29	Return to Storage
JB14201-8.1	Secured Storage	Todd Shoemaker	08/22/12 08:52	Retrieve from Storage
JB14201-8.1	Todd Shoemaker	Krimesh Patel	08/22/12 08:54	Custody Transfer
JB14201-8.1	Krimesh Patel	Secured Storage	08/22/12 13:13	Return to Storage
JB14201-8.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14201-8.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14201-8.1	Sanjay Advani	Matt Del Ciello	08/29/12 16:07	Custody Transfer
JB14201-8.1	Matt Del Ciello	Secured Storage	08/29/12 18:17	Return to Storage
JB14201-8.1	Secured Storage	Adam Scott	09/01/12 08:50	Retrieve from Storage
JB14201-8.1	Adam Scott	Secured Staging Area	09/01/12 08:51	Return to Storage
JB14201-8.1	Secured Staging Area	Mayur Patel	09/01/12 09:00	Retrieve from Storage
JB14201-8.1	Mayur Patel	Secured Storage	09/01/12 11:26	Return to Storage
JB14201-8.1	Secured Storage	Ching Wong	09/04/12 15:28	Retrieve from Storage
JB14201-8.1	Ching Wong	Secured Storage	09/04/12 23:29	Return to Storage
JB14201-9.1	Secured Storage	Todd Shoemaker	08/22/12 08:52	Retrieve from Storage
JB14201-9.1	Todd Shoemaker	Krimesh Patel	08/22/12 08:54	Custody Transfer
JB14201-9.1	Krimesh Patel	Secured Storage	08/22/12 13:13	Return to Storage
JB14201-9.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14201-9.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14201-9.1	Sanjay Advani	Matt Del Ciello	08/29/12 16:07	Custody Transfer
JB14201-9.1	Matt Del Ciello	Secured Storage	08/29/12 18:17	Return to Storage
JB14201-9.1	Secured Storage	Adam Scott	09/01/12 08:50	Retrieve from Storage
JB14201-9.1	Adam Scott	Secured Staging Area	09/01/12 08:51	Return to Storage
JB14201-9.1	Secured Staging Area	Mayur Patel	09/01/12 09:00	Retrieve from Storage
JB14201-9.1	Mayur Patel	Secured Storage	09/01/12 11:26	Return to Storage
JB14201-9.1	Secured Storage	Ching Wong	09/04/12 15:28	Retrieve from Storage
JB14201-9.1	Ching Wong	Secured Storage	09/04/12 23:29	Return to Storage
JB14201-10.1	Secured Storage	Todd Shoemaker	08/22/12 08:52	Retrieve from Storage
JB14201-10.1	Todd Shoemaker	Krimesh Patel	08/22/12 08:54	Custody Transfer
JB14201-10.1	Krimesh Patel	Secured Storage	08/22/12 13:13	Return to Storage
JB14201-10.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14201-10.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14201-10.1	Sanjay Advani	Matt Del Ciello	08/29/12 16:07	Custody Transfer

Accutest Internal Chain of Custody

Job Number: JB14201R
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Received: 08/20/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB14201-10.1	Matt Del Ciello	Secured Storage	08/29/12 18:17	Return to Storage
JB14201-10.1	Secured Storage	Adam Scott	09/01/12 08:50	Retrieve from Storage
JB14201-10.1	Adam Scott	Secured Staging Area	09/01/12 08:51	Return to Storage
JB14201-10.1	Secured Staging Area	Mayur Patel	09/01/12 09:00	Retrieve from Storage
JB14201-10.1	Mayur Patel	Secured Storage	09/01/12 11:26	Return to Storage
JB14201-10.1	Secured Storage	Adam Scott	09/04/12 14:02	Retrieve from Storage
JB14201-10.1	Adam Scott	Secured Staging Area	09/04/12 14:02	Return to Storage
JB14201-11.1	Secured Storage	Todd Shoemaker	08/22/12 08:52	Retrieve from Storage
JB14201-11.1	Todd Shoemaker	Krimesh Patel	08/22/12 08:54	Custody Transfer
JB14201-11.1	Krimesh Patel	Secured Storage	08/22/12 13:13	Return to Storage
JB14201-11.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14201-11.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14201-11.1	Sanjay Advani	Matt Del Ciello	08/29/12 16:07	Custody Transfer
JB14201-11.1	Matt Del Ciello	Secured Storage	08/29/12 18:17	Return to Storage
JB14201-11.1	Secured Storage	Adam Scott	09/01/12 08:50	Retrieve from Storage
JB14201-11.1	Adam Scott	Secured Staging Area	09/01/12 08:51	Return to Storage
JB14201-11.1	Secured Staging Area	Mayur Patel	09/01/12 09:00	Retrieve from Storage
JB14201-11.1	Mayur Patel	Secured Storage	09/01/12 11:26	Return to Storage
JB14201-11.1	Secured Storage	Ching Wong	09/04/12 15:28	Retrieve from Storage
JB14201-11.1	Ching Wong	Secured Storage	09/04/12 23:29	Return to Storage
JB14201-12.1	Secured Storage	Todd Shoemaker	08/22/12 08:52	Retrieve from Storage
JB14201-12.1	Todd Shoemaker	Krimesh Patel	08/22/12 08:54	Custody Transfer
JB14201-12.1	Krimesh Patel	Secured Storage	08/22/12 13:13	Return to Storage
JB14201-12.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14201-12.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14201-12.1	Sanjay Advani	Matt Del Ciello	08/29/12 16:07	Custody Transfer
JB14201-12.1	Matt Del Ciello	Secured Storage	08/29/12 18:17	Return to Storage
JB14201-12.1	Secured Storage	Adam Scott	09/01/12 08:50	Retrieve from Storage
JB14201-12.1	Adam Scott	Secured Staging Area	09/01/12 08:51	Return to Storage
JB14201-12.1	Secured Staging Area	Mayur Patel	09/01/12 09:00	Retrieve from Storage
JB14201-12.1	Mayur Patel	Secured Storage	09/01/12 11:26	Return to Storage
JB14201-12.1	Secured Storage	Shirley Grzybowski	09/04/12 13:01	Retrieve from Storage
JB14201-12.1	Shirley Grzybowski	Secured Storage	09/04/12 14:17	Return to Storage
JB14201-12.1	Secured Storage	Dave Hunkele	09/04/12 14:19	Retrieve from Storage
JB14201-12.1	Dave Hunkele	Secured Staging Area	09/04/12 14:20	Return to Storage
JB14201-12.1	Secured Staging Area	Ching Wong	09/04/12 15:07	Retrieve from Storage
JB14201-12.1	Ching Wong	Secured Storage	09/04/12 23:29	Return to Storage
JB14201-12.2	Secured Storage	Todd Shoemaker	08/22/12 08:52	Retrieve from Storage
JB14201-12.2	Todd Shoemaker	Krimesh Patel	08/22/12 08:54	Custody Transfer
JB14201-12.2	Krimesh Patel	Secured Storage	08/22/12 13:13	Return to Storage
JB14201-12.2	Secured Storage	Adam Scott	09/01/12 08:50	Retrieve from Storage

Accutest Internal Chain of Custody

Job Number: JB14201R
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Received: 08/20/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB14201-12.2	Adam Scott	Secured Staging Area	09/01/12 08:51	Return to Storage
JB14201-12.2	Secured Staging Area	Mayur Patel	09/01/12 09:00	Retrieve from Storage
JB14201-12.2	Mayur Patel	Secured Storage	09/01/12 11:26	Return to Storage
JB14201-12.2	Secured Storage	Ching Wong	09/04/12 15:28	Retrieve from Storage
JB14201-12.2	Ching Wong	Secured Storage	09/04/12 23:29	Return to Storage
JB14201-12.2	Secured Storage	Dave Hunkele	09/05/12 10:31	Retrieve from Storage
JB14201-12.2	Dave Hunkele	Jayshree Amin	09/05/12 10:32	Custody Transfer
JB14201-12.2	Jayshree Amin	Secured Storage	09/05/12 16:58	Return to Storage
JB14201-12.3	Secured Storage	Todd Shoemaker	08/22/12 08:52	Retrieve from Storage
JB14201-12.3	Todd Shoemaker	Krimesh Patel	08/22/12 08:54	Custody Transfer
JB14201-12.3	Krimesh Patel	Secured Storage	08/22/12 13:13	Return to Storage
JB14201-12.3	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14201-12.3	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14201-12.3	Sanjay Advani	Matt Del Ciello	08/29/12 16:07	Custody Transfer
JB14201-12.3	Matt Del Ciello	Secured Storage	08/29/12 18:17	Return to Storage
JB14201-12.3	Secured Storage	Adam Scott	09/01/12 08:50	Retrieve from Storage
JB14201-12.3	Adam Scott	Secured Staging Area	09/01/12 08:51	Return to Storage
JB14201-12.3	Secured Staging Area	Mayur Patel	09/01/12 09:00	Retrieve from Storage
JB14201-12.3	Mayur Patel	Secured Storage	09/01/12 11:26	Return to Storage
JB14201-12.3	Secured Storage	Ching Wong	09/04/12 15:28	Retrieve from Storage
JB14201-12.3	Ching Wong	Secured Storage	09/04/12 23:29	Return to Storage

New Jersey ACCUTEST LABORATORIES

General Chemistry

QC Data Summaries

Includes the following where applicable:

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

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: JB14201R
Account: ENSRNJ - AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GP66961/GN71549	0.40	0.0	mg/kg	40.00	37.9	94.8	80-120%
Chromium, Hexavalent	GP66961/GN71549			mg/kg	913.86	962	105.3	80-120%
Iron, Ferrous	GN71538	0.20	<0.20	%				
Total Organic Carbon	GP66744/GN71475	100	0.0	mg/kg	2000	1920	96.0	80-120%

Associated Samples:
Batch GN71538: JB14201-12R
Batch GP66744: JB14201-12R
Batch GP66961: JB14201-1R, JB14201-2R, JB14201-3R, JB14201-4R, JB14201-5R, JB14201-6R, JB14201-7R, JB14201-8R, JB14201-9R, JB14201-10R, JB14201-11R, JB14201-12R
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: JB14201R
Account: ENSRNJ - AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GP66961/GN71549	JB14201-12R	mg/kg	0.78	0.89	13.2	0-20%
Iron, Ferrous	GN71538	JB14312-15R	%	0.95	0.95	0.0	0-26%
Sulfide Screen	GN71534	JB14312-15R		NEGATIVE	NEGATIVE		0-%
Total Organic Carbon	GP66744/GN71159	JB13733-20	mg/kg	4440	3650	19.5	0-37%

Associated Samples:
Batch GN71534: JB14201-12R
Batch GN71538: JB14201-12R
Batch GP66744: JB14201-12R
Batch GP66961: JB14201-1R, JB14201-2R, JB14201-3R, JB14201-4R, JB14201-5R, JB14201-6R, JB14201-7R, JB14201-8R, JB14201-9R, JB14201-10R, JB14201-11R, JB14201-12R
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: JB14201R
Account: ENSRNJ - AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chromium, Hexavalent	GP66961/GN71549	JB14201-12R	mg/kg	0.78	47.1	32.1	66.5N(a)	75-125%
Chromium, Hexavalent	GP66961/GN71549	JB14201-12R	mg/kg	0.78	1020	958	94.2(b)	75-125%
Iron, Ferrous	GN71538	JB14312-15R	%	0.95	57.8	56.6	96.0	62-130%
Total Organic Carbon	GP66744/GN71159	JB13733-20	mg/kg	4440	5330	8240	71.3	46-113%

Associated Samples:
Batch GN71538: JB14201-12R
Batch GP66744: JB14201-12R
Batch GP66961: JB14201-1R, JB14201-2R, JB14201-3R, JB14201-4R, JB14201-5R, JB14201-6R, JB14201-7R, JB14201-8R, JB14201-9R, JB14201-10R, JB14201-11R, JB14201-12R
(*) 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 (94_%) on this sample.
(b) Good recovery on insoluble XCR matrix spike. See additional comments on soluble matrix spike recovery.

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB14201R
Account: ENSRNJ - AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

File ID: B20828S1.TXT Date Analyzed: 08/28/12 Methods: LLOYD KAHN 1988 MOD
Analyst: SJG Run ID: GN71159
Parameters: Total Organic Carbon

Time	Sample Description	Dilution Factor	PS Recov	Comments
10:55	GN71159-STD1	1		STDA
11:09	GN71159-STD2	1		STDB
11:59	GN71159-STD3	1		STDC
12:16	GN71159-STD4	1		STDD
12:49	GN71159-STD5	1		STDE
13:12	GN71159-STD6	1		STDF
13:27	GN71159-STD7	1		STDG
09:24	GN71159-CRI1	1		
09:39	GN71159-HSTD1	1		
09:51	GN71159-ICV1	1		
10:10	GN71159-CCV1	1		
10:28	GP66744-MB1	1		
10:41	GP66744-B1	1		
10:55	JB13733-20	1		(sample used for QC only; not part of login JB14201R)
11:05	ZZZZZZ	1		
11:17	ZZZZZZ	1		
11:44	ZZZZZZ	1		
11:57	ZZZZZZ	1		
12:10	ZZZZZZ	1		
12:26	ZZZZZZ	1		
13:00	ZZZZZZ	1		
13:18	GN71159-CCV2	1		
13:31	ZZZZZZ	1		
13:40	ZZZZZZ	1		
13:51	ZZZZZZ	1		
15:12	GP66744-D1	1		
15:27	GP66744-S1	1		
15:41	ZZZZZZ	1		
16:14	ZZZZZZ	1		
16:40	GN71159-CCV3	1		

Refer to raw data for calibration curve and standards.

Instrument QC Summary
Inorganics Analyses

Login Number: JB14201R
Account: ENSRNJ - AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

File ID: B20828S1.TXT Date Analyzed: 08/28/12 Methods: LLOYD KAHN 1988 MOD
Run ID: GN71159 Units: mg/l

Sample Number	Parameter	Result	RL	IDL/MDL	True Value	% Recov.	QC Limits
GN71159-CRI1	Total Organic Carbon	89.3	100	49	100	89.3	70-130
GN71159-HSTD1	Total Organic Carbon	4910	100	49	5000	98.2	90-110
GN71159-ICV1	Total Organic Carbon	1830	100	49	2000	91.5	90-110
GN71159-CCV1	Total Organic Carbon	2440	100	49	2500	97.6	90-110
GN71159-CCV2	Total Organic Carbon	2470	100	49	2500	98.8	90-110
GN71159-CCV3	Total Organic Carbon	2350	100	49	2500	94.0	90-110

(!) Outside of QC limits

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB14201R
Account: ENSRNJ - AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

File ID: B20904S1.TXT Date Analyzed: 09/04/12 Methods: LLOYD KAHN 1988 MOD
Analyst: SJG Run ID: GN71475
Parameters: Total Organic Carbon

Time	Sample Description	Dilution Factor	PS Recov	Comments
12:28	GN71475-STD1	1		STDA
12:53	GN71475-STD2	1		STDB
13:02	GN71475-STD3	1		STDC
13:22	GN71475-STD4	1		STDD
13:38	GN71475-STD5	1		STDE
13:51	GN71475-STD6	1		STDF
14:00	GN71475-STD7	1		STDG
09:38	GN71475-CRI1	1		
09:52	GN71475-HSTD1	1		
10:13	GN71475-ICV1	1		
10:31	GN71475-CCV1	1		
10:46	GP66744-MB2	1		
11:03	GP66744-B2	1		
11:13	ZZZZZZ	1		
11:23	ZZZZZZ	1		
12:44	ZZZZZZ	1		
13:01	GN71475-CCV2	1		
13:28	JB14201-12R	1		Overrange rerun at 0.01g
14:22	JB14201-12R	1		
14:50	ZZZZZZ	1		
15:07	GN71475-CCV3	1		

Refer to raw data for calibration curve and standards.

Instrument QC Summary
Inorganics Analyses

Login Number: JB14201R
Account: ENSRNJ - AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

File ID: B20904S1.TXT Date Analyzed: 09/04/12 Methods: LLOYD KAHN 1988 MOD
Run ID: GN71475 Units: mg/l

Sample Number	Parameter	Result	RL	IDL/MDL	True Value	% Recov.	QC Limits
GN71475-CRI1	Total Organic Carbon	94.1	100	49	100	94.1	70-130
GN71475-HSTD1	Total Organic Carbon	5060	100	49	5000	101.2	90-110
GN71475-ICV1	Total Organic Carbon	1930	100	49	2000	96.5	90-110
GN71475-CCV1	Total Organic Carbon	2690	100	49	2500	107.6	90-110
GN71475-CCV2	Total Organic Carbon	2660	100	49	2500	106.4	90-110
GN71475-CCV3	Total Organic Carbon	2660	100	49	2500	106.4	90-110

(!) Outside of QC limits

Report of Analysis

Client Sample ID:	NSB-E5-3.0-3.5		
Lab Sample ID:	JB14201-12R	**Date Sampled:**	08/20/12
Matrix:	SO - Soil	**Date Received:**	08/20/12
		Percent Solids:	82.9
Project:	PPG Northern Canal Borings, Jersey City, NJ		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.78	0.48	0.14	mg/kg	1	09/05/12 15:58	MM	SW846 3060A/7196A
Iron, Ferrous [a]	1.4	0.20		%	1	09/05/12	JA	ASTM D3872-86
Sulfide Screen [b]	NEGATIVE				1	09/05/12	JA	SM18 4500S2-A
Total Organic Carbon [c]	293000	120	59	mg/kg	1	09/04/12 14:22	SJG	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.
(c) Multiple injections indicate possible sample non-homogeneity. This analysis done out of holding time to help evaluate the reducing nature of the sample for the hexavalent chromium analysis.

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: JB14201R
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Sample: JB14201-1 **Analyzed:** 22-AUG-12 by KP **Method:** SM18 2540G
ClientID: NSB-F5-12.0-12.5

Wet Weight (Total)	33.16	g
Tare Weight	27.51	g
Dry Weight (Total)	31.34	g
Solids, Percent	67.8	%

Sample: JB14201-2 **Analyzed:** 22-AUG-12 by KP **Method:** SM18 2540G
ClientID: NSB-F5-8.0-8.5

Wet Weight (Total)	34.25	g
Tare Weight	25.94	g
Dry Weight (Total)	32.92	g
Solids, Percent	84	%

Sample: JB14201-3 **Analyzed:** 22-AUG-12 by KP **Method:** SM18 2540G
ClientID: NSB-F5-4.0-4.5

Wet Weight (Total)	31.99	g
Tare Weight	26.17	g
Dry Weight (Total)	31.04	g
Solids, Percent	83.7	%

Sample: JB14201-4 **Analyzed:** 22-AUG-12 by KP **Method:** SM18 2540G
ClientID: NSB-F5-0.0-0.5

Wet Weight (Total)	31.39	g
Tare Weight	25.14	g
Dry Weight (Total)	30.79	g
Solids, Percent	90.4	%

Sample: JB14201-5 **Analyzed:** 22-AUG-12 by KP **Method:** SM18 2540G
ClientID: NSB-D5-20.0-20.5

Wet Weight (Total)	30.34	g
Tare Weight	23.07	g
Dry Weight (Total)	29.49	g
Solids, Percent	88.3	%

Sample: JB14201-6 **Analyzed:** 22-AUG-12 by KP **Method:** SM18 2540G
ClientID: NSB-D5-18.0-18.5

Wet Weight (Total)	26.46	g
Tare Weight	19.3	g
Dry Weight (Total)	25.61	g
Solids, Percent	88.1	%

Percent Solids Raw Data Summary

Job Number: JB14201R
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Sample: JB14201-7 **Analyzed:** 22-AUG-12 by KP **Method:** SM18 2540G
ClientID: NSB-D5-15.0-15.5

Wet Weight (Total)	29.93	g
Tare Weight	22.34	g
Dry Weight (Total)	29.02	g
Solids, Percent	88	%

Sample: JB14201-8 **Analyzed:** 22-AUG-12 by KP **Method:** SM18 2540G
ClientID: NSB-D5-12.0-12.5

Wet Weight (Total)	30.58	g
Tare Weight	20.88	g
Dry Weight (Total)	28.51	g
Solids, Percent	78.7	%

Sample: JB14201-9 **Analyzed:** 22-AUG-12 by KP **Method:** SM18 2540G
ClientID: NSB-D5-6.4-6.9

Wet Weight (Total)	30.55	g
Tare Weight	22.02	g
Dry Weight (Total)	28.71	g
Solids, Percent	78.4	%

Sample: JB14201-10 **Analyzed:** 22-AUG-12 by KP **Method:** SM18 2540G
ClientID: NSB-D5-3.0-3.5X

Wet Weight (Total)	29.07	g
Tare Weight	22.66	g
Dry Weight (Total)	28.12	g
Solids, Percent	85.2	%

Sample: JB14201-11 **Analyzed:** 22-AUG-12 by KP **Method:** SM18 2540G
ClientID: NSB-D5-3.0-3.5

Wet Weight (Total)	32.76	g
Tare Weight	26.71	g
Dry Weight (Total)	31.74	g
Solids, Percent	83.1	%

Sample: JB14201-12 **Analyzed:** 22-AUG-12 by KP **Method:** SM18 2540G
ClientID: NSB-E5-3.0-3.5

Wet Weight (Total)	27.9	g
Tare Weight	21.6	g
Dry Weight (Total)	26.82	g
Solids, Percent	82.9	%

New Jersey ACCUTEST LABORATORIES

General Chemistry

Raw Data

	Sample Name	Sample ID	Method	Type	Date / Time	Conc.	Mean Area	CV
1	CRI		tocsscal.met	Unknown	08/28/12 09:2	0.08928 %	462	4.04%
2	CRI		tocsscal.met	Unknown	08/28/12 09:2	0.08928 %	462	4.04%
3	HSTD		tocsscal.met	Unknown	08/28/12 09:3	4.908 %	19352	0.342%
4	HSTD		tocsscal.met	Unknown	08/28/12 09:3	4.908 %	19352	0.342%
5	ICV		tocsscal.met	Unknown	08/28/12 09:5	1.827 %	7273	6.68%
6	ICV		tocsscal.met	Unknown	08/28/12 09:5	1.827 %	7273	6.68%
7	CCV		tocsscal.met	Unknown	08/28/12 10:1	2.440 %	9679	0.820%
8	CCV		tocsscal.met	Unknown	08/28/12 10:1	2.440 %	9679	0.820%
9	GP66744-MB	TOCLK	tocss.met	Unknown	08/28/12 10:2	-0.00286 %	0	0.00%
10	GP66744-MB	TOCLK	tocss.met	Unknown	08/28/12 10:2	-0.00286 %	0	0.00%
11	GP66744-B1		tocss.met	Unknown	08/28/12 10:4	0.1751 %	6976	2.73%
12	GP66744-B1		tocss.met	Unknown	08/28/12 10:4	0.1751 %	6976	2.73%
13	JB13733-20	(A)	tocss.met	Unknown	08/28/12 10:5	0.3223 %	12787	13.9%
14	JB13733-20		tocss.met	Unknown	08/28/12 10:5	0.3223 %	12787	13.9%
15	JB13733-10		tocss.met	Unknown	08/28/12 11:0	1.639 %	6953	10.9%
16	JB13733-10		tocss.met	Unknown	08/28/12 11:0	1.639 %	6953	10.9%
17	JB13733-11	(2)	tocss.met	Unknown	08/28/12 11:1	0.9550 %	2077	24.7%
18	JB13733-11		tocss.met	Unknown	08/28/12 11:1	0.9550 %	2077	24.7%
19	JB13733-12	(A)	tocss.met	Unknown	08/28/12 11:4	2.596 %	10731	20.6%
20	JB13733-12		tocss.met	Unknown	08/28/12 11:4	2.596 %	10731	20.6%
21	JB13733-12		tocss.met	Unknown	08/28/12 11:4	2.596 %	10731	20.6%
22	JB13733-12		tocss.met	Unknown	08/28/12 11:4	2.596 %	10731	20.6%
23	JB13733-13		tocss.met	Unknown	08/28/12 11:5	1.635 %	6742	3.41%
24	JB13733-13		tocss.met	Unknown	08/28/12 11:5	1.635 %	6742	3.41%
25	JB13733-14		tocss.met	Unknown	08/28/12 12:1	1.298 %	18489	0.998%
26	JB13733-14		tocss.met	Unknown	08/28/12 12:1	1.298 %	18489	0.998%
27	JB13733-16		tocss.met	Unknown	08/28/12 12:2	1.159 %	16777	4.76%
28	JB13733-16		tocss.met	Unknown	08/28/12 12:2	1.159 %	16777	4.76%
29	JB13733-18		tocss.met	Unknown	08/28/12 13:0	0.4054 %	16064	20.5%
30	JB13733-18		tocss.met	Unknown	08/28/12 13:0	0.4054 %	16064	20.5%
31	JB13733-18		tocss.met	Unknown	08/28/12 13:0	0.4054 %	16064	20.5%
32	JB13733-18		tocss.met	Unknown	08/28/12 13:0	0.4054 %	16064	20.5%
33	CCV		tocsscal.met	Unknown	08/28/12 13:1	2.472 %	9802	2.52%
34	CCV		tocsscal.met	Unknown	08/28/12 13:1	2.472 %	9802	2.52%
35	JB13733-19	(A)	tocss.met	Unknown	08/28/12 13:3	3.425 %	14054	1.17%
36	JB13733-19		tocss.met	Unknown	08/28/12 13:3	3.425 %	14054	1.17%
37	JB13733-21	(2)	tocss.met	Unknown	08/28/12 13:4	0.08598 %	1860	14.5%
38	JB13733-21		tocss.met	Unknown	08/28/12 13:4	0.08598 %	1860	14.5%
39	JB13733-22	(A)	tocss.met	Unknown	08/28/12 13:5	0.2059 %	4347	11.5%
40	JB13733-22		tocss.met	Unknown	08/28/12 13:5	0.2059 %	4347	11.5%
41	GP66744-D1	JB13733-20	tocss.met	Unknown	08/28/12 15:1	0.2649 %	10553	27.8%
42	GP66744-D1	JB13733-20	tocss.met	Unknown	08/28/12 15:1	0.2649 %	10553	27.8%
43	GP66744-D1	JB13733-20	tocss.met	Unknown	08/28/12 15:1	0.2649 %	10553	27.8%
44	GP66744-D1	JB13733-20	tocss.met	Unknown	08/28/12 15:1	0.2649 %	10553	27.8%
45	GP66744-S1	JB13733-20	tocss.met	Unknown	08/28/12 15:2	0.5982 %	12227	2.30%
46	GP66744-S1	JB13733-20	tocss.met	Unknown	08/28/12 15:2	0.5982 %	12227	2.30%
47	JB13733-11	(A)	tocss.met	Unknown	08/28/12 15:4	1.678 %	16619	3.59%
48	JB13733-11		tocss.met	Unknown	08/28/12 15:4	1.678 %	16619	3.59%
49	JB13733-21		tocss.met	Unknown	08/28/12 16:1	0.2585 %	10266	39.1%

08/29/12 High CVs weight too low rerun 0.25g

weight too low rerun 1.0g

b20828S1.TOC

TOCLK

GN71159

8/29/12

7.1

7

	Sample Name	Sample ID	Method	Type	Date / Time	Conc.	Mean Area	CV
50	JB13733-21		tocss.met	Unknown	08/28/12 16:1	0.2585 %	10266	39.1%
51	JB13733-21		tocss.met	Unknown	08/28/12 16:1	0.2585 %	10266	39.1%
52	JB13733-21		tocss.met	Unknown	08/28/12 16:1	0.2585 %	10266	39.1%
53	CCV		tocsscal.met	Unknown	08/28/12 16:4	2.353 %	9338	3.08%
54	CCV		tocsscal.met	Unknown	08/28/12 16:4	2.353 %	9338	3.08%

b2082851.TOC

TOCLK

GN71159

8/29/12

7.1

7

ACCUTEST

TOCLK

b20828S1.TOC

Test: **Total Organic Carbon** Units = mg/kg GN Batch ID 71159
Product: **TOC** Balance ID: B-39 Date 8/28/12
Method: **Corp. Eng. 81 M/SW846 9060 M or ~~EPA Region 2 Lloyd Kahn~~** (circle one) Analyst
RDL = 1000 mg/kg or 100 mg/kg (circle one)

Sample ID	Sample Weight	Bottle #	Sample Description & comments
CRI			
HSTD			
ICV (KHP)			
CCV			
GP66744-MB1	1.0000		middle
	1.0000		
GP66744-B1	1.0000		
	1.0000		
JB13733-20	1.0033	4	
	1.0028		
	1.0022		
	1.0008		
JB13733-10	0.1076	3	
	0.1051		
	0.1067		
	0.1031		
JB13733-11	0.0549	3	weight too low rerun 0.25g
	0.0508		
	0.0541		
	0.0526		
JB13733-12	0.1092	3	
	0.1025		
	0.1013		
	0.1065		

Analyst: Date: 8/28/12 QCReviewer: Date:
Manager Review: Date:
Comments:

MS/BS - 100µl of 20000 mg C/L → 1.0g Silica Sand TV = 2000 mg/kg
(glucose)

Form: GN-058a
Rev. Date: 11/11/08

ACCUTEST. (2)

Test: **Total Organic Carbon** Units = mg/kg GN Batch ID 71159
Product: **TOC** Balance ID: B-39 Date 8/28/12
Method: **Corp. Eng. 81 M/SW846 9060 M or EPA Region 2 Lloyd Kahn** (circle one) Analyst B
RDL = 1000 mg/kg or 100 mg/kg (circle one)

Sample ID	Sample Weight	Bottle #	Sample Description & comments
JB13733-13	0.1039	4	
	0.1029		
	0.1009		
	0.1028		
JB13733-14	0.3630	4	
	0.3592		
	0.3596		
	0.3539		
JB13733-16	0.3770	4	
	0.3561		
	0.3628		
	0.3554		
JB13733-18	1.0032	2	
	1.0000		
	1.0069		
	1.0037		
CCV			
JB13733-19	0.1060	2	
	0.1016		
	0.1062		
	0.1064		
JB13733-21	0.5195	2	weight too low rerun 1.0g
	0.5178		
	0.5359		

Analyst: B Date: 8/28/12 QCReviewer: _____ Date: _____
Manager Review: _____ Date: _____
Comments:

Form: GN-058a
Rev. Date: 11/11/08

7.1
7

ACCUTEST. (3)

Test: **Total Organic Carbon** Units = mg/kg GN Batch ID 71159
Product: **TOC** Balance ID: B-39 Date 8/28/12
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

Sample ID	Sample Weight	Bottle #	Sample Description & comments
	0.5065		
JB13733-22	0.5330	2	
	0.5148		
	0.5377		
	0.5219		
GP66744-D1	1.0077	4	JB13733-20
→	1.0064		
	1.0039		
	1.0027		
GP66744-S1	0.5231	4	
	0.5103		TV= 3871
	0.5104		
	0.5126		
JB13733-11	0.2548	3	
	0.2472		
	0.2545		
	0.2537		
JB13733-21	1.0054	2	
	1.0011		
	1.0004		
	1.0020		
CCV			

Analyst: Date: 8/28/12 QCReviewer: Date:
Manager Review: Date:
Comments:

Form: GN-058a
Rev. Date: 11/11/08

ACCUTEST

B-39 Balance
Glass pipets Class A

GENERAL CHEMISTRY STANDARD PREPARATION LOG

Product: TOCLK

GN or GP Number: GN71159

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
GNE7-33059-TOC	Fisher 110579	Sucrose	47.5g	DI H_2O	100ml	200000	8/28/12	[signature]	8/28/12
GNE7-33060-TOC	Fisher 086673A	Glucose	12.5g	"	"	50000	"	"	"

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									
GNE7-33061-TOC	GNE7-33059-TOC	200000	0.5	DI H_2O	100ml	1000	8/28/12	[signature]	8/28/12
GNE7-33062-TOC			2.5			5000			
GNE7-33063-TOC			5.0			10000			
GNE7-33064-TOC			12.5			25000			
GNE7-33065-TOC			20.0			40000			
GNE7-33066-TOC			25.0			50000			
Glucose Stds									
GNE7-33067-TOC	GNE7-33060-TOC	50000	40.0	DI H_2O	100ml	20000	8/28/12	[signature]	
GNE7-33068-TOC	"	"	50.0	"	"	25000	"	"	"

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

ACCUTEST.

TOCLK

GN 71159

Reagent Information Log - TOC - Soil

Reagent	Reagent # or Manufacturer/Lot	
Sucrose Stock Solution, 200000 mg/L	GNE7-33059-TOC	XP 8/28/12
Glucose Stock Solution, 50000 ug/L	GNE7-33060-TOC	8/28/12
Glucose Check Solution, 25000 ug/L	GNE7-33068-TOC	8/28/12
Nitric Acid, Reagent Grade	K50030 Baker	2/7/17
Glucose Check Stock Solution, 20000 ug/L	GNE7-33067-TOC	8/28/12
KHP 20000 ppm	GNSTK-863-TOC	11/14/12

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

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

TOC-Control

General Information

Organization: Accutest Laboratories
User:
Title:
Instrument ID: TOC2
Filename: C:\TOCCNTR\DATA\B20818S2.TOC
Comment:

Instrument Conditions

Instrument Attachments: TOC-5000 + SSM 5000

Calibration Curves

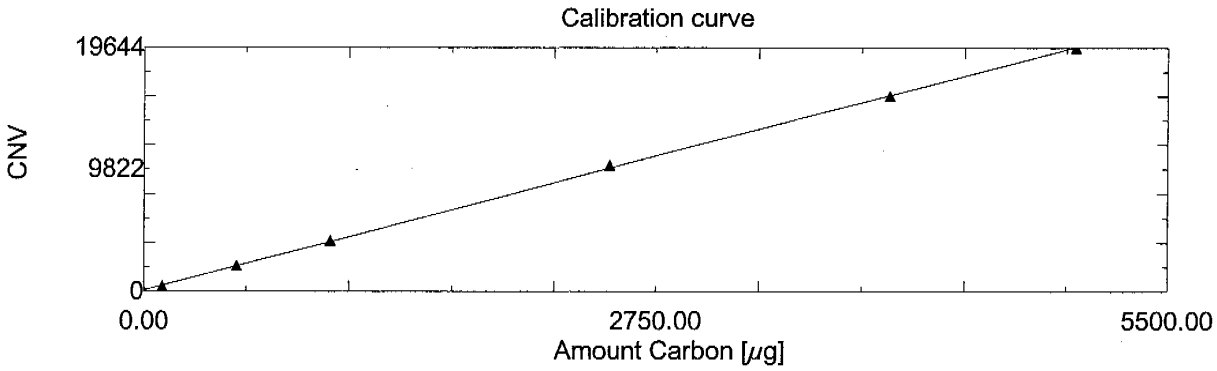
Filename: b20818s1.cal
Title: b20818s1.cal
Calculation method: Lin. regression without zero shift

Analysis	Unit	Range	Density
SSM-TC	%	5	1.000

Sample Name	Sample ID	Conc.	No. of Inj.	Mean Area	Volume	CNV	Abs C [µg	SD	CV
STDA	0.0	0.000	1	0	100.0	0	0.000	0	0.00%
STDB	0.1	0.1000	1	427	100.0	427	100.0	7	1.66%
STDC	0.5	0.5000	1	2087	100.0	2087	500.0	2	0.136%
STDD	1.0	1.000	1	4137	100.0	4136	1000	60	1.45%
STDE	2.5	2.500	1	10123	100.0	10123	2500	50	0.503%
STDF	4.0	4.000	1	15727	100.0	15726	4000	226	1.44%
STDG	5.0	5.000	1	19644	100.0	19644	5000	205	1.04%

Slope: 3.9206
Intercept: 111.99
R^2: 0.999775

TOC-Control



Samples

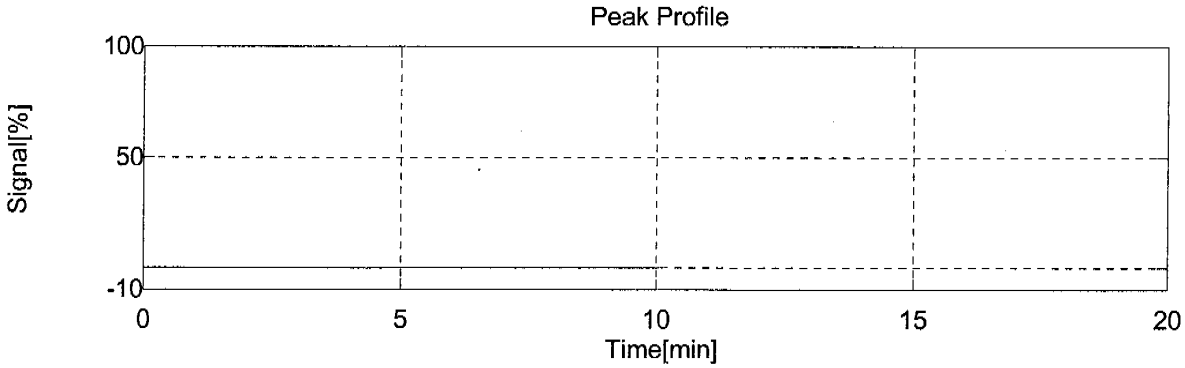
Sample Name: STDA
Sample ID: 0.0
Remark:
Comment:
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Standard	SSM-TC	1.000	08/18/2012 10:55:13

Mean Area	Conc	Result	SD	CV	CNV	Modified
0	0.000%		0.000	0.00%	0	

No.	Range	Area	CNV	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	0	0	0.0000		******	08/18/2012 10:48:13	b20818s1.cal
2	5	0	0	0.0000		******	08/18/2012 10:55:13	b20818s1.cal

TOC-Control



Samples

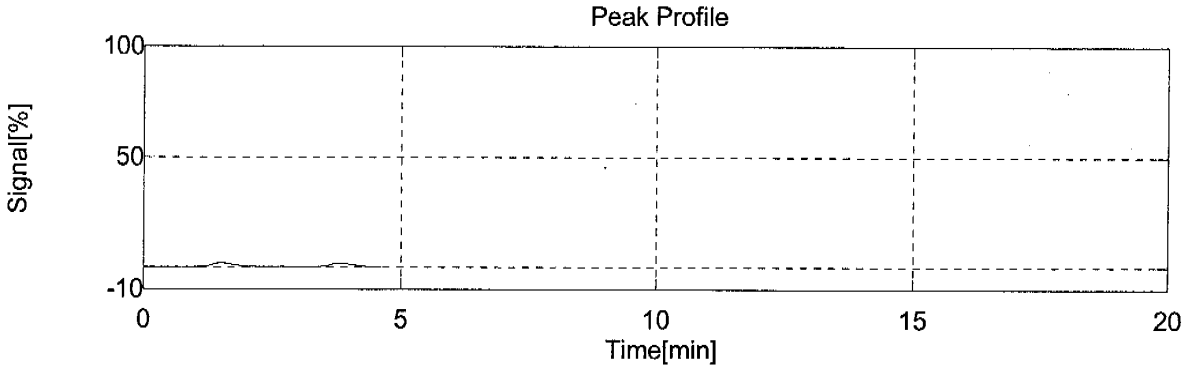
Sample Name: STDB
Sample ID: 0.1
Remark:
Comment:
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Standard	SSM-TC	1.000	08/18/2012 11:09:44

Mean Area	Conc	Result	SD	CV	CNV	Modified
427	0.1000%		0.000	0.00%	427	

No.	Range	Area	CNV	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	422	422	0.10000		******	08/18/2012 11:01:52	b20818s1.cal
2	5	432	432	0.10000		******	08/18/2012 11:09:44	b20818s1.cal

TOC-Control



Samples

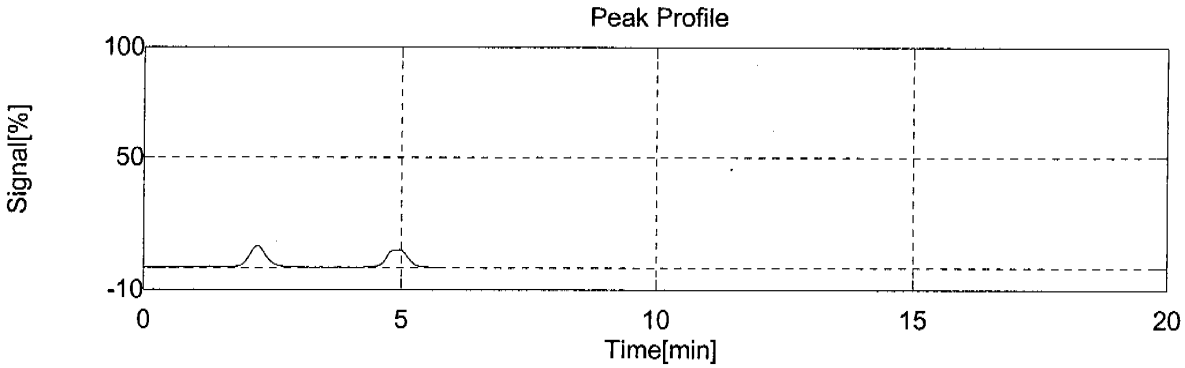
Sample Name: STDC
Sample ID: 0.5
Remark:
Comment:
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Standard	SSM-TC	1.000	08/18/2012 11:59:35

Mean Area	Conc	Result	SD	CV	CNV	Modified
2087	0.5000%		0.000	0.00%	2087	

No.	Range	Area	CNV	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	2085	2085	0.50000		******	08/18/2012 11:34:17	b20818s1.cal
2	5	2089	2089	0.50000		******	08/18/2012 11:59:35	b20818s1.cal

TOC-Control



Samples

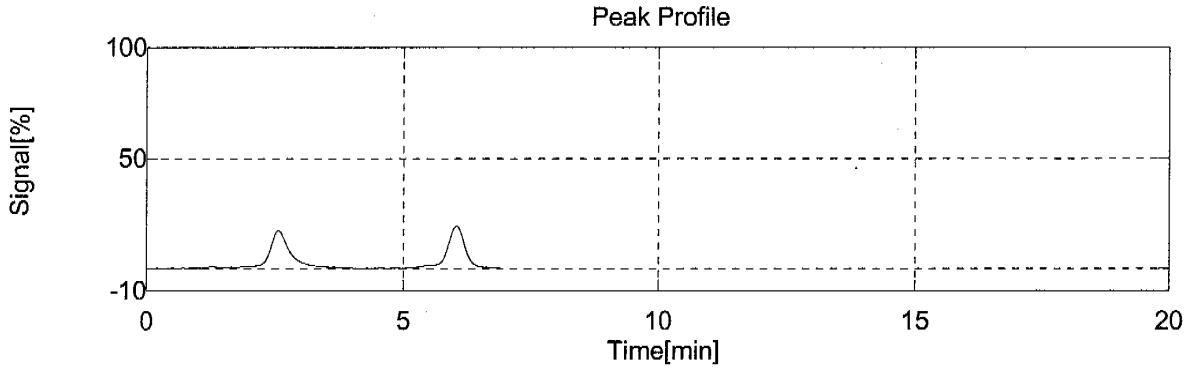
Sample Name: STDD
Sample ID: 1.0
Remark:
Comment:
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Standard	SSM-TC	1.000	08/18/2012 12:16:37

Mean Area	Conc	Result	SD	CV	CNV	Modified
4136	1.000%		0.000	0.00%	4136	

No.	Range	Area	CNV	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	4179	4179	1.0000		******	08/18/2012 12:10:59	b20818s1.cal
2	5	4094	4094	1.0000		******	08/18/2012 12:16:37	b20818s1.cal

TOC-Control



Samples

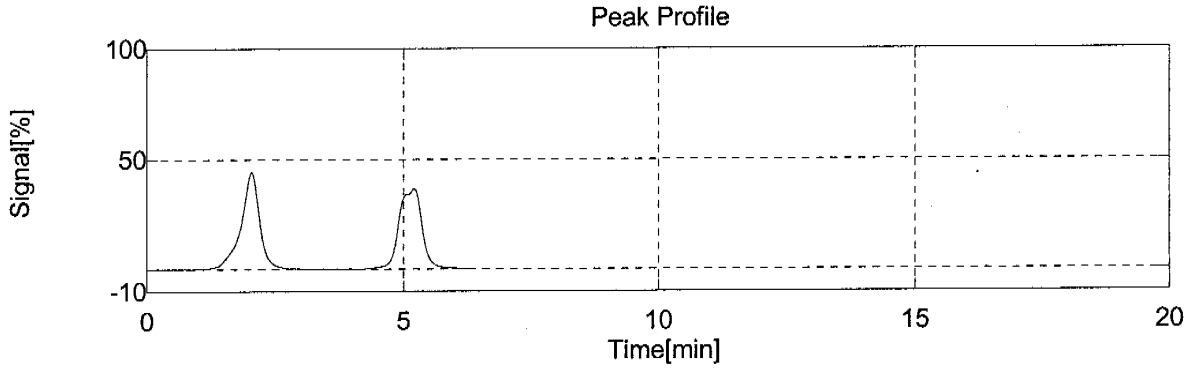
Sample Name: STDE
Sample ID: 2.5
Remark:
Comment:
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Standard	SSM-TC	1.000	08/18/2012 12:49:48

Mean Area	Conc	Result	SD	CV	CNV	Modified
10123	2.500%		0.000	0.00%	10123	

No.	Range	Area	CNV	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	10159	10159	2.5000		******	08/18/2012 12:21:40	b20818s1.cal
2	5	10087	10087	2.5000		******	08/18/2012 12:49:48	b20818s1.cal

TOC-Control



Samples

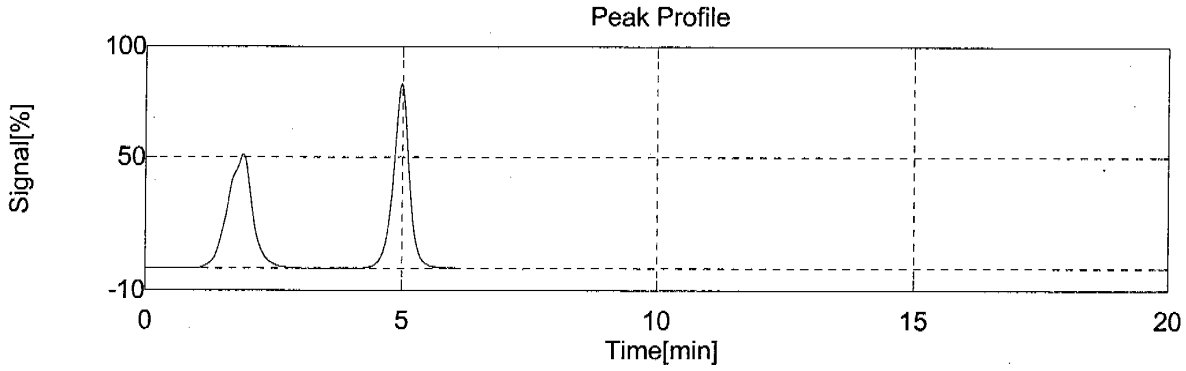
Sample Name: STDF
Sample ID: 4.0
Remark:
Comment:
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Standard	SSM-TC	1.000	08/18/2012 13:12:57

Mean Area	Conc	Result	SD	CV	CNV	Modified
15726	4.000%		0.000	0.00%	15726	

No.	Range	Area	CNV	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	15566	15566	4.0000		******	08/18/2012 12:59:09	b20818s1.cal
2	5	15887	15887	4.0000		******	08/18/2012 13:12:57	b20818s1.cal

TOC-Control



Samples

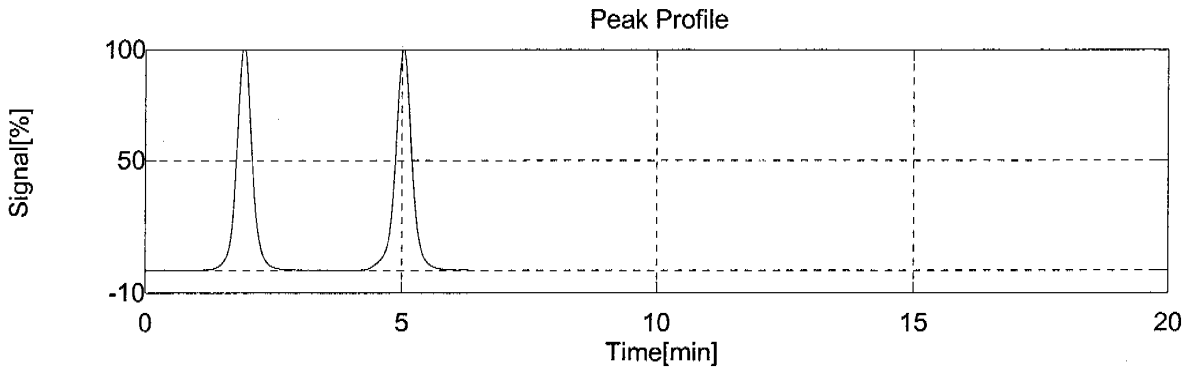
Sample Name: STDG
Sample ID: 5.0
Remark:
Comment:
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Standard	SSM-TC	1.000	08/18/2012 13:27:43

Mean Area	Conc	Result	SD	CV	CNV	Modified
19644	5.000%		0.000	0.00%	19644	

No.	Range	Area	CNV	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	19499	19499	5.0000		**h***	08/18/2012 13:20:11	b20818s1.cal
2	5	19789	19789	5.0000		******	08/18/2012 13:27:43	b20818s1.cal

TOC-Control



TOC-Control

General Information

Organization: Accutest Laboratories
User:
Title:
Instrument ID: TOC2
Filename: C:\TOCCNTR\DATA\B20828S1.TOC
Comment:

Instrument Conditions

Instrument Attachments: TOC-5000 + SSM 5000

Calibration Curves

Filename: b20818s1.cal
Title: b20818s1.cal
Calculation method: Lin. regression without zero shift

Analysis	Unit	Range	Density
SSM-TC	%	5	1.000

Sample Name	Sample ID	Conc.	No. of Inj.	Mean Area	Volume	CNV	Abs C [µg	SD	CV
STDA	0.0	0.000	2	0	0.00000	0	0.000	0	0.00%
STDB	0.1	0.1000	2	427	0.000	427	100.0	7	1.66%
STDC	0.5	0.5000	2	2087	-0.00000	2087	500.0	2	0.136%
STDD	1.0	1.000	2	4137	0.00000	4136	1000	60	1.45%
STDE	2.5	2.500	2	10123	0.00000	10123	2500	50	0.503%
STDF	4.0	4.000	2	15727	00000000	15726	4000	226	1.44%
STDG	5.0	5.000	2	19644	0.00000	19644	5000	205	1.04%

Slope: 3.9206
Intercept: 111.99
R^2: 0.999775

TOC-Control

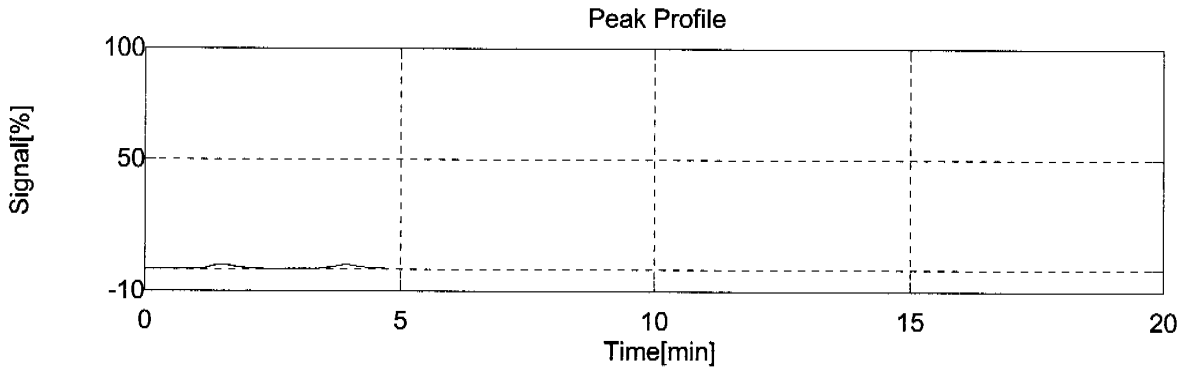
Samples

Sample Name: CRI
Sample ID:
Remark:
Comment:
Method: tocsscal.met
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	08/28/2012 09:24:15

Mean Area	Conc	Result	SD	CV	Modified
462	0.08928%		0.00361	4.04%	

No.	Range	Area	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	452	0.086725		******	08/28/2012 09:17:54	b20818s1.cal
2	5	472	0.091826		******	08/28/2012 09:24:15	b20818s1.cal



Samples

Sample Name: HSTD
Sample ID:
Remark:
Comment:
Method: tocsscal.met

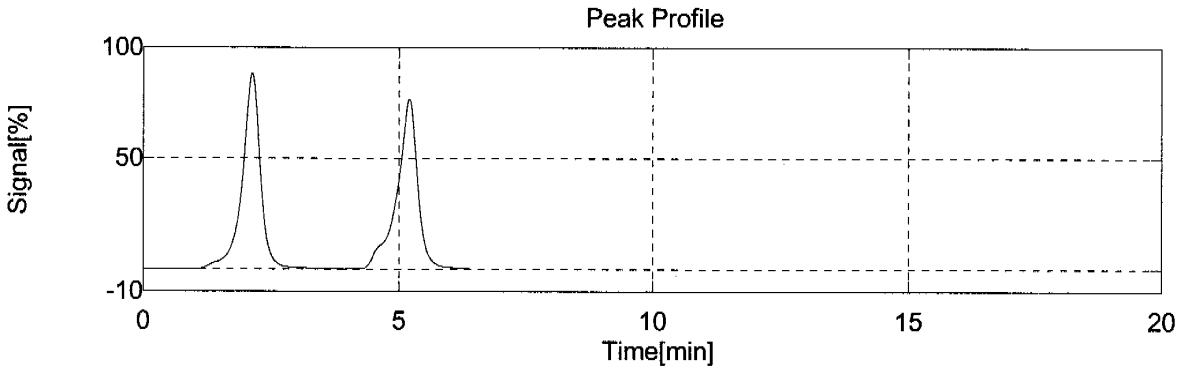
TOC-Control

Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	08/28/2012 09:39:00

Mean Area	Conc	Result	SD	CV	Modified
19352	4.908%		0.01677	0.342%	

No.	Range	Area	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	19399	4.9194		******	08/28/2012 09:33:44	b20818s1.cal
2	5	19306	4.8957		******	08/28/2012 09:39:00	b20818s1.cal



Samples

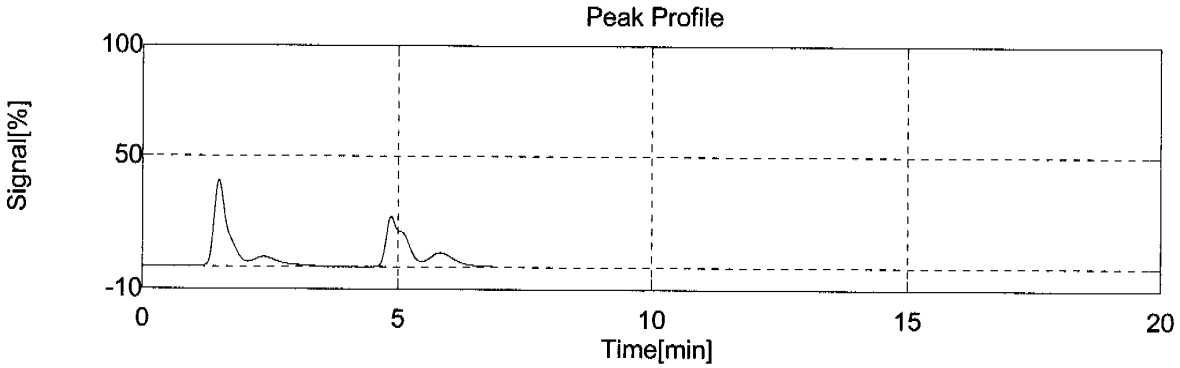
Sample Name: ICV
Sample ID:
Remark:
Comment:
Method: tocsscal.met
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	08/28/2012 09:51:15

TOC-Control

Mean Area	Conc	Result	SD	CV	Modified
7273	1.827%		0.1221	6.68%	

No.	Range	Area	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	7612	1.9130		******	08/28/2012 09:46:03	b20818s1.cal
2	5	6935	1.7403		******	08/28/2012 09:51:15	b20818s1.cal



Samples

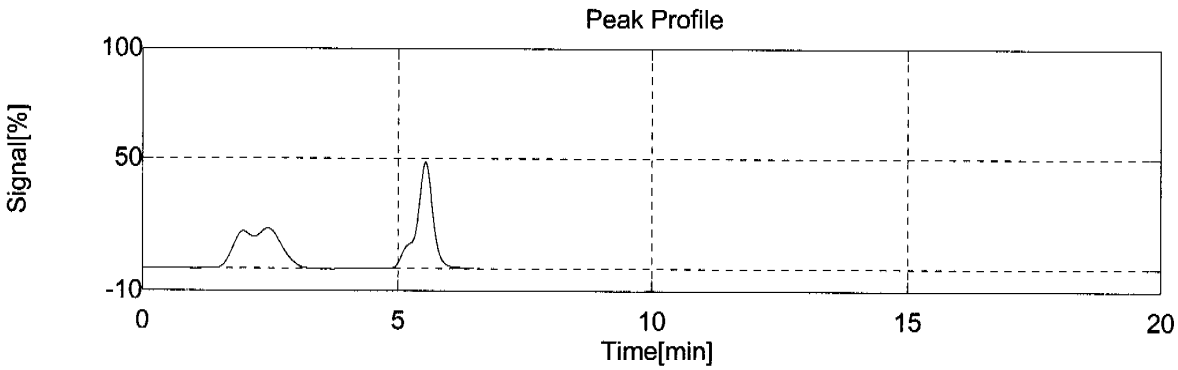
Sample Name: CCV
Sample ID:
Remark:
Comment:
Method: tocsscal.met
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	08/28/2012 10:10:49

Mean Area	Conc	Result	SD	CV	Modified
9679	2.440%		0.02002	0.820%	

TOC-Control

No.	Range	Area	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	9735	2.4545		******	08/28/2012 10:01:14	b20818s1.cal
2	5	9624	2.4262		******	08/28/2012 10:10:49	b20818s1.cal



Samples

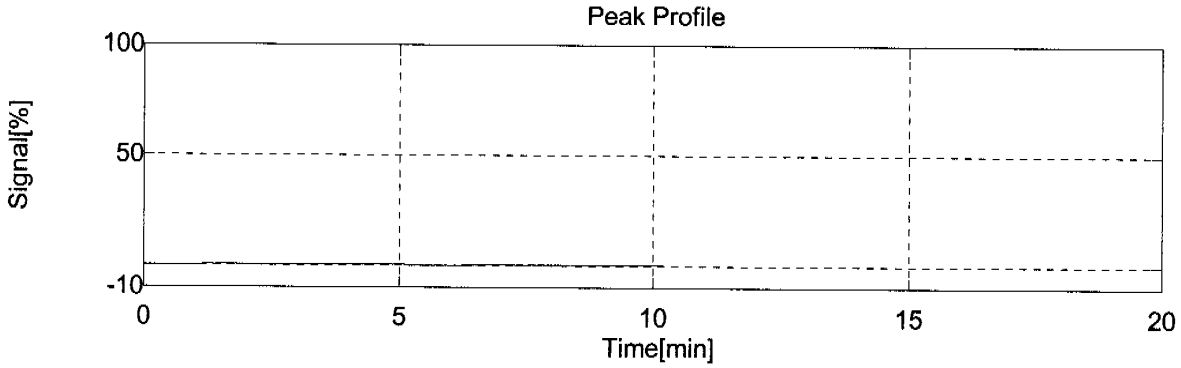
Sample Name: GP66744-MB1
Sample ID: TOCLK
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	08/28/2012 10:28:38

Mean Area	Conc	Result	SD	CV	Weight	Modified
0	-0.00286%		0.00000	0.00%	1000	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	0	1000	-0.002856		******	08/28/2012 10:22:01	b20818s1.cal
2	5	0	1000	-0.002856		******	08/28/2012 10:28:38	b20818s1.cal

TOC-Control



Samples

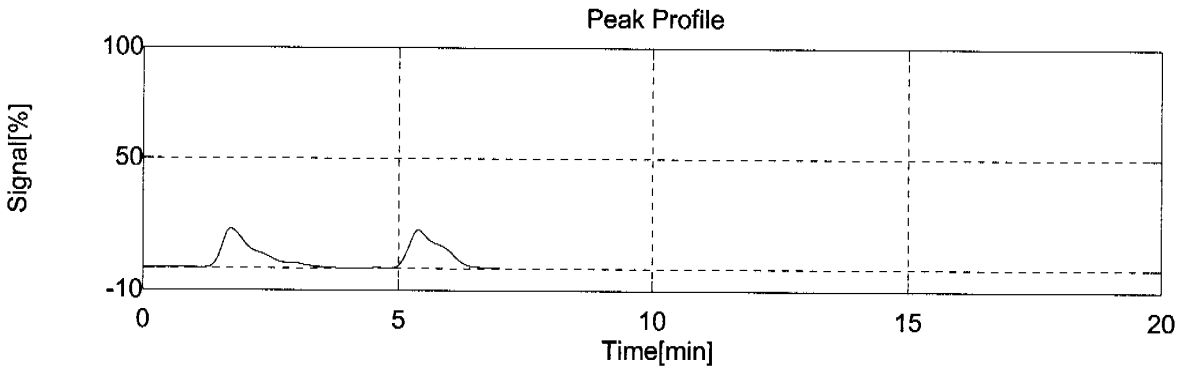
Sample Name: GP66744-B1
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	08/28/2012 10:41:28

Mean Area	Conc	Result	SD	CV	Weight	Modified
6976	0.1751%		0.00478	2.73%	1000	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	7109	1000	0.17847		******	08/28/2012 10:36:58	b20818s1.cal
2	5	6844	1000	0.17171		******	08/28/2012 10:41:28	b20818s1.cal

TOC-Control



Samples

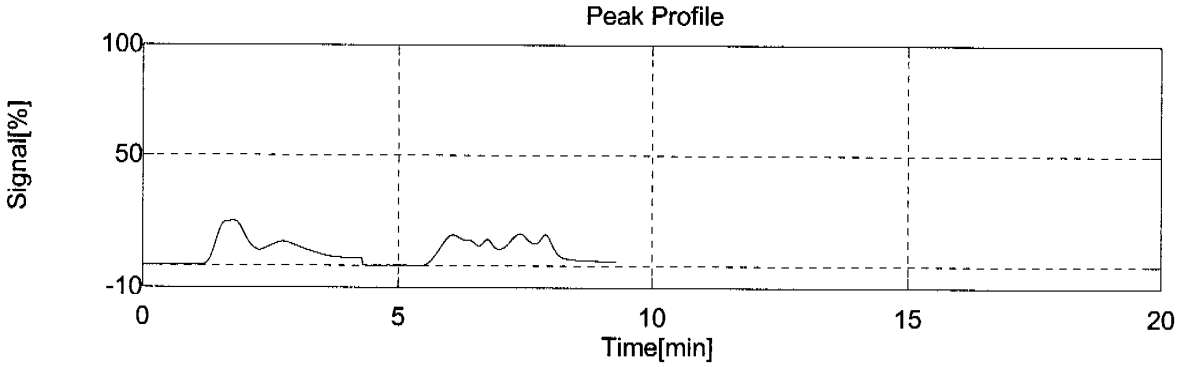
Sample Name: JB13733-20
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	08/28/2012 10:55:32

Mean Area	Conc	Result	SD	CV	Weight	Modified
12787	0.3223%		0.04485	13.9%	1003	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	11543	1003	0.29060		******	08/28/2012 10:48:59	b20818s1.cal
2	5	14031	1003	0.35403		******	08/28/2012 10:55:32	b20818s1.cal

TOC-Control



Samples

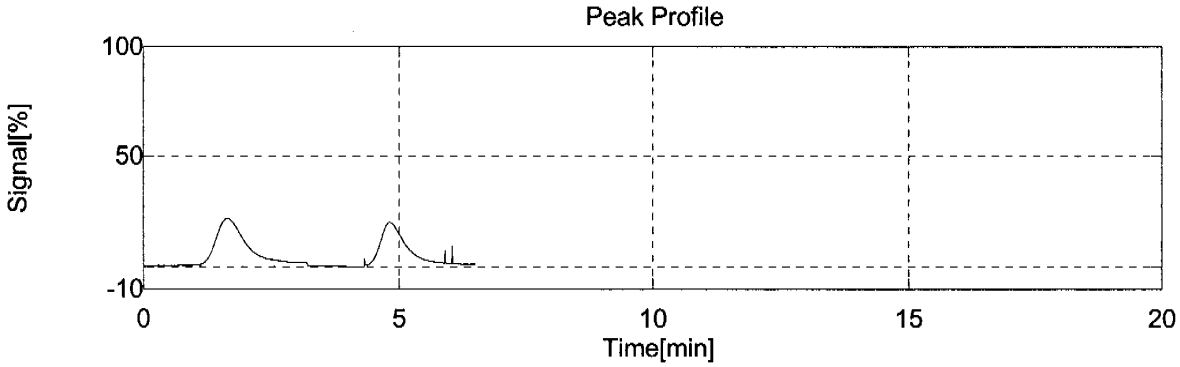
Sample Name: JB13733-10
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	08/28/2012 11:05:11

Mean Area	Conc	Result	SD	CV	Weight	Modified
6953	1.639%		0.1785	10.9%	106.4	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	7560	107.6	1.7655		******	08/28/2012 11:00:36	b20818s1.cal
2	5	6347	105.1	1.5131		******	08/28/2012 11:05:11	b20818s1.cal

TOC-Control



Samples

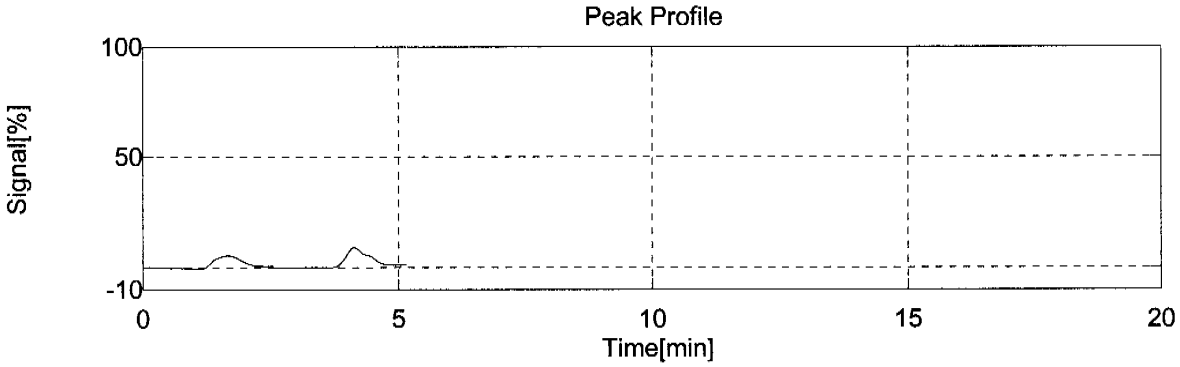
Sample Name: JB13733-11
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	08/28/2012 11:17:12

Mean Area	Conc	Result	SD	CV	Weight	Modified
2077	0.9550%		0.2356	24.7%	52.85	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	1809	54.90	0.78842		******	08/28/2012 11:12:44	b20818s1.cal
2	5	2346	50.80	1.1217		******	08/28/2012 11:17:12	b20818s1.cal

TOC-Control



Samples

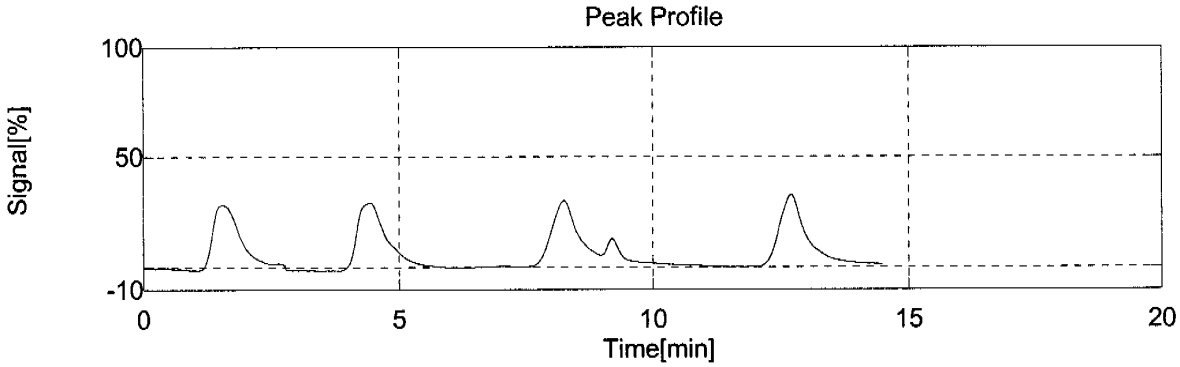
Sample Name: JB13733-12
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	08/28/2012 11:44:54

Mean Area	Conc	Result	SD	CV	Weight	Modified
10731	2.596%		0.5351	20.6%	104.9	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	8284	109.2	1.9088		******	08/28/2012 11:21:29	b20818s1.cal
2	5	11431	102.5	2.8166		******	08/28/2012 11:31:20	b20818s1.cal
3	5	12694	101.3	3.1680		******	08/28/2012 11:38:37	b20818s1.cal
4	5	10518	106.5	2.4922		******	08/28/2012 11:44:54	b20818s1.cal

TOC-Control



Samples

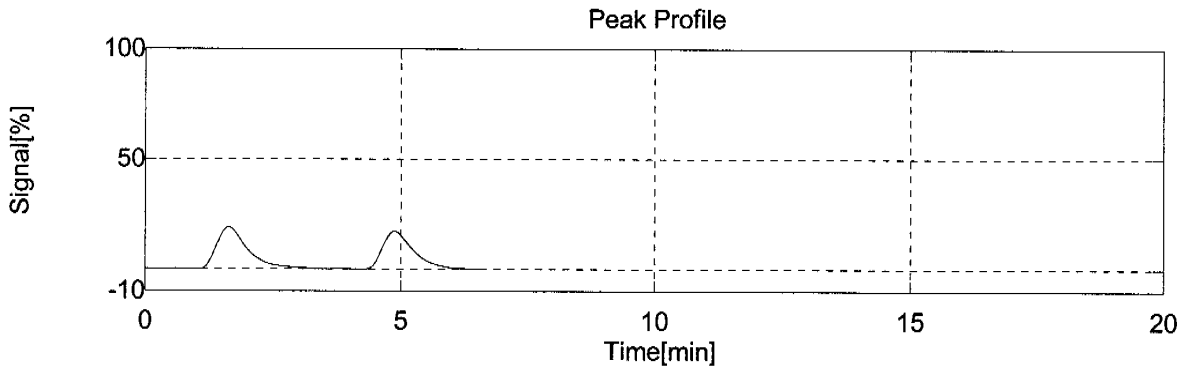
Sample Name: JB13733-13
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	08/28/2012 11:57:25

Mean Area	Conc	Result	SD	CV	Weight	Modified
6742	1.635%		0.05580	3.41%	103.4	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	6934	103.9	1.6747		******	08/28/2012 11:52:14	b20818s1.cal
2	5	6550	102.9	1.5958		******	08/28/2012 11:57:25	b20818s1.cal

TOC-Control



Samples

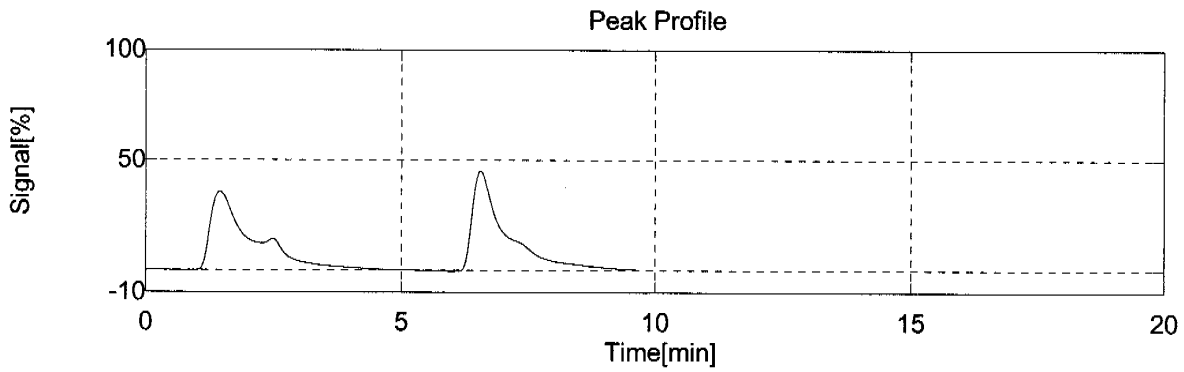
Sample Name: JB13733-14
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	08/28/2012 12:10:54

Mean Area	Conc	Result	SD	CV	Weight	Modified
18489	1.298%		0.01296	0.998%	361.1	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	18456	363.0	1.2889		******	08/28/2012 12:04:36	b20818s1.cal
2	5	18522	359.2	1.3073		******	08/28/2012 12:10:54	b20818s1.cal

TOC-Control



Samples

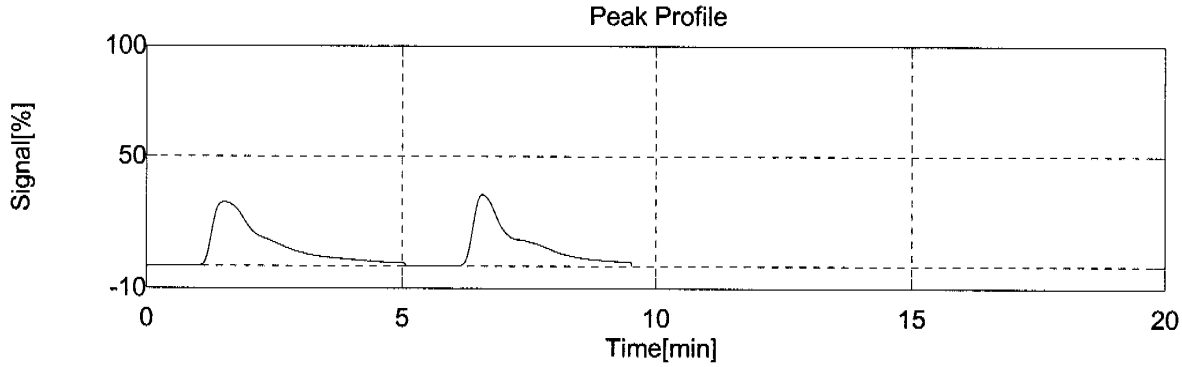
Sample Name: JB13733-16
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	08/28/2012 12:26:30

Mean Area	Conc	Result	SD	CV	Weight	Modified
16777	1.159%		0.05517	4.76%	366.5	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	17815	377.0	1.1977		******	08/28/2012 12:18:08	b20818s1.cal
2	5	15740	356.0	1.1197		******	08/28/2012 12:26:30	b20818s1.cal

TOC-Control



Samples

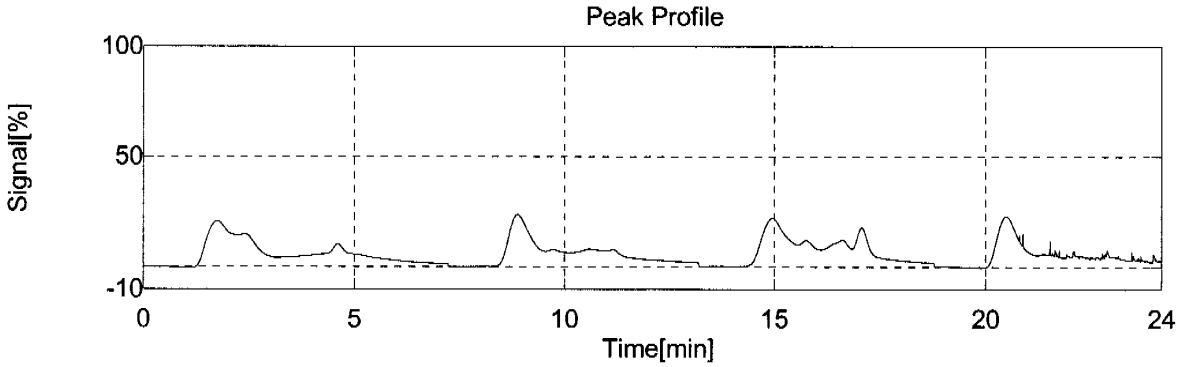
Sample Name: JB13733-18
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	08/28/2012 13:00:48

Mean Area	Conc	Result	SD	CV	Weight	Modified
16064	0.4054%		0.08291	20.5%	1003	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	19295	1003	0.48772		******	08/28/2012 12:36:03	b20818s1.cal
2	5	14889	1000	0.37691		******	08/28/2012 12:46:51	b20818s1.cal
3	5	18060	1007	0.45465		******	08/28/2012 12:53:55	b20818s1.cal
4	5	12012	1004	0.30241		******	08/28/2012 13:00:48	b20818s1.cal

TOC-Control



Samples

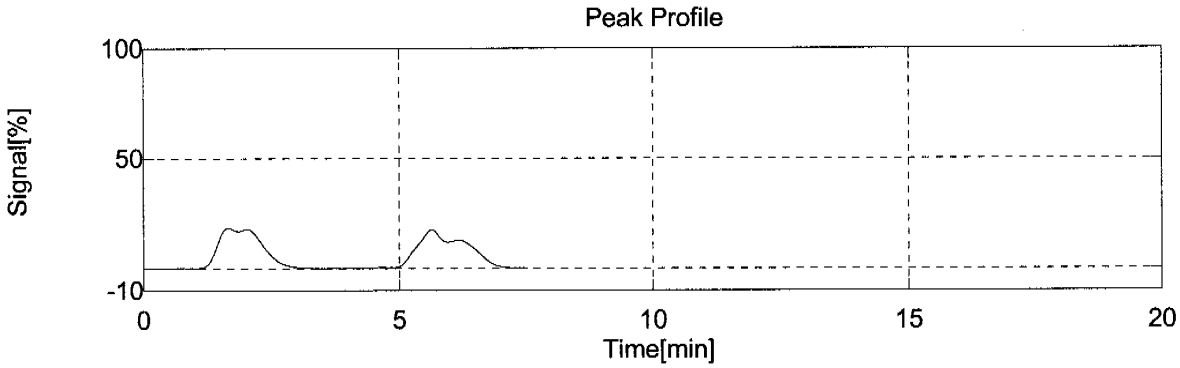
Sample Name: CCV
Sample ID:
Remark:
Comment:
Method: tocsscal.met
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	08/28/2012 13:18:41

Mean Area	Conc	Result	SD	CV	Modified
9802	2.472%		0.06222	2.52%	

No.	Range	Area	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	9630	2.4277		******	08/28/2012 13:12:57	b20818s1.cal
2	5	9975	2.5157		******	08/28/2012 13:18:41	b20818s1.cal

TOC-Control



Samples

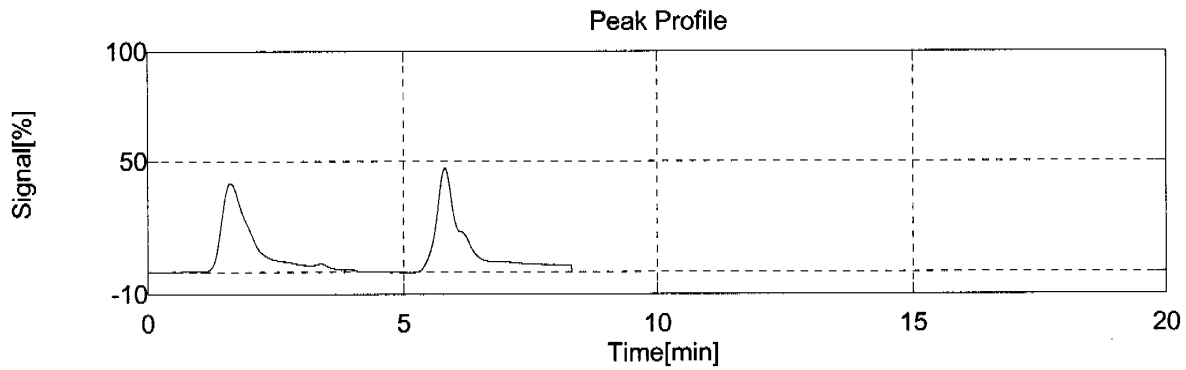
Sample Name: JB13733-19
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	08/28/2012 13:31:52

Mean Area	Conc	Result	SD	CV	Weight	Modified
14054	3.425%		0.03998	1.17%	103.8	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	14465	106.0	3.4537		******	08/28/2012 13:24:43	b20818s1.cal
2	5	13644	101.6	3.3971		******	08/28/2012 13:31:52	b20818s1.cal

TOC-Control



Samples

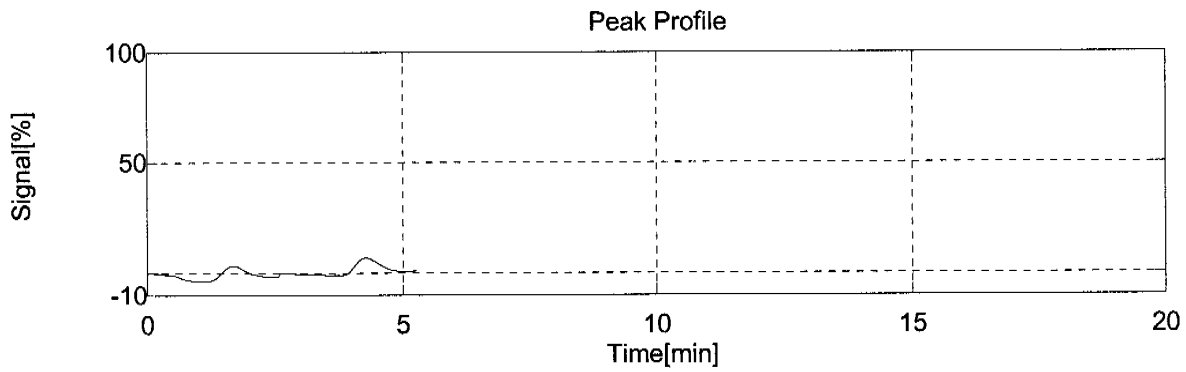
Sample Name: JB13733-21
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	08/28/2012 13:40:26

Mean Area	Conc	Result	SD	CV	Weight	Modified
1860	0.08598%		0.01251	14.5%	518.7	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	1683	519.5	0.077133		******	08/28/2012 13:36:07	b20818s1.cal
2	5	2037	517.8	0.094824		******	08/28/2012 13:40:26	b20818s1.cal

TOC-Control



Samples

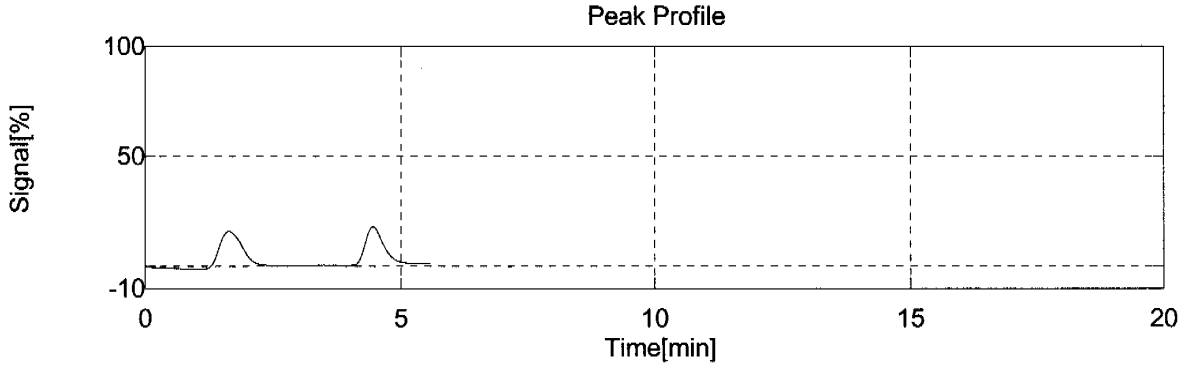
Sample Name: JB13733-22
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	08/28/2012 13:51:21

Mean Area	Conc	Result	SD	CV	Weight	Modified
4347	0.2059%		0.02365	11.5%	523.9	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	4764	533.0	0.22262		******	08/28/2012 13:47:04	b20818s1.cal
2	5	3930	514.8	0.18917		******	08/28/2012 13:51:21	b20818s1.cal

TOC-Control



Samples

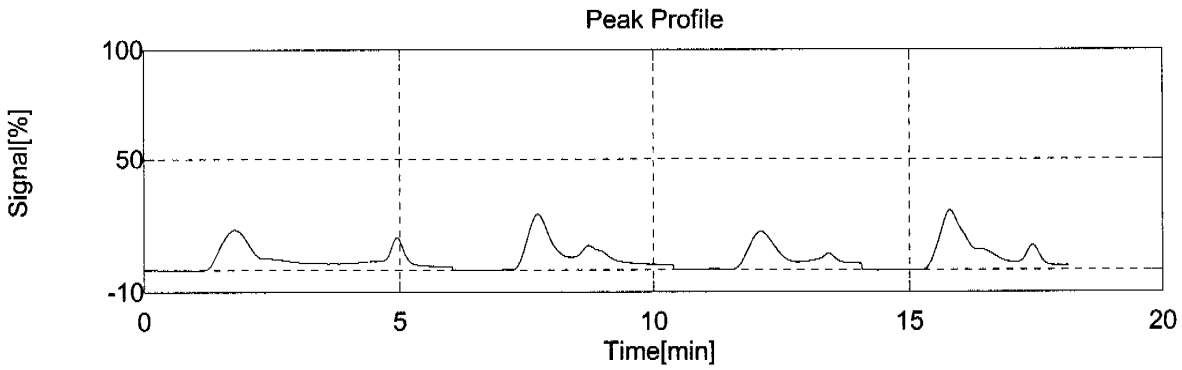
Sample Name: GP66744-D1
Sample ID: JB13733-20
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	08/28/2012 15:12:23

Mean Area	Conc	Result	SD	CV	Weight	Modified
10553	0.2649%		0.07364	27.8%	1005	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	12773	1008	0.32047		******	08/28/2012 14:01:00	b20818s1.cal
2	5	11084	1006	0.27807		******	08/28/2012 14:58:14	b20818s1.cal
3	5	6314	1004	0.15758		******	08/28/2012 15:04:46	b20818s1.cal
4	5	12043	1003	0.30350		******	08/28/2012 15:12:23	b20818s1.cal

TOC-Control



Samples

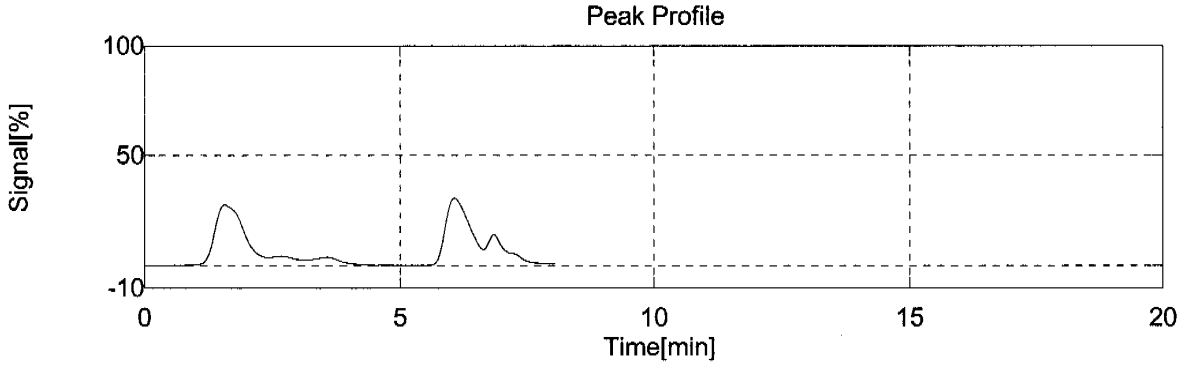
Sample Name: GP66744-S1
Sample ID: JB13733-20
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	08/28/2012 15:27:21

Mean Area	Conc	Result	SD	CV	Weight	Modified
12227	0.5982%		0.01376	2.30%	516.7	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	12180	523.1	0.58843		******	08/28/2012 15:21:06	b20818s1.cal
2	5	12274	510.3	0.60789		******	08/28/2012 15:27:21	b20818s1.cal

TOC-Control



Samples

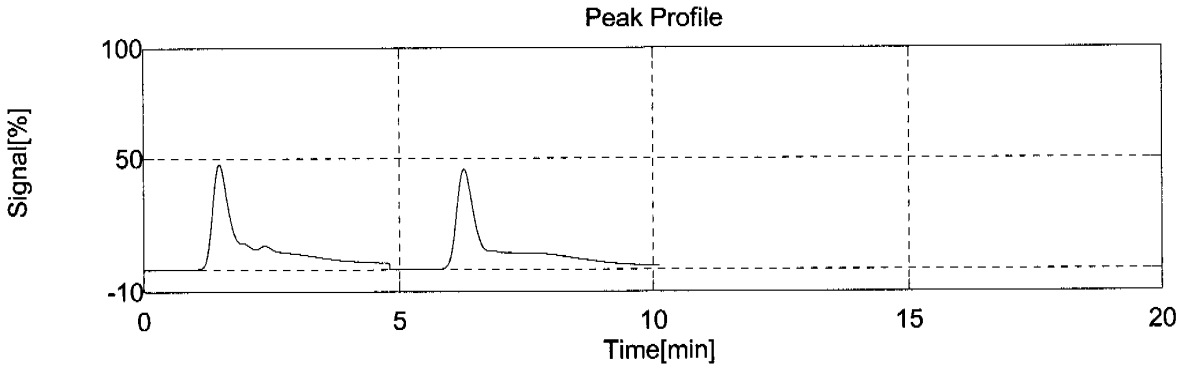
Sample Name: JB13733-11
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	08/28/2012 15:41:59

Mean Area	Conc	Result	SD	CV	Weight	Modified
16619	1.678%		0.06029	3.59%	251.0	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	16450	254.8	1.6355		******	08/28/2012 15:34:43	b20818s1.cal
2	5	16789	247.2	1.7207		******	08/28/2012 15:41:59	b20818s1.cal

TOC-Control



Samples

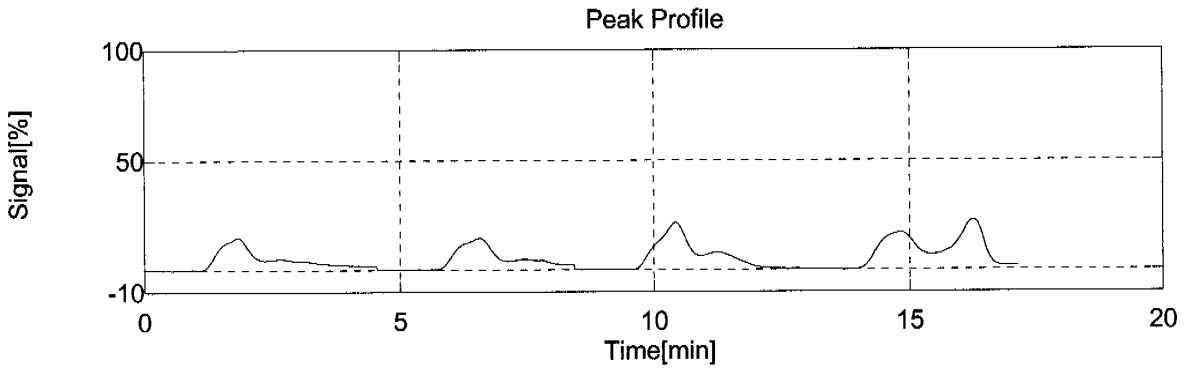
Sample Name: JB13733-21
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	08/28/2012 16:14:43

Mean Area	Conc	Result	SD	CV	Weight	Modified
10266	0.2585%		0.1010	39.1%	1002	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	7494	1005	0.18728		******	08/28/2012 15:51:15	b20818s1.cal
2	5	6876	1001	0.17233		******	08/28/2012 15:57:51	b20818s1.cal
3	5	11236	1000	0.28362		******	08/28/2012 16:06:38	b20818s1.cal
4	5	15458	1002	0.39064		******	08/28/2012 16:14:43	b20818s1.cal

TOC-Control



Samples

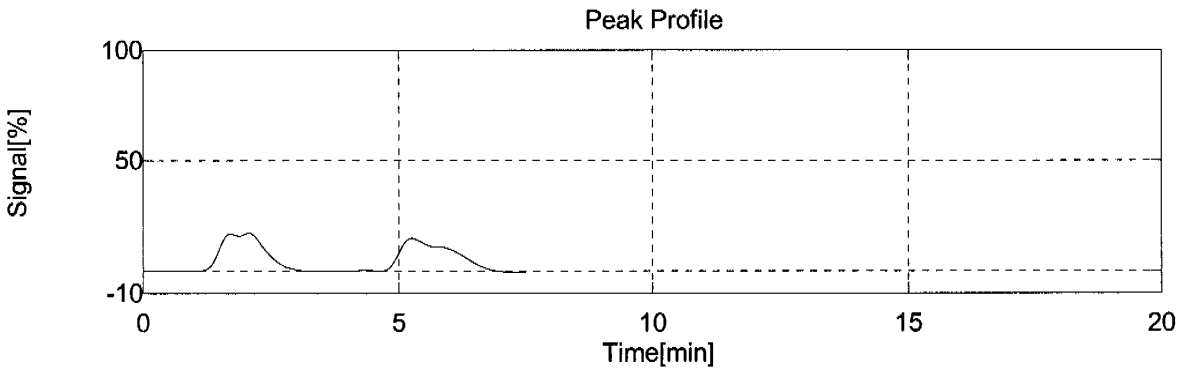
Sample Name: CCV
Sample ID:
Remark:
Comment:
Method: tocsscal.met
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	08/28/2012 16:40:27

Mean Area	Conc	Result	SD	CV	Modified
9338	2.353%		0.07250	3.08%	

No.	Range	Area	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	9137	2.3019		******	08/28/2012 16:33:00	b20818s1.cal
2	5	9539	2.4045		******	08/28/2012 16:40:27	b20818s1.cal

TOC-Control



Statistics / Summary

Sample Name	Analysis	Conc.	Abs C [µg]
CRI	SSM-TC	0.08928 %	89
HSTD	SSM-TC	4.908 %	4907
ICV	SSM-TC	1.827 %	1826
CCV	SSM-TC	2.422 %	2421
GP66744-MB1	SSM-TC	-0.00286 %	-28
GP66744-B1	SSM-TC	0.1751 %	1750
JB13733-20	SSM-TC	0.3223 %	3232
JB13733-10	SSM-TC	1.639 %	1745
JB13733-11	SSM-TC	1.317 %	2355
JB13733-12	SSM-TC	2.596 %	2708
JB13733-13	SSM-TC	1.635 %	1691
JB13733-14	SSM-TC	1.298 %	4687
JB13733-16	SSM-TC	1.159 %	4250
JB13733-18	SSM-TC	0.4054 %	4068
JB13733-19	SSM-TC	3.425 %	3556
JB13733-21	SSM-TC	0.1722 %	1517
JB13733-22	SSM-TC	0.2059 %	1080
GP66744-D1	SSM-TC	0.2649 %	2663
GP66744-S1	SSM-TC	0.5982 %	3090

GN 71475

	Sample Name	Sample ID	Method	Type	Date / Time	Conc.	Mean Area	CV
1	CRI		tocsscal.met	Unknown	09/04/12 09:3	0.09412 %	391	25.0%
2	CRI		tocsscal.met	Unknown	09/04/12 09:3	0.09412 %	391	25.0%
3	HSTD		tocsscal.met	Unknown	09/04/12 09:5	5.057 %	19098	1.18%
4	HSTD		tocsscal.met	Unknown	09/04/12 09:5	5.057 %	19098	1.18%
5	ICV	KHP	tocsscal.met	Unknown	09/04/12 10:1	1.927 %	7157	1.66%
6	ICV	KHP	tocsscal.met	Unknown	09/04/12 10:1	1.927 %	7157	1.66%
7	CCV		tocsscal.met	Unknown	09/04/12 10:3	2.689 %	9827	1.71%
8	CCV		tocsscal.met	Unknown	09/04/12 10:3	2.689 %	9827	1.71%
9	GP66744-MB	TOCLK	tocss.met	Unknown	09/04/12 10:4	0.000 %	0	0.00%
10	GP66744-MB	TOCLK	tocss.met	Unknown	09/04/12 10:4	0.000 %	0	0.00%
11	GP66744-B2		tocss.met	Unknown	09/04/12 11:0	0.1919 %	7129	1.02%
12	GP66744-B2		tocss.met	Unknown	09/04/12 11:0	0.1919 %	7129	1.02%
13	JB14312-15R		tocss.met	Unknown	09/04/12 11:1	0.07983 %	2650	1.74%
14	JB14312-15R		tocss.met	Unknown	09/04/12 11:1	0.07983 %	2650	1.74%
15	JB15015-1R		tocss.met	Unknown	09/04/12 11:2	0.08386 %	357	103%
16	JB15015-1R		tocss.met	Unknown	09/04/12 11:2	0.08386 %	357	103%
17	JB15015-1R		tocss.met	Unknown	09/04/12 12:4	0.06113 %	2442	42.5%
18	JB15015-1R		tocss.met	Unknown	09/04/12 12:4	0.06113 %	2442	42.5%
19	JB15015-1R		tocss.met	Unknown	09/04/12 12:4	0.06113 %	2442	42.5%
20	JB15015-1R		tocss.met	Unknown	09/04/12 12:4	0.06113 %	2442	42.5%
21	CCV		tocsscal.met	Unknown	09/04/12 13:0	2.655 %	9706	0.672%
22	CCV		tocsscal.met	Unknown	09/04/12 13:0	2.655 %	9706	0.672%
23	JB14201-12R		tocss.met	Unknown	09/04/12 13:2	25.64 %	112645	0.00%
24	JB14201-12R		tocss.met	Unknown	09/04/12 14:2	24.33 %	7928	19.0%
25	JB14201-12R		tocss.met	Unknown	09/04/12 14:2	24.33 %	7928	19.0%
26	JB14201-12R		tocss.met	Unknown	09/04/12 14:2	24.33 %	7928	19.0%
27	JB14201-12R		tocss.met	Unknown	09/04/12 14:2	24.33 %	7928	19.0%
28	JB14519-15R		tocss.met	Unknown	09/04/12 14:5	3.853 %	7318	17.9%
29	JB14519-15R		tocss.met	Unknown	09/04/12 14:5	3.853 %	7318	17.9%
30	JB14519-15R		tocss.met	Unknown	09/04/12 14:5	3.853 %	7318	17.9%
31	JB14519-15R		tocss.met	Unknown	09/04/12 14:5	3.853 %	7318	17.9%
32	CCV		tocsscal.met	Unknown	09/04/12 15:0	2.662 %	9731	0.647%
33	CCV		tocsscal.met	Unknown	09/04/12 15:0	2.662 %	9731	0.647%

ACCUTEST.

TOCLK

b209045i.TOC

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

Units = mg/kg
Balance ID: B-39

GN Batch ID 71475
Date 9/4/12
Analyst

Sample ID	Sample Weight	Bottle #	Sample Description & comments
CRI			
14STD			
ICV (KHP)			
CCV			
GP66744-MB2	1.0000		
	1.0000		
GP66744-BS2	1.0000		
	1.0000		
JB14312-15R	0.8385	2	
	0.8328		
	0.8475		
	0.8262		
JB15015-1R	0.1038	2	
	0.1019		
	0.1009		
	0.1034		
JB15015-1R	1.0066	2	weight too low rerun 1.0g
	1.0063		
	1.0004		
	1.0055		
CCV			
JB14201-12R	0.1028	1	overrange rerun 0.01g
	0.1008		
	0.1046		

Analyst: Date: 9/4/12 QCReviewer: Date:
Manager Review: Date:
Comments:

BS - 100µl of 20000 mg/L → 1.0g Silica Sand TV = 2000 mg/kg glucose

Form: GN-058a
Rev. Date: 11/11/08

ACCUTEST. (2)

Test: **Total Organic Carbon** Units = mg/kg GN Batch ID 71475
Product: **TOC** Balance ID: B-39 Date 9/4/12
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

Sample ID	Sample Weight	Bottle #	Sample Description & comments
	0.1010		
JB14201-12R	0.0091	1	
	0.0080		
	0.0089		
	0.0091		
ccv			
JB14519-15RT	0.0512	1	
	0.0502		
	0.0515		
	0.0520		
ccv			

Analyst: Date: 9/4/12 QCReviewer: Date:
Manager Review: Date:
Comments:

Form: GN-058a
Rev. Date: 11/11/08

7.2 7

ACCUTEST

B-39 Balance
Glass Pipets Class A

GENERAL CHEMISTRY STANDARD PREPARATION LOG

Product: TOCLK

GN or GP Number: GN71475

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
GNEB-33397-TOC	EMD 1400C115	Sucrose	47.5 g	DI H_2O	100mL	200 000	9/25/12		9/4/12
GNEB-33398-TOC	Fisher 120314	Glucose	12.5 g	↓	↓	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									
GNEB-33399-TOC	GNEB-33397-TOC	200 000	0.5	DI H_2O	100mL	1000	9/25/12		9/4/12
GNEB-33400-TOC	↓	↓	2.5	↓	↓	5000	↓	↓	↓
GNEB-33401-TOC			5.0			10000			
GNEB-33402-TOC			12.5			25000			
GNEB-33403-TOC			20.0			40000			
GNEB-33404-TOC			25.0			50000			
Glucose STD									
GNEB-33408-TOC	GNEB-33398-TOC	50000	40.0	DI H_2O	100mL	20000	9/25/12		
GNEB-33409-TOC	↓	↓	50.0	↓	↓	25000	↓	↓	↓

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

ACCUTEST.

TOCLK

GN 71475

Reagent Information Log - TOC - Soil

Reagent	Reagent # or Manufacturer/Lot
Sucrose Stock Solution, 200000 mg/L	GNE8-33397-TOC XP 9/25/12
Glucose Stock Solution, 50000 ug/L	GNE8-33398-TOC 9/25/12
Glucose Check Solution, 25000 ug/L	GNE8-33409-TOC 9/25/12
Nitric Acid, Reagent Grade	K50030 Baker 2/7/17
Glucose Check Stock Solution, 20000 ug/L	GNE8-33408-TOC 9/25/12 (2) 8/29/12
KHP 20000ppm Solution	GN STK-863-TOC 11/14/12

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

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

TOC-Control

General Information

Organization: Accutest Laboratories
User:
Title:
Instrument ID: TOC2
Filename: C:\TOCCNTR\DATA\B20829S1.TOC
Comment:

Instrument Conditions

Instrument Attachments: TOC-5000 + SSM 5000

Calibration Curves

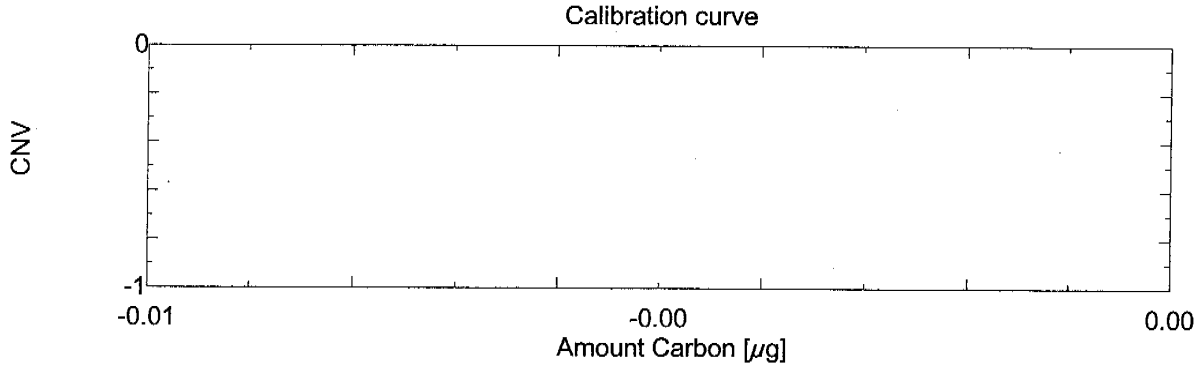
Filename: b20828s1.cal
Title: b20828s1.cal
Calculation method: Lin. regression without zero shift

Analysis	Unit	Range	Density
SSM-TC	%	5	1.000

Sample Name	Sample ID	Conc.	No. of Inj.	Mean Area	Volume	CNV	Abs C [µg	SD	CV
STDA	0.0	0.000	1	0	0.000	0	0.000	0	0.00%
STDB	0.1	0.1000	1	0	0.000	0	0.000	0	0.00%
STDC	0.5	0.5000	1	0	0.000	0	0.000	0	0.00%
STDD	1.0	1.000	1	0	0.000	0	0.000	0	0.00%
STDE	2.5	2.500	1	0	0.000	0	0.000	0	0.00%
STDF	4.0	4.000	1	0	0.000	0	0.000	0	0.00%
STDG	5.0	5.000	1	0	0.000	0	0.000	0	0.00%

Slope: 0.0000
Intercept: 0.0000
R^2: 0.00000

TOC-Control



Calibration Curves

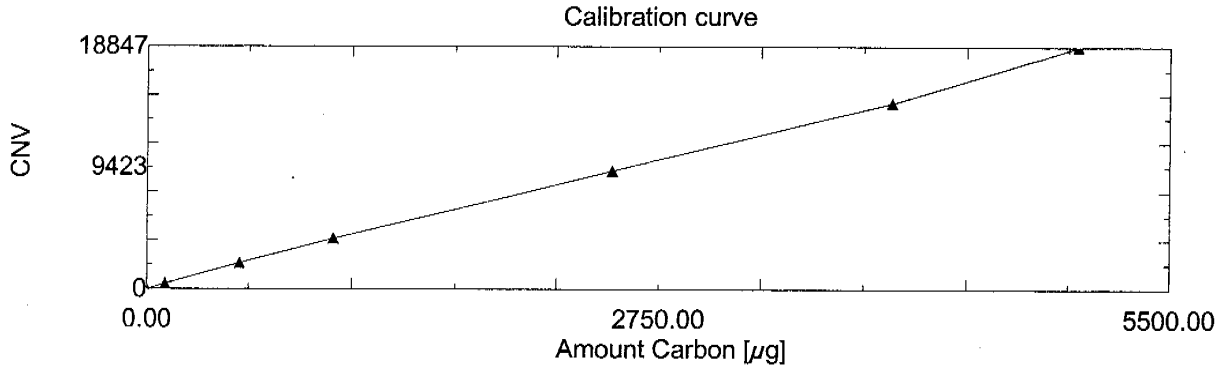
Filename: b20829s1.cal
Title: b20829s1.cal
Calculation method: Point to point without zero shift

Analysis	Unit	Range	Density
SSM-TC	%	5	1.000

Sample Name	Sample ID	Conc.	No. of Inj.	Mean Area	Volume	CNV	Abs C [µg	SD	CV
STDA	0.0	0.000	2	0	0.00000	0	0.000	0	0.00%
STDB	0.1	0.1000	2	417	0.00000	417	100.0	73	17.6%
STDC	0.5	0.5000	2	2013	0.00000	2012	500.0	111	5.52%
STDD	1.0	1.000	2	3920	0.1833	3920	1000	202	5.16%
STDE	2.5	2.500	2	9161	100.0	9160	2500	557	6.09%
STDF	4.0	4.000	2	14454	0.00000	14454	4000	328	2.27%
STDG	5.0	5.000	2	18847	66639420	18846	5000	146	0.777%

Slope: 4.1700
Intercept: 0.0000
R^2: 0.00000

TOC-Control



Samples

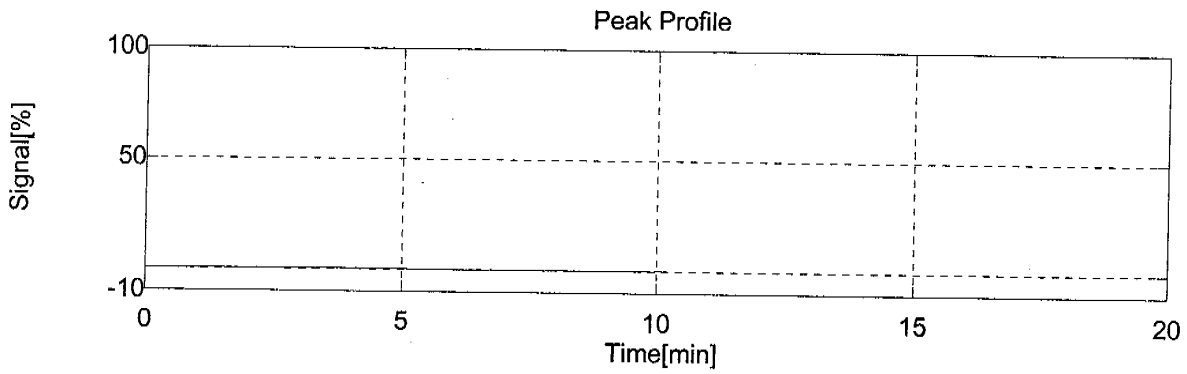
Sample Name: STDA
Sample ID: 0.0
Remark:
Comment:
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Standard	SSM-TC	1.000	08/29/2012 12:28:19

Mean Area	Conc	Result	SD	CV	CNV	Modified
0	0.000%		0.000	0.00%	0	

No.	Range	Area	CNV	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	0	0	0.0000		******	08/29/2012 12:14:56	b20829s1.cal
2	5	0	0	0.0000		******	08/29/2012 12:28:19	b20829s1.cal

TOC-Control



Samples

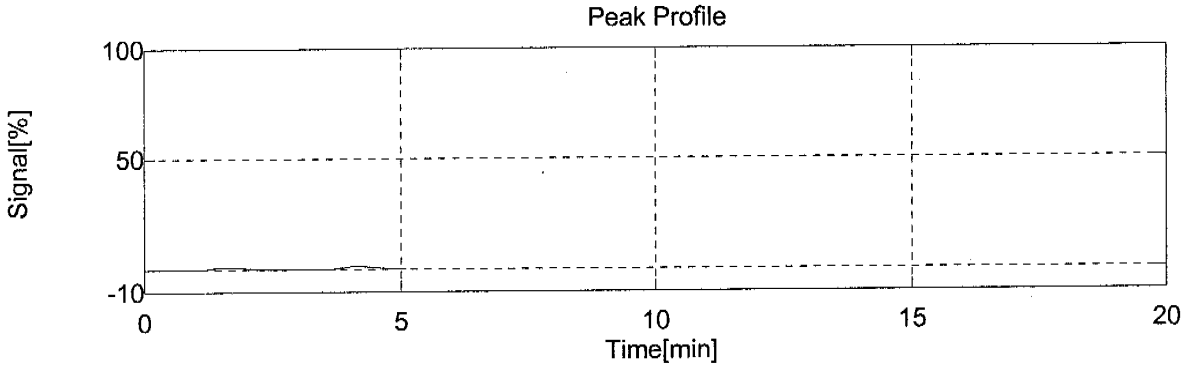
Sample Name: STDB
Sample ID: 0.1
Remark:
Comment:
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Standard	SSM-TC	1.000	08/29/2012 12:53:01

Mean Area	Conc	Result	SD	CV	CNV	Modified
417	0.1000%		0.000	0.00%	417	

No.	Range	Area	CNV	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	365	365	0.10000		******	08/29/2012 12:43:49	b20829s1.cal
2	5	469	469	0.10000		******	08/29/2012 12:53:01	b20829s1.cal

TOC-Control



Samples

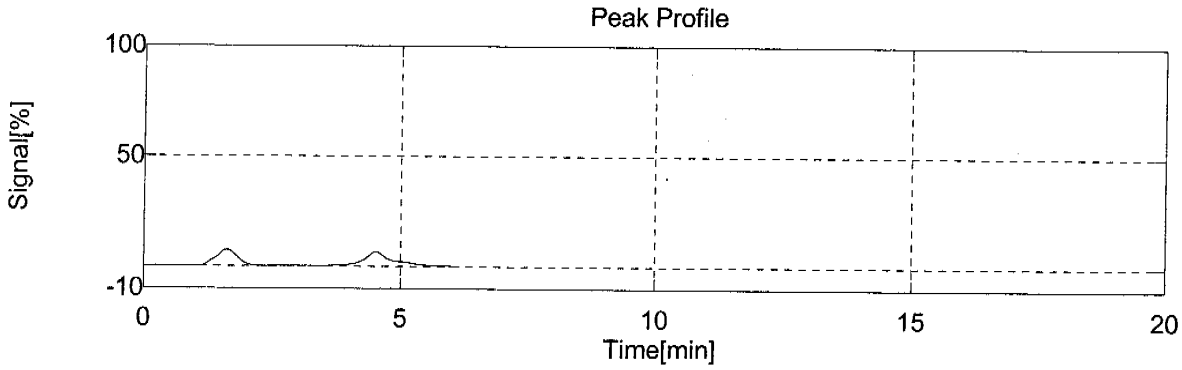
Sample Name: STDC
Sample ID: 0.5
Remark:
Comment:
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Standard	SSM-TC	1.000	08/29/2012 13:02:52

Mean Area	Conc	Result	SD	CV	CNV	Modified
2012	0.5000%		0.000	0.00%	2012	

No.	Range	Area	CNV	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	1934	1934	0.50000		******	08/29/2012 12:56:52	b20829s1.cal
2	5	2091	2091	0.50000		******	08/29/2012 13:02:52	b20829s1.cal

TOC-Control



Samples

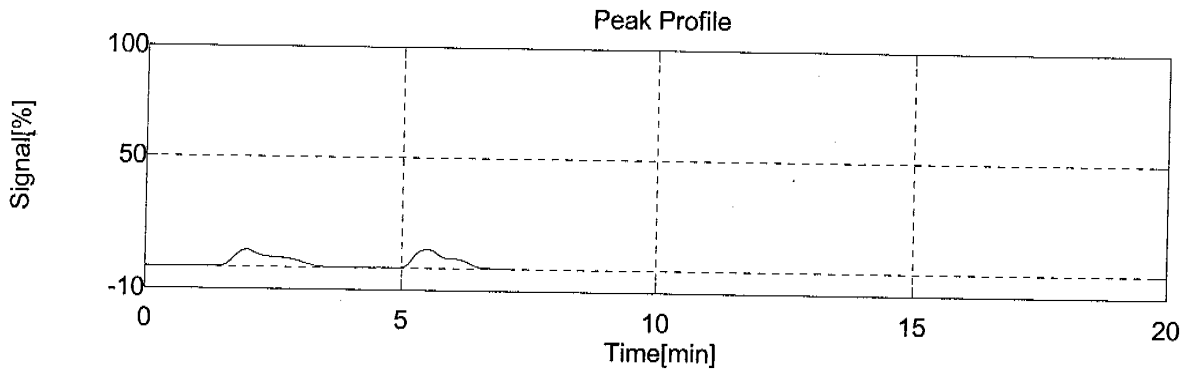
Sample Name: STDD
Sample ID: 1.0
Remark:
Comment:
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Standard	SSM-TC	1.000	08/29/2012 13:22:58

Mean Area	Conc *	Result	SD	CV	CNV	Modified
3920	1.000%		0.000	0.00%	3920	

No.	Range	Area	CNV	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	4063	4063	1.0000		******	08/29/2012 13:13:29	b20829s1.cal
2	5	3777	3777	1.0000		******	08/29/2012 13:22:58	b20829s1.cal

TOC-Control



Samples

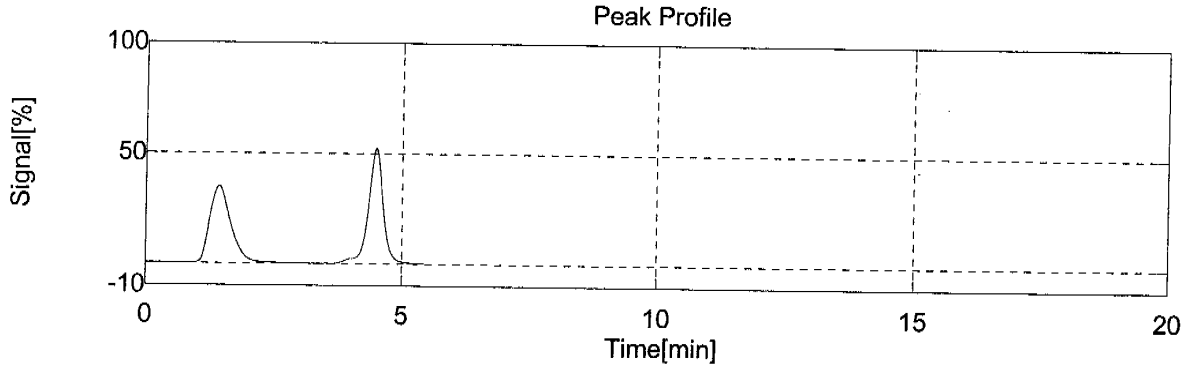
Sample Name: STDE
Sample ID: 2.5
Remark:
Comment:
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Standard	SSM-TC	1.000	08/29/2012 13:38:27

Mean Area	Conc	Result	SD	CV	CNV	Modified
9160	2.500%		0.000	0.00%	9160	

No.	Range	Area	CNV	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	8766	8766	2.5000		******	08/29/2012 13:30:59	b20829s1.cal
2	5	9555	9555	2.5000		******	08/29/2012 13:38:27	b20829s1.cal

TOC-Control



Samples

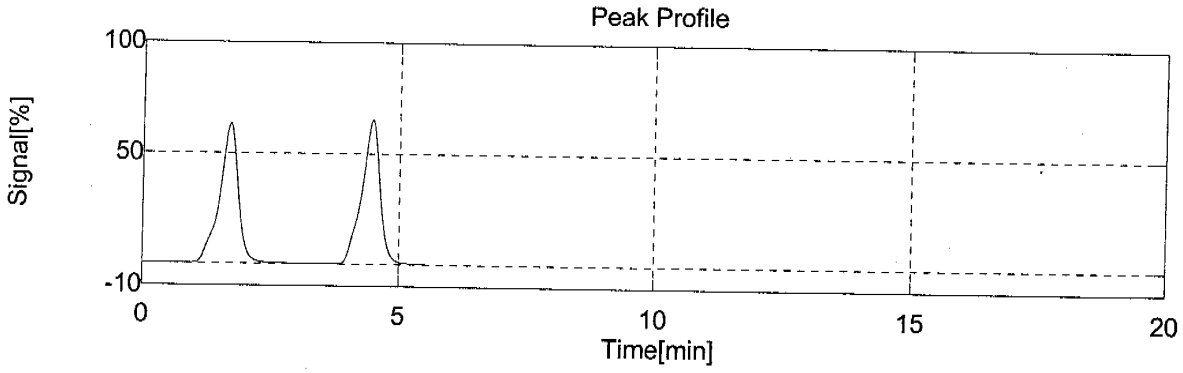
Sample Name: STDF
Sample ID: 4.0
Remark:
Comment:
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Standard	SSM-TC	1.000	08/29/2012 13:51:07

Mean Area	Conc	Result	SD	CV	CNV	Modified
14454	4.000%		0.000	0.00%	14454	

No.	Range	Area	CNV	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	14222	14222	4.0000		******	08/29/2012 13:47:02	b20829s1.cal
2	5	14686	14686	4.0000		******	08/29/2012 13:51:07	b20829s1.cal

TOC-Control



Samples

Sample Name: STDG
Sample ID: 5.0
Remark:
Comment:
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Standard	SSM-TC	1.000	08/29/2012 14:00:05

Mean Area	Conc	Result	SD	CV	CNV	Modified
18846	5.000%		0.000	0.00%	18846	

No.	Range	Area	CNV	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	18950	18950	5.0000		******	08/29/2012 13:55:36	b20829s1.cal
2	5	18743	18743	5.0000		******	08/29/2012 14:00:05	b20829s1.cal

TOC-Control

General Information

Organization: Accutest Laboratories
User:
Title:
Instrument ID: TOC2
Filename: C:\TOCCNTR\DATA\B20904S1.TOC
Comment:

Instrument Conditions

Instrument Attachments: TOC-5000 + SSM 5000

Calibration Curves

Filename: b20829s1.cal
Title: b20829s1.cal
Calculation method: Point to point without zero shift

Analysis	Unit	Range	Density
SSM-TC	%	5	1.000

Sample Name	Sample ID	Conc.	No. of Inj.	Mean Area	Volume	CNV	Abs C [µg	SD	CV
STDA	0.0	0.000	2	0	0.00000	0	0.000	0	0.00%
STDB	0.1	0.1000	2	417	0.00000	417	100.0	73	17.6%
STDC	0.5	0.5000	2	2013	0.00000	2012	500.0	111	5.52%
STDD	1.0	1.000	2	3920	0.1833	3920	1000	202	5.16%
STDE	2.5	2.500	2	9161	100.0	9160	2500	557	6.09%
STDF	4.0	4.000	2	14454	0.00000	14454	4000	328	2.27%
STDG	5.0	5.000	2	18847	66639420	18846	5000	146	0.777%

Slope: 4.1700
Intercept: 0.0000
R^2: 0.00000

TOC-Control

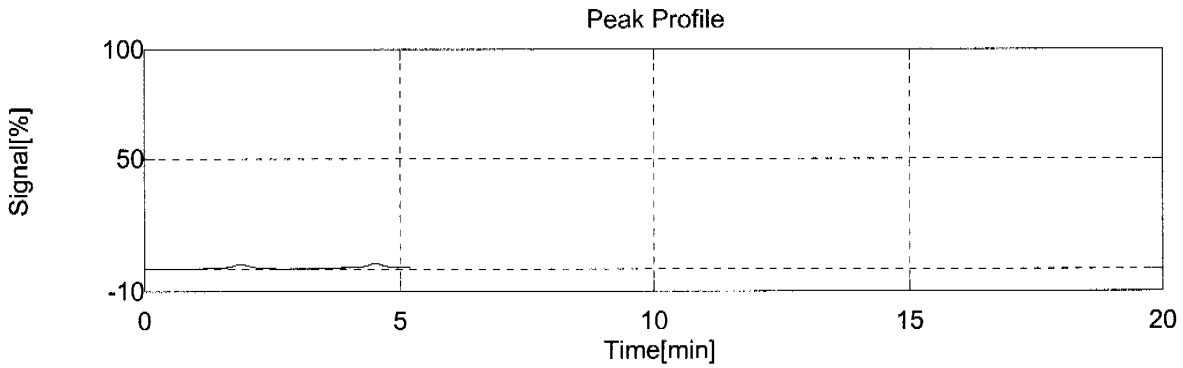
Samples

Sample Name: CRI
Sample ID:
Remark:
Comment:
Method: tocsscal.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/04/2012 09:38:38

Mean Area	Conc	Result	SD	CV	Modified
391	0.09412%		0.02356	25.0%	

No.	Range	Area	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	460	0.11078		******	09/04/2012 09:32:22	b20829s1.cal
2	5	323	0.077458		******	09/04/2012 09:38:38	b20829s1.cal



Samples

Sample Name: HSTD
Sample ID:
Remark:
Comment:
Method: tocsscal.met

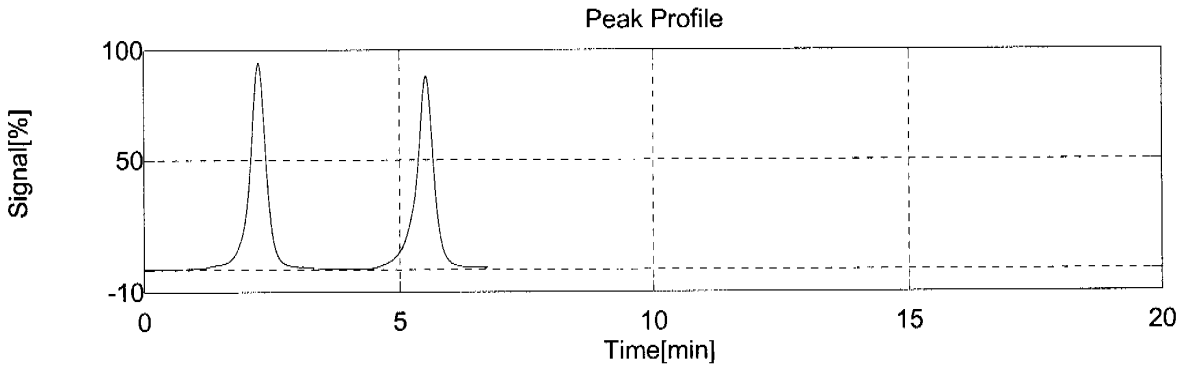
TOC-Control

Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/04/2012 09:52:44

Mean Area	Conc	Result	SD	CV	Modified
19098	5.057%		0.05956	1.18%	

No.	Range	Area	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	18913	5.0151		******	09/04/2012 09:47:08	b20829s1.cal
2	5	19283	5.0994		******	09/04/2012 09:52:44	b20829s1.cal



Samples

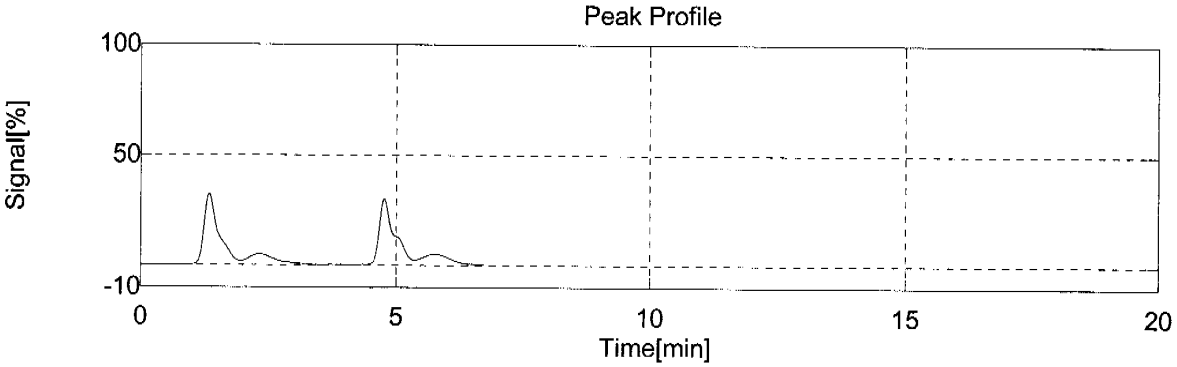
Sample Name: ICV
Sample ID: KHP
Remark:
Comment:
Method: tocsscal.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/04/2012 10:13:08

TOC-Control

Mean Area	Conc	Result	SD	CV	Modified
7157	1.927%		0.03198	1.66%	

No.	Range	Area	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	7236	1.9491		******	09/04/2012 10:06:30	b20829s1.cal
2	5	7078	1.9039		******	09/04/2012 10:13:08	b20829s1.cal



Samples

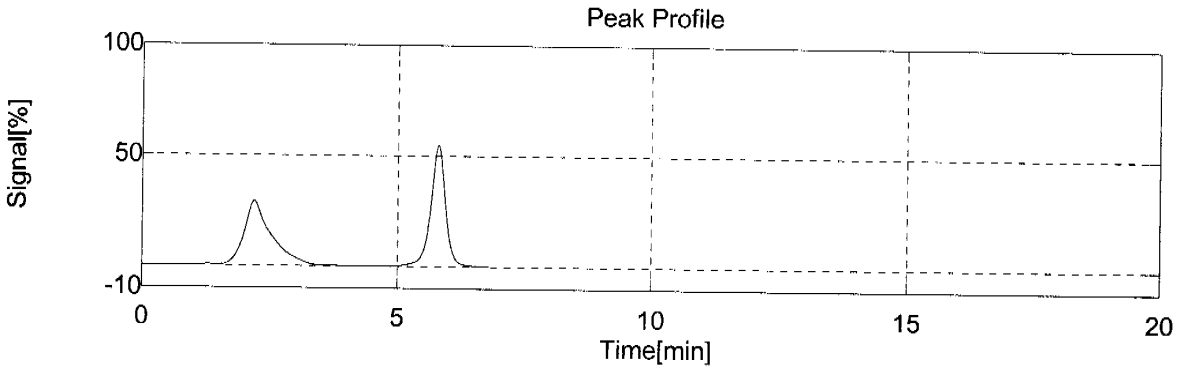
Sample Name: CCV
Sample ID:
Remark:
Comment:
Method: tocsscal.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/04/2012 10:31:34

Mean Area	Conc	Result	SD	CV	Modified
9827	2.689%		0.04588	1.71%	

TOC-Control

No.	Range	Area	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	9713	2.6566		******	09/04/2012 10:21:05	b20829s1.cal
2	5	9942	2.7215		******	09/04/2012 10:31:34	b20829s1.cal



Samples

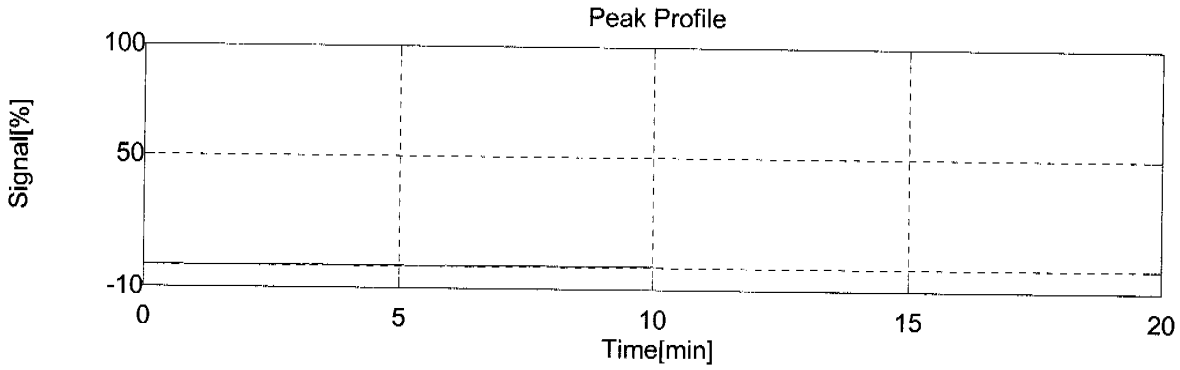
Sample Name: GP66744-MB2
Sample ID: TOCLK
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/04/2012 10:46:01

Mean Area	Conc	Result	SD	CV	Weight	Modified
0	0.000%		0.000	0.00%	1000	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	0	1000	0.0000		******	09/04/2012 10:39:07	b20829s1.cal
2	5	0	1000	0.0000		******	09/04/2012 10:46:01	b20829s1.cal

TOC-Control



Samples

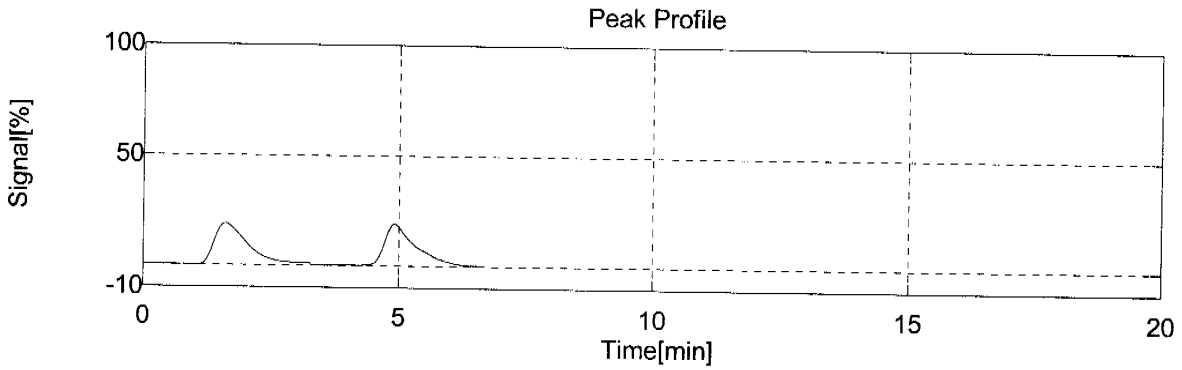
Sample Name: GP66744-B2
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/04/2012 11:03:38

Mean Area	Conc	Result	SD	CV	Weight	Modified
7129	0.1919%		0.00196	1.02%	1000	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	7178	1000	0.19325		******	09/04/2012 10:56:08	b20829s1.cal
2	5	7081	1000	0.19048		******	09/04/2012 11:03:38	b20829s1.cal

TOC-Control



Samples

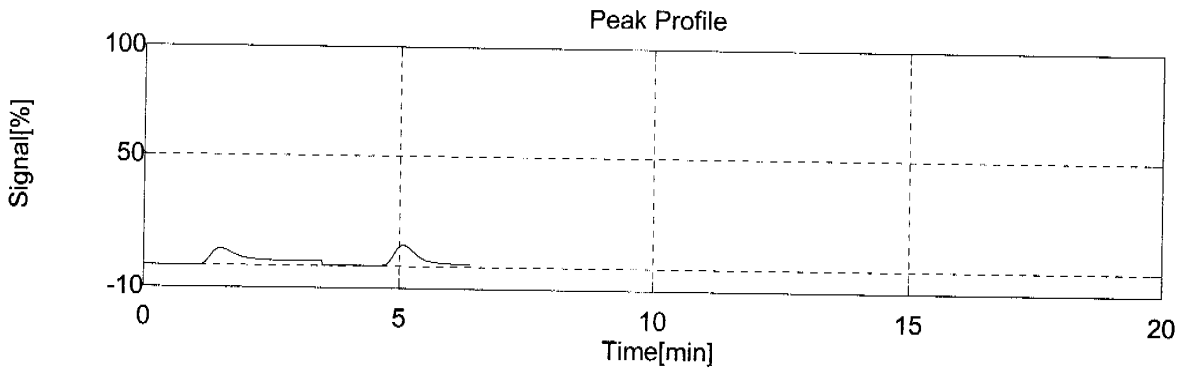
Sample Name: JB14312-15R
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/04/2012 11:13:59

Mean Area	Conc	Result	SD	CV	Weight	Modified
2650	0.07983%		0.00139	1.74%	835.7	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	2690	838.5	0.080810		******	09/04/2012 11:09:21	b20829s1.cal
2	5	2610	832.8	0.078845		******	09/04/2012 11:13:59	b20829s1.cal

TOC-Control



Samples

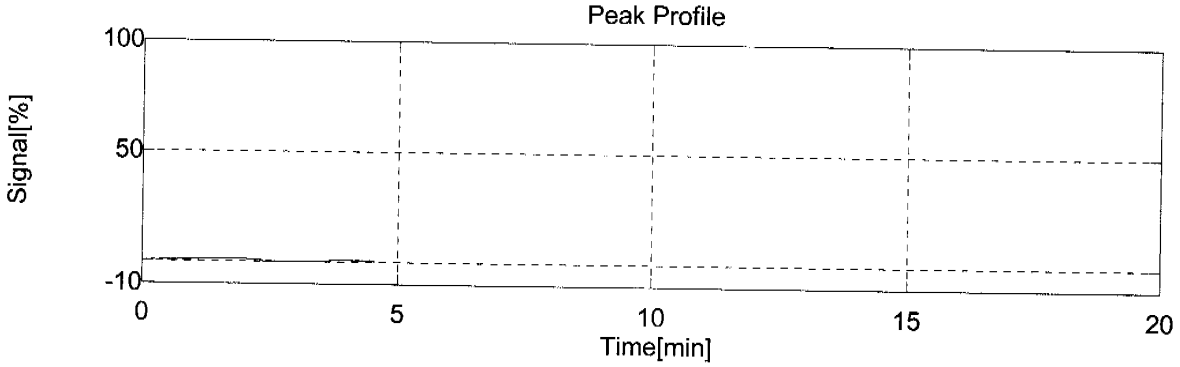
Sample Name: JB15015-1R
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/04/2012 11:23:40

Mean Area	Conc	Result	SD	CV	Weight	Modified
357	0.08386%		0.08665	103%	102.9	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	619	103.8	0.14513		******	09/04/2012 11:18:46	b20829s1.cal
2	5	96	101.9	0.022592		******	09/04/2012 11:23:40	b20829s1.cal

TOC-Control



Samples

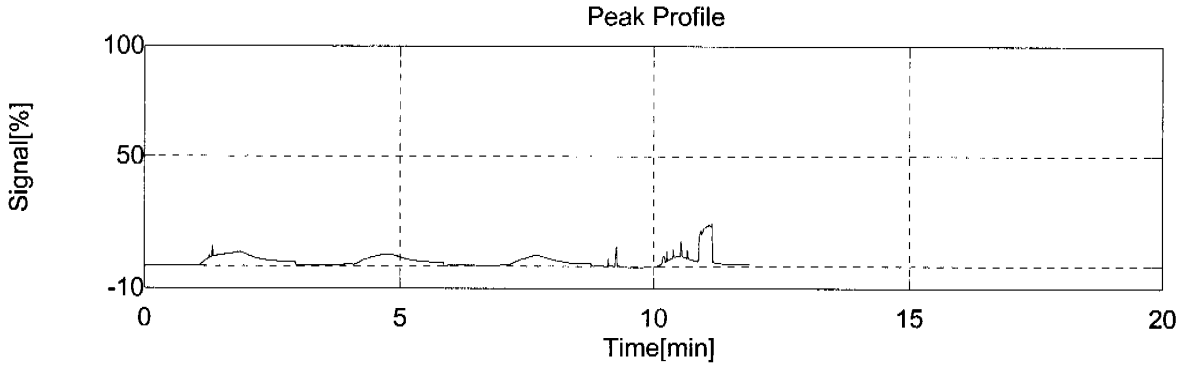
Sample Name: JB15015-1R
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/04/2012 12:44:23

Mean Area	Conc	Result	SD	CV	Weight	Modified
2442	0.06113%		0.02600	42.5%	1005	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	2589	1007	0.064684		******	09/04/2012 12:18:49	b20829s1.cal
2	5	1843	1006	0.045464		******	09/04/2012 12:24:15	b20829s1.cal
3	5	1537	1000	0.038064		******	09/04/2012 12:35:03	b20829s1.cal
4	5	3800	1006	0.096325		******	09/04/2012 12:44:23	b20829s1.cal

TOC-Control



Samples

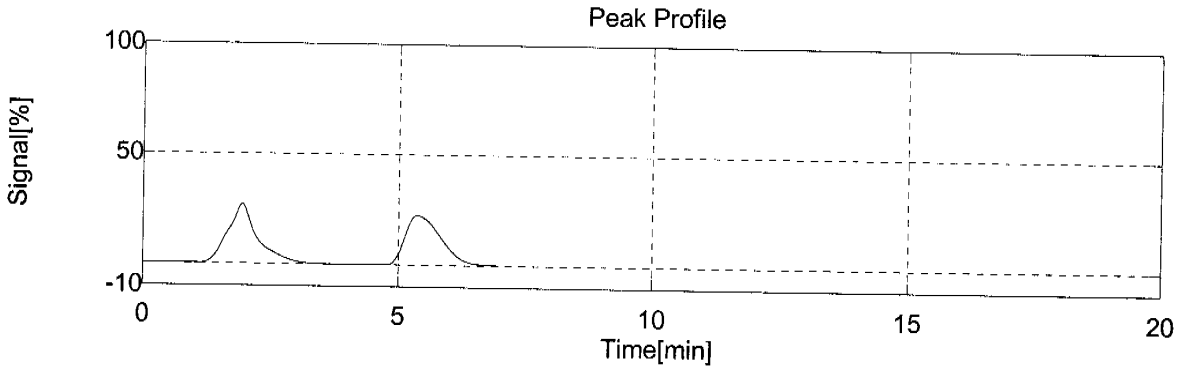
Sample Name: CCV
Sample ID:
Remark:
Comment:
Method: tocsscal.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/04/2012 13:01:49

Mean Area	Conc	Result	SD	CV	Modified
9706	2.655%		0.01783	0.672%	

No.	Range	Area	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	9751	2.6673		******	09/04/2012 12:51:39	b20829s1.cal
2	5	9662	2.6421		******	09/04/2012 13:01:49	b20829s1.cal

TOC-Control



Samples

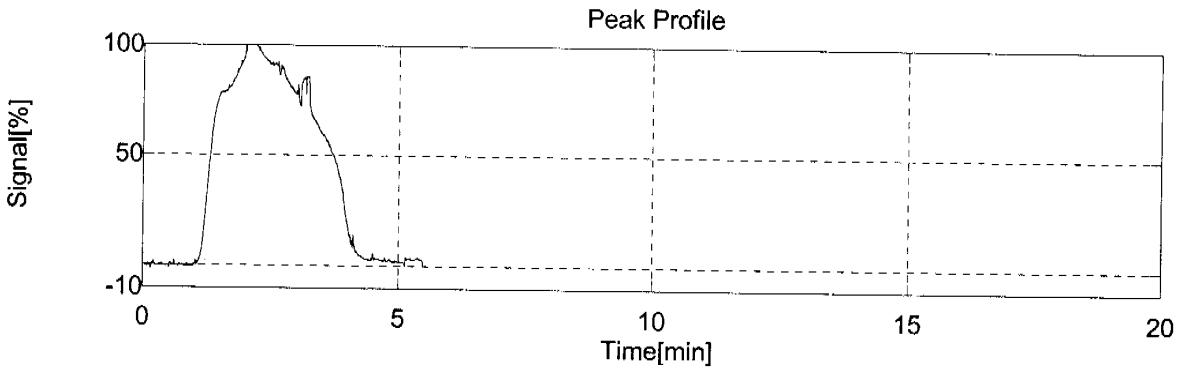
Sample Name: JB14201-12R
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/04/2012 13:28:45

Mean Area	Conc	Result	SD	CV	Weight	Modified
112645	25.64%		0.000	0.00%	102.8	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	112645	102.8	25.636		**h***	09/04/2012 13:28:45	b20829s1.cal

TOC-Control



Samples

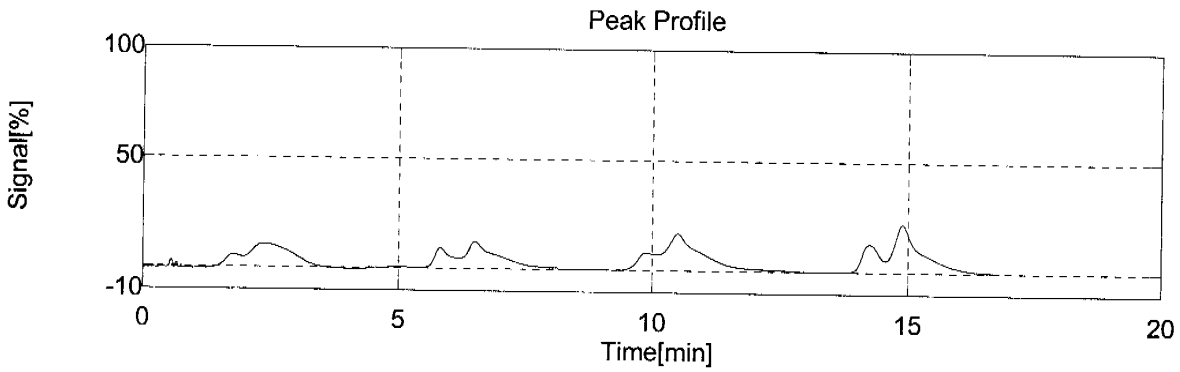
Sample Name: JB14201-12R
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/04/2012 14:22:42

Mean Area	Conc	Result	SD	CV	Weight	Modified
7928	24.33%		4.631	19.0%	8.775	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	7199	9.100	21.303		******	09/04/2012 14:04:19	b20829s1.cal
2	5	5922	8.000	19.663		******	09/04/2012 14:10:22	b20829s1.cal
3	5	8765	8.900	26.818		******	09/04/2012 14:17:18	b20829s1.cal
4	5	9826	9.100	29.545		******	09/04/2012 14:22:42	b20829s1.cal

TOC-Control



Samples

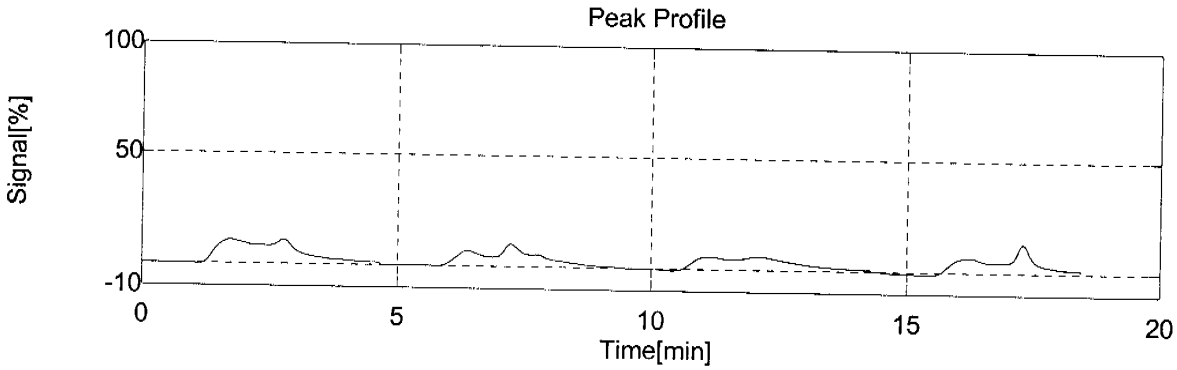
Sample Name: JB14519-15RT
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/04/2012 14:50:54

Mean Area	Conc	Result	SD	CV	Weight	Modified
7318	3.853%		0.6910	17.9%	51.23	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	9148	51.20	4.8758		******	09/04/2012 14:30:55	b20829s1.cal
2	5	6835	50.20	3.6541		******	09/04/2012 14:37:05	b20829s1.cal
3	5	6718	51.50	3.4969		******	09/04/2012 14:44:30	b20829s1.cal
4	5	6574	52.00	3.3840		******	09/04/2012 14:50:54	b20829s1.cal

TOC-Control



Samples

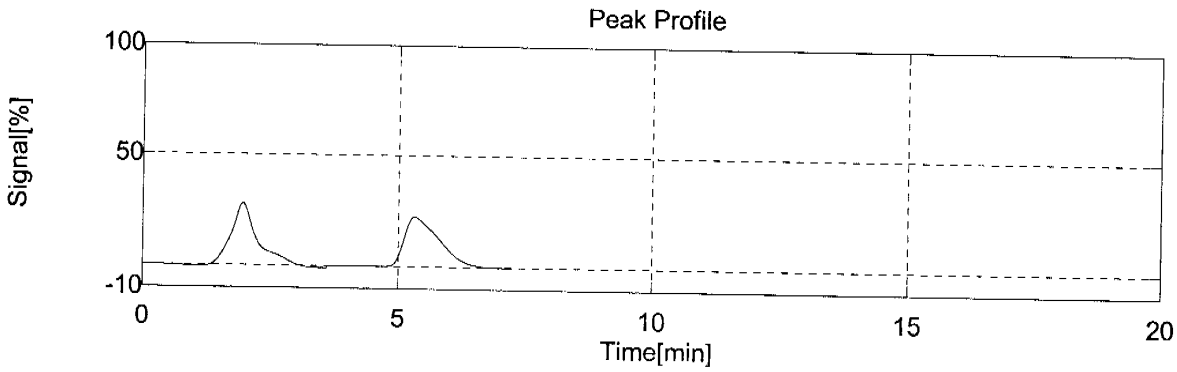
Sample Name: CCV
Sample ID:
Remark:
Comment:
Method: tocsscal.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/04/2012 15:07:35

Mean Area	Conc	Result	SD	CV	Modified
9731	2.662%		0.01723	0.647%	

No.	Range	Area	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	9774	2.6738		******	09/04/2012 14:56:29	b20829s1.cal
2	5	9688	2.6495		******	09/04/2012 15:07:35	b20829s1.cal

TOC-Control



Statistics / Summary

Sample Name	Analysis	Conc.	Abs C [µg]
CRI	SSM-TC	0.09412 %	94
HSTD	SSM-TC	5.057 %	5057
ICV	SSM-TC	1.927 %	1926
CCV	SSM-TC	2.668 %	2668
GP66744-MB2	SSM-TC	0.000 %	0
GP66744-B2	SSM-TC	0.1919 %	1918
JB14312-15R	SSM-TC	0.07983 %	667
JB15015-1R	SSM-TC	0.07250 %	350
JB14201-12R	SSM-TC	24.98 %	14250
JB14519-15RT	SSM-TC	3.853 %	1972

ACCUTEST.

Analyst JAA

Method Sulfs

Prep Date 9/5/12

Balance # B-1A

GP # GN71534

Sample Prep Log

Sample ID	Sample Size	Final Volume
DUP JB14312-15R	+ 10ml DI H_2O	negative
JB14312-15R	10.10 gms	
JB15015-1R	10.05 gms	
JB14201-12R	10.20	
JB14519-15RT	10.15	
JB14036-1RT	10.03	
JB14198-5RT	10.50	
JB14307-3RT	10.33	
JB14785-1RT	10.49	
~~JB14655-1RT~~	10.53 gms + 10ml DI H_2O	negative
JB13560-1RT		
JAA 9/5 #4		

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

QC Review

ACCUTEST.

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

ANALYST: JAA
DATE: 9/5/12

GN BATCH: GN 71538
REAGENT ID's: See attached

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

F = 0.0061

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

within limits? (Y/N)

QC Summary
Dup. Sample ID: D1 Original: 0.95 Duplicate: 0.95 RPD: 0.0 Units: %
MS Sample ID: S1 Original: 0.95 Amt. Spiked: 57.8 MS: 56.6 REC: 96.1 %
MB ID and prep date: 9/5/12 Result: <0.2 RDL: 0.2 <RDL? Y
SB ID and prep date: Amt. Spiked: Result: REC:
External ID: Known: Result: REC:

Spike prep: 0.25 gms ceise → 0.52 gms sample

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 71538 -MB 1		10:40	0.0	0.10	0.10	0.12	<0.2	0.2	%
GN 71538 -B 1			0.0	41.30	41.20	for standardization only			%
1 JB14312-1SR	0.50		0.0	0.65	0.65	0.95	0.95		%
GN 71538 -D 1	0.50		0.0	0.65	0.65	0.95	0.95		%
GN 71538 -S 1	0.52		0.0	40.10	40.10	56.6	56.6		%
2 JB15015-1R	0.52		0.0	1.30	1.30	1.59	1.59		%
3 JB14201-1RR	0.52		0.0	1.00	1.00	1.42	1.42		%
4 JB14519-1SR	0.50		0.0	0.90	0.90	1.27	1.27		%
5 JB14036-1RT	0.51		0.0	0.65	0.65	0.87	0.87		%
6 JB14198-5RT	0.49		0.0	1.30	1.30	1.83	1.83		%
7 JB14307-3RT	0.47		0.0	0.35	0.35	0.49	0.49		%
8 JB14785-1RT	0.49		0.0	0.75	0.75	1.2	1.2		%
9 ~~JB14655-1RT~~	0.49	14:05	0.0	0.50	0.50	0.73	0.73	↓	%
10 JB13560-1RT (#1)									%
11									%
12 JB14312-1SR	—	83.1			MS =	0.25 / 0.52	x 100 x 1/.831		%
13 JB15015-1R	—	96.1				= 57.8			%
14 JB14201-1RR	—	82.9							%
15 JB14519-1SRT	—	86.5							%
16 JB14036-1RT	—	89.7							%
17 JB14198-5RT	—	90.6							%
18 JB14307-3RT	—	92.0							%
19 JB14785-1RT	—	77.8							%
20 ~~JB14655-1RT~~ JB13560	—	85.8							%

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

ANALYST: JAA DATE: 9/5/12 QC REVIEW: DATE:

COMMENTS:

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

ACCUTEST.

Reagent Information Log
Fe2/7

Work Group #_____

7.4

7

Reagent	Reagent # or Manufacturer/Lot	
Iron Wire Std	Aldrich # MKBH5978V	NA
HCL (1:1)	Fme4-31822-Fe2/7	11/12/12
60% Sulfuric Acid/Phosphoric Acid	Fme6-32705-Fe2/7	12/26/12
Potassium Dichromate Solution	Fme6-32673-Fe2/7	12/22/12
Diphenyl Amino Indicator	Fme4-31960-Fe2/7	10/24/12

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

Test Title:	XCRA
GN Batch:	~~GN71541~~ GN71549
Analyst:	MM
Prep Date:	9/4/2012
Analysis Date:	9/5/2012
Instrument ID:	G

my 9.12.12

Method: SW846 3060A, 7196A

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

Corr. Coef: 0.99994

Slope: 0.892

Y intercept: 0.0001

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	9:58	0.000	0.0000							
STD 1	0.008	NA	NA	0.008	0.0100							
STD 2	0.043	NA	NA	0.043	0.0500							
STD 3	0.089	NA	NA	0.089	0.1000							
STD 4	0.267	NA	NA	0.267	0.3000							
STD 5	0.455	NA	NA	0.455	0.5000							
STD 6	0.710	NA	NA	0.710	0.8000							
STD 7	0.891	NA	10:04	0.891	1.0000							
CCV	0.432	NA	15:52	0.432	0.4842	NA	NA	NA	NA	mg/l	0.003	0.010
CCB	0.000	NA	15:52	0.000	-0.0002	NA	NA	NA	NA	mg/l	0.003	0.010
GP66961-MB1	0.000	0.000	15:58	0.000	-0.0002	100.0	2.5000	1	-0.007	mg/kg	0.117	0.400
GP66961-B1	0.846	0.000	15:58	0.846	0.9483	100.0	2.5000	1	37.932	mg/kg	0.117	0.400
GP66961-S1	0.614	0.007	15:58	0.607	0.6804	100.0	2.5600	1	26.576	mg/kg	0.114	0.391
GP66961-D1	0.026	0.009	15:58	0.017	0.0189	100.0	2.5500	1	0.741	mg/kg	0.115	0.392
JB14201-12R	0.022	0.007	15:58	0.015	0.0167	100.0	2.5700	1	0.648	mg/kg	0.114	0.389
JB14201-12RPSCONI	0.458	0.003	15:58	0.455	0.5099	100.0	2.5700	2	39.684	mg/kg	0.228	0.778
GP66961-B2	>3	OVR		FALSE	-0.0002	100.0	2.5000	1	-0.007	mg/kg	0.117	0.400
GP66961-S2	>3	OVR		FALSE	-0.0002	100.0	2.5600	1	-0.007	mg/kg	0.114	0.391
GP66961-B2	0.429	0.000	15:58	0.429	0.4808	100.0	2.5000	50	961.593	mg/kg	5.860	20.000
GP66961-S2	0.363	0.000	15:58	0.363	0.4068	100.0	2.5600	50	794.535	mg/kg	5.723	19.531
CCV	0.419	NA	15:58	0.419	0.4696	NA	NA	NA	NA	mg/l	0.003	0.010
CCB	0.000	NA	15:58	0.000	-0.0002	NA	NA	NA	NA	mg/l	0.003	0.010
				FALSE	-0.0002	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
				FALSE	-0.0002	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
				FALSE	-0.0002	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
				FALSE	-0.0002	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
				FALSE	-0.0002	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
				FALSE	-0.0002	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
				FALSE	-0.0002	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
				FALSE	-0.0002	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
				FALSE	-0.0002	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
				FALSE	-0.0002	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
CCV	0.436	NA	16:29	0.436	0.4886	NA	NA	NA	NA	mg/l	0.003	0.010
CCB	0.000	NA	16:29	0.000	-0.0002	NA	NA	NA	NA	mg/l	0.003	0.010
JB14201-1R	0.184	0.145	16:35	0.039	0.0436	100.0	2.5500	1	1.708	mg/kg	0.115	0.392
JB14201-2R	0.002	0.001	16:35	0.001	0.0010	100.0	2.5300	1	0.038	mg/kg	0.116	0.395
JB14201-3R	0.024	0.008	16:35	0.016	0.0178	100.0	2.4800	1	0.717	mg/kg	0.118	0.403
JB14201-4R	0.031	0.017	16:35	0.014	0.0155	100.0	2.5500	1	0.609	mg/kg	0.115	0.392
JB14201-5R	0.008	0.000	16:35	0.008	0.0088	100.0	2.5000	1	0.352	mg/kg	0.117	0.400
JB14201-6R	0.003	0.002	16:35	0.001	0.0010	100.0	2.5300	1	0.038	mg/kg	0.116	0.395
JB14201-7R	0.006	0.002	16:35	0.004	0.0043	100.0	2.4900	1	0.173	mg/kg	0.118	0.402
JB14201-8R	0.014	0.001	16:35	0.013	0.0144	100.0	2.5700	1	0.561	mg/kg	0.114	0.389
JB14201-9R	0.016	0.011	16:35	0.005	0.0054	100.0	2.4900	1	0.218	mg/kg	0.118	0.402
JB14201-10R	0.016	0.012	16:35	0.004	0.0043	100.0	2.5400	1	0.170	mg/kg	0.115	0.394
CCV	0.431	NA	16:35	0.431	0.4830	NA	NA	NA	NA	mg/l	0.003	0.010
CCB	0.000	NA	16:35	0.000	-0.0002	NA	NA	NA	NA	mg/l	0.003	0.010
JB14201-11R	0.029	0.018	16:35	0.011	0.0122	100.0	2.5500	1	0.477	mg/kg	0.115	0.392
				FALSE	-0.0002	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
				FALSE	-0.0002	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
				FALSE	-0.0002	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
				FALSE	-0.0002	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
				FALSE	-0.0002	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
				FALSE	-0.0002	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
				FALSE	-0.0002	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
				FALSE	-0.0002	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
				FALSE	-0.0002	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
CCV	0.430	NA	16:35	0.430	0.4819	NA	NA	NA	NA	mg/l	0.003	0.010
CCB	0.000	NA	16:35	0.000	-0.0002	NA	NA	NA	NA	mg/l	0.003	0.010
				FALSE	-0.0002	100.0	2.5000	1	-0.007	mg/kg	0.117	0.400
				FALSE	-0.0002	100.0	2.5000	1	-0.007	mg/kg	0.117	0.400
				FALSE	-0.0002	100.0	2.5000	1	-0.007	mg/kg	0.117	0.400
				FALSE	-0.0002	100.0	2.5000	1	-0.007	mg/kg	0.117	0.400
				FALSE	-0.0002	100.0	2.5000	1	-0.007	mg/kg	0.117	0.400

7.5

7

ACCUTEST

Test: **Hexavalent Chromium** MDL = 0.117 mg/kg GNBatch ID: GN71549
Product: **XCr** RDL = 0.40 mg/kg Date: 9/5/2012
Method: **SW846 3060A/7196A**

Digestion Batch QC Summary Units = mg/kg

Method Blank ID: GP0090901MB1 Date: 9/5/2012 Result: LMDL RDL: 0.40 <RDL: YES
Sol. Spike Blank ID: GP0090901-BS1 Date: " Result: 37.93 Spike: 40.00 %Rec.: 94.8%
Insol. Spike Blank ID: GP0090901-BS2 Date: " Result: 96.59 Spike: 91.30 %Rec.: 105.2%
Duplicate ID: GP0090901-D1 Samp. Result: .648 Dup. Result: .741 %RPD: 13.4%
Sol. MS ID: GP0090901-S1 Samp. Result: " MS Result: 26.58 Spike: 39.06 %Rec: 66.4%
Insol. MS ID: GP0090901-S2 Samp. Result: " MS Result: 104.54 Spike: 99.16 %Rec: 94.3%
Post Spike ID: JB14201-PS Samp. Result: " PS Result: 39.68 Spike: 41.51 %Rec: 94.0%
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: 9/5/2012	Result: 484	TV: 0.500	%Rec.:	96.8%
CCV: "	Result: 470	TV: 0.500	%Rec.:	94.0%
CCV: "	Result: 489	TV: 0.500	%Rec.:	97.8%
CCV: "	Result: 483	TV: 0.500	%Rec.:	96.6%
CCV: "	Result: 482	TV: 0.500	%Rec.:	96.4%
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: 9/5/2012	Result: LMDL	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: MM Date: 9/5/2012

Comments: _____

Form: GN066-01
Rev. Date: 4/25/11

ACCUTEST.

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

pH Meter ID: 48
Digestion Date: 9/4/12
pH adj. Date: 9/5/12
GN Batch ID: GN71549

adj. start time: 15:28 16:01 15:39 16:13
adj. end time: 15:34 16:08 15:44 16:16

ple ID	Sample Weight in g	pH after HNO3	Final Volume (ml)	pH after H2SO4	bkg pH after H2SO4	Spike Amounts	Spike Solution	Digestate Description/Comments
P66961		7.43	100	1.82		5mL	100ppm	Ultra
		7.09	↓	1.72		↓		↓
		7.96	100	1.96				
		7.88	↓	1.89				
ol) JB14201-1R	2.56	7.82	100	2.01	1.91	1.0mL	100ppm absolute	
sol.)	2.56	7.71		1.93	AK	0.0134g	PbCrO4	
	2.55	7.39		1.99	1.83			
ol)	2.50	7.48		1.96	1.74	1.0mL	100ppm absolute	
sol)		7.96		1.87	AK	0.0142g	PbCrO4	
	↓	7.64		1.93	1.78			
14201-1R	2.55	7.89		1.96	1.89			very brown
-2R	2.53	7.32		1.99	1.86			Slight gold
-3R	2.48	7.49		1.97	1.81			gold
-4R	2.55	7.51		1.89	1.73			gold
-5R	2.50	7.96		1.79	1.69			Clear
-6R	2.53	7.82		1.84	1.71			Clear
-7R	2.49	7.78		1.85	1.76			Clear
-8R	2.57	7.82		1.97	1.89			Slight gold
-9R	2.49	7.91		1.95	1.88			Gold
-10R	2.54	7.16		1.86	1.75			Gold
-11R	2.55	7.83		2.01	1.90			Gold
-12R	2.57	7.13	↓	1.99	1.87			Gold
sol)	2.50	7.96	100	2.0	1.94			dilution 1:50
sol.)	2.56	7.71	↓	1.91	1.82			dilution 1:50
	2.57	7.13	↓	1.86	1.80	.24mL	100ppm Insoluble	~1:2 dilution
usted PS								
ra	2.54							

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

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

analyst check: 9/5/12

Anayst: MM
Date: 9/5/12

Form: GN-067

ACCUTEST LABS
DAYTON, NJ
GN71549

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

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?
JB14201-12R	2.57	1.1565	0.648	0.463	yes	1	2	0.232	0.24	0.542	41.505	efault (40 mg/kg) spike
		0		0.000	no	0		#DIV/0!		#DIV/0!	#DIV/0!	efault (40 mg/kg) spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike

3060A/7196A INSOLUBLE SPIKE CALCULATION

Weight of PbCrO4	Weight of Sample	Amount Spiked
0.0142	2.5	913.861
0.0134	2.56	842.164
		#VALUE!
		#VALUE!
		#VALUE!
		#VALUE!
		#VALUE!
		#VALUE!
		#VALUE!

GN71549

ACCUTEST.

Hexavalent Chromium pH Adjustment Log

Method: SW846 3060A/7196A

adj. start time: 9:31 9:46 pH adjustment Date: 9/5/12

H adj. end time: 9:40 9:51 GN Batch ID: GN71549

ample ID	Sample Weight in g	pH after HNO3	Final Volume (ml)	pH after H2SO4	Comments	Spike Info.
alibration Blank	NA	7.58	100	2.10		
010 mg/l standard	NA	7.32		2.45	10 ppm Absolute	0.10 ml of 10 mg/l
050 mg/l standard	NA	7.18		2.11		0.50 ml of 10 mg/l
100 mg/l standard	NA	7.91		2.09		1.00 ml of 10 mg/l
300 mg/l standard	NA	7.24		2.15		3.00 ml of 10 mg/l
500 mg/l standard	NA	7.66		1.96		5.00 ml of 10 mg/l
800 mg/l standard	NA	7.09		1.99		8.00 ml of 10 mg/l
00 mg/l standard	NA	7.15	↓	1.88	↓	10.0 ml of 10 mg/l

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

0000 ug/g x Insoluble spike wt(g) x 52/323.2}/ms sample wt(g) = Insoluble spike amount of PbCrO4

Anayst: [signature]

Date: 9/5/12

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

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HEXAVALENT CHROMIUM STANDARD PREPARATION LOG

Product: XUA

GN or GP Number: GN71549

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 # 041215	1000 ppm	1.0 ml	DI	100 mls	10 mg/l	4/12/2015	[illegible]	9/5/12
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	9/6/12	[illegible]	9/5/12
.050 ppm			0.5 ppm	DI		0.05 mg/l			
.10 ppm			1.0 ppm	DI		0.10 mg/l			
.30 ppm			3.0 ppm	DI		0.30 mg/l			
.50 ppm			5.0 ppm	DI		0.50 mg/l			
.80 ppm			8.0 ppm	DI		0.80 mg/l			
1.00 ppm			10.0 ppm	DI		1.0 mg/l			

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

ACCUTEST.

HEXAVALENT CHROMIUM TEMPERATURE AND TIME DIGESTON LOG - METHOD 3060A

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

Thermometer ID: 381 / 397 / 182 / 175

Thermometer Correction factor: 0 / -2 / 2 / 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
GP66962	Starting Time	17:15	91°/91°	94°/92°	90°/92°	90°/90°
GP66962	Time 1	17:45	91°/91°	94°/92°	90°/92°	90°/90°
	Ending Time	18:15	91°/91°	94°/92°	91°/93°	90°/90°
	Starting Time	18:20	91°/91°	94°/92°	91°/93°	90°/90°
	Time 1	18:40	92°/92°	95°/93°	90°/92°	90°/90°
	Ending Time	19:20	92°/92°	95°/93°	90°/92°	90°/90°
	Starting Time					
	Time 1					
	Ending Time					

Analyst: CKW

2nd Analyst Check: MM

Date: 9/8/12

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

ACCUTEST

GN/GP Batch ID: GP66961/GP66962

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

Reagent	Exp. Date	Reagent # or Manufacturer/Lot
Calibration Source: Hexavalent Chromium, 1000 mg/L Stock	4/12/2015	Absolute Grade Lot # 041212
Calibration Checks: Hexavalent Chromium, 1000 mg/L Stock	5/31/2017	Ultra lot # L00439
Spiking Solution Source	4/12/2015	Absolute Grade Lot # 041212
Lead Chromate (Insoluble Hexavalent Chromium Spike)	7/26/2017	Sigma Aldrich Lot # BCBG0578V
Magnesium Chloride, Anhydrous	7/11/2016	Alfa Aesar Lot # B17X012
1N NaOH	9/30/12	GNE8-3342I-XCR
Digestion Solution	2/14/13	GNE8-3327J-XCRA
Phosphate Buffer Solution	3/2/13	GNE8-3342S-XCRA
5.0 M Nitric Acid	10/4/12	GNE9-2334A6-XCR
Diphenylcarbazide Solution	2/21/13	GNE8-3333A-XCR
Sulfuric Acid, 10%		D F2EA19811
Filter	NA	D1069103 919120
Teflon Chips		

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

AECOM
250 Apollo Drive
Chelmsford, MA 01824

978-905-2100 tel
978-905-2101 fax

Data Validation Report

Project:	PPG – Garfield Avenue Supplemental Remedial Investigation (GARIS) Northern Canal Borings
Laboratory:	Accutest, Dayton, NJ
Laboratory Job No.:	JB14312 and JB14312R
Analysis/Method:	Hexavalent Chromium SW846 3060A/7196A
Validation Level:	Full (Hexavalent Chromium)
Site Location/Address:	PPG Site 114 – Garfield Avenue, Jersey City, NJ
AECOM Project Number:	60213772.5.A
Prepared by: Kristin Rutherford/AECOM	Completed on: September 11, 2012
Reviewed by: Lisa Krowitz/AECOM	File Name: 2012-09-11 DV Report JB14312-F.docx

Introduction

The data were reviewed in accordance with the FSP-QAPP and the following NJDEP and/or Region 2 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.

Sample Information

The sample listed below was collected by AECOM on August 21, 2012 as part of the Garfield Avenue Supplemental Remedial Investigation (GARIS) Northern Canal Boring Sampling at the PPG Site - 114 Jersey City, New Jersey.

Field ID	Laboratory ID	Matrix	Fraction
114-A2A-8.3-8.8	JB14312-1, -1R	Soil	Hexavalent Chromium
NSB-D1-12.0-12.5	JB14312-2, -2R	Soil	Hexavalent Chromium
NSB-D1-16.0-16.5	JB14312-3, -3R	Soil	Hexavalent Chromium
NSB-D1-20.0-20.5	JB14312-4, -4R	Soil	Hexavalent Chromium
NSB-D1-4.0-4.5	JB14312-5, -5R	Soil	Hexavalent Chromium
NSB-D1-7.7-8.2	JB14312-6, -6R	Soil	Hexavalent Chromium
NSB-D2-11.3-11.8	JB14312-7, -7R	Soil	Hexavalent Chromium
NSB-D2-3.0-3.5	JB14312-8, -8R	Soil	Hexavalent Chromium
NSB-D2-3.0-3.5X (field duplicate of NSB-D2-3.0-3.5)	JB14312-9, -9R	Soil	Hexavalent Chromium
NSB-D2-6.0-6.5	JB14312-10, -10R	Soil	Hexavalent Chromium
NSB-D3-3.0-3.5	JB14312-11, -11R	Soil	Hexavalent Chromium
NSB-D4-1.0-1.5	JB14312-12, -12R	Soil	Hexavalent Chromium
NSB-F5-20.0-20.5	JB14312-13, -13R	Soil	Hexavalent Chromium
NSB-EB20120822 (equipment blank)	JB14312-14	Aqueous	Hexavalent Chromium
NSB-F5-16.0-16.5	JB14312-15, -15R	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 Sites 114, 132, 133, 135, 137, 143, and 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

Matrix Spike Results

Sample NSB-F5-16.0-16.5 (JB14312-15) 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 (GN71347) were 39.0% and 90.7%, respectively; the soluble MS recovery did not meet quality control criteria of 75-125%R, and was <50%R. The post digestion spike (PDS) recovery was 91.1%, which met the PDS criteria of 85-115%.

The soluble and insoluble matrix spike recoveries from the re-analysis (batch GN71477) were 54.0% and 89.9%, respectively; again the soluble MS recovery did not meet the quality control criteria of 75-125%R. The post spike result for the re-analysis batch was recovered at 85.1%, which met the PDS criteria of 85-115%.

Due to low MS recoveries, additional parameters were analyzed to determine if possible matrix interferences could be the cause for the poor matrix spike recoveries. The sample was 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 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 result was (0.95%) and the TOC (961 mg/Kg) were positive, indicating potential reducing agents within the sample matrix.

The soil hexavalent chromium results were reported from the re-analysis since the soluble MS recovery showed improvement from the initial analysis. However, the highest result for hexavalent chromium was reported for each sample so some results were reported from the initial analysis. Since the soluble MS recoveries from the initial and reanalysis were below 75%R, the reported positive and nondetect hexavalent chromium results for all soil samples in this SDG were qualified as estimated (J and UJ, respectively).

Field Duplicate Precision

Samples NSB-D2-3.0-3.5 and NSB-D2-3.0-3.5X were collected as the field duplicate pair in this SDG. The relative percent difference (RPD) criteria were met for results in the initial analysis (JB14312), but the RPD was 35.3% in the re-analysis, which exceeded the RPD criteria of ≤ 20% for sample results greater than or equal to four times the reporting limit (RL). Since the results for hexavalent chromium were reported from the re-analysis based on matrix spike recoveries, the results for hexavalent chromium in all soil samples were qualified as estimated (J/UJ) with the potential for bias in an unknown direction.

Sample Results

Reported results (flagged B by the laboratory) that were less than the reporting limit (RL), but greater than or equal to the method detection limit (MDL) are approximate values and have been qualified as estimated (J).

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 discussed in attachments A and B below.

The reported hexavalent chromium results in all soil samples are usable as estimated values with the potential for bias low due to poor MS recoveries.

The results for hexavalent chromium in all soil samples are usable as estimated values, with unknown directional bias due to poor field duplicate precision.

Some sample results are usable as estimated values since they were detected between the RL and MDL.

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 PPG –GARIS Northern Canal Borings at PPG Site 114, Jersey City, NJ
Sampling Date August 21, 2012
Lab Name/ID Accutest Laboratories, Dayton, NJ
SDG No JB14312 and JB14312R
Sample Matrix Soil
Trip Blank ID NA
Field Blank ID NSB-EB20120822

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
NSB-D1-1.0-1.5	JB14312-1R	CHROMIUM (HEXAVALENT)	U	1.8	1.8	0.44	Qualify	18,29
NSB-D1-12.0-12.5	JB14312-2	CHROMIUM (HEXAVALENT)	U	0.42	0.42	0.48	Qualify	18,29,31
NSB-D1-16.0-16.5	JB14312-3R	CHROMIUM (HEXAVALENT)	U	1.6	1.6	0.49	Qualify	18,29
NSB-D1-20.0-20.5	JB14312-4R	CHROMIUM (HEXAVALENT)	U	0.46	0.46	0.48	Qualify	18,29,31
NSB-D1-4.0-4.5	JB14312-5R	CHROMIUM (HEXAVALENT)	U	4.3	4.3	0.48	Qualify	18,29
NSB-D1-7.7-8.2	JB14312-6R	CHROMIUM (HEXAVALENT)	U	0.35	0.35	0.48	Qualify	18,29,31
NSB-D2-11.3-11.8	JB14312-7	CHROMIUM (HEXAVALENT)	U	0.41	0.41	0.48	Qualify	18,29,31
NSB-D2-3.0-3.5	JB14312-8R	CHROMIUM (HEXAVALENT)	U	3.0	3.0	0.45	Qualify	18,29
NSB-D2-3.0-3.5X	JB14312-9R	CHROMIUM (HEXAVALENT)	U	2.1	2.1	0.46	Qualify	18,29
NSB-D2-6.0-6.5	JB14312-10R	CHROMIUM (HEXAVALENT)	U	U	U	0.66	Qualify	18,29
NSB-D3-3.0-3.5	JB14312-11	CHROMIUM (HEXAVALENT)	U	12.9	12.9	0.47	Qualify	18,29
NSB-D4-1.0-1.5	JB14312-12R	CHROMIUM (HEXAVALENT)	U	2.3	2.3	0.44	Qualify	18,29
NSB-F5-20.0-20.5	JB14312-13R	CHROMIUM (HEXAVALENT)	U	0.49	0.49	0.48	Qualify	18,29
NSB-F5-16.0-16.5	JB14312-15R	CHROMIUM (HEXAVALENT)	U	0.40	0.40	0.48	Qualify	18,29,31

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 $\pm$ 20 percent for sample results > 4xRL or $\pm$ 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 rejected because the laboratory exceeded the holding time for digestion and 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 90°C.

29. In the Field Duplicate Sample Analysis, Hexavalent Chromium fell outside the control limits of ≤ 20% for sample results > 4xRL or $\pm$ 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 6ºC.

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.

Attachment B

Data Validation Report Form

Client Name: PPG Industries	**Project Number:** 60213772.5.A
Site Location: PPG- GARIS Northern Canal Borings	**Project Manager:** Robert Cataldo
Laboratory: Accutest, Dayton, New Jersey	**Limited or Full Validation (circle one)**
Laboratory Job No: JB14312 and JB14312R	**Date Checked:** 09/11/2012
Validator: Kristin Rutherford	**Peer:** Lisa Krowitz

ITEM	YES	NO	N/A	COMMENTS
Sample results included?	x			14 soils and 1 EB
Reporting Limits met project requirements?	x			
Field I.D. included?	x			
Laboratory I.D. included?	x			
Sample matrix included?	x			
Sample receipt temperature 2-6ºC?	x			5.0°C
Signed COCs included?	x			
Date of sample collection included?	x			08/21/2012
Date of sample digestion included?	x			Soil: JB14312 HxCr prepped on 08/30/2012 Soil: JB14312R HxCr prepped on 08/31/2012
Holding time to digestion met criteria? Soils -30 days from collection to digestion.	x			Yes
Date of analysis included?	x			Soil: JB14312: HxCr analyzed on 08/30/2012. Soil: JB14312R: HxCr analyzed on 09/04/2012. AQ: 8/21/12
Holding time to analysis met criteria? Soils -168 hours from digestion to analysis. Aqueous – 24 hours from collection to analysis.	x			Yes
Method reference included?	x			3060A/7196A
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.

Comments

Field Duplicates: NSB-D2-3.0-3.5 and NSB-D2-3.0-3.5X. RPD criteria met for results in JB14312, but RPD >20% for results in JB14312R. Qualify results for all soil samples (J/UJ).

Sample Dilutions: None for this SDG.

ITEM	YES	NO	N/A	COMMENTS
Initial Calibration Documentation Included in Lab Package?	x			Cal source (soil – Absolute lot # 041212); AQ Absolute Lot #011212
1. Blank plus 4 standards (7196A) or blank plus 3 standards (7199), 2. Correlation coefficient of ≥0.995 (7196A) or ≥0.999 (7199). 3. Calibrate daily or each time instrument is set up.	x x x			1. Each analysis 1 blank and 7 cal STDs 2. All analyses meet CC 3. Yes
Calibration Check Standard (CCS) for 7196A and Quality Control Sample (QCS) for 7199 Included in Lab Package?	x			Check source (soil and AQ – Ultra lot # L00439)
1. %R criteria met? (90 - 110%). 2. Correct frequency of once every 10 samples 3. CCS and QCS from independent source and at mid level of calibration curve.	x x x			1. All met %R 2. Analyzed every 10 samples 3. Yes
Calibration Blanks	x			
1. Analyzed prior to initial calibration standards and after each CCS/QCS? 2. Absolute value should not exceed MDL.	x x			1. Yes 2. Yes
Method Blank and Field Blanks Included in Lab Package?	x			Equipment Blank NSB-EB20120822
1. Method blank analyzed with each preparation batch? 2. Absolute value should not exceed MDL.	x x			1. Yes, Soil – JB14312 GP66893-MB1, JB14312R GP66920-MB1, AQ GN70834 2. Yes, all method and field blanks were less than MDL.
Eh and pH data.	x			
Eh and pH data was included and plotted for all samples?	x			
Soluble Matrix Spike Data Included in Lab Package?	x			JB14312-15 [NSB-F5-16.0-16.5]; JB14312-15R [NSB-F5-16.0-16.5]
1. %R criteria met? (75-125%R). 2. Was the spike concentration 40 mg/Kg or twice the sample concentration, whichever is greater? 3. Was a sample spiked at the frequency of 1/batch or 20 samples?	 x x x x x	x x		1. a. JB14312 – No (39.0 %); qualify results (J/UJ) b. JB14312R – No (54.0 %); qualify results (J/UJ) 2. a. JB14312 Yes, 47.5 mg/kg b. JB14312R Yes, 48.5 mg/kg 3. Yes for all batches.
Insoluble Matrix Spike Data Included in Lab Package?	x			JB14312-15 [NSB-F5-16.0-16.5]; JB14312-15R [NSB-F5-16.0-16.5]
1. %R criteria met? (75-125%R). 2. Was the spike concentration around 400 to 800 mg/Kg? 3. Was a sample spiked at the frequency of 1/batch or 20 samples?	x x x	 x x		1. a. JB14312: Yes (90.7%) b. JB14312R: Yes (89.9 %) 2. a. JB14312 No (1100 mg/kg). No impact to data. b. JB14312R No (1190 mg/kg). No impact to data. 3. Yes for all batches.
Post Digestion Spike	x			JB14312-15 [NSB-F5-16.0-16.5]; JB14312-15R [NSB-F5-16.0-16.5]
1. %R criteria met? (85-115%R). 2. Was the spike concentration 40 mg/Kg or twice the sample concentration? 3. Was a sample spiked at the frequency of 1/batch or 20 samples?	x x x x x			1. a. JB14312 Yes (91%) b. JB14312R Yes (85.1%) 2. a. JB14312 Yes, 40.4 mg/kg b. JB14312R Yes, 40.4 mg/kg 3. Yes for all batches.
Sample Duplicate Data Included in Lab Package?	x			JB14312-15 [NSB-F5-16.0-16.5]; JB14312-15R [NSB-F5-16.0-16.5]
1. RPD criteria met? (RPD < 20%) of both results are ≥4x RL or control limit of ±RL if both results are <4x RL. 2. Was a sample spiked at the frequency of 1/batch or 20 samples?	x x x			1. a. JB14312 - Yes, results were <4XRL and difference was ±RL; therefore no qualifications were required. b. JB14312R – Yes – RPD 11.8% 2. Yes
Was a Laboratory Control Sample (LCS) Included in Lab Package?	x			
1. %R criteria met? (80-120%R). 2. Was an LCS analyzed at the frequency of 1/batch or 20 samples?	x x			1. Yes, all LCS recoveries were within quality control criteria. 2. Yes
Miscellaneous Items.				
1. For soils by 3060A, was the initial pH within a range of 7.0-8.0? 2. For soils by 7199, was the pH within a range of 9.0-9.5? 3. For aqueous by 7196A, was the pH with a range of 1.5-2,5? 4. For soils (3060A), was the digestion temperature 90-95°C for at least 60 minutes? 5. For 7199, was each sample injected twice and was the RPD ≤20?	x x x 		 x x	1. Yes 2. NA 3. Yes 4. Yes 5. NA

Holding Time

Sample ID	Method	Days from Sampling to Prep	Days from Prep to Analysis	Days from Sampling to Analysis	Sample to Prep Status	Prep to Analysis Status	Sample to Analysis Status
NSB-EB20120821	SW7196			0			OK @1 days
NSB-D1-1.0-1.5	SW7196	9	0	9	OK @30 days	OK @7 days	OK @37 days
NSB-D1-1.0-1.5R	SW7196	10	4	14	OK @30 days	OK @7 days	OK @37 days
NSB-D1-12.0-12.5	SW7196	9	0	9	OK @30 days	OK @7 days	OK @37 days
NSB-D1-12.0-12.5R	SW7196	10	4	14	OK @30 days	OK @7 days	OK @37 days
NSB-D1-16.0-16.5	SW7196	9	0	9	OK @30 days	OK @7 days	OK @37 days
NSB-D1-16.0-16.5R	SW7196	10	4	14	OK @30 days	OK @7 days	OK @37 days
NSB-D1-20.0-20.5	SW7196	9	0	9	OK @30 days	OK @7 days	OK @37 days
NSB-D1-20.0-20.5R	SW7196	10	4	14	OK @30 days	OK @7 days	OK @37 days
NSB-D1-4.0-4.5	SW7196	9	0	9	OK @30 days	OK @7 days	OK @37 days
NSB-D1-4.0-4.5R	SW7196	10	4	14	OK @30 days	OK @7 days	OK @37 days
NSB-D1-7.7-8.2	SW7196	9	0	9	OK @30 days	OK @7 days	OK @37 days
NSB-D1-7.7-8.2R	SW7196	10	4	14	OK @30 days	OK @7 days	OK @37 days
NSB-D2-11.3-11.8	SW7196	9	0	9	OK @30 days	OK @7 days	OK @37 days
NSB-D2-11.3-11.8R	SW7196	10	4	14	OK @30 days	OK @7 days	OK @37 days
NSB-D2-3.0-3.5	SW7196	9	0	9	OK @30 days	OK @7 days	OK @37 days
NSB-D2-3.0-3.5R	SW7196	10	4	14	OK @30 days	OK @7 days	OK @37 days
NSB-D2-3.0-3.5X	SW7196	9	0	9	OK @30 days	OK @7 days	OK @37 days
NSB-D2-3.0-3.5XR	SW7196	10	4	14	OK @30 days	OK @7 days	OK @37 days
NSB-D2-6.0-6.5	SW7196	9	0	9	OK @30 days	OK @7 days	OK @37 days
NSB-D2-6.0-6.5R	SW7196	10	4	14	OK @30 days	OK @7 days	OK @37 days
NSB-D3-3.0-3.5	SW7196	9	0	9	OK @30 days	OK @7 days	OK @37 days
NSB-D3-3.0-3.5R	SW7196	10	4	14	OK @30 days	OK @7 days	OK @37 days
NSB-D4-1.0-1.5	SW7196	9	0	9	OK @30 days	OK @7 days	OK @37 days
NSB-D4-1.0-1.5R	SW7196	10	4	14	OK @30 days	OK @7 days	OK @37 days
NSB-F5-16.0-16.5	SW7196	9	0	9	OK @30 days	OK @7 days	OK @37 days
NSB-F5-16.0-16.5R	SW7196	10	4	14	OK @30 days	OK @7 days	OK @37 days
NSB-F5-20.0-20.5	SW7196	9	0	9	OK @30 days	OK @7 days	OK @37 days
NSB-F5-20.0-20.5R	SW7196	10	4	14	OK @30 days	OK @7 days	OK @37 days

Matrix Spike

Sample ID	Compound	Soluble MS % Recovery	Insoluble MS % Recovery	Lower Limit	Upper Limit	PDS % Recovery	PDS Lower Limit	PDS Upper Limit
NSB-F5-16.0-16.5	CHROMIUM (HEXAVALENT)	39.0	90.7	75	125	91.0	85	115
NSB-F5-16.0-16.5R	CHROMIUM (HEXAVALENT)	54.0	89.9	75	125	85.1	85	115

Percent Solids

Sample ID	Percent Solids (%)	Status
NSB-D1-1.0-1.5	90.0	ok @50%
NSB-D1-12.0-12.5	82.7	ok @50%
NSB-D1-16.0-16.5	82.2	ok @50%
NSB-D1-20.0-20.5	83.9	ok @50%
NSB-D1-4.0-4.5	83.1	ok @50%
NSB-D1-7.7-8.2	83.4	ok @50%
NSB-D2-11.3-11.8	82.7	ok @50%
NSB-D2-3.0-3.5	89.1	ok @50%
NSB-D2-3.0-3.5X	87.6	ok @50%
NSB-D2-6.0-6.5	60.5	ok @50%
NSB-D3-3.0-3.5	84.3	ok @50%
NSB-D4-1.0-1.5	90.1	ok @50%
NSB-F5-16.0-16.5	83.1	ok @50%
NSB-F5-20.0-20.5	83.8	ok @50%

Field Duplicate

Sample ID	Duplicate ID	Compound	Sample Result	Duplicate Result	QL	Units	RPD
NSB-D2-3.0-3.5	NSB-D2-3.0-3.5X	CHROMIUM (HEXAVALENT)	0.61	0.62	0.45	mg/kg	1.6
NSB-D2-3.0-3.5	NSB-D2-3.0-3.5X	CHROMIUM (HEXAVALENT)	3.0	2.1	0.45	mg/kg	35.3

PPG GARIS Soils by Method 7196	x - concentration	y - response
SDG#: JB14312		
Batch: GN71347	0	0
Cr+6 ICAL 08/30/12	0.01	0.01
(p. 65 of data pkg)	0.05	0.047
	0.1	0.094
	0.3	0.278
	0.5	0.46
	0.8	0.739
	1	0.906

(p. 65 of data pkg)

AECOM Calculated Intercept	0.0023	OK	Reported intercept	0.0023
AECOM Slope	0.9114	OK	Reported Slope	0.9114
AECOM Calculated r	0.99992	OK	Reported r	0.99992

LCS calculation	**GP66893-B1 pg. 65**			
Background Absorbance	0			
Total absorbance	0.851			
Total absorbance - background	0.851			
Instrument Concentration (mg/L)	0.9312			
Sample weight (Kg)	0.0025			
Final Volume (L)	0.1			
Dilution Factor	1			
AECOM Calculated LCS Result (mg/Kg)	37.2	OK	Reported Result (mg/Kg)	37.2

%R = Found/True*100	**pg. 46**			
True Value (mg/Kg)	40			
AECOM Calculated %R	93.1	OK rounding	Reported %R	93.0

MS calculation	**GP66893-S2 NSB-F5-16.0-16.5 (JB14312-15) pgs. 65**			
Background absorbance reading	0			
Total absorbance	0.348			
Total absorbance - background	0.348			
Instrument Concentration (mg/L)	0.3793			
Sample weight (Kg)	0.00251			
Final Volume (L)	0.1			
Percent solids	0.831			
Dilution Factor	50			
AECOM Calculated MS Result (mg/Kg)	909	OK	Reported Result (mg/Kg)	909

%R = Found/True*100	**NSB-F5-16.0-16.5 (JB14312-15) pgs. 48**			
True Value (mg/Kg)	1000			
Native concentration (mg/Kg)	0.14			
AECOM%R	90.9	OK rounding	Reported %R	90.7

Percent Solids	**NSB-F5-16.0-16.5 (JB14312-15) pgs. 51**			
Empty dish weight (g)	21.26			
Wet weight (g)	28.11			
Dry weight (g)	26.95			
AECOM%solids =	83.1	OK	reported %solids=	83.1

Reporting Limit	**NSB-F5-16.0-16.5 (JB14312-15) pgs. 65, 24**			
Low Standard (mg/L)	0.01			
Initial weight (Kg)	0.00253			
Final volume (L)	0.1			
Percent solids	0.831			
Dilution Factor	1			
Reporting Limit (mg/Kg)	0.48	OK	Reported RL (mg/Kg)=	0.48

Sample Calculations

	NSB-F5-16.0-16.5 (JB14312-15) pgs. 65			
Background absorbance reading	0.004			
Total absorbance	0.009			
Total absorbance - background	0.005			
Instrument Response (mg/L)	0.003			
Sample weight (Kg)	0.00253			
Final Volume (L)	0.1			
Percent solids	0.831			
Dilution Factor	1			
AECOM Calculated Result (mg/Kg)	0.14	OK	Reported Result (mg/Kg)	0.14

PPG GARIS Soils by Method 7196	x - concentration	y - response
SDG#: JB14312R		
Batch: GN71477	0	0
Cr+6 ICAL 09/04/12	0.01	0.009
(p. 125 of data pkg)	0.05	0.046
	0.1	0.092
	0.3	0.273
	0.5	0.466
	0.8	0.73
	1	0.929

(p. 125 of data pkg)

AECOM Calculated Intercept	-0.0007	OK	Reported intercept	-0.0007
AECOM Slope	0.9241	OK	Reported Slope	0.9241
AECOM Calculated r	0.99992	OK	Reported r	0.99992

LCS calculation	**GP66920-B1 pgs. 125, 44**			
Background Absorbance	0			
Total absorbance	0.893			
Total absorbance - background	0.893			
Instrument Concentration (mg/L)	0.9671			
Sample weight (Kg)	0.0025			
Final Volume (L)	0.1			
Dilution Factor	1			
AECOM Calculated LCS Result (mg/Kg)	38.7	OK	Reported Result (mg/Kg)	38.7

%R = Found/True*100	**pg. 44**			
True Value (mg/Kg)	40			
AECOM Calculated %R	96.7	OK rounding	Reported %R	96.8

MS calculation	**GP66920-S2 NSB-F5-16.0-16.5 (JB14312-15R) pgs. 125**			
Background absorbance reading	0			
Total absorbance	0.417			
Total absorbance - background	0.417			
Instrument Concentration (mg/L)	0.4520			
Sample weight (Kg)	0.00254			
Final Volume (L)	0.1			
Percent solids	0.831			
Dilution Factor	50			
AECOM Calculated MS Result (mg/Kg)	1071	OK rounding	Reported Result (mg/Kg)	1070

%R = Found/True*100	**GP66920-S2 NSB-F5-16.0-16.5 (JB14312-15R) pgs. 46**			
True Value (mg/Kg)	1190			
Native concentration (mg/Kg)	0.4			
AECOM%R	89.9	OK	Reported %R	89.9

Percent Solids	**GP66920-S2 NSB-F5-16.0-16.5 (JB14312-15R) pgs. 54**			
Empty dish weight (g)	21.26			
Wet weight (g)	28.11			
Dry weight (g)	26.95			
AECOM%solids =	83.1	OK	reported %solids=	83.1

Reporting Limit	**GP66920-S2 NSB-F5-16.0-16.5 (JB14312-15R) pgs. 125**			
Low Standard (mg/L)	0.01			
Initial weight (Kg)	0.00253			
Final volume (L)	0.1			
Percent solids	0.831			
Dilution Factor	1			
Reporting Limit (mg/Kg)	0.48	OK	Reported RL (mg/Kg)=	0.48

Sample Calculations

	GP66920-S2 NSB-F5-16.0-16.5 (JB14312-15R) pgs. 125, 23			
Background absorbance reading	0.006			
Total absorbance	0.013			
Total absorbance - background	0.007			
Instrument Response (mg/L)	0.008			
Sample weight (Kg)	0.00253			
Final Volume (L)	0.1			
Percent solids	0.831			
Dilution Factor	1			
AECOM Calculated Result (mg/Kg)	0.40	OK	Reported Result (mg/Kg)	0.40

New Jersey ACCUTEST LABORATORIES

09/04/12

Technical Report for

AECOM, INC.

PPG Northern Canal Borings, Jersey City, NJ

60213772.5.A

Accutest Job Number: JB14312

Sampling Date: 08/21/12

Report to:

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

Total number of pages in report: **76**

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.

Paul Ioannidis
Lab 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

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Table of Contents

Sample Summary

AECOM, INC.

Job No: JB14312

PPG Northern Canal Borings, Jersey City, NJ
Project No: 60213772.5.A

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JB14312-1	08/21/12	10:40	LK	08/21/12	SO	Soil	NSB-D1-1.0-1.5
JB14312-2	08/21/12	11:56	LK	08/21/12	SO	Soil	NSB-D1-12.0-12.5
JB14312-3	08/21/12	12:24	LK	08/21/12	SO	Soil	NSB-D1-16.0-16.5
JB14312-4	08/21/12	12:40	LK	08/21/12	SO	Soil	NSB-D1-20.0-20.5
JB14312-5	08/21/12	10:45	LK	08/21/12	SO	Soil	NSB-D1-4.0-4.5
JB14312-6	08/21/12	11:42	LK	08/21/12	SO	Soil	NSB-D1-7.7-8.2
JB14312-7	08/21/12	14:50	LK	08/21/12	SO	Soil	NSB-D2-11.3-11.8
JB14312-8	08/21/12	13:35	LK	08/21/12	SO	Soil	NSB-D2-3.0-3.5
JB14312-9	08/21/12	13:38	LK	08/21/12	SO	Soil	NSB-D2-3.0-3.5X
JB14312-10	08/21/12	14:30	LK	08/21/12	SO	Soil	NSB-D2-6.0-6.5
JB14312-11	08/21/12	14:15	LK	08/21/12	SO	Soil	NSB-D3-3.0-3.5
JB14312-12	08/21/12	15:00	LK	08/21/12	SO	Soil	NSB-D4-1.0-1.5
JB14312-13	08/21/12	09:02	LK	08/21/12	SO	Soil	NSB-F5-20.0-20.5

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

Sample Summary
(continued)

AECOM, INC.

Job No: JB14312

PPG Northern Canal Borings, Jersey City, NJ
Project No: 60213772.5.A

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JB14312-14	08/21/12	15:30	LK	08/21/12	AQ	Equipment Blank	NSB-EB20120822
JB14312-15	08/21/12	08:45	LK	08/21/12	SO	Soil	NSB-F5-16.0-16.5
JB14312-15D	08/21/12	08:45	LK	08/21/12	SO	Soil Dup/MSD	NSB-F5-16.0-16.5
JB14312-15S	08/21/12	08:45	LK	08/21/12	SO	Soil Matrix Spike	NSB-F5-16.0-16.5

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

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: AECOM, INC. **Job No** JB14312

Site: PPG Northern Canal Borings, Jersey City, NJ **Report Date** 9/4/2012 11:08:07 AM

On 08/21/2012, 14 Sample(s), 0 Trip Blank(s) and 1 Equipment Blank(s) were received at Accutest Laboratories at a temperature of 5 C. Samples were intact and chemically preserved, unless noted below. An Accutest Job Number of JB14312 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:** GN71296

- Sample(s) JB14201-13DUP were used as the QC samples for Redox Potential Vs H2.

Wet Chemistry By Method ASTM D1498-76M

Matrix: SO **Batch ID:** GN71316

- Sample(s) JB14312-15DUP were used as the QC samples for Redox Potential Vs H2.
- RPD(s) for Duplicate for Redox Potential Vs H2 are outside control limits for sample GN71316-D1. Outside of in house limits, but within reasonable method recovery limits.

Wet Chemistry By Method SM18 2540G

Matrix: SO **Batch ID:** GN71219

- The data for SM18 2540G meets quality control requirements.

Wet Chemistry By Method SM20 4500H B

Matrix: AQ **Batch ID:** R115339

- The data for SM20 4500H B meets quality control requirements.
- JB14312-14 for pH: Sample received out of holding time for pH analysis.

Wet Chemistry By Method SW846 3060A/7196A

Matrix: SO **Batch ID:** GP66893

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB14312-15DUP, JB14312-15MS 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 (91_%) on this sample.
- RPD(s) for Duplicate for Chromium, Hexavalent are outside control limits for sample GP66893-D1. RPD acceptable due to low duplicate and sample concentrations.
- GP66893-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:	GN70834

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Wet Chemistry By Method SW846 9045C,D

Matrix:	SO	Batch ID:	GN71314

- Sample(s) JB14312-15DUP 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: JB14312
Account: AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Collected: 08/21/12

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JB14312-1	**NSB-D1-1.0-1.5**					
Chromium, Hexavalent		0.18 B	0.44	0.13	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		303			mv	ASTM D1498-76M
pH		7.98			su	SW846 9045C,D
JB14312-2	**NSB-D1-12.0-12.5**					
Chromium, Hexavalent		0.42 B	0.48	0.14	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		128			mv	ASTM D1498-76M
pH		7.47			su	SW846 9045C,D
JB14312-3	**NSB-D1-16.0-16.5**					
Chromium, Hexavalent		0.63	0.49	0.14	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		219			mv	ASTM D1498-76M
pH		8.05			su	SW846 9045C,D
JB14312-4	**NSB-D1-20.0-20.5**					
Chromium, Hexavalent		0.24 B	0.48	0.14	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		225			mv	ASTM D1498-76M
pH		8.21			su	SW846 9045C,D
JB14312-5	**NSB-D1-4.0-4.5**					
Chromium, Hexavalent		1.2	0.48	0.14	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		273			mv	ASTM D1498-76M
pH		7.84			su	SW846 9045C,D
JB14312-6	**NSB-D1-7.7-8.2**					
Chromium, Hexavalent		0.35 B	0.48	0.14	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		182			mv	ASTM D1498-76M
pH		7.17			su	SW846 9045C,D
JB14312-7	**NSB-D2-11.3-11.8**					
Chromium, Hexavalent		0.41 B	0.48	0.14	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		178			mv	ASTM D1498-76M
pH		7.65			su	SW846 9045C,D
JB14312-8	**NSB-D2-3.0-3.5**					
Chromium, Hexavalent		0.61	0.45	0.13	mg/kg	SW846 3060A/7196A

Summary of Hits

Job Number: JB14312
Account: AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Collected: 08/21/12

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Redox Potential Vs H2		577			mv	ASTM D1498-76M
pH		8.85			su	SW846 9045C,D
JB14312-9	**NSB-D2-3.0-3.5X**					
Chromium, Hexavalent		0.62	0.46	0.13	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		287			mv	ASTM D1498-76M
pH		8.70			su	SW846 9045C,D
JB14312-10	**NSB-D2-6.0-6.5**					
Redox Potential Vs H2		300			mv	ASTM D1498-76M
pH		7.86			su	SW846 9045C,D
JB14312-11	**NSB-D3-3.0-3.5**					
Chromium, Hexavalent		12.9	0.47	0.14	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		305			mv	ASTM D1498-76M
pH		8.26			su	SW846 9045C,D
JB14312-12	**NSB-D4-1.0-1.5**					
Chromium, Hexavalent		0.56	0.44	0.13	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		294			mv	ASTM D1498-76M
pH		8.28			su	SW846 9045C,D
JB14312-13	**NSB-F5-20.0-20.5**					
Chromium, Hexavalent		0.24 B	0.48	0.14	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		297			mv	ASTM D1498-76M
pH		8.32			su	SW846 9045C,D
JB14312-14	**NSB-EB20120822**					
Redox Potential Vs H2		354			mv	ASTM D1498-76
pH [a]		7.43			su	SM20 4500H B
JB14312-15	**NSB-F5-16.0-16.5**					
Chromium, Hexavalent		0.14 B	0.48	0.14	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		248			mv	ASTM D1498-76M
pH		7.48			su	SW846 9045C,D

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

New Jersey ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID: NSB-D1-1.0-1.5
Lab Sample ID: JB14312-1
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/21/12
Date Received: 08/21/12
Percent Solids: 90.0

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.18 B	0.44	0.13	mg/kg	1	08/30/12 19:01	MM	SW846 3060A/7196A
Redox Potential Vs H2	303			mv	1	08/30/12	SA	ASTM D1498-76M
Solids, Percent	90			%	1	08/29/12 11:45	RO	SM18 2540G
pH	7.98			su	1	08/30/12 13:10	SA	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: NSB-D1-12.0-12.5
Lab Sample ID: JB14312-2
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/21/12
Date Received: 08/21/12
Percent Solids: 82.7

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.42 B	0.48	0.14	mg/kg	1	08/30/12 19:01	MM	SW846 3060A/7196A
Redox Potential Vs H2	128			mv	1	08/30/12	SA	ASTM D1498-76M
Solids, Percent	82.7			%	1	08/29/12 11:45	RO	SM18 2540G
pH	7.47			su	1	08/30/12 13:10	SA	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: NSB-D1-16.0-16.5
Lab Sample ID: JB14312-3
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/21/12
Date Received: 08/21/12
Percent Solids: 82.2

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.63	0.49	0.14	mg/kg	1	08/30/12 19:01	MM	SW846 3060A/7196A
Redox Potential Vs H2	219			mv	1	08/30/12	SA	ASTM D1498-76M
Solids, Percent	82.2			%	1	08/29/12 11:45	RO	SM18 2540G
pH	8.05			su	1	08/30/12 13:10	SA	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:	NSB-D1-20.0-20.5		
Lab Sample ID:	JB14312-4	**Date Sampled:**	08/21/12
Matrix:	SO - Soil	**Date Received:**	08/21/12
		Percent Solids:	83.9
Project:	PPG Northern Canal Borings, Jersey City, NJ		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.24 B	0.48	0.14	mg/kg	1	08/30/12 19:01	MM	SW846 3060A/7196A
Redox Potential Vs H2	225			mv	1	08/30/12	SA	ASTM D1498-76M
Solids, Percent	83.9			%	1	08/29/12 11:45	RO	SM18 2540G
pH	8.21			su	1	08/30/12 13:10	SA	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: NSB-D1-4.0-4.5
Lab Sample ID: JB14312-5
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/21/12
Date Received: 08/21/12
Percent Solids: 83.1

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	1.2	0.48	0.14	mg/kg	1	08/30/12 19:01	MM	SW846 3060A/7196A
Redox Potential Vs H2	273			mv	1	08/30/12	SA	ASTM D1498-76M
Solids, Percent	83.1			%	1	08/29/12 11:45	RO	SM18 2540G
pH	7.84			su	1	08/30/12 13:10	SA	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: NSB-D1-7.7-8.2
Lab Sample ID: JB14312-6
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/21/12
Date Received: 08/21/12
Percent Solids: 83.4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.35 B	0.48	0.14	mg/kg	1	08/30/12 19:01	MM	SW846 3060A/7196A
Redox Potential Vs H2	182			mv	1	08/30/12	SA	ASTM D1498-76M
Solids, Percent	83.4			%	1	08/29/12 11:45	RO	SM18 2540G
pH	7.17			su	1	08/30/12 13:10	SA	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: NSB-D2-11.3-11.8
Lab Sample ID: JB14312-7
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/21/12
Date Received: 08/21/12
Percent Solids: 82.7

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.41 B	0.48	0.14	mg/kg	1	08/30/12 19:01	MM	SW846 3060A/7196A
Redox Potential Vs H2	178			mv	1	08/30/12	SA	ASTM D1498-76M
Solids, Percent	82.7			%	1	08/29/12 11:45	RO	SM18 2540G
pH	7.65			su	1	08/30/12 13:10	SA	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: NSB-D2-3.0-3.5
Lab Sample ID: JB14312-8
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/21/12
Date Received: 08/21/12
Percent Solids: 89.1

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.61	0.45	0.13	mg/kg	1	08/30/12 19:01	MM	SW846 3060A/7196A
Redox Potential Vs H2	577			mv	1	08/30/12	SA	ASTM D1498-76M
Solids, Percent	89.1			%	1	08/29/12 11:45	RO	SM18 2540G
pH	8.85			su	1	08/30/12 13:10	SA	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: NSB-D2-3.0-3.5X
Lab Sample ID: JB14312-9
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/21/12
Date Received: 08/21/12
Percent Solids: 87.6

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.62	0.46	0.13	mg/kg	1	08/30/12 19:01	MM	SW846 3060A/7196A
Redox Potential Vs H2	287			mv	1	08/30/12	SA	ASTM D1498-76M
Solids, Percent	87.6			%	1	08/29/12 11:45	RO	SM18 2540G
pH	8.70			su	1	08/30/12 13:10	SA	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: NSB-D2-6.0-6.5
Lab Sample ID: JB14312-10
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/21/12
Date Received: 08/21/12
Percent Solids: 60.5

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.19 U	0.66	0.19	mg/kg	1	08/30/12 19:01	MM	SW846 3060A/7196A
Redox Potential Vs H2	300			mv	1	08/30/12	SA	ASTM D1498-76M
Solids, Percent	60.5			%	1	08/29/12 11:45	RO	SM18 2540G
pH	7.86			su	1	08/30/12 13:10	SA	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: NSB-D3-3.0-3.5
Lab Sample ID: JB14312-11
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/21/12
Date Received: 08/21/12
Percent Solids: 84.3

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	12.9	0.47	0.14	mg/kg	1	08/30/12 19:04	MM	SW846 3060A/7196A
Redox Potential Vs H2	305			mv	1	08/30/12	SA	ASTM D1498-76M
Solids, Percent	84.3			%	1	08/29/12 11:45	RO	SM18 2540G
pH	8.26			su	1	08/30/12 13:10	SA	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: NSB-D4-1.0-1.5
Lab Sample ID: JB14312-12
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/21/12
Date Received: 08/21/12
Percent Solids: 90.1

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.56	0.44	0.13	mg/kg	1	08/30/12 19:04	MM	SW846 3060A/7196A
Redox Potential Vs H2	294			mv	1	08/30/12	SA	ASTM D1498-76M
Solids, Percent	90.1			%	1	08/29/12 11:45	RO	SM18 2540G
pH	8.28			su	1	08/30/12 13:10	SA	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: NSB-F5-20.0-20.5
Lab Sample ID: JB14312-13
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/21/12
Date Received: 08/21/12
Percent Solids: 83.8

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.24 B	0.48	0.14	mg/kg	1	08/30/12 19:04	MM	SW846 3060A/7196A
Redox Potential Vs H2	297			mv	1	08/30/12	SA	ASTM D1498-76M
Solids, Percent	83.8			%	1	08/29/12 11:45	RO	SM18 2540G
pH	8.32			su	1	08/30/12 13:10	SA	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:	NSB-EB20120822		
Lab Sample ID:	JB14312-14	**Date Sampled:**	08/21/12
Matrix:	AQ - Equipment Blank	**Date Received:**	08/21/12
		Percent Solids:	n/a
Project:	PPG Northern Canal Borings, Jersey City, NJ		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.0014 U	0.010	0.0014	mg/l	1	08/21/12 23:14	MM	SW846 7196A
Redox Potential Vs H2	354			mv	1	08/30/12	SA	ASTM D1498-76
pH [a]	7.43			su	1	08/21/12 22:05	AS	SM20 4500H B

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

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID: NSB-F5-16.0-16.5
Lab Sample ID: JB14312-15
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/21/12
Date Received: 08/21/12
Percent Solids: 83.1

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.14 B	0.48	0.14	mg/kg	1	08/30/12 17:25	MM	SW846 3060A/7196A
Redox Potential Vs H2	248			mv	1	08/30/12	SA	ASTM D1498-76M
Solids, Percent	83.1			%	1	08/29/12 11:45	RO	SM18 2540G
pH	7.48			su	1	08/30/12 13:10	SA	SW846 9045C,D

RL = Reporting Limit
MDL = Method Detection Limit

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

New Jersey ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

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

AECOM

CHAIN-OF-CUSTODY / Analytical Request Document

2012-08-21_RI_ACCUTEST_COC

Page: 1 of 2

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

Lab Information:

Lab:	ACCUTEST
Address:	2235 Route 130 , Dayton NJ 08810
Lab PM:	Matt Cordova
Phone/Fax:	732-329-0200/
PM email:	

Project Information:

Site ID #:	PPG Garfield Ave
Project #:	60213772.5.A
Site Address:	70 Carteret Avenue
City	Jersey City
State, Zip	NJ 07304
PM Name:	Chris Martell
Phone/Fax:	732-564-3633
PM Email:	Christopher.Martell@aecom.com

Other Information:

Send Invoice to:	Lisa Krowitz
Address:	250 Apollo Drive
City/State.	Chelmsford, MA 01824
Phone #:	978-905-2278
PO #:	40256ACM
Send EDD to:	NJLABDATA@aecom.com
CC Hardcopy to	Erin Farrell, AECOM, Piscataway, NJ

Task:	GARIS- Northern Canal Borings
Total # of Samples:	15
TAT	see Spec. Instructions
	Rush

Notes: F= Field Filtered , H= Hold

Lab Notes: JB14312

Preservative

Analysis

ITEM #	Field Sample No. /Identification	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comment	GARA-HEXCHROM	GARA-PH-ORP						
1	NSB-D1-1-1.5 -1	SO	G	08/21/2012 10:40	1		X	X						
2	NSB-D1-12-12.5 -2	SO	G	08/21/2012 11:56	1		X	X				WC	FLR	
3	NSB-D1-16-16.5 -3	SO	G	08/21/2012 12:24	1		X	X				ME	38	
4	NSB-D1-20-20.5 -4	SO	G	08/21/2012 12:40	1		X	X				WC	28	
5	NSB-D1-4-4.5 -5	SO	G	08/21/2012 10:45	1		X	X						
6	NSB-D1-7.7-8.2 -6	SO	G	08/21/2012 11:42	1		X	X						
7	NSB-D2-11.3-11.8 -7	SO	G	08/21/2012 14:50	1		X	X						
8	NSB-D2-3-3.5 -8	SO	G	08/21/2012 13:35	1		X	X						
9	NSB-D2-3-3.5X -9	SO	G	08/21/2012 13:38	1		X	X						
10	NSB-D2-6-6.5 -10	SO	G	08/21/2012 14:30	1		X	X						
11	NSB-D3-3-3.5 -11	SO	G	08/21/2012 14:15	1		X	X						

Additional Comments/Special Instructions:

Standard TAT

ALL SAMPLES RECEIVED PRESERVED AS APPLICABLE

5.0C

1A

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
[illegible] AECOM	8/21/12	1825	[illegible]	8-21-12	1245
				8-21-12	1825

Sample Receipt Conditions

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

Shipper:		DATE/TIME:	
Tracking #:		Custody Seal(s):	

JB14312: Chain of Custody

Page 1 of 8

AECOM

CHAIN-OF-CUSTODY / Analytical Request Document

2012-08-21_RI_ACCUTEST_COC

Page: 2 of 2

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

Lab Information:

Lab:	ACCUTEST
Address:	2235 Route 130 , Dayton NJ 08810
Lab PM:	Matt Cordova
Phone/Fax:	732-329-0200/
PM email:	

Project Information:

Site ID #:	PPG Garfield Ave
Project #:	60213772.5.A
Site Address:	70 Carteret Avenue
City	Jersey City
State, Zip	NJ 07304
PM Name:	Chris Martell
Phone/Fax:	732-564-3633
PM Email:	Christopher.Martell@aecom.com

Other Information:

Send Invoice to:	Lisa Krowitz
Address:	250 Apollo Drive
City/State.	Chelmsford, MA 01824
Phone #:	978-905-2278
PO #:	40256ACM
Send EDD to:	NJLABDATA@aecom.com
CC Hardcopy to	Erin Farrell, AECOM, Piscataway, NJ

Task:	GARIS- Northern Canal Borings
Total # of Samples:	15
TAT	see Spec. Instructions
Rush	
Notes:	F= Field Filtered , H= Hold

Lab Notes: JB14312

Preservative / Analysis

ITEM #	Field Sample No. /Identification	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comment	GARA-HEXCHROM	GARA-PH-ORP
12	NSB-D4-1-1.5 -12	SO	G	08/21/2012 15:00	1		X	X
13	NSB-F5-20-20.5 -13	SO	G	08/21/2012 09:02	1		X	X
14	EB082112 ★ -14	WQ	G	08/21/2012 15:30	2	Preserved: None	X	X
15	NSB-F5-16-16.5 -15	SO	G	08/21/2012 08:45	3	2 Jars for MS/MSD	X	X

Additional Comments/Special Instructions:

Standard TAT

★ pH = 7.43 Ⓐ 8/21/12

5.0w

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Hunting by AECOM	8/21/12			8-21-12	
	8-21-12	1815			1645

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

Shipper:		DATE/TIME:	
Tracking #:		Custody Seal(s):	

Temp in 0C | Samples on Ice? | Sample Intact? | Trip Blank?

JB14312: Chain of Custody

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Accutest Laboratories Sample Receipt Summary

Accutest Job Number: JB14312 **Client:** **Project:**

Date / Time Received: 8/21/2012 **Delivery Method:** **Airbill #'s:**

Cooler Temps (Initial/Adjusted): #1: (5/5); 0

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

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

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

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

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

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

Comments

Accutest Laboratories
V:732.329.0200

2235 US Highway 130
F: 732.329.3499

Dayton, New Jersey
www/accutest.com

JB14312: Chain of Custody
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Job Change Order: JB14312_8/22/2012

Requested Date:	8/22/2012	**Received Date:**	8/21/2012
Account Name:	AECOM, INC.	**Due Date:**	9/4/2012
Project	PPG Northern Canal Borings 70 Caven Point	**Deliverable:**	FULT1
CSR:	MJ	**TAT (Days):**	14

Sample #: JB14312-1
NSB-D1-1-1.5
Change: Revise ID to NSB-D1-1.0-1.5

Sample #: JB14312-2
NSB-D1-12-12.5
Change: Revise ID to NSB-D1-12.0-12.5

Sample #: JB14312-3
NSB-D1-16-16.5
Change: Revise ID to NSB-D1-16.0-16.5

Sample #: JB14312-4
NSB-D1-20-20.5
Change: Revise ID to NSB-D1-20.0-20.5

Above Changes Per: Lisa Krowitz **Date:** 8/22/2012

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

JB14312: Chain of Custody
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Job Change Order: JB14312_8/22/2012

Requested Date:	8/22/2012	**Received Date:**	8/21/2012
Account Name:	AECOM, INC.	**Due Date:**	9/4/2012
Project	PPG Northern Canal Borings 70 Caven Point	**Deliverable:**	FULT1
CSR:	MJ	**TAT (Days):**	14

Sample #: JB14312-5 **Change:** Revise ID to NSB-D1-4.0-4.5

NSB-D1-4-4.5

Sample #: JB14312-8 **Change:** Revise ID to NSB-D2-3.0-3.5

NSB-D2-3-3.5

Sample #: JB14312-9 **Change:** Revise ID to NSB-D2-3.0-3.5X

NSB-D2-3-3.5X

Sample #: JB14312-10 **Change:** Revise ID to NSB-D2-6.0-6.5

NSB-D2-6-6.5

Above Changes Per: Lisa Krowitz **Date:** 8/22/2012

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

Job Change Order: JB14312_8/22/2012

Requested Date:	8/22/2012	**Received Date:**	8/21/2012
Account Name:	AECOM, INC.	**Due Date:**	9/4/2012
Project	PPG Northern Canal Borings 70 Caven Point	**Deliverable:**	FULT1
CSR:	MJ	**TAT (Days):**	14

Sample #: JB14312-11
NSB-D3-3.5
Change: Revise ID to NSB-D3-3.0-3.5

Sample #: JB14312-12
NSB-D4-1.5
Change: Revise ID to NSB-D4-1.0-1.5

Sample #: JB14312-13
NSB-F5-20.5
Change: Revise ID to NSB-F5-20.0-20.5

Sample #: JB14312-14
EB082112
Change: Revise ID to NSB-EB20120822

Above Changes Per: Lisa Krowitz **Date:** 8/22/2012

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

JB14312: Chain of Custody
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Job Change Order: JB14312_8/22/2012

Requested Date:	8/22/2012	**Received Date:**	8/21/2012
Account Name:	AECOM, INC.	**Due Date:**	9/4/2012
Project	PPG Northern Canal Borings 70 Caven Point	**Deliverable:**	FULT1
CSR:	MJ	**TAT (Days):**	14

Sample #: JB14312-15, -15D, 15S

Change: Revise ID to NSB-F5-16.0-16.5

Above Changes Per: Lisa Krowitz **Date:** 8/22/2012

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

JB14312: Chain of Custody
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Job Change Order: JB14312_8/31/2012

Requested Date:	8/31/2012	**Received Date:**	8/21/2012
Account Name:	AECOM, INC.	**Due Date:**	9/4/2012
Project	PPG Northern Canal Borings, Jersey City, NJ	**Deliverable:**	FULT1
CSR:	MC	**TAT (Days):**	2

Sample #: JB14312-15 **Change:** Due to XCR spike recovery log in FE2/7,TOCLK,SULFS,

NSB-F5-16.0-16.5

Sample #: JB14312-1 thru 13, 15 **Change: log in XXCRAR**

Above Changes Per: **Date:** 8/31/2012

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

JB14312: Chain of Custody
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Internal Sample Tracking Chronicle

AECOM, INC.

Job No: JB14312

PPG Northern Canal Borings, Jersey City, NJ
Project No: 60213772.5.A

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB14312-1 Collected: 21-AUG-12 10:40 By: LK Received: 21-AUG-12 By: AS NSB-D1-1.0-1.5						
JB14312-1	SM18 2540G	29-AUG-12 11:45	RO			SOL104
JB14312-1	ASTM D1498-76M	30-AUG-12	SA			EH
JB14312-1	SW846 9045C,D	30-AUG-12 13:10	SA			PH
JB14312-1	SW846 3060A/7196A	30-AUG-12 19:01	MM	30-AUG-12	MP	XCRA
JB14312-2 Collected: 21-AUG-12 11:56 By: LK Received: 21-AUG-12 By: AS NSB-D1-12.0-12.5						
JB14312-2	SM18 2540G	29-AUG-12 11:45	RO			SOL104
JB14312-2	ASTM D1498-76M	30-AUG-12	SA			EH
JB14312-2	SW846 9045C,D	30-AUG-12 13:10	SA			PH
JB14312-2	SW846 3060A/7196A	30-AUG-12 19:01	MM	30-AUG-12	MP	XCRA
JB14312-3 Collected: 21-AUG-12 12:24 By: LK Received: 21-AUG-12 By: AS NSB-D1-16.0-16.5						
JB14312-3	SM18 2540G	29-AUG-12 11:45	RO			SOL104
JB14312-3	ASTM D1498-76M	30-AUG-12	SA			EH
JB14312-3	SW846 9045C,D	30-AUG-12 13:10	SA			PH
JB14312-3	SW846 3060A/7196A	30-AUG-12 19:01	MM	30-AUG-12	MP	XCRA
JB14312-4 Collected: 21-AUG-12 12:40 By: LK Received: 21-AUG-12 By: AS NSB-D1-20.0-20.5						
JB14312-4	SM18 2540G	29-AUG-12 11:45	RO			SOL104
JB14312-4	ASTM D1498-76M	30-AUG-12	SA			EH
JB14312-4	SW846 9045C,D	30-AUG-12 13:10	SA			PH
JB14312-4	SW846 3060A/7196A	30-AUG-12 19:01	MM	30-AUG-12	MP	XCRA
JB14312-5 Collected: 21-AUG-12 10:45 By: LK Received: 21-AUG-12 By: AS NSB-D1-4.0-4.5						
JB14312-5	SM18 2540G	29-AUG-12 11:45	RO			SOL104
JB14312-5	ASTM D1498-76M	30-AUG-12	SA			EH
JB14312-5	SW846 9045C,D	30-AUG-12 13:10	SA			PH
JB14312-5	SW846 3060A/7196A	30-AUG-12 19:01	MM	30-AUG-12	MP	XCRA

Internal Sample Tracking Chronicle

AECOM, INC.

Job No: JB14312

PPG Northern Canal Borings, Jersey City, NJ
Project No: 60213772.5.A

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB14312-6	Collected: 21-AUG-12 11:42 By: LK		Received: 21-AUG-12 By: AS			
NSB-D1-7.7-8.2						
JB14312-6	SM18 2540G	29-AUG-12 11:45	RO			SOL104
JB14312-6	ASTM D1498-76M	30-AUG-12	SA			EH
JB14312-6	SW846 9045C,D	30-AUG-12 13:10	SA			PH
JB14312-6	SW846 3060A/7196A	30-AUG-12 19:01	MM	30-AUG-12	MP	XCRA
JB14312-7	Collected: 21-AUG-12 14:50 By: LK		Received: 21-AUG-12 By: AS			
NSB-D2-11.3-11.8						
JB14312-7	SM18 2540G	29-AUG-12 11:45	RO			SOL104
JB14312-7	ASTM D1498-76M	30-AUG-12	SA			EH
JB14312-7	SW846 9045C,D	30-AUG-12 13:10	SA			PH
JB14312-7	SW846 3060A/7196A	30-AUG-12 19:01	MM	30-AUG-12	MP	XCRA
JB14312-8	Collected: 21-AUG-12 13:35 By: LK		Received: 21-AUG-12 By: AS			
NSB-D2-3.0-3.5						
JB14312-8	SM18 2540G	29-AUG-12 11:45	RO			SOL104
JB14312-8	ASTM D1498-76M	30-AUG-12	SA			EH
JB14312-8	SW846 9045C,D	30-AUG-12 13:10	SA			PH
JB14312-8	SW846 3060A/7196A	30-AUG-12 19:01	MM	30-AUG-12	MP	XCRA
JB14312-9	Collected: 21-AUG-12 13:38 By: LK		Received: 21-AUG-12 By: AS			
NSB-D2-3.0-3.5X						
JB14312-9	SM18 2540G	29-AUG-12 11:45	RO			SOL104
JB14312-9	ASTM D1498-76M	30-AUG-12	SA			EH
JB14312-9	SW846 9045C,D	30-AUG-12 13:10	SA			PH
JB14312-9	SW846 3060A/7196A	30-AUG-12 19:01	MM	30-AUG-12	MP	XCRA
JB14312-10	Collected: 21-AUG-12 14:30 By: LK		Received: 21-AUG-12 By: AS			
NSB-D2-6.0-6.5						
JB14312-10	SM18 2540G	29-AUG-12 11:45	RO			SOL104
JB14312-10	ASTM D1498-76M	30-AUG-12	SA			EH
JB14312-10	SW846 9045C,D	30-AUG-12 13:10	SA			PH
JB14312-10	SW846 3060A/7196A	30-AUG-12 19:01	MM	30-AUG-12	MP	XCRA

Internal Sample Tracking Chronicle

AECOM, INC.

Job No: JB14312

PPG Northern Canal Borings, Jersey City, NJ
Project No: 60213772.5.A

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB14312-11 Collected: 21-AUG-12 14:15 By: LK Received: 21-AUG-12 By: AS NSB-D3-3.0-3.5						
JB14312-11	SM18 2540G	29-AUG-12 11:45	RO			SOL104
JB14312-11	ASTM D1498-76M	30-AUG-12	SA			EH
JB14312-11	SW846 9045C,D	30-AUG-12 13:10	SA			PH
JB14312-11	SW846 3060A/7196A	30-AUG-12 19:04	MM	30-AUG-12	MP	XCRA
JB14312-12 Collected: 21-AUG-12 15:00 By: LK Received: 21-AUG-12 By: AS NSB-D4-1.0-1.5						
JB14312-12	SM18 2540G	29-AUG-12 11:45	RO			SOL104
JB14312-12	ASTM D1498-76M	30-AUG-12	SA			EH
JB14312-12	SW846 9045C,D	30-AUG-12 13:10	SA			PH
JB14312-12	SW846 3060A/7196A	30-AUG-12 19:04	MM	30-AUG-12	MP	XCRA
JB14312-13 Collected: 21-AUG-12 09:02 By: LK Received: 21-AUG-12 By: AS NSB-F5-20.0-20.5						
JB14312-13	SM18 2540G	29-AUG-12 11:45	RO			SOL104
JB14312-13	ASTM D1498-76M	30-AUG-12	SA			EH
JB14312-13	SW846 9045C,D	30-AUG-12 13:10	SA			PH
JB14312-13	SW846 3060A/7196A	30-AUG-12 19:04	MM	30-AUG-12	MP	XCRA
JB14312-14 Collected: 21-AUG-12 15:30 By: LK Received: 21-AUG-12 By: AS NSB-EB20120822						
JB14312-14	SM20 4500H B	21-AUG-12 22:05	AS			PH
JB14312-14	SW846 7196A	21-AUG-12 23:14	MM			XCR
JB14312-14	ASTM D1498-76	30-AUG-12	SA			EH
JB14312-15 Collected: 21-AUG-12 08:45 By: LK Received: 21-AUG-12 By: AS NSB-F5-16.0-16.5						
JB14312-15	SM18 2540G	29-AUG-12 11:45	RO			SOL104
JB14312-15	ASTM D1498-76M	30-AUG-12	SA			EH
JB14312-15	SW846 9045C,D	30-AUG-12 13:10	SA			PH
JB14312-15	SW846 3060A/7196A	30-AUG-12 17:25	MM	30-AUG-12	MP	XCRA

Accutest Internal Chain of Custody

Job Number: JB14312
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Received: 08/21/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB14312-1.1	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14312-1.1	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14312-1.1	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14312-1.1	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage
JB14312-1.1	Secured Storage	Todd Shoemaker	08/29/12 08:27	Retrieve from Storage
JB14312-1.1	Todd Shoemaker	Secured Staging Area	08/29/12 08:27	Return to Storage
JB14312-1.1	Secured Staging Area	Robert OConnor	08/29/12 08:57	Retrieve from Storage
JB14312-1.1	Robert OConnor	Secured Storage	08/29/12 11:19	Return to Storage
JB14312-1.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14312-1.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14312-1.1	Sanjay Advani	Secured Storage	08/29/12 17:01	Return to Storage
JB14312-1.1	Secured Storage	Adam Scott	08/30/12 06:59	Retrieve from Storage
JB14312-1.1	Adam Scott	Secured Staging Area	08/30/12 07:00	Return to Storage
JB14312-1.1	Secured Staging Area	Mayur Patel	08/30/12 08:10	Retrieve from Storage
JB14312-1.1	Mayur Patel	Secured Storage	08/30/12 11:42	Return to Storage
JB14312-1.1	Secured Storage	Adam Scott	08/31/12 14:48	Retrieve from Storage
JB14312-1.1	Adam Scott	Secured Staging Area	08/31/12 14:49	Return to Storage
JB14312-1.1	Secured Staging Area	Ye Chen	08/31/12 16:17	Retrieve from Storage
JB14312-1.1	Ye Chen	Secured Storage	08/31/12 19:40	Return to Storage
JB14312-2.1	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14312-2.1	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14312-2.1	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14312-2.1	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage
JB14312-2.1	Secured Storage	Todd Shoemaker	08/29/12 08:27	Retrieve from Storage
JB14312-2.1	Todd Shoemaker	Secured Staging Area	08/29/12 08:27	Return to Storage
JB14312-2.1	Secured Staging Area	Robert OConnor	08/29/12 08:57	Retrieve from Storage
JB14312-2.1	Robert OConnor	Secured Storage	08/29/12 11:19	Return to Storage
JB14312-2.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14312-2.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14312-2.1	Sanjay Advani	Secured Storage	08/29/12 17:01	Return to Storage
JB14312-2.1	Secured Storage	Adam Scott	08/30/12 06:59	Retrieve from Storage
JB14312-2.1	Adam Scott	Secured Staging Area	08/30/12 07:00	Return to Storage
JB14312-2.1	Secured Staging Area	Mayur Patel	08/30/12 08:10	Retrieve from Storage
JB14312-2.1	Mayur Patel	Secured Storage	08/30/12 11:42	Return to Storage
JB14312-2.1	Secured Storage	Adam Scott	08/31/12 14:48	Retrieve from Storage
JB14312-2.1	Adam Scott	Secured Staging Area	08/31/12 14:49	Return to Storage
JB14312-2.1	Secured Staging Area	Ye Chen	08/31/12 16:17	Retrieve from Storage
JB14312-2.1	Ye Chen	Secured Storage	08/31/12 19:40	Return to Storage
JB14312-3.1	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14312-3.1	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14312-3.1	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14312-3.1	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB14312
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Received: 08/21/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB14312-3.1	Secured Storage	Todd Shoemaker	08/29/12 08:27	Retrieve from Storage
JB14312-3.1	Todd Shoemaker	Secured Staging Area	08/29/12 08:27	Return to Storage
JB14312-3.1	Secured Staging Area	Robert OConnor	08/29/12 08:57	Retrieve from Storage
JB14312-3.1	Robert OConnor	Secured Storage	08/29/12 11:19	Return to Storage
JB14312-3.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14312-3.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14312-3.1	Sanjay Advani	Secured Storage	08/29/12 17:01	Return to Storage
JB14312-3.1	Secured Storage	Adam Scott	08/30/12 06:59	Retrieve from Storage
JB14312-3.1	Adam Scott	Secured Staging Area	08/30/12 07:00	Return to Storage
JB14312-3.1	Secured Staging Area	Mayur Patel	08/30/12 08:10	Retrieve from Storage
JB14312-3.1	Mayur Patel	Secured Storage	08/30/12 11:42	Return to Storage
JB14312-3.1	Secured Storage	Adam Scott	08/31/12 14:48	Retrieve from Storage
JB14312-3.1	Adam Scott	Secured Staging Area	08/31/12 14:49	Return to Storage
JB14312-3.1	Secured Staging Area	Ye Chen	08/31/12 16:17	Retrieve from Storage
JB14312-3.1	Ye Chen	Secured Storage	08/31/12 19:40	Return to Storage
JB14312-4.1	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14312-4.1	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14312-4.1	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14312-4.1	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage
JB14312-4.1	Secured Storage	Todd Shoemaker	08/29/12 08:27	Retrieve from Storage
JB14312-4.1	Todd Shoemaker	Secured Staging Area	08/29/12 08:27	Return to Storage
JB14312-4.1	Secured Staging Area	Robert OConnor	08/29/12 08:57	Retrieve from Storage
JB14312-4.1	Robert OConnor	Secured Storage	08/29/12 11:19	Return to Storage
JB14312-4.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14312-4.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14312-4.1	Sanjay Advani	Secured Storage	08/29/12 17:01	Return to Storage
JB14312-4.1	Secured Storage	Adam Scott	08/30/12 06:59	Retrieve from Storage
JB14312-4.1	Adam Scott	Secured Staging Area	08/30/12 07:00	Return to Storage
JB14312-4.1	Secured Staging Area	Mayur Patel	08/30/12 08:10	Retrieve from Storage
JB14312-4.1	Mayur Patel	Secured Storage	08/30/12 11:42	Return to Storage
JB14312-4.1	Secured Storage	Adam Scott	08/31/12 14:48	Retrieve from Storage
JB14312-4.1	Adam Scott	Secured Staging Area	08/31/12 14:49	Return to Storage
JB14312-4.1	Secured Staging Area	Ye Chen	08/31/12 16:17	Retrieve from Storage
JB14312-4.1	Ye Chen	Secured Storage	08/31/12 19:40	Return to Storage
JB14312-5.1	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14312-5.1	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14312-5.1	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14312-5.1	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage
JB14312-5.1	Secured Storage	Todd Shoemaker	08/29/12 08:27	Retrieve from Storage
JB14312-5.1	Todd Shoemaker	Secured Staging Area	08/29/12 08:27	Return to Storage
JB14312-5.1	Secured Staging Area	Robert OConnor	08/29/12 08:57	Retrieve from Storage
JB14312-5.1	Robert OConnor	Secured Storage	08/29/12 11:19	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB14312
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Received: 08/21/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB14312-5.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14312-5.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14312-5.1	Sanjay Advani	Secured Storage	08/29/12 17:01	Return to Storage
JB14312-5.1	Secured Storage	Adam Scott	08/30/12 06:59	Retrieve from Storage
JB14312-5.1	Adam Scott	Secured Staging Area	08/30/12 07:00	Return to Storage
JB14312-5.1	Secured Staging Area	Mayur Patel	08/30/12 08:10	Retrieve from Storage
JB14312-5.1	Mayur Patel	Secured Storage	08/30/12 11:42	Return to Storage
JB14312-5.1	Secured Storage	Adam Scott	08/31/12 14:48	Retrieve from Storage
JB14312-5.1	Adam Scott	Secured Staging Area	08/31/12 14:49	Return to Storage
JB14312-5.1	Secured Staging Area	Ye Chen	08/31/12 16:17	Retrieve from Storage
JB14312-5.1	Ye Chen	Secured Storage	08/31/12 19:40	Return to Storage
JB14312-6.1	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14312-6.1	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14312-6.1	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14312-6.1	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage
JB14312-6.1	Secured Storage	Todd Shoemaker	08/29/12 08:27	Retrieve from Storage
JB14312-6.1	Todd Shoemaker	Secured Staging Area	08/29/12 08:27	Return to Storage
JB14312-6.1	Secured Staging Area	Robert OConnor	08/29/12 08:57	Retrieve from Storage
JB14312-6.1	Robert OConnor	Secured Storage	08/29/12 11:19	Return to Storage
JB14312-6.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14312-6.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14312-6.1	Sanjay Advani	Secured Storage	08/29/12 17:01	Return to Storage
JB14312-6.1	Secured Storage	Adam Scott	08/30/12 06:59	Retrieve from Storage
JB14312-6.1	Adam Scott	Secured Staging Area	08/30/12 07:00	Return to Storage
JB14312-6.1	Secured Staging Area	Mayur Patel	08/30/12 08:10	Retrieve from Storage
JB14312-6.1	Mayur Patel	Secured Storage	08/30/12 11:42	Return to Storage
JB14312-6.1	Secured Storage	Adam Scott	08/31/12 14:48	Retrieve from Storage
JB14312-6.1	Adam Scott	Secured Staging Area	08/31/12 14:49	Return to Storage
JB14312-6.1	Secured Staging Area	Ye Chen	08/31/12 16:17	Retrieve from Storage
JB14312-6.1	Ye Chen	Secured Storage	08/31/12 19:40	Return to Storage
JB14312-7.1	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14312-7.1	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14312-7.1	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14312-7.1	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage
JB14312-7.1	Secured Storage	Todd Shoemaker	08/29/12 08:27	Retrieve from Storage
JB14312-7.1	Todd Shoemaker	Secured Staging Area	08/29/12 08:27	Return to Storage
JB14312-7.1	Secured Staging Area	Robert OConnor	08/29/12 08:57	Retrieve from Storage
JB14312-7.1	Robert OConnor	Secured Storage	08/29/12 11:19	Return to Storage
JB14312-7.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14312-7.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14312-7.1	Sanjay Advani	Secured Storage	08/29/12 17:01	Return to Storage
JB14312-7.1	Secured Storage	Adam Scott	08/30/12 06:59	Retrieve from Storage

Accutest Internal Chain of Custody

Job Number: JB14312
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Received: 08/21/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB14312-7.1	Adam Scott	Secured Staging Area	08/30/12 07:00	Return to Storage
JB14312-7.1	Secured Staging Area	Mayur Patel	08/30/12 08:10	Retrieve from Storage
JB14312-7.1	Mayur Patel	Secured Storage	08/30/12 11:42	Return to Storage
JB14312-7.1	Secured Storage	Adam Scott	08/31/12 14:48	Retrieve from Storage
JB14312-7.1	Adam Scott	Secured Staging Area	08/31/12 14:49	Return to Storage
JB14312-7.1	Secured Staging Area	Ye Chen	08/31/12 16:17	Retrieve from Storage
JB14312-7.1	Ye Chen	Secured Storage	08/31/12 19:40	Return to Storage
JB14312-8.1	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14312-8.1	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14312-8.1	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14312-8.1	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage
JB14312-8.1	Secured Storage	Todd Shoemaker	08/29/12 08:27	Retrieve from Storage
JB14312-8.1	Todd Shoemaker	Secured Staging Area	08/29/12 08:27	Return to Storage
JB14312-8.1	Secured Staging Area	Robert OConnor	08/29/12 08:57	Retrieve from Storage
JB14312-8.1	Robert OConnor	Secured Storage	08/29/12 11:19	Return to Storage
JB14312-8.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14312-8.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14312-8.1	Sanjay Advani	Secured Storage	08/29/12 17:01	Return to Storage
JB14312-8.1	Secured Storage	Adam Scott	08/30/12 06:59	Retrieve from Storage
JB14312-8.1	Adam Scott	Secured Staging Area	08/30/12 07:00	Return to Storage
JB14312-8.1	Secured Staging Area	Mayur Patel	08/30/12 08:10	Retrieve from Storage
JB14312-8.1	Mayur Patel	Secured Storage	08/30/12 11:42	Return to Storage
JB14312-8.1	Secured Storage	Adam Scott	08/31/12 14:48	Retrieve from Storage
JB14312-8.1	Adam Scott	Secured Staging Area	08/31/12 14:49	Return to Storage
JB14312-8.1	Secured Staging Area	Ye Chen	08/31/12 16:17	Retrieve from Storage
JB14312-8.1	Ye Chen	Secured Storage	08/31/12 19:40	Return to Storage
JB14312-9.1	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14312-9.1	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14312-9.1	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14312-9.1	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage
JB14312-9.1	Secured Storage	Todd Shoemaker	08/29/12 08:27	Retrieve from Storage
JB14312-9.1	Todd Shoemaker	Secured Staging Area	08/29/12 08:27	Return to Storage
JB14312-9.1	Secured Staging Area	Robert OConnor	08/29/12 08:57	Retrieve from Storage
JB14312-9.1	Robert OConnor	Secured Storage	08/29/12 11:19	Return to Storage
JB14312-9.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14312-9.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14312-9.1	Sanjay Advani	Secured Storage	08/29/12 17:01	Return to Storage
JB14312-9.1	Secured Storage	Adam Scott	08/30/12 06:59	Retrieve from Storage
JB14312-9.1	Adam Scott	Secured Staging Area	08/30/12 07:00	Return to Storage
JB14312-9.1	Secured Staging Area	Mayur Patel	08/30/12 08:10	Retrieve from Storage
JB14312-9.1	Mayur Patel	Secured Storage	08/30/12 11:42	Return to Storage
JB14312-9.1	Secured Storage	Adam Scott	08/31/12 14:48	Retrieve from Storage

Accutest Internal Chain of Custody

Job Number: JB14312
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Received: 08/21/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB14312-9.1	Adam Scott	Secured Staging Area	08/31/12 14:49	Return to Storage
JB14312-9.1	Secured Staging Area	Ye Chen	08/31/12 16:17	Retrieve from Storage
JB14312-9.1	Ye Chen	Secured Storage	08/31/12 19:40	Return to Storage
JB14312-10.1	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14312-10.1	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14312-10.1	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14312-10.1	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage
JB14312-10.1	Secured Storage	Todd Shoemaker	08/29/12 08:27	Retrieve from Storage
JB14312-10.1	Todd Shoemaker	Secured Staging Area	08/29/12 08:27	Return to Storage
JB14312-10.1	Secured Staging Area	Robert OConnor	08/29/12 08:57	Retrieve from Storage
JB14312-10.1	Robert OConnor	Secured Storage	08/29/12 11:19	Return to Storage
JB14312-10.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14312-10.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14312-10.1	Sanjay Advani	Secured Storage	08/29/12 17:01	Return to Storage
JB14312-10.1	Secured Storage	Adam Scott	08/30/12 06:59	Retrieve from Storage
JB14312-10.1	Adam Scott	Secured Staging Area	08/30/12 07:00	Return to Storage
JB14312-10.1	Secured Staging Area	Mayur Patel	08/30/12 08:10	Retrieve from Storage
JB14312-10.1	Mayur Patel	Secured Storage	08/30/12 11:42	Return to Storage
JB14312-10.1	Secured Storage	Adam Scott	08/31/12 14:48	Retrieve from Storage
JB14312-10.1	Adam Scott	Secured Staging Area	08/31/12 14:49	Return to Storage
JB14312-10.1	Secured Staging Area	Ye Chen	08/31/12 16:17	Retrieve from Storage
JB14312-10.1	Ye Chen	Secured Storage	08/31/12 19:40	Return to Storage
JB14312-11.1	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14312-11.1	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14312-11.1	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14312-11.1	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage
JB14312-11.1	Secured Storage	Todd Shoemaker	08/29/12 08:27	Retrieve from Storage
JB14312-11.1	Todd Shoemaker	Secured Staging Area	08/29/12 08:27	Return to Storage
JB14312-11.1	Secured Staging Area	Robert OConnor	08/29/12 08:57	Retrieve from Storage
JB14312-11.1	Robert OConnor	Secured Storage	08/29/12 11:19	Return to Storage
JB14312-11.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14312-11.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14312-11.1	Sanjay Advani	Secured Storage	08/29/12 17:01	Return to Storage
JB14312-11.1	Secured Storage	Adam Scott	08/30/12 06:59	Retrieve from Storage
JB14312-11.1	Adam Scott	Secured Staging Area	08/30/12 07:00	Return to Storage
JB14312-11.1	Secured Staging Area	Mayur Patel	08/30/12 08:10	Retrieve from Storage
JB14312-11.1	Mayur Patel	Secured Storage	08/30/12 11:42	Return to Storage
JB14312-11.1	Secured Storage	Adam Scott	08/31/12 14:48	Retrieve from Storage
JB14312-11.1	Adam Scott	Secured Staging Area	08/31/12 14:49	Return to Storage
JB14312-11.1	Secured Staging Area	Ye Chen	08/31/12 16:17	Retrieve from Storage
JB14312-11.1	Ye Chen	Secured Storage	08/31/12 19:40	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB14312
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Received: 08/21/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB14312-12.1	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14312-12.1	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14312-12.1	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14312-12.1	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage
JB14312-12.1	Secured Storage	Todd Shoemaker	08/29/12 08:27	Retrieve from Storage
JB14312-12.1	Todd Shoemaker	Secured Staging Area	08/29/12 08:27	Return to Storage
JB14312-12.1	Secured Staging Area	Robert OConnor	08/29/12 08:57	Retrieve from Storage
JB14312-12.1	Robert OConnor	Secured Storage	08/29/12 11:19	Return to Storage
JB14312-12.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14312-12.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14312-12.1	Sanjay Advani	Secured Storage	08/29/12 17:01	Return to Storage
JB14312-12.1	Secured Storage	Adam Scott	08/30/12 06:59	Retrieve from Storage
JB14312-12.1	Adam Scott	Secured Staging Area	08/30/12 07:00	Return to Storage
JB14312-12.1	Secured Staging Area	Mayur Patel	08/30/12 08:10	Retrieve from Storage
JB14312-12.1	Mayur Patel	Secured Storage	08/30/12 11:42	Return to Storage
JB14312-12.1	Secured Storage	Adam Scott	08/31/12 14:48	Retrieve from Storage
JB14312-12.1	Adam Scott	Secured Staging Area	08/31/12 14:49	Return to Storage
JB14312-12.1	Secured Staging Area	Ye Chen	08/31/12 16:17	Retrieve from Storage
JB14312-12.1	Ye Chen	Secured Storage	08/31/12 19:40	Return to Storage
JB14312-13.1	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14312-13.1	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14312-13.1	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14312-13.1	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage
JB14312-13.1	Secured Storage	Todd Shoemaker	08/29/12 08:27	Retrieve from Storage
JB14312-13.1	Todd Shoemaker	Secured Staging Area	08/29/12 08:27	Return to Storage
JB14312-13.1	Secured Staging Area	Robert OConnor	08/29/12 08:57	Retrieve from Storage
JB14312-13.1	Robert OConnor	Secured Storage	08/29/12 11:19	Return to Storage
JB14312-13.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14312-13.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14312-13.1	Sanjay Advani	Secured Storage	08/29/12 17:01	Return to Storage
JB14312-13.1	Secured Storage	Adam Scott	08/30/12 06:59	Retrieve from Storage
JB14312-13.1	Adam Scott	Secured Staging Area	08/30/12 07:00	Return to Storage
JB14312-13.1	Secured Staging Area	Mayur Patel	08/30/12 08:10	Retrieve from Storage
JB14312-13.1	Mayur Patel	Secured Storage	08/30/12 11:42	Return to Storage
JB14312-13.1	Secured Storage	Adam Scott	08/31/12 14:48	Retrieve from Storage
JB14312-13.1	Adam Scott	Secured Staging Area	08/31/12 14:49	Return to Storage
JB14312-13.1	Secured Staging Area	Ye Chen	08/31/12 16:17	Retrieve from Storage
JB14312-13.1	Ye Chen	Secured Storage	08/31/12 19:40	Return to Storage
JB14312-14.2	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14312-14.2	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14312-14.2	Sanjay Advani	Secured Storage	08/29/12 17:01	Return to Storage
JB14312-14.2	Secured Storage	Dave Hunkele	08/30/12 08:39	Retrieve from Storage

Accutest Internal Chain of Custody

Job Number: JB14312
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Received: 08/21/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB14312-14.2	Dave Hunkele	Secured Staging Area	08/30/12 08:41	Return to Storage
JB14312-14.2	Secured Staging Area	Sanjay Advani	08/30/12 08:53	Retrieve from Storage
JB14312-14.2	Sanjay Advani	Secured Storage	08/30/12 15:58	Return to Storage
JB14312-15.1	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14312-15.1	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14312-15.1	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14312-15.1	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage
JB14312-15.1	Secured Storage	Todd Shoemaker	08/29/12 08:27	Retrieve from Storage
JB14312-15.1	Todd Shoemaker	Secured Staging Area	08/29/12 08:27	Return to Storage
JB14312-15.1	Secured Staging Area	Robert OConnor	08/29/12 08:57	Retrieve from Storage
JB14312-15.1	Robert OConnor	Secured Storage	08/29/12 11:19	Return to Storage
JB14312-15.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14312-15.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14312-15.1	Sanjay Advani	Secured Storage	08/29/12 17:01	Return to Storage
JB14312-15.1	Secured Storage	Adam Scott	08/30/12 06:59	Retrieve from Storage
JB14312-15.1	Adam Scott	Secured Staging Area	08/30/12 07:00	Return to Storage
JB14312-15.1	Secured Staging Area	Mayur Patel	08/30/12 08:10	Retrieve from Storage
JB14312-15.1	Mayur Patel	Secured Storage	08/30/12 11:42	Return to Storage
JB14312-15.1	Secured Storage	Adam Scott	08/31/12 14:48	Retrieve from Storage
JB14312-15.1	Adam Scott	Secured Staging Area	08/31/12 14:49	Return to Storage
JB14312-15.1	Secured Staging Area	Ye Chen	08/31/12 16:17	Retrieve from Storage
JB14312-15.1	Ye Chen	Secured Storage	08/31/12 19:40	Return to Storage
JB14312-15.2	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14312-15.2	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14312-15.2	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14312-15.2	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage
JB14312-15.2	Secured Storage	Todd Shoemaker	08/29/12 08:27	Retrieve from Storage
JB14312-15.2	Todd Shoemaker	Secured Staging Area	08/29/12 08:27	Return to Storage
JB14312-15.2	Secured Staging Area	Robert OConnor	08/29/12 08:57	Retrieve from Storage
JB14312-15.2	Robert OConnor	Secured Storage	08/29/12 11:19	Return to Storage
JB14312-15.2	Secured Storage	Adam Scott	08/31/12 14:48	Retrieve from Storage
JB14312-15.2	Adam Scott	Secured Staging Area	08/31/12 14:49	Return to Storage
JB14312-15.2	Secured Staging Area	Ye Chen	08/31/12 16:17	Retrieve from Storage
JB14312-15.2	Ye Chen	Secured Storage	08/31/12 19:40	Return to Storage
JB14312-15.2	Secured Storage	Brian Racin	09/01/12 08:33	Retrieve from Storage
JB14312-15.2	Brian Racin	Shirley Grzybowski	09/01/12 08:36	Custody Transfer
JB14312-15.2	Shirley Grzybowski	Secured Storage	09/01/12 11:01	Return to Storage
JB14312-15.3	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14312-15.3	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14312-15.3	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14312-15.3	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB14312
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Received: 08/21/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB14312-15.3	Secured Storage	Todd Shoemaker	08/29/12 08:27	Retrieve from Storage
JB14312-15.3	Todd Shoemaker	Secured Staging Area	08/29/12 08:27	Return to Storage
JB14312-15.3	Secured Staging Area	Robert OConnor	08/29/12 08:57	Retrieve from Storage
JB14312-15.3	Robert OConnor	Secured Storage	08/29/12 11:19	Return to Storage
JB14312-15.3	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14312-15.3	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14312-15.3	Sanjay Advani	Secured Storage	08/29/12 17:01	Return to Storage
JB14312-15.3	Secured Storage	Adam Scott	08/30/12 06:59	Retrieve from Storage
JB14312-15.3	Adam Scott	Secured Staging Area	08/30/12 07:00	Return to Storage
JB14312-15.3	Secured Staging Area	Mayur Patel	08/30/12 08:10	Retrieve from Storage
JB14312-15.3	Mayur Patel	Secured Storage	08/30/12 11:42	Return to Storage
JB14312-15.3	Secured Storage	Adam Scott	08/31/12 14:48	Retrieve from Storage
JB14312-15.3	Adam Scott	Secured Staging Area	08/31/12 14:49	Return to Storage
JB14312-15.3	Secured Staging Area	Ye Chen	08/31/12 16:17	Retrieve from Storage
JB14312-15.3	Ye Chen	Secured Storage	08/31/12 19:40	Return to Storage

New Jersey ACCUTEST LABORATORIES

General Chemistry

QC Data Summaries

Includes the following where applicable:

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

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: JB14312
Account: ENSRNJ - AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GN70834	0.010	0.0	mg/l	.15	0.15	100.0	90-110%
Chromium, Hexavalent	GP66893/GN71347			mg/kg	40	37.2	93.0	80-120%
Chromium, Hexavalent	GP66893/GN71347	0.40	0.0	mg/kg	853	772	90.5	80-120%

Associated Samples:
Batch GN70834: JB14312-14
Batch GP66893: JB14312-1, JB14312-2, JB14312-3, JB14312-4, JB14312-5, JB14312-6, JB14312-7, JB14312-8, JB14312-9, JB14312-10, JB14312-11, JB14312-12, JB14312-13, JB14312-15
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: JB14312
Account: ENSRNJ - AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GP66893/GN71347	JB14312-15	mg/kg	0.14 B	0.58	122.2(a)	0-20%
Redox Potential Vs H2	GN71296	JB14201-13	mv	327	310	5.3	0-10%
Redox Potential Vs H2	GN71316	JB14312-15	mv	248	289	15.3*(b)	0-13%
pH	GN71314	JB14312-15	su	7.48	7.17	4.2	0-5%

Associated Samples:
Batch GN71296: JB14312-14
Batch GN71314: JB14312-1, JB14312-2, JB14312-3, JB14312-4, JB14312-5, JB14312-6, JB14312-7, JB14312-8, JB14312-9, JB14312-10, JB14312-11, JB14312-12, JB14312-13, JB14312-15
Batch GN71316: JB14312-1, JB14312-2, JB14312-3, JB14312-4, JB14312-5, JB14312-6, JB14312-7, JB14312-8, JB14312-9, JB14312-10, JB14312-11, JB14312-12, JB14312-13, JB14312-15
Batch GP66893: JB14312-1, JB14312-2, JB14312-3, JB14312-4, JB14312-5, JB14312-6, JB14312-7, JB14312-8, JB14312-9, JB14312-10, JB14312-11, JB14312-12, JB14312-13, JB14312-15
(*) Outside of QC limits
(a) RPD acceptable due to low duplicate and sample concentrations.
(b) Outside of in house limits, but within reasonable method recovery limits.

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: JB14312
Account: ENSRNJ - AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chromium, Hexavalent	GP66893/GN71347	JB14312-15	mg/kg	0.14 B	1000	909	90.7(a)	75-125%
Chromium, Hexavalent	GP66893/GN71347	JB14312-15	mg/kg	0.14 B	47.5	18.7	39.0N(b)	75-125%

Associated Samples:
Batch GP66893: JB14312-1, JB14312-2, JB14312-3, JB14312-4, JB14312-5, JB14312-6, JB14312-7, JB14312-8, JB14312-9, JB14312-10, JB14312-11, JB14312-12, JB14312-13, JB14312-15
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(a) Good recovery on insoluble XCR matrix spike. See additional comments on soluble matrix spike recovery.
(b) Soluble XCR matrix spike recovery indicates possible matrix interference. Good post spike recovery (91_%) on this sample.

Percent Solids Raw Data Summary

Job Number: JB14312
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Sample: JB14312-1 **Analyzed:** 29-AUG-12 by RO **Method:** SM18 2540G
ClientID: NSB-D1-1.0-1.5

Wet Weight (Total)	34.07	g
Tare Weight	26.7	g
Dry Weight (Total)	33.33	g
Solids, Percent	90	%

Sample: JB14312-2 **Analyzed:** 29-AUG-12 by RO **Method:** SM18 2540G
ClientID: NSB-D1-12.0-12.5

Wet Weight (Total)	31.3	g
Tare Weight	21.6	g
Dry Weight (Total)	29.62	g
Solids, Percent	82.7	%

Sample: JB14312-3 **Analyzed:** 29-AUG-12 by RO **Method:** SM18 2540G
ClientID: NSB-D1-16.0-16.5

Wet Weight (Total)	32.59	g
Tare Weight	25.12	g
Dry Weight (Total)	31.26	g
Solids, Percent	82.2	%

Sample: JB14312-4 **Analyzed:** 29-AUG-12 by RO **Method:** SM18 2540G
ClientID: NSB-D1-20.0-20.5

Wet Weight (Total)	35.27	g
Tare Weight	25.95	g
Dry Weight (Total)	33.77	g
Solids, Percent	83.9	%

Sample: JB14312-5 **Analyzed:** 29-AUG-12 by RO **Method:** SM18 2540G
ClientID: NSB-D1-4.0-4.5

Wet Weight (Total)	33.52	g
Tare Weight	26.18	g
Dry Weight (Total)	32.28	g
Solids, Percent	83.1	%

Sample: JB14312-6 **Analyzed:** 29-AUG-12 by RO **Method:** SM18 2540G
ClientID: NSB-D1-7.7-8.2

Wet Weight (Total)	30.98	g
Tare Weight	25.15	g
Dry Weight (Total)	30.01	g
Solids, Percent	83.4	%

Percent Solids Raw Data Summary

Job Number: JB14312
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Sample: JB14312-7 **Analyzed:** 29-AUG-12 by RO **Method:** SM18 2540G
ClientID: NSB-D2-11.3-11.8

Wet Weight (Total)	29.88	g
Tare Weight	23.06	g
Dry Weight (Total)	28.7	g
Solids, Percent	82.7	%

Sample: JB14312-8 **Analyzed:** 29-AUG-12 by RO **Method:** SM18 2540G
ClientID: NSB-D2-3.0-3.5

Wet Weight (Total)	25.63	g
Tare Weight	19.29	g
Dry Weight (Total)	24.94	g
Solids, Percent	89.1	%

Sample: JB14312-9 **Analyzed:** 29-AUG-12 by RO **Method:** SM18 2540G
ClientID: NSB-D2-3.0-3.5X

Wet Weight (Total)	28.83	g
Tare Weight	22.31	g
Dry Weight (Total)	28.02	g
Solids, Percent	87.6	%

Sample: JB14312-10 **Analyzed:** 29-AUG-12 by RO **Method:** SM18 2540G
ClientID: NSB-D2-6.0-6.5

Wet Weight (Total)	27.03	g
Tare Weight	20.88	g
Dry Weight (Total)	24.6	g
Solids, Percent	60.5	%

Sample: JB14312-11 **Analyzed:** 29-AUG-12 by RO **Method:** SM18 2540G
ClientID: NSB-D3-3.0-3.5

Wet Weight (Total)	27.76	g
Tare Weight	22.02	g
Dry Weight (Total)	26.86	g
Solids, Percent	84.3	%

Sample: JB14312-12 **Analyzed:** 29-AUG-12 by RO **Method:** SM18 2540G
ClientID: NSB-D4-1.0-1.5

Wet Weight (Total)	23.37	g
Tare Weight	17.64	g
Dry Weight (Total)	22.8	g
Solids, Percent	90.1	%

Percent Solids Raw Data Summary

Job Number: JB14312
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Sample: JB14312-13 **Analyzed:** 29-AUG-12 by RO **Method:** SM18 2540G
ClientID: NSB-F5-20.0-20.5

Wet Weight (Total)	31.46	g
Tare Weight	22.15	g
Dry Weight (Total)	29.95	g
Solids, Percent	83.8	%

Sample: JB14312-15 **Analyzed:** 29-AUG-12 by RO **Method:** SM18 2540G
ClientID: NSB-F5-16.0-16.5

Wet Weight (Total)	28.11	g
Tare Weight	21.26	g
Dry Weight (Total)	26.95	g
Solids, Percent	83.1	%

New Jersey
ACCUTEST LABORATORIES

General Chemistry

Raw Data

Hexavalent Chromium

Test Title: XCr
GN Batch: GN70834
Analyst: MM/CKW
Prep Date: NA
Analysis Date: 8/21/2012
Instrument ID: H

1

Method: SW846 7196A

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

Corr. Coef: 0.99993
Slope: 0.8886
Y intercept: 0.0006

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	20:20	0.000	0.0000							
	STD1	0.010	NA	NA	0.010	0.0100							
	STD2	0.043	NA	NA	0.043	0.0500							
	STD3	0.089	NA	NA	0.089	0.1000							
	STD4	0.271	NA	NA	0.271	0.3000							
	STD5	0.441	NA	NA	0.441	0.5000							
	STD6	0.719	NA	NA	0.719	0.8000							
	STD7	0.884	NA	20:23	0.884	1.0000							
	CCV	0.447	NA	21:32	0.447	0.5024	NA	NA	NA	NA	mg/l	0.001	0.010
	CCB	0.000	NA	21:32	0.000	-0.0006	NA	NA	NA	NA	mg/l	0.0013	0.010
	GN70834-MB1	0.000	0.000	21:38	0.000	-0.0006	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
	GN70834-B1	0.133	0.000	21:38	0.133	0.1490	50.0	50.0	1	0.149	mg/l	0.0014	0.010
	GN70834-S1	0.089	0.000	21:38	0.089	0.0995	50.0	50.0	1	0.100	mg/l	0.0014	0.010
	GN70834-D1	0.000	0.000	21:38	0.000	-0.0006	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
2	JB14297-3	0.009	0.006	21:38	0.003	0.0027	50.0	50.0	1	0.003	mg/l	0.0014	0.010
2	JB14297-4	0.030	0.024	21:38	0.006	0.0061	50.0	50.0	1	0.006	mg/l	0.0014	0.010
2	JB14297-5	0.000	0.000	21:38	0.000	-0.0006	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
2	JB14297-6	0.078	0.076	21:38	0.002	0.0016	50.0	50.0	1	0.002	mg/l	0.0014	0.010
2	JB14297-7	0.091	0.095	21:38	0.000	-0.0006	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
2	JB14297-8	0.019	0.019	21:38	0.000	-0.0006	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
	CCV	0.441	NA	21:38	0.441	0.4957	NA	NA	NA	NA	mg/l	0.0013	0.010
	CCB	0.000	NA	21:38	0.000	-0.0006	NA	NA	NA	NA	mg/l	0.0013	0.010
2	JB14297-9	0.008	0.008	21:42	0.000	-0.0006	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
	JB14297-5DILCONF	0.000	0.000	21:42	0.000	-0.0006	50.0	50.0	5	-0.003	mg/l	0.0070	0.050
	JB14297-5PHADJPSCC	0.064	0.000	21:42	0.064	0.0714	50.0	50.0	1	0.071	mg/l	0.0014	0.010
					FALSE	-0.0006	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0006	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0006	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0006	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0006	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0006	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0006	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
	CCV	0.438	NA	21:42	0.438	0.4923	NA	NA	NA	NA	mg/l	0.0013	0.010
	CCB	0.000	NA	21:42	0.000	-0.0006	NA	NA	NA	NA	mg/l	0.0013	0.010
					FALSE	-0.0006	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0006	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0006	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0006	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0006	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0006	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0006	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0006	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0006	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0006	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
	CCV	0.441	NA	23:12	0.441	0.4957	NA	NA	NA	NA	mg/l	0.0013	0.010
	CCB	0.000	NA	23:12	0.000	-0.0006	NA	NA	NA	NA	mg/l	0.0013	0.010
1	JB14312-14	0.000	0.000	23:14	0.000	-0.0006	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0006	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0006	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0006	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0006	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0006	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0006	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0006	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0006	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0006	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
	CCV	0.441	NA	23:14	0.441	0.4957	NA	NA	NA	NA	mg/l	0.0013	0.010
	CCB	0.000	NA	23:14	0.000	-0.0006	NA	NA	NA	NA	mg/l	0.0013	0.010
					FALSE	-0.0006	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0006	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0006	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0006	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0006	50.0	50.0	1	-0.001	mg/l	0.0014	0.010

(6) NOT NEEDED INCORRECT METHOD

MY 8-22-12

7.1

7

ACCUTEST.

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

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

GNBatch ID: GN70834
Date: 8/21/202

Digestion Batch QC Summary Units = mg/l

Method Blank ID: GN70834MB1 Date: 8/21/202 Result: <MDL RDL: 0.010 <RDL: Yes

Spike Blank ID: GN70834-BS1 Date: " Result: 1.19 Spike: .15 %Rec.: 99.3%

Duplicate ID: GN70834-D1 Samp. Result: 0 Dup. Result: 0 %RPD: 0

MS ID: GN70834-S1 Samp. Result: 0 MS Result: .100 Spike: .15 %Rec: 66.7%

Diluted Sample ID: JB42975 Samp. Result: 0 Dil. Result: 0 %RPD: 0

pH adj. PS ID: " Samp. Result: 0 MS Result: .071 Spike: .15 %Rec: 47.3%

Analysis Batch QC Summary Units = mg/l

CCV:	8/21/202	Result:	.502	TV:	.5	%Rec.:	100.4%
CCV:	"	Result:	.496	TV:	"	%Rec.:	99.2%
CCV:	"	Result:	.492	TV:	"	%Rec.:	98.4%
CCV:	8/21/202	Result:	.496	TV:	.5	%Rec.:	99.2%
CCV:	"	Result:	"	TV:	"	%Rec.:	"
CCV:		Result:		TV:		%Rec.:	

CCB:	8/21/202	Result:	<MDL	RDL:	0.010	<RDL:	Yes
CCB:	"	Result:	"	RDL:	"	<RDL:	"
CCB:	"	Result:	"	RDL:	"	<RDL:	"
CCB:	8/21/202	Result:	<MDL	RDL:	0.010	<RDL:	Yes
CCB:	"	Result:	"	RDL:	"	<RDL:	"
CCB:		Result:		RDL:		<RDL:	

Reagent Reference Numbers:

See attached

Initial Calibration Source:

Continuing Calibration Source:

Analyst: NM/CKN Date: 8/21/202

Comments:

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

ACCUTEST.

Hexavalent Chromium pH Adjustment Log

Method: SW846 7196A

pH adj. start time: 21:00 _____ _____ pH Adjust. Date: 8/21/2012

pH adj. end time: 21:25 _____ _____ GN Batch ID: GN70834

Sample ID	Initial Sample Volume (ml)	Final Volume (ml)	pH after H2SO4	bkg pH after H2SO4	Spike Info	Comments
CCV	45	50	1.84		5mL	5 ppm Ultra
CCV						
CCV						
CCV						
CCB	45	50	1.93			
CCB						
CCB						
CCB						
MS JB14297-5	45	50	1.93	1.84	1mL	7.5 ppm Ultra
DUP	"	"	1.96	1.82		
SB			1.89	1.81	1mL	7.5 ppm Ultra
PB MB1			1.87	1.73		
1. JB14297-3			1.88	1.79		
2. -4			1.92	1.80		
3. -5			1.96	1.85		
4. -6			1.93	1.72		
5. -7			1.97	1.86		
6. -8			1.85	1.72		
7. -9	"	"	1.94	1.79		
8. JB14312-14	45	50	1.85	1.72		
9.						
10.						
11.						
12.						
13.						
14.						
15.						
16.						
17.						
18.						
19.						
20.						
PS JB14297-5	45	50	1.79	1.69	pH 8.23	w/IN 1mL 7.5 ppm Ultra.
DIL "	"	"	1.91	1.85		1:5 dilution
DIL						

Reagent Information: _____

Analyst: [signature] Date: 8/21/2012 QC Reviewer: _____ Date: _____

Form: GN077-01

Rev. Date:1/10/11

ACCUTEST

Hexavalent Chromium pH Adjustment Log
Method: SW846 7196A

pH adj. start time: 20:12 _____ pH Adjust. Date: 8/2/2022

pH adj. end time: 20:15 _____ GN Batch ID: GN70834

Sample ID	Initial Sample Volume (ml)	Final Volume (ml)	pH after H2SO4	Comments	Spike Info.
Calibration Blank	45	50	1.96	MW8PT6	
0.010 mg/l standard	↓	↓	1.84	5ppm ~~Water Mix~~	0.10 ml of 5 mg/l to 50 ml FV
0.050 mg/l standard			1.73	↓	0.50 ml of 5 mg/l to 50 mL FV
0.100 mg/l standard			1.79		1.00 ml of 5 mg/l to 50 mL FV
0.300 mg/l standard			2.00		3.00 ml of 5 mg/l to 50 mL FV
0.500 mg/l standard			1.92		5.00 ml of 5 mg/l to 50 mL FV
0.800 mg/l standard			1.89		8.00 ml of 5 mg/l to 50 mL FV
1.00 mg/l standard	↓	↓	1.87		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:

Analyst: NM/CAN Date: 8/2/2022

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

ACCUTEST

Reagent Information Log - XCR - water - 7196A

Reagent	Exp. Date	Reagent # or Manufacturer/Lot
Calibration Source: Hexavalent Chromium, 1000 mg/L Stock	1/12/2015	Absolute Grade Lot# 011212
Calibration Checks: Hexavalent Chromium, 1000 mg/L Stock	5/31/2017	Ultra Scientific Lot# L00439
External Check	NA	NA
Spiking Solution Source	1/12/2015	Absolute Grade Lot# 011212
Diphenyl carbazide Solution	9/21/2016	GNE8-33339-XCR
Sulfuric Acid, 10%	2/21/2016	GNE8-33334-XCR

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

ACCUTEST.

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

Matrix: Aqueous ○ | Method: ASTM D1498-76 | **Date:** 08/30/12

Matrix: Solid ◉ | Method: ASTM D1498-76 Mod. | **GN Batch ID:** GN71296

Temp (Deg C): 25

Quality Control Summary

Sample ID:	GN71296-D1	Results:	**327.2**	Dup:	**309.9**
Ferrous-Ferric True: 675				Found	**648.3**
pH 4 Quinhydrone True: 462				Found	**456.9**
pH 4 Quinhydrone True: 462				Found	**443.7**
pH 4 Quinhydrone True: 462				Found	
pH 7 Quinhydrone True: 285				Found	**271.2**
pH 7 Quinhydrone True: 285				Found	**262.4**
pH 7 Quinhydrone True: 285				Found	

		% RPD:	**5.43%**
		% Rec	**96.04%**
		% Rec	**98.90%**
		% Rec	**96.04%**
		% Rec	
		% Rec	**95.16%**
		% Rec	**92.07%**
		% Rec	

Sample #:	**mv vs. Ag/AgCl Electrode**	**Corrected results (mv vs. Hydrogen electrode) *****
Ferrous-Ferric Solution	473	648.3
pH 4 Quinhydrone	281.5	456.9
pH 7 Quinhydrone	95.6	271.2
Dup GN71296-D1	134.6	309.9
1. JB14201-13	151.9	327.2
2. JB14312-14	178.7	354.3
3.		
4.		
5.		
6.		
7.		
8.		
9.		
pH 4 Quinhydrone	268.3	443.7
pH 7 Quinhydrone	87	262.4
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: Redox Standard: GNE-31456-ORP Exp:9/15/12

Comments:

Analyst: S.A. Date: 08/30/12 QC Reviewer: Date:

F/N GN141.DOC

Rev. Date: 3/27/2007

7.2

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ACCUTEST

Analyst S.A

Method E#

Prep Date 8/30/12

Balance # 38

GP # GN71296-E#

Sample Prep Log

	Sample ID	Sample Size	Final Volume
2	3B14201-13	60mL	
2	-13Dup	60mL	
2	3B14312-14	60mL	

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

QC Review_____

ACCUTEST LABORATORIES

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

Product: PH, CORR
Analyst: SANJAYA
GN Batch ID: GN71314
Analysis Date: 8/30/2012
pH Meter ID: 50

Thermometer ID: 6539
Correction Factor: 0

QC Summary

Duplicate ID: GN71314-D1
Dup Result: 7.17
Sample ID: JB14312-15
% RPD: 4.23%

Sample ID	Wt./Vol. used for soilds	Uncorrected/ Corrected Temp in Deg C.	Result	Corrosivity	Read time
Buffer Check: 4		25	3.97		12:02
Buffer Check: 7		25	6.98		
Buffer Check: 10		25	9.98		
GN71314-D1		25	7.17		
JB14312-1		25	7.98		
JB14312-10		25	7.86		
JB14312-11		25	8.26		
JB14312-12		25	8.28		
JB14312-13		25	8.32		
JB14312-15		25	7.48		
JB14312-2		25	7.47		
JB14312-3		25	8.05		
JB14312-4		25	8.21		
Buffer Check: 4		25	3.97		
Buffer Check: 10		25	10.01		
JB14312-5		25	7.84		
JB14312-6		25	7.17		
JB14312-7		25	7.65		
JB14312-8		25	8.85		
JB14312-9		25	8.70		
JB15010-1		25	10.12		
JB15010-2		25	8.04		
Buffer Check: 7		25	7.04		
Buffer Check: 13		25	13.03		13:10
Buffer Check:					
Buffer Check:					

Comments:

Validated By: Nancy Cole
Validated Date: 8/7/2012
Document Control #: AGN-PH CORR-AQ-01

ACCUTEST

Analyst S.A

Method E/H/PH

Prep Date 8/29/12

GP # GN71314-pH
GN71316-eH

Balance # 38

Sample Prep Log

Sample ID	Sample Size	Final Volume
315143l2-1	30.9g	added 30mL DI H2O
-2	50.2g	added 50mL DI H2O
-3	50.6g	↓
-4	50.5g	
-5	50.1g	
-6	50.6g	
-7	50.0g	
-8	50.6g	
-9	50.6g	
-10	50.3g	
-11	50.6g	
-12	50.6g	
-13	50.3g	
-15	30.6g	added 30mL DI H2O ↓
-15Dup	30.9g	
315150l0-1	50.2g	added 50mL DI H2O ↓
-2	50.2g	

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

QC Review_____

Reagent Information Log
Test Name:_____pH_____

GN71314

Reagent

pH 2 Buffer Solution	FICHER LOT#115910 EXP 11/30/13
pH 4 Buffer Solution	BDH LOT#2110255 EXP 9/30/13
pH 7 Buffer Solution	RICCA LOT#2111388 EXP 10/30/13
pH 10 Buffer Solution	FISCHER LOT#105427 EXP 09/30/12
pH 13 Buffer Solution	AQUA SOL. LOT#1080516 EXP 08/30/

Form: GN087-01
Rev. Date:8/30/2012

ACCUTEST.

Test: Redox Potential
Matrix: Aqueous ○
Matrix: Solid ◉

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

Analyst: SANJAYA
Date: 08/30/12
GN Batch ID: GN71316
Temp (Deg C): 25

Quality Control Summary

Sample ID:	GN71316-D1	Results:	**247.8**	Dup:	**289.1**
Ferrous-Ferric True: 675				Found	**615.3**
pH 4 Quinhydrone True: 462				Found	**482.8**
pH 4 Quinhydrone True: 462				Found	**453.9**
pH 4 Quinhydrone True: 462				Found	**446.1**
pH 7 Quinhydrone True: 285				Found	**284.9**
pH 7 Quinhydrone True: 285				Found	**264.9**
pH 7 Quinhydrone True: 285				Found	**259.3**

		% RPD:	**15.38%**
		% Rec	**91.16%**
		% Rec	**104.50%**
		% Rec	**98.25%**
		% Rec	**96.56%**
		% Rec	**99.96%**
		% Rec	**92.95%**
		% Rec	**90.98%**

Sample #:		mv vs. Ag/AgCl Electrode	Corrected results (mv vs. Hydrogen electrode) ***
Ferrous-Ferric Solution		440	615.3
pH 4 Quinhydrone		307.3	482.8
pH 7 Quinhydrone		109.5	284.9
Dup	GN71316-D1	113.7	289.1
1.	JB14312-1	127.3	302.6
2.	JB14312-10	124.2	299.6
3.	JB14312-11	129.3	304.7
4.	JB14312-12	118.2	293.6
5.	JB14312-13	121.3	296.8
6.	JB14312-15	72.4	247.8
7.	JB14312-2	-47.5	127.9
8.	JB14312-3	44	219.3
9.	JB14312-4	49.4	224.8
pH 4 Quinhydrone		278.6	453.9
pH 7 Quinhydrone		89.5	264.9
10.	JB14312-5	97.5	272.9
11.	JB14312-6	6.4	181.8
12.	JB14312-7	2.8	178.1
13.	JB14312-8	401.7	577.1
14.	JB14312-9	212	287.4
15.	JB15010-1	112.5	287.9
16.	JB15010-2	174.7	350
17.			
18.			
19.			
pH 4 Quinhydrone		270.8	446.1
pH 7 Quinhydrone		83.9	259.3

*** 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: Redox Standard: GNE-31456-ORP Exp:9/15/12

Comments:

Analyst: S.A. Date: 08/30/12 QC Reviewer: Date:

F/N GN141.DOC
Rev. Date: 3/27/2007

ACCUTEST.

Analyst S.A

Method E/H/pH

Prep Date 8/29/12

GP # GN71314-pH
GN71316-eH

Balance # 38

Sample Prep Log

Sample ID	Sample Size	Final Volume
3B143/2-1	30.9g	added 30mL DI H2O
-2	50.2g	added 50mL DI H2O
-3	50.6g	↓
-4	50.5g	
-5	50.1g	
-6	50.6g	
-7	50.0g	
-8	50.6g	
-9	50.6g	
-10	50.3g	
-11	50.6g	
-12	50.6g	
-13	50.3g	↓
-15	30.6g	added 30mL DI H2O ↓
-15Dup	30.9g	
3B150/10-1	50.2g	added 50mL DI H2O ↓
-2	50.2g	

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

QC Review_____

Method: SW846 3060A, 7196A

Test Title:	XCRA
GN Batch:	GN71347
Analyst:	MM
Prep Date:	8/30/2012
Analysis Date:	8/30/2012
Instrument ID:	D

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

Corr. Coef: 0.99992

Slope: 0.9114

Y intercept: 0.0023

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	10:02	0.000	0.0000							
STD 1	0.010	NA	NA	0.010	0.0100							
STD 2	0.047	NA	NA	0.047	0.0500							
STD 3	0.094	NA	NA	0.094	0.1000							
STD 4	0.278	NA	NA	0.278	0.3000							
STD 5	0.460	NA	NA	0.460	0.5000							
STD 6	0.739	NA	NA	0.739	0.8000							
STD 7	0.906	NA	10:05	0.906	1.0000							
CCV	0.420	NA	17:18	0.420	0.4583	NA	NA	NA	NA	mg/l	0.003	0.010
CCB	0.000	NA	17:18	0.000	-0.0025	NA	NA	NA	NA	mg/l	0.003	0.010
GP66893-MB1	0.000	0.000	17:25	0.000	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
GP66893-B1	0.851	0.000	17:25	0.851	0.9312	100.0	2.5000	1	37.247	mg/kg	0.117	0.400
GP66893-S1	0.365	0.005	17:25	0.360	0.3925	100.0	2.5300	1	15.512	mg/kg	0.116	0.395
GP66893-D1	0.017	0.004	17:25	0.013	0.0117	100.0	2.4500	1	0.478	mg/kg	0.120	0.408
JB14312-15	0.009	0.004	17:25	0.005	0.0029	100.0	2.5300	1	0.116	mg/kg	0.116	0.395
JB14312-15PSCONF	0.426	0.001	17:25	0.425	0.4638	100.0	2.5300	2	36.662	mg/kg	0.232	0.791
GP66893-B2	>3	OVR		FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
GP66893-S2	>3	OVR		FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
GP66893-B2	0.354	0.000	17:25	0.354	0.3859	100.0	2.5000	50	771.742	mg/kg	5.860	20.000
GP66893-S2	0.348	0.000	17:25	0.348	0.3793	100.0	2.5100	50	755.554	mg/kg	5.837	19.920
CCV	0.414	NA	17:25	0.414	0.4517	NA	NA	NA	NA	mg/l	0.003	0.010
CCB	0.000	NA	17:25	0.000	-0.0025	NA	NA	NA	NA	mg/l	0.003	0.010
				FALSE	-0.0025	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
				FALSE	-0.0025	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
				FALSE	-0.0025	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
				FALSE	-0.0025	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
				FALSE	-0.0025	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
				FALSE	-0.0025	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
				FALSE	-0.0025	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
				FALSE	-0.0025	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
				FALSE	-0.0025	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
				FALSE	-0.0025	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
CCV	0.431	NA	18:53	0.431	0.4704	NA	NA	NA	NA	mg/l	0.003	0.010
CCB	0.000	NA	18:53	0.000	-0.0025	NA	NA	NA	NA	mg/l	0.003	0.010
JB14312-1	0.020	0.014	19:01	0.006	0.0040	100.0	2.4700	1	0.164	mg/kg	0.119	0.405
JB14312-2	0.020	0.010	19:01	0.010	0.0084	100.0	2.4500	1	0.344	mg/kg	0.120	0.408
JB14312-3	0.019	0.005	19:01	0.014	0.0128	100.0	2.4600	1	0.521	mg/kg	0.119	0.407
JB14312-4	0.010	0.003	19:01	0.007	0.0051	100.0	2.5100	1	0.205	mg/kg	0.117	0.398
JB14312-5	0.036	0.012	19:01	0.024	0.0238	100.0	2.4700	1	0.963	mg/kg	0.119	0.405
JB14312-6	0.017	0.008	19:01	0.009	0.0073	100.0	2.5400	1	0.289	mg/kg	0.115	0.394
JB14312-7	0.023	0.013	19:01	0.010	0.0084	100.0	2.4800	1	0.340	mg/kg	0.118	0.403
JB14312-8	0.025	0.010	19:01	0.015	0.0136	100.0	2.4900	1	0.546	mg/kg	0.118	0.402
JB14312-9	0.023	0.008	19:01	0.015	0.0139	100.0	2.5700	1	0.541	mg/kg	0.114	0.389
JB14312-10	0.004	0.003	19:01	0.001	-0.0014	100.0	2.4800	1	-0.058	mg/kg	0.118	0.403
CCV	0.426	NA	19:01	0.426	0.4649	NA	NA	NA	NA	mg/l	0.003	0.010
CCB	0.000	NA	19:01	0.000	-0.0025	NA	NA	NA	NA	mg/l	0.003	0.010
JB14312-11	0.304	0.048	19:04	0.256	0.2783	100.0	2.5500	1	10.915	mg/kg	0.115	0.392
JB14312-12	0.026	0.012	19:04	0.014	0.0128	100.0	2.5500	1	0.503	mg/kg	0.115	0.392
JB14312-13	0.011	0.004	19:04	0.007	0.0051	100.0	2.5300	1	0.203	mg/kg	0.116	0.395
				FALSE	-0.0025	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
				FALSE	-0.0025	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
				FALSE	-0.0025	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
				FALSE	-0.0025	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
				FALSE	-0.0025	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
				FALSE	-0.0025	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
				FALSE	-0.0025	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
CCV	0.421	NA	19:04	0.421	0.4594	NA	NA	NA	NA	mg/l	0.003	0.010
CCB	0.000	NA	19:04	0.000	-0.0025	NA	NA	NA	NA	mg/l	0.003	0.010
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400

7.5

7

				FALSE	-0.0025	100.0			-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
CCV		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.003	0.010
CCB		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.003	0.010
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
CCV		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.003	0.010
CCB		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.003	0.010
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
CCV		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.003	0.010
CCB		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.003	0.010
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
CCV		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.003	0.010
CCB		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.003	0.010
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
CCV		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.003	0.010
CCB		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.003	0.010
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
				FALSE	-0.0025	100.0	2.5000	1	-0.102	mg/kg	0.117	0.400
CCV		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.005	0.010
CCB		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.005	0.010

evised 4/25/11

Comments:

ACCUTEST

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

pH Meter ID: 23
Digestion Date: 8/26/12
pH adj. Date: 8/30/2012
GN Batch ID: GN71347

adj. start time: 16:48 | 18:24 | 16:58 | 18:40
adj. end time: 16:53 | 18:32 | 17:00 | 18:46

OP66893 Sample ID	Sample Weight in g	pH after HNO3	Final Volume (ml)	pH after H2SO4	bkg pH after H2SO4	Spike Amounts	Spike Solution	Digestate Description/Comments
/		7.82	100	1.82		5.0ml	10ppm	ultra
/		7.13	↓	1.79		↓	↓	
/								
/								
3		7.63	100	1.73				
3		7.46	↓	1.72				
3								
3								
(Sol) JB14312-15	2.53	7.41	100	1.96	1.82	1.0ml	1000ppm	AS sol
(Insol.) -15	2.51	7.86		1.92	OK	0.0130	PbCrO4	
-15	2.45	7.91		1.84	1.76			
(Sol)	2.50	7.90		1.89	1.72	1.0ml	1000ppm	AS sol
(Insol)	↓	7.83		1.76	OK	0.01217	PbCrO4	
		7.24		1.91	1.70			
B14312-15	2.53	7.59		1.85	1.78			light yellow
-1	2.47	7.21		1.93	1.81			light brown
-2	2.45	7.36		1.99	1.84			↓
-3	2.46	7.79		1.82	1.74			clear
-4	2.51	7.96		1.80	1.71			clear
-5	2.47	7.94		1.91	1.78			light yellow
-6	2.54	7.68		1.78	1.69			
-7	2.48	7.41		1.82	1.73			
-8	2.49	7.16		1.96	1.89			
-9	2.57	7.72		1.85	1.81			
-10	2.48	7.61		1.97	1.85			clear #4 MP
-11	2.55	7.60		1.99	1.89			ef light yellow
-12	2.55	7.91		2.01	1.96			
-13	2.53	7.34	↓	1.99	1.78			clear
(Insol)	2.50	7.90	100	1.93	1.84			dilution 1:50
(Insol.)	2.51	7.86	↓	1.87	1.73			dilution 1:50
	2.53	7.59	↓	1.96	1.86	23mL 100	ppm Absauce	+1:2 dilution
adjusted PS								
dil.								
B14312-15	2.53							

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

00000 ug/g x Insoluble spike wt(g) x 52/323.2}/ms sample wt(g) = Insoluble spike amount of PbCrO4

d analyst check: [signature]

Anayst: [signature]
Date: 8/30/2012

GN71347

ACCUTEST.

Test: **Hexavalent Chromium** MDL = 0.117 mg/kg GNBatch ID: GN71347
Product: **XCr** RDL = 0.40 mg/kg Date: 9/30/2012
Method: **SW846 3060A/7196A**

Digestion Batch QC Summary Units = mg/kg

Method Blank ID: GN71347MB1 Date: 9/30/2012 Result: <MDL RDL: 0.40 <RDL: YES
Sol. Spike Blank ID: GN71347B1 Date: " Result: 37.25 Spike: 40.00 %Rec.: 93%
Insol. Spike Blank ID: GN71347B2 Date: " Result: 771.74 Spike: 752.99 %Rec.: 102.5%
Duplicate ID: GN71347-D1 Samp. Result: 117 Dup. Result: 473 %RPD: 120.7%
Sol. MS ID: GN71347S1 Samp. Result: " MS Result: 1551 Spike: 3953 %Rec: 38.9%
Insol. MS ID: GN71347S2 Samp. Result: " MS Result: 758.58 Spike: 833.30 %Rec: 91.0%
Post Spike ID: UB43512-15 Samp. Result: " PS Result: 30.81 Spike: 40.40 %Rec: 90.8%
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: 9/30/2012	Result: .458	TV: 0.500	%Rec.: 91.6%		
CCV: "	Result: .452	TV: 0.500	%Rec.: 90.4%		
CCV: "	Result: .470	TV: 0.500	%Rec.: 94.0%		
CCV: "	Result: .465	TV: 0.500	%Rec.: 93.0%		
CCV: "	Result: .459	TV: 0.500	%Rec.: 91.8%		
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: 9/30/2012	Result: <MDL	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: NM Date: 9/30/2012

Comments: _____

Form: GN066-01
Rev. Date: 4/25/11

ACCUTEST LABS
DAYTON, NJ
GN71347

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

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?
JB14312-15	2.53	1.1385	0.117 *	0.455	yes	0	2	0.228	0.23	0.511	40.404	efault (40 mg/kg) spike
		0		0.000	no	0		#DIV/0!		#DIV/0!	#DIV/0!	efault (40 mg/kg) spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike

(0.117 x 2) < 40 mg/kg, use default spike.

3060A/7196A INSOLUBLE SPIKE CALCULATION

Weight of PbCrO4	Weight of Sample	Amount Spiked
0.0117	2.5	752.970
0.013	2.51	833.300
		#VALUE!
		#VALUE!
		#VALUE!
		#VALUE!
		#VALUE!
		#VALUE!
		#VALUE!

ACCUTEST

Hexavalent Chromium pH Adjustment Log

Method: SW846 3060A/7196A

pH adj. start time: 9:27 9:42 pH adjustment Date: 8-30-2012
pH adj. end time: 9:35 9:47 GN Batch ID: GN71347

Sample ID	Sample Weight in g	pH after HNO3	Final Volume (ml)	pH after H2SO4	Comments	Spike Info.
Calibration Blank	NA	7.91	100	1.98	0	
0.010 mg/l standard	NA	7.52	↓	2.14	10ppm Absolute	0.10 ml of 10 mg/l
0.050 mg/l standard	NA	7.78	↓	2.07	↓	0.50 ml of 10 mg/l
0.100 mg/l standard	NA	7.48	↓	2.08	↓	1.00 ml of 10 mg/l
0.300 mg/l standard	NA	7.74	↓	2.11	↓	3.00 ml of 10 mg/l
0.500 mg/l standard	NA	7.81	↓	1.92	↓	5.00 ml of 10 mg/l
0.800 mg/l standard	NA	7.61	↓	1.98	↓	8.00 ml of 10 mg/l
1.00 mg/l standard	NA	7.42	↓	2.01	↓	10.0 ml of 10 mg/l

✓ OM

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: RZ
Date: 8-30-2012

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

7.5
7

ACCUTEST.

HEXAVALENT CHROMIUM STANDARD PREPARATION LOG

Product: XCR

GN or GP Number: GN1347

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 # 041215	1000 ppm	1.0 ml	DI	100 mls	10 mg/l	4/12/2015	RZ	2-30-12
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	2-31-12	RZ	2-30-12
.050 ppm	↓	↓	0.5 ppm	DI	↓	0.05 mg/l	↓	↓	↓
.10 ppm			1.0 ppm	DI		0.10 mg/l			
.30 ppm			3.0 ppm	DI		0.30 mg/l			
.50 ppm			5.0 ppm	DI		0.50 mg/l			
.80 ppm			8.0 ppm	DI		0.80 mg/l			
1.00 ppm	↓	↓	10.0 ppm	DI	↓	1.0 mg/l	↓	↓	↓

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

HEXAVALENT CHROMIUM TEMPERATURE AND TIME DIGESTON LOG - METHOD 3060A

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

Thermometer ID: 381/397/182 1135

Thermometer Correction factor: 01-2/2/10

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
	Starting Time	9:20	90/90	92/90	90/92	90/90
	Time 1	9:50	90/90	92/90	90/92	90/90
	Ending Time	10:20	90/90	92/90	90/92	90/96
	Starting Time	10:30	90/90	92/90	90/92	90/90
	Time 1	11:00	90/90	92/90	90/92	90/90
	Ending Time	11:30	90/90	92/90	90/92	90/90
	Starting Time	12:40	90/90	92/90	90/92	90/90
	Time 1	13:10	90/90	92/90	90/92	90/90
	Ending Time	13:40	90/90	92/90	90/92	90/90

Analyst: MF

2nd Analyst Check:

Date: 8/30

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

ACCUTEST

GN/GP Batch ID: GN71347

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

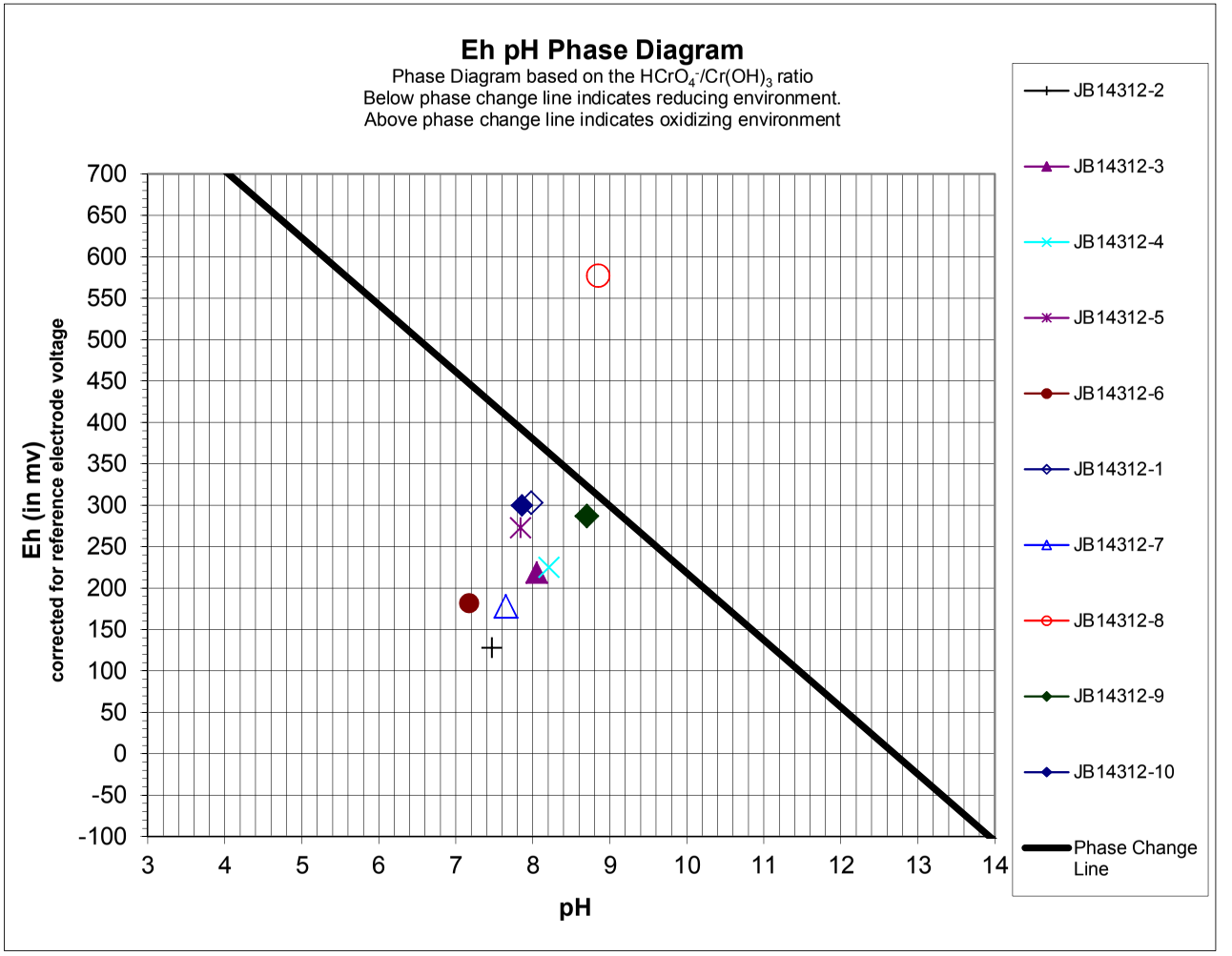
Reagent	Exp. Date	Reagent # or Manufacturer/Lot
Calibration Source: Hexavalent Chromium, 1000 mg/L Stock	4/12/2015	Absolute Grade Lot # 041212
Calibration Checks: Hexavalent Chromium, 1000 mg/L Stock	5/31/2017	Ultra lot # L00439
Spiking Solution Source	4/12/2015	Absolute Grade Lot # 041212
Lead Chromate (Insoluble Hexavalent Chromium Spike)	7/26/2017	Sigma Aldrich Lot # BCBG0578V
Magnesium Chloride, Anhydrous	7/11/2016	Alfa Aesar Lot # B17X012
1N NaOH		
Digestion Solution	9/24/12	GNE8-33333-XCA
Phosphate Buffer Solution	2/14/13	GNE8-33273-XCRA
5.0 M Nitric Acid	3/3/2013	GNE8-33110-XCRA
Diphenylcarbazide Solution	9/30/2012	GNE8-33418-XCR
Sulfuric Acid, 10%	2/7/2013	GNE8-33380-XCR
Filter	NA	F2EA19811
Teflon Chips	NA	919120

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

ACCUTEST

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

Sample Number	pH	eH (mv)
JB14312-2	7.47	128
JB14312-3	8.05	219
JB14312-4	8.21	225
JB14312-5	7.84	273
JB14312-6	7.17	182
JB14312-1	7.98	303
JB14312-7	7.65	178
JB14312-8	8.85	577
JB14312-9	8.7	287
JB14312-10	7.86	300



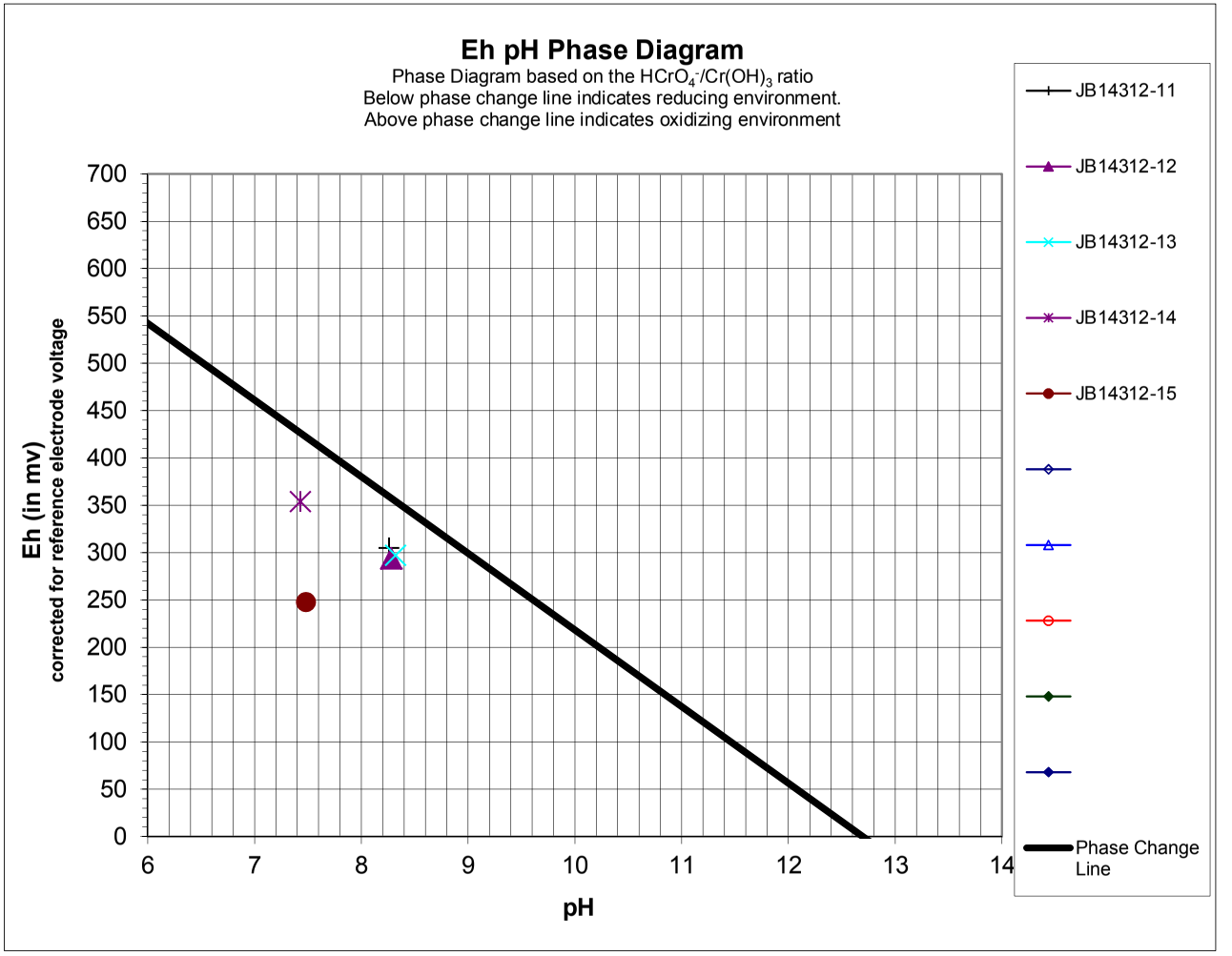
Note that the Eh values plotted on this diagram are corrected for the reference electrode voltage and the values shown are versus the standard hydrogen electrode

Reference for graph: SW846 method 3060A

ACCUTEST

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

Sample Number	pH	eH (mv)
JB14312-11	8.26	305
JB14312-12	8.28	294
JB14312-13	8.32	297
JB14312-14	7.43	354
JB14312-15	7.48	248



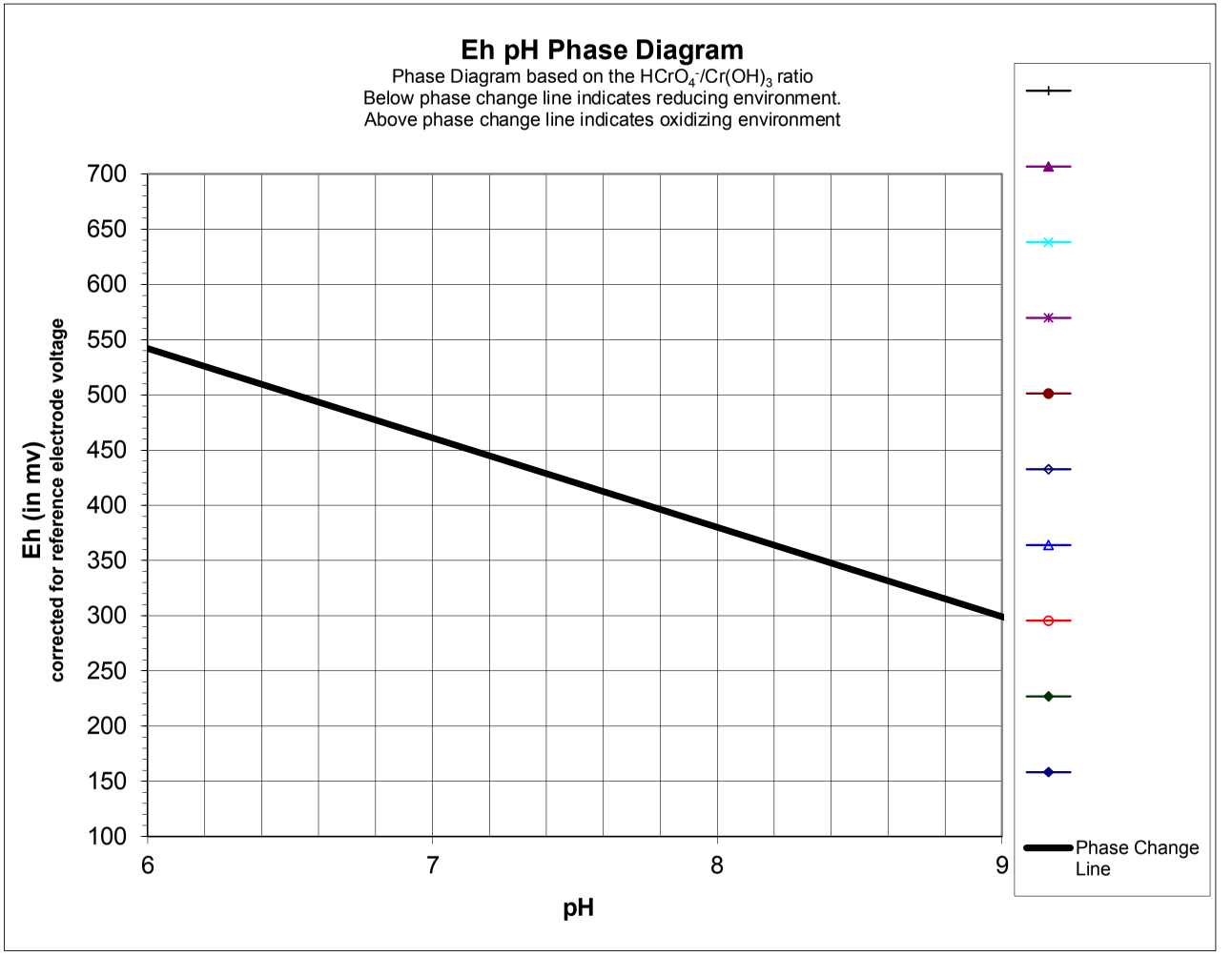
Note that the Eh values plotted on this diagram are corrected for the reference electrode voltage and the values shown are versus the standard hydrogen electrode

Reference for graph: SW846 method 3060A

ACCUTEST

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

Sample Number	pH	eH (mv)



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

Reference for graph: SW846 method 3060A

New Jersey ACCUTEST LABORATORIES

09/07/12

Technical Report for

AECOM, INC.

PPG Northern Canal Borings, Jersey City, NJ

60213772.5.A

Accutest Job Number: JB14312R

Sampling Date: 08/21/12

Report to:

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

Total number of pages in report: **135**

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.

Paul Ioannidis
Lab Director

Client Service contact: Matt Cordova 732-329-0200

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

Sections: 1 2 3 4 5 6 7

Table of Contents

Sample Summary

AECOM, INC.

Job No: JB14312R

PPG Northern Canal Borings, Jersey City, NJ
Project No: 60213772.5.A

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JB14312-1R	08/21/12	10:40	LK	08/21/12	SO	Soil	NSB-D1-1.0-1.5
JB14312-2R	08/21/12	11:56	LK	08/21/12	SO	Soil	NSB-D1-12.0-12.5
JB14312-3R	08/21/12	12:24	LK	08/21/12	SO	Soil	NSB-D1-16.0-16.5
JB14312-4R	08/21/12	12:40	LK	08/21/12	SO	Soil	NSB-D1-20.0-20.5
JB14312-5R	08/21/12	10:45	LK	08/21/12	SO	Soil	NSB-D1-4.0-4.5
JB14312-6R	08/21/12	11:42	LK	08/21/12	SO	Soil	NSB-D1-7.7-8.2
JB14312-7R	08/21/12	14:50	LK	08/21/12	SO	Soil	NSB-D2-11.3-11.8
JB14312-8R	08/21/12	13:35	LK	08/21/12	SO	Soil	NSB-D2-3.0-3.5
JB14312-9R	08/21/12	13:38	LK	08/21/12	SO	Soil	NSB-D2-3.0-3.5X
JB14312-10R	08/21/12	14:30	LK	08/21/12	SO	Soil	NSB-D2-6.0-6.5
JB14312-11R	08/21/12	14:15	LK	08/21/12	SO	Soil	NSB-D3-3.0-3.5
JB14312-12R	08/21/12	15:00	LK	08/21/12	SO	Soil	NSB-D4-1.0-1.5
JB14312-13R	08/21/12	09:02	LK	08/21/12	SO	Soil	NSB-F5-20.0-20.5

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

Sample Summary
(continued)

AECOM, INC.

Job No: JB14312R

PPG Northern Canal Borings, Jersey City, NJ
Project No: 60213772.5.A

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JB14312-15R	08/21/12	08:45	LK	08/21/12	SO	Soil	NSB-F5-16.0-16.5

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

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	AECOM, INC.	**Job No**	JB14312R
Site:	PPG Northern Canal Borings, Jersey City, NJ	**Report Date**	9/7/2012 8:47:07 AM

On 08/21/2012, 15 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at Accutest Laboratories at a temperature of 5 C. Samples were intact and chemically preserved, unless noted below. An Accutest Job Number of JB14312R 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. 14 Samples are active for this report.

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:** GN71538

- All method blanks for this batch meet method specific criteria.
- Sample(s) JB14312-15RDUP, JB14312-15RMS were used as the QC samples for Iron, Ferrous.
- The following samples were run outside of holding time for method ASTM D3872-86: JB14312-15R 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:** GP66744

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB13733-20DUP, JB13733-20MS were used as the QC samples for Total Organic Carbon.

Wet Chemistry By Method SM18 4500S2-A

Matrix: SO **Batch ID:** GN71534

- The data for SM18 4500S2-A meets quality control requirements.
- The following samples were run outside of holding time for method SM18 4500S2-A: JB14312-15R 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:** GP66920

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB14312-15RDUP, JB14312-15RMS 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 (85.1%) on this sample.
- GP66920-S2 for Chromium, Hexavalent: Good recovery on insoluble XCR matrix spike. See additional comments on soluble matrix spike recovery.

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: JB14312R
Account: AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Collected: 08/21/12

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JB14312-1R	**NSB-D1-1.0-1.5**					
Chromium, Hexavalent		1.8	0.44	0.13	mg/kg	SW846 3060A/7196A
JB14312-2R	**NSB-D1-12.0-12.5**					
Chromium, Hexavalent		0.40 B	0.48	0.14	mg/kg	SW846 3060A/7196A
JB14312-3R	**NSB-D1-16.0-16.5**					
Chromium, Hexavalent		1.6	0.49	0.14	mg/kg	SW846 3060A/7196A
JB14312-4R	**NSB-D1-20.0-20.5**					
Chromium, Hexavalent		0.46 B	0.48	0.14	mg/kg	SW846 3060A/7196A
JB14312-5R	**NSB-D1-4.0-4.5**					
Chromium, Hexavalent		4.3	0.48	0.14	mg/kg	SW846 3060A/7196A
JB14312-6R	**NSB-D1-7.7-8.2**					
Chromium, Hexavalent		0.35 B	0.48	0.14	mg/kg	SW846 3060A/7196A
JB14312-7R	**NSB-D2-11.3-11.8**					
Chromium, Hexavalent		0.35 B	0.48	0.14	mg/kg	SW846 3060A/7196A
JB14312-8R	**NSB-D2-3.0-3.5**					
Chromium, Hexavalent		3.0	0.45	0.13	mg/kg	SW846 3060A/7196A
JB14312-9R	**NSB-D2-3.0-3.5X**					
Chromium, Hexavalent		2.1	0.46	0.13	mg/kg	SW846 3060A/7196A
JB14312-10R	**NSB-D2-6.0-6.5**					
No hits reported in this sample.						
JB14312-11R	**NSB-D3-3.0-3.5**					
Chromium, Hexavalent		6.6	0.47	0.14	mg/kg	SW846 3060A/7196A

Summary of Hits

Job Number: JB14312R
Account: AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Collected: 08/21/12

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JB14312-12R	**NSB-D4-1.0-1.5**					
Chromium, Hexavalent		2.3	0.44	0.13	mg/kg	SW846 3060A/7196A
JB14312-13R	**NSB-F5-20.0-20.5**					
Chromium, Hexavalent		0.49	0.48	0.14	mg/kg	SW846 3060A/7196A
JB14312-15R	**NSB-F5-16.0-16.5**					
Chromium, Hexavalent		0.40 B	0.48	0.14	mg/kg	SW846 3060A/7196A
Iron, Ferrous [a]		0.95	0.20		%	ASTM D3872-86
Total Organic Carbon		961	120	58	mg/kg	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.

New Jersey ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID: NSB-D1-1.0-1.5
Lab Sample ID: JB14312-1R
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/21/12
Date Received: 08/21/12
Percent Solids: 90.0

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	1.8	0.44	0.13	mg/kg	1	09/04/12 15:35	RI	SW846 3060A/7196A

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID:	NSB-D1-12.0-12.5		
Lab Sample ID:	JB14312-2R	**Date Sampled:**	08/21/12
Matrix:	SO - Soil	**Date Received:**	08/21/12
		Percent Solids:	82.7
Project:	PPG Northern Canal Borings, Jersey City, NJ		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.40 B	0.48	0.14	mg/kg	1	09/04/12 15:35	RI	SW846 3060A/7196A

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID:	NSB-D1-16.0-16.5		
Lab Sample ID:	JB14312-3R	**Date Sampled:**	08/21/12
Matrix:	SO - Soil	**Date Received:**	08/21/12
		Percent Solids:	82.2
Project:	PPG Northern Canal Borings, Jersey City, NJ		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	1.6	0.49	0.14	mg/kg	1	09/04/12 15:35	RI	SW846 3060A/7196A

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID:	NSB-D1-20.0-20.5		
Lab Sample ID:	JB14312-4R	**Date Sampled:**	08/21/12
Matrix:	SO - Soil	**Date Received:**	08/21/12
		Percent Solids:	83.9
Project:	PPG Northern Canal Borings, Jersey City, NJ		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.46 B	0.48	0.14	mg/kg	1	09/04/12 15:35	RI	SW846 3060A/7196A

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID: NSB-D1-4.0-4.5
Lab Sample ID: JB14312-5R
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/21/12
Date Received: 08/21/12
Percent Solids: 83.1

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	4.3	0.48	0.14	mg/kg	1	09/04/12 15:35	RI	SW846 3060A/7196A

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID:	NSB-D1-7.7-8.2		
Lab Sample ID:	JB14312-6R	**Date Sampled:**	08/21/12
Matrix:	SO - Soil	**Date Received:**	08/21/12
		Percent Solids:	83.4
Project:	PPG Northern Canal Borings, Jersey City, NJ		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.35 B	0.48	0.14	mg/kg	1	09/04/12 15:35	RI	SW846 3060A/7196A

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID: NSB-D2-11.3-11.8
Lab Sample ID: JB14312-7R
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/21/12
Date Received: 08/21/12
Percent Solids: 82.7

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.35 B	0.48	0.14	mg/kg	1	09/04/12 15:35	RI	SW846 3060A/7196A

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID: NSB-D2-3.0-3.5
Lab Sample ID: JB14312-8R
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/21/12
Date Received: 08/21/12
Percent Solids: 89.1

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	3.0	0.45	0.13	mg/kg	1	09/04/12 15:35	RI	SW846 3060A/7196A

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID: NSB-D2-3.0-3.5X
Lab Sample ID: JB14312-9R
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/21/12
Date Received: 08/21/12
Percent Solids: 87.6

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	2.1	0.46	0.13	mg/kg	1	09/04/12 15:35	RI	SW846 3060A/7196A

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID: NSB-D2-6.0-6.5
Lab Sample ID: JB14312-10R
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/21/12
Date Received: 08/21/12
Percent Solids: 60.5

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.19 U	0.66	0.19	mg/kg	1	09/04/12 15:35	RI	SW846 3060A/7196A

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID:	NSB-D3-3.0-3.5		
Lab Sample ID:	JB14312-11R	**Date Sampled:**	08/21/12
Matrix:	SO - Soil	**Date Received:**	08/21/12
		Percent Solids:	84.3
Project:	PPG Northern Canal Borings, Jersey City, NJ		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	6.6	0.47	0.14	mg/kg	1	09/04/12 15:38	RI	SW846 3060A/7196A

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID:	NSB-D4-1.0-1.5		
Lab Sample ID:	JB14312-12R	**Date Sampled:**	08/21/12
Matrix:	SO - Soil	**Date Received:**	08/21/12
		Percent Solids:	90.1
Project:	PPG Northern Canal Borings, Jersey City, NJ		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	2.3	0.44	0.13	mg/kg	1	09/04/12 15:38	RI	SW846 3060A/7196A

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID:	NSB-F5-20.0-20.5		
Lab Sample ID:	JB14312-13R	**Date Sampled:**	08/21/12
Matrix:	SO - Soil	**Date Received:**	08/21/12
		Percent Solids:	83.8
Project:	PPG Northern Canal Borings, Jersey City, NJ		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.49	0.48	0.14	mg/kg	1	09/04/12 15:38	RI	SW846 3060A/7196A

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID:	NSB-F5-16.0-16.5		
Lab Sample ID:	JB14312-15R	**Date Sampled:**	08/21/12
Matrix:	SO - Soil	**Date Received:**	08/21/12
		Percent Solids:	83.1
Project:	PPG Northern Canal Borings, Jersey City, NJ		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.40 B	0.48	0.14	mg/kg	1	09/04/12 13:14	RI	SW846 3060A/7196A
Iron, Ferrous [a]	0.95	0.20		%	1	09/05/12	JA	ASTM D3872-86
Sulfide Screen [b]	NEGATIVE				1	09/05/12	JA	SM18 4500S2-A
Total Organic Carbon	961	120	58	mg/kg	1	09/04/12 11:13	SJG	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

New Jersey ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

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

AECOM

CHAIN-OF-CUSTODY / Analytical Request Document

2012-08-21_RI_ACCUTEST_COC

Page: 1 of 2

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

Lab Information:		Project Information:		Other Information:		Task:	GARIS- Northern Canal Borings
Lab:	ACCUTEST	Site ID #:	PPG Garfield Ave	Send Invoice to:	Lisa Krowitz	Total # of Samples:	15
Address:	2235 Route 130 , Dayton NJ 08810	Project #:	60213772.5.A	Address:	250 Apollo Drive	TAT	see Spec. Instructions / Rush
		Site Address:	70 Carteret Avenue	City/State.	Chelmsford, MA 01824	Phone #:	978-905-2278
Lab PM:	Matt Cordova	City	Jersey City	State, Zip	NJ 07304	PO #:	40256ACM
Phone/Fax:	732-329-0200/	PM Name:	Chris Martell	Send EDD to:	NJLABDATA@aecom.com		
PM email:		Phone/Fax:	732-564-3633	CC Hardcopy to	Erin Farrell, AECOM, Piscataway, NJ		
		PM Email:	Christopher.Martell@aecom.com				

Notes: F= Field Filtered , H= Hold

Lab Notes: JB14312

ITEM #	Field Sample No. /Identification	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comment	Preservative	Analysis: GARA-HEXCHROM	Analysis: GARA-PH-ORP						
1	NSB-D1-1-1.5 -1	SO	G	08/21/2012 10:40	1			X	X						
2	NSB-D1-12-12.5 -2	SO	G	08/21/2012 11:56	1			X	X					WC	FLR
3	NSB-D1-16-16.5 -3	SO	G	08/21/2012 12:24	1			X	X					ME	38
4	NSB-D1-20-20.5 -4	SO	G	08/21/2012 12:40	1			X	X					WC	28
5	NSB-D1-4-4.5 -5	SO	G	08/21/2012 10:45	1			X	X						
6	NSB-D1-7.7-8.2 -6	SO	G	08/21/2012 11:42	1			X	X						
7	NSB-D2-11.3-11.8 -7	SO	G	08/21/2012 14:50	1			X	X						
8	NSB-D2-3-3.5 -8	SO	G	08/21/2012 13:35	1			X	X						
9	NSB-D2-3-3.5X -9	SO	G	08/21/2012 13:38	1			X	X						
10	NSB-D2-6-6.5 -10	SO	G	08/21/2012 14:30	1			X	X						
11	NSB-D3-3-3.5 -11	SO	G	08/21/2012 14:15	1			X	X						

Additional Comments/Special Instructions:

Standard TAT

ALL SAMPLES RECEIVED PRESERVED AS APPLICABLE

5.0C

1A

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
[illegible] AECOM	8/21/12	1825	[illegible]	8-21-12	1245
				8-21-12	1825

Sample Receipt Conditions

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

Shipper:		DATE/TIME:	
Tracking #:		Custody Seal(s):	

JB14312R: Chain of Custody

Page 1 of 8

AECOM

CHAIN-OF-CUSTODY / Analytical Request Document

2012-08-21_RI_ACCUTEST_COC

Page: 2 of 2

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

Lab Information:

Lab:	ACCUTEST
Address:	2235 Route 130 , Dayton NJ 08810
Lab PM:	Matt Cordova
Phone/Fax:	732-329-0200/
PM email:	

Project Information:

Site ID #:	PPG Garfield Ave
Project #:	60213772.5.A
Site Address:	70 Carteret Avenue
City	Jersey City
State, Zip	NJ 07304
PM Name:	Chris Martell
Phone/Fax:	732-564-3633
PM Email:	Christopher.Martell@aecom.com

Other Information:

Send Invoice to:	Lisa Krowitz
Address:	250 Apollo Drive
City/State.	Chelmsford, MA 01824
Phone #:	978-905-2278
PO #:	40256ACM
Send EDD to:	NJLABDATA@aecom.com
CC Hardcopy to	Erin Farrell, AECOM, Piscataway, NJ

Task:	GARIS- Northern Canal Borings
Total # of Samples:	15
TAT	see Spec. Instructions
Rush	

Notes: F= Field Filtered , H= Hold

Lab Notes: JB14312

Preservative

Analysis

ITEM #	Field Sample No. /Identification	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comment	GARA-HEXCHROM	GARA-PH-ORP
12	NSB-D4-1-1.5 -12	SO	G	08/21/2012 15:00	1		X	X
13	NSB-F5-20-20.5 -13	SO	G	08/21/2012 09:02	1		X	X
14	EB082112 ★ -14	WQ	G	08/21/2012 15:30	2	Preserved: None	X	X
15	NSB-F5-16-16.5 -15	SO	G	08/21/2012 08:45	3	2 Jars for MS/MSD	X	X

Additional Comments/Special Instructions:

Standard TAT

★ pH = 7.43 Ⓐ 8/21/12

5.0w

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Hunting by/AECOM	8/21/12			8-21-12	
	8-21-12	1815			1645

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

Shipper:		DATE/TIME:	
Tracking #:		Custody Seal(s):	

Temp in 0C | Samples on Ice? | Sample Intact? | Trip Blank?

JB14312R: Chain of Custody

Page 2 of 8

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: JB14312 **Client:** **Project:**

Date / Time Received: 8/21/2012 **Delivery Method:** **Airbill #'s:**

Cooler Temps (Initial/Adjusted): #1: (5/5); 0

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

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

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

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

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

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

Comments

Job Change Order: JB14312_8/22/2012

Requested Date:	8/22/2012	**Received Date:**	8/21/2012
Account Name:	AECOM, INC.	**Due Date:**	9/4/2012
Project	PPG Northern Canal Borings 70 Caven Point	**Deliverable:**	FULT1
CSR:	MJ	**TAT (Days):**	14

Sample #: JB14312-1 **Change:** Revise ID to NSB-D1-1.0-1.5

NSB-D1-1-1.5

Sample #: JB14312-2 **Change:** Revise ID to NSB-D1-12.0-12.5

NSB-D1-12-12.5

Sample #: JB14312-3 **Change:** Revise ID to NSB-D1-16.0-16.5

NSB-D1-16-16.5

Sample #: JB14312-4 **Change:** Revise ID to NSB-D1-20.0-20.5

NSB-D1-20-20.5

Above Changes Per: Lisa Krowitz **Date:** 8/22/2012

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

Job Change Order: JB14312_8/22/2012

Requested Date:	8/22/2012	**Received Date:**	8/21/2012
Account Name:	AECOM, INC.	**Due Date:**	9/4/2012
Project	PPG Northern Canal Borings 70 Caven Point	**Deliverable:**	FULT1
CSR:	MJ	**TAT (Days):**	14

Sample #: JB14312-5
NSB-D1-4-4.5
Change: Revise ID to NSB-D1-4.0-4.5

Sample #: JB14312-8
NSB-D2-3-3.5
Change: Revise ID to NSB-D2-3.0-3.5

Sample #: JB14312-9
NSB-D2-3-3.5X
Change: Revise ID to NSB-D2-3.0-3.5X

Sample #: JB14312-10
NSB-D2-6-6.5
Change: Revise ID to NSB-D2-6.0-6.5

Above Changes Per: Lisa Krowitz **Date:** 8/22/2012

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

JB14312R: Chain of Custody
Page 5 of 8

Job Change Order: JB14312_8/22/2012

Requested Date:	8/22/2012	**Received Date:**	8/21/2012
Account Name:	AECOM, INC.	**Due Date:**	9/4/2012
Project	PPG Northern Canal Borings 70 Caven Point	**Deliverable:**	FULT1
CSR:	MJ	**TAT (Days):**	14

Sample #: JB14312-11
Change: Revise ID to NSB-D3-3.0-3.5
NSB-D3-3-3.5

Sample #: JB14312-12
Change: Revise ID to NSB-D4-1.0-1.5
NSB-D4-1-1.5

Sample #: JB14312-13
Change: Revise ID to NSB-F5-20.0-20.5
NSB-F5-20-20.5

Sample #: JB14312-14
Change: Revise ID to NSB-EB20120822
EB082112

Above Changes Per: Lisa Krowitz **Date:** 8/22/2012

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

JB14312R: Chain of Custody
Page 6 of 8

Job Change Order: JB14312_8/22/2012

Requested Date:	8/22/2012	**Received Date:**	8/21/2012
Account Name:	AECOM, INC.	**Due Date:**	9/4/2012
Project	PPG Northern Canal Borings 70 Caven Point	**Deliverable:**	FULT1
CSR:	MJ	**TAT (Days):**	14

Sample #: JB14312-15, -15D, 15S

Change: Revise ID to NSB-F5-16.0-16.5

Above Changes Per: Lisa Krowitz **Date:** 8/22/2012

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

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5.1

5

JB14312R: Chain of Custody

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Job Change Order: JB14312_8/31/2012

2

Requested Date:	8/31/2012	**Received Date:**	8/21/2012
Account Name:	AECOM, INC.	**Due Date:**	9/4/2012
Project	PPG Northern Canal Borings, Jersey City, NJ	**Deliverable:**	FULT1
CSR:	MC	**TAT (Days):**	2

Sample #: JB14312-15

Change: Due to XCR spike recovery log in FE2/7,TOCLK,SULFS,

NSB-F5-16.0-16.5

Sample #: JB14312-1 thru 13, 15

Change: log in XXCRAR

Above Changes Per:

Date: 8/31/2012

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

JB14312R: Chain of Custody
Page 8 of 8

Internal Sample Tracking Chronicle

AECOM, INC.

Job No: JB14312R

PPG Northern Canal Borings, Jersey City, NJ
Project No: 60213772.5.A

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB14312-1R	Collected: 21-AUG-12 10:40 By: LK NSB-D1-1.0-1.5			Received: 21-AUG-12	By: AS	
JB14312-1R	SW846 3060A/7196A	04-SEP-12 15:35	RI	31-AUG-12	YC	XCRA
JB14312-2R	Collected: 21-AUG-12 11:56 By: LK NSB-D1-12.0-12.5			Received: 21-AUG-12	By: AS	
JB14312-2R	SW846 3060A/7196A	04-SEP-12 15:35	RI	31-AUG-12	YC	XCRA
JB14312-3R	Collected: 21-AUG-12 12:24 By: LK NSB-D1-16.0-16.5			Received: 21-AUG-12	By: AS	
JB14312-3R	SW846 3060A/7196A	04-SEP-12 15:35	RI	31-AUG-12	YC	XCRA
JB14312-4R	Collected: 21-AUG-12 12:40 By: LK NSB-D1-20.0-20.5			Received: 21-AUG-12	By: AS	
JB14312-4R	SW846 3060A/7196A	04-SEP-12 15:35	RI	31-AUG-12	YC	XCRA
JB14312-5R	Collected: 21-AUG-12 10:45 By: LK NSB-D1-4.0-4.5			Received: 21-AUG-12	By: AS	
JB14312-5R	SW846 3060A/7196A	04-SEP-12 15:35	RI	31-AUG-12	YC	XCRA
JB14312-6R	Collected: 21-AUG-12 11:42 By: LK NSB-D1-7.7-8.2			Received: 21-AUG-12	By: AS	
JB14312-6R	SW846 3060A/7196A	04-SEP-12 15:35	RI	31-AUG-12	YC	XCRA
JB14312-7R	Collected: 21-AUG-12 14:50 By: LK NSB-D2-11.3-11.8			Received: 21-AUG-12	By: AS	
JB14312-7R	SW846 3060A/7196A	04-SEP-12 15:35	RI	31-AUG-12	YC	XCRA
JB14312-8R	Collected: 21-AUG-12 13:35 By: LK NSB-D2-3.0-3.5			Received: 21-AUG-12	By: AS	
JB14312-8R	SW846 3060A/7196A	04-SEP-12 15:35	RI	31-AUG-12	YC	XCRA

Internal Sample Tracking Chronicle

AECOM, INC.

Job No: JB14312R

PPG Northern Canal Borings, Jersey City, NJ
Project No: 60213772.5.A

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB14312-9R	Collected: 21-AUG-12 13:38 By: LK NSB-D2-3.0-3.5X			Received: 21-AUG-12	By: AS	
JB14312-9RS	SW846 3060A/7196A	04-SEP-12 15:35	RI	31-AUG-12	YC	XCRA
JB14312-10R	Collected: 21-AUG-12 14:30 By: LK NSB-D2-6.0-6.5			Received: 21-AUG-12	By: AS	
JB14312-10RS	SW846 3060A/7196A	04-SEP-12 15:35	RI	31-AUG-12	YC	XCRA
JB14312-11R	Collected: 21-AUG-12 14:15 By: LK NSB-D3-3.0-3.5			Received: 21-AUG-12	By: AS	
JB14312-11RS	SW846 3060A/7196A	04-SEP-12 15:38	RI	31-AUG-12	YC	XCRA
JB14312-12R	Collected: 21-AUG-12 15:00 By: LK NSB-D4-1.0-1.5			Received: 21-AUG-12	By: AS	
JB14312-12RS	SW846 3060A/7196A	04-SEP-12 15:38	RI	31-AUG-12	YC	XCRA
JB14312-13R	Collected: 21-AUG-12 09:02 By: LK NSB-F5-20.0-20.5			Received: 21-AUG-12	By: AS	
JB14312-13RS	SW846 3060A/7196A	04-SEP-12 15:38	RI	31-AUG-12	YC	XCRA
JB14312-15R	Collected: 21-AUG-12 08:45 By: LK NSB-F5-16.0-16.5			Received: 21-AUG-12	By: AS	
JB14312-15RL	LLOYD KAHN 1988 MOD	04-SEP-12 11:13	SJG	04-SEP-12	SJG	TOCLK
JB14312-15RS	SW846 3060A/7196A	04-SEP-12 13:14	RI	31-AUG-12	YC	XCRA
JB14312-15RA	ASTM D3872-86	05-SEP-12	JA			FE2/7
JB14312-15RS	SM18 4500S2-A	05-SEP-12	JA			SULFS

Accutest Internal Chain of Custody

Job Number: JB14312R
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Received: 08/21/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB14312-1.1	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14312-1.1	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14312-1.1	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14312-1.1	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage
JB14312-1.1	Secured Storage	Todd Shoemaker	08/29/12 08:27	Retrieve from Storage
JB14312-1.1	Todd Shoemaker	Secured Staging Area	08/29/12 08:27	Return to Storage
JB14312-1.1	Secured Staging Area	Robert OConnor	08/29/12 08:57	Retrieve from Storage
JB14312-1.1	Robert OConnor	Secured Storage	08/29/12 11:19	Return to Storage
JB14312-1.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14312-1.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14312-1.1	Sanjay Advani	Secured Storage	08/29/12 17:01	Return to Storage
JB14312-1.1	Secured Storage	Adam Scott	08/30/12 06:59	Retrieve from Storage
JB14312-1.1	Adam Scott	Secured Staging Area	08/30/12 07:00	Return to Storage
JB14312-1.1	Secured Staging Area	Mayur Patel	08/30/12 08:10	Retrieve from Storage
JB14312-1.1	Mayur Patel	Secured Storage	08/30/12 11:42	Return to Storage
JB14312-1.1	Secured Storage	Adam Scott	08/31/12 14:48	Retrieve from Storage
JB14312-1.1	Adam Scott	Secured Staging Area	08/31/12 14:49	Return to Storage
JB14312-1.1	Secured Staging Area	Ye Chen	08/31/12 16:17	Retrieve from Storage
JB14312-1.1	Ye Chen	Secured Storage	08/31/12 19:40	Return to Storage
JB14312-2.1	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14312-2.1	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14312-2.1	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14312-2.1	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage
JB14312-2.1	Secured Storage	Todd Shoemaker	08/29/12 08:27	Retrieve from Storage
JB14312-2.1	Todd Shoemaker	Secured Staging Area	08/29/12 08:27	Return to Storage
JB14312-2.1	Secured Staging Area	Robert OConnor	08/29/12 08:57	Retrieve from Storage
JB14312-2.1	Robert OConnor	Secured Storage	08/29/12 11:19	Return to Storage
JB14312-2.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14312-2.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14312-2.1	Sanjay Advani	Secured Storage	08/29/12 17:01	Return to Storage
JB14312-2.1	Secured Storage	Adam Scott	08/30/12 06:59	Retrieve from Storage
JB14312-2.1	Adam Scott	Secured Staging Area	08/30/12 07:00	Return to Storage
JB14312-2.1	Secured Staging Area	Mayur Patel	08/30/12 08:10	Retrieve from Storage
JB14312-2.1	Mayur Patel	Secured Storage	08/30/12 11:42	Return to Storage
JB14312-2.1	Secured Storage	Adam Scott	08/31/12 14:48	Retrieve from Storage
JB14312-2.1	Adam Scott	Secured Staging Area	08/31/12 14:49	Return to Storage
JB14312-2.1	Secured Staging Area	Ye Chen	08/31/12 16:17	Retrieve from Storage
JB14312-2.1	Ye Chen	Secured Storage	08/31/12 19:40	Return to Storage
JB14312-3.1	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14312-3.1	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14312-3.1	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14312-3.1	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB14312R
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Received: 08/21/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB14312-3.1	Secured Storage	Todd Shoemaker	08/29/12 08:27	Retrieve from Storage
JB14312-3.1	Todd Shoemaker	Secured Staging Area	08/29/12 08:27	Return to Storage
JB14312-3.1	Secured Staging Area	Robert OConnor	08/29/12 08:57	Retrieve from Storage
JB14312-3.1	Robert OConnor	Secured Storage	08/29/12 11:19	Return to Storage
JB14312-3.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14312-3.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14312-3.1	Sanjay Advani	Secured Storage	08/29/12 17:01	Return to Storage
JB14312-3.1	Secured Storage	Adam Scott	08/30/12 06:59	Retrieve from Storage
JB14312-3.1	Adam Scott	Secured Staging Area	08/30/12 07:00	Return to Storage
JB14312-3.1	Secured Staging Area	Mayur Patel	08/30/12 08:10	Retrieve from Storage
JB14312-3.1	Mayur Patel	Secured Storage	08/30/12 11:42	Return to Storage
JB14312-3.1	Secured Storage	Adam Scott	08/31/12 14:48	Retrieve from Storage
JB14312-3.1	Adam Scott	Secured Staging Area	08/31/12 14:49	Return to Storage
JB14312-3.1	Secured Staging Area	Ye Chen	08/31/12 16:17	Retrieve from Storage
JB14312-3.1	Ye Chen	Secured Storage	08/31/12 19:40	Return to Storage
JB14312-4.1	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14312-4.1	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14312-4.1	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14312-4.1	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage
JB14312-4.1	Secured Storage	Todd Shoemaker	08/29/12 08:27	Retrieve from Storage
JB14312-4.1	Todd Shoemaker	Secured Staging Area	08/29/12 08:27	Return to Storage
JB14312-4.1	Secured Staging Area	Robert OConnor	08/29/12 08:57	Retrieve from Storage
JB14312-4.1	Robert OConnor	Secured Storage	08/29/12 11:19	Return to Storage
JB14312-4.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14312-4.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14312-4.1	Sanjay Advani	Secured Storage	08/29/12 17:01	Return to Storage
JB14312-4.1	Secured Storage	Adam Scott	08/30/12 06:59	Retrieve from Storage
JB14312-4.1	Adam Scott	Secured Staging Area	08/30/12 07:00	Return to Storage
JB14312-4.1	Secured Staging Area	Mayur Patel	08/30/12 08:10	Retrieve from Storage
JB14312-4.1	Mayur Patel	Secured Storage	08/30/12 11:42	Return to Storage
JB14312-4.1	Secured Storage	Adam Scott	08/31/12 14:48	Retrieve from Storage
JB14312-4.1	Adam Scott	Secured Staging Area	08/31/12 14:49	Return to Storage
JB14312-4.1	Secured Staging Area	Ye Chen	08/31/12 16:17	Retrieve from Storage
JB14312-4.1	Ye Chen	Secured Storage	08/31/12 19:40	Return to Storage
JB14312-5.1	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14312-5.1	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14312-5.1	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14312-5.1	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage
JB14312-5.1	Secured Storage	Todd Shoemaker	08/29/12 08:27	Retrieve from Storage
JB14312-5.1	Todd Shoemaker	Secured Staging Area	08/29/12 08:27	Return to Storage
JB14312-5.1	Secured Staging Area	Robert OConnor	08/29/12 08:57	Retrieve from Storage
JB14312-5.1	Robert OConnor	Secured Storage	08/29/12 11:19	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB14312R
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Received: 08/21/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB14312-5.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14312-5.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14312-5.1	Sanjay Advani	Secured Storage	08/29/12 17:01	Return to Storage
JB14312-5.1	Secured Storage	Adam Scott	08/30/12 06:59	Retrieve from Storage
JB14312-5.1	Adam Scott	Secured Staging Area	08/30/12 07:00	Return to Storage
JB14312-5.1	Secured Staging Area	Mayur Patel	08/30/12 08:10	Retrieve from Storage
JB14312-5.1	Mayur Patel	Secured Storage	08/30/12 11:42	Return to Storage
JB14312-5.1	Secured Storage	Adam Scott	08/31/12 14:48	Retrieve from Storage
JB14312-5.1	Adam Scott	Secured Staging Area	08/31/12 14:49	Return to Storage
JB14312-5.1	Secured Staging Area	Ye Chen	08/31/12 16:17	Retrieve from Storage
JB14312-5.1	Ye Chen	Secured Storage	08/31/12 19:40	Return to Storage
JB14312-6.1	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14312-6.1	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14312-6.1	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14312-6.1	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage
JB14312-6.1	Secured Storage	Todd Shoemaker	08/29/12 08:27	Retrieve from Storage
JB14312-6.1	Todd Shoemaker	Secured Staging Area	08/29/12 08:27	Return to Storage
JB14312-6.1	Secured Staging Area	Robert OConnor	08/29/12 08:57	Retrieve from Storage
JB14312-6.1	Robert OConnor	Secured Storage	08/29/12 11:19	Return to Storage
JB14312-6.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14312-6.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14312-6.1	Sanjay Advani	Secured Storage	08/29/12 17:01	Return to Storage
JB14312-6.1	Secured Storage	Adam Scott	08/30/12 06:59	Retrieve from Storage
JB14312-6.1	Adam Scott	Secured Staging Area	08/30/12 07:00	Return to Storage
JB14312-6.1	Secured Staging Area	Mayur Patel	08/30/12 08:10	Retrieve from Storage
JB14312-6.1	Mayur Patel	Secured Storage	08/30/12 11:42	Return to Storage
JB14312-6.1	Secured Storage	Adam Scott	08/31/12 14:48	Retrieve from Storage
JB14312-6.1	Adam Scott	Secured Staging Area	08/31/12 14:49	Return to Storage
JB14312-6.1	Secured Staging Area	Ye Chen	08/31/12 16:17	Retrieve from Storage
JB14312-6.1	Ye Chen	Secured Storage	08/31/12 19:40	Return to Storage
JB14312-7.1	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14312-7.1	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14312-7.1	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14312-7.1	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage
JB14312-7.1	Secured Storage	Todd Shoemaker	08/29/12 08:27	Retrieve from Storage
JB14312-7.1	Todd Shoemaker	Secured Staging Area	08/29/12 08:27	Return to Storage
JB14312-7.1	Secured Staging Area	Robert OConnor	08/29/12 08:57	Retrieve from Storage
JB14312-7.1	Robert OConnor	Secured Storage	08/29/12 11:19	Return to Storage
JB14312-7.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14312-7.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14312-7.1	Sanjay Advani	Secured Storage	08/29/12 17:01	Return to Storage
JB14312-7.1	Secured Storage	Adam Scott	08/30/12 06:59	Retrieve from Storage

Accutest Internal Chain of Custody

Job Number: JB14312R
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Received: 08/21/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB14312-7.1	Adam Scott	Secured Staging Area	08/30/12 07:00	Return to Storage
JB14312-7.1	Secured Staging Area	Mayur Patel	08/30/12 08:10	Retrieve from Storage
JB14312-7.1	Mayur Patel	Secured Storage	08/30/12 11:42	Return to Storage
JB14312-7.1	Secured Storage	Adam Scott	08/31/12 14:48	Retrieve from Storage
JB14312-7.1	Adam Scott	Secured Staging Area	08/31/12 14:49	Return to Storage
JB14312-7.1	Secured Staging Area	Ye Chen	08/31/12 16:17	Retrieve from Storage
JB14312-7.1	Ye Chen	Secured Storage	08/31/12 19:40	Return to Storage
JB14312-8.1	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14312-8.1	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14312-8.1	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14312-8.1	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage
JB14312-8.1	Secured Storage	Todd Shoemaker	08/29/12 08:27	Retrieve from Storage
JB14312-8.1	Todd Shoemaker	Secured Staging Area	08/29/12 08:27	Return to Storage
JB14312-8.1	Secured Staging Area	Robert OConnor	08/29/12 08:57	Retrieve from Storage
JB14312-8.1	Robert OConnor	Secured Storage	08/29/12 11:19	Return to Storage
JB14312-8.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14312-8.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14312-8.1	Sanjay Advani	Secured Storage	08/29/12 17:01	Return to Storage
JB14312-8.1	Secured Storage	Adam Scott	08/30/12 06:59	Retrieve from Storage
JB14312-8.1	Adam Scott	Secured Staging Area	08/30/12 07:00	Return to Storage
JB14312-8.1	Secured Staging Area	Mayur Patel	08/30/12 08:10	Retrieve from Storage
JB14312-8.1	Mayur Patel	Secured Storage	08/30/12 11:42	Return to Storage
JB14312-8.1	Secured Storage	Adam Scott	08/31/12 14:48	Retrieve from Storage
JB14312-8.1	Adam Scott	Secured Staging Area	08/31/12 14:49	Return to Storage
JB14312-8.1	Secured Staging Area	Ye Chen	08/31/12 16:17	Retrieve from Storage
JB14312-8.1	Ye Chen	Secured Storage	08/31/12 19:40	Return to Storage
JB14312-9.1	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14312-9.1	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14312-9.1	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14312-9.1	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage
JB14312-9.1	Secured Storage	Todd Shoemaker	08/29/12 08:27	Retrieve from Storage
JB14312-9.1	Todd Shoemaker	Secured Staging Area	08/29/12 08:27	Return to Storage
JB14312-9.1	Secured Staging Area	Robert OConnor	08/29/12 08:57	Retrieve from Storage
JB14312-9.1	Robert OConnor	Secured Storage	08/29/12 11:19	Return to Storage
JB14312-9.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14312-9.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14312-9.1	Sanjay Advani	Secured Storage	08/29/12 17:01	Return to Storage
JB14312-9.1	Secured Storage	Adam Scott	08/30/12 06:59	Retrieve from Storage
JB14312-9.1	Adam Scott	Secured Staging Area	08/30/12 07:00	Return to Storage
JB14312-9.1	Secured Staging Area	Mayur Patel	08/30/12 08:10	Retrieve from Storage
JB14312-9.1	Mayur Patel	Secured Storage	08/30/12 11:42	Return to Storage
JB14312-9.1	Secured Storage	Adam Scott	08/31/12 14:48	Retrieve from Storage

Accutest Internal Chain of Custody

Job Number: JB14312R
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Received: 08/21/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB14312-9.1	Adam Scott	Secured Staging Area	08/31/12 14:49	Return to Storage
JB14312-9.1	Secured Staging Area	Ye Chen	08/31/12 16:17	Retrieve from Storage
JB14312-9.1	Ye Chen	Secured Storage	08/31/12 19:40	Return to Storage
JB14312-10.1	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14312-10.1	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14312-10.1	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14312-10.1	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage
JB14312-10.1	Secured Storage	Todd Shoemaker	08/29/12 08:27	Retrieve from Storage
JB14312-10.1	Todd Shoemaker	Secured Staging Area	08/29/12 08:27	Return to Storage
JB14312-10.1	Secured Staging Area	Robert OConnor	08/29/12 08:57	Retrieve from Storage
JB14312-10.1	Robert OConnor	Secured Storage	08/29/12 11:19	Return to Storage
JB14312-10.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14312-10.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14312-10.1	Sanjay Advani	Secured Storage	08/29/12 17:01	Return to Storage
JB14312-10.1	Secured Storage	Adam Scott	08/30/12 06:59	Retrieve from Storage
JB14312-10.1	Adam Scott	Secured Staging Area	08/30/12 07:00	Return to Storage
JB14312-10.1	Secured Staging Area	Mayur Patel	08/30/12 08:10	Retrieve from Storage
JB14312-10.1	Mayur Patel	Secured Storage	08/30/12 11:42	Return to Storage
JB14312-10.1	Secured Storage	Adam Scott	08/31/12 14:48	Retrieve from Storage
JB14312-10.1	Adam Scott	Secured Staging Area	08/31/12 14:49	Return to Storage
JB14312-10.1	Secured Staging Area	Ye Chen	08/31/12 16:17	Retrieve from Storage
JB14312-10.1	Ye Chen	Secured Storage	08/31/12 19:40	Return to Storage
JB14312-11.1	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14312-11.1	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14312-11.1	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14312-11.1	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage
JB14312-11.1	Secured Storage	Todd Shoemaker	08/29/12 08:27	Retrieve from Storage
JB14312-11.1	Todd Shoemaker	Secured Staging Area	08/29/12 08:27	Return to Storage
JB14312-11.1	Secured Staging Area	Robert OConnor	08/29/12 08:57	Retrieve from Storage
JB14312-11.1	Robert OConnor	Secured Storage	08/29/12 11:19	Return to Storage
JB14312-11.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14312-11.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14312-11.1	Sanjay Advani	Secured Storage	08/29/12 17:01	Return to Storage
JB14312-11.1	Secured Storage	Adam Scott	08/30/12 06:59	Retrieve from Storage
JB14312-11.1	Adam Scott	Secured Staging Area	08/30/12 07:00	Return to Storage
JB14312-11.1	Secured Staging Area	Mayur Patel	08/30/12 08:10	Retrieve from Storage
JB14312-11.1	Mayur Patel	Secured Storage	08/30/12 11:42	Return to Storage
JB14312-11.1	Secured Storage	Adam Scott	08/31/12 14:48	Retrieve from Storage
JB14312-11.1	Adam Scott	Secured Staging Area	08/31/12 14:49	Return to Storage
JB14312-11.1	Secured Staging Area	Ye Chen	08/31/12 16:17	Retrieve from Storage
JB14312-11.1	Ye Chen	Secured Storage	08/31/12 19:40	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB14312R
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Received: 08/21/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB14312-12.1	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14312-12.1	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14312-12.1	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14312-12.1	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage
JB14312-12.1	Secured Storage	Todd Shoemaker	08/29/12 08:27	Retrieve from Storage
JB14312-12.1	Todd Shoemaker	Secured Staging Area	08/29/12 08:27	Return to Storage
JB14312-12.1	Secured Staging Area	Robert OConnor	08/29/12 08:57	Retrieve from Storage
JB14312-12.1	Robert OConnor	Secured Storage	08/29/12 11:19	Return to Storage
JB14312-12.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14312-12.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14312-12.1	Sanjay Advani	Secured Storage	08/29/12 17:01	Return to Storage
JB14312-12.1	Secured Storage	Adam Scott	08/30/12 06:59	Retrieve from Storage
JB14312-12.1	Adam Scott	Secured Staging Area	08/30/12 07:00	Return to Storage
JB14312-12.1	Secured Staging Area	Mayur Patel	08/30/12 08:10	Retrieve from Storage
JB14312-12.1	Mayur Patel	Secured Storage	08/30/12 11:42	Return to Storage
JB14312-12.1	Secured Storage	Adam Scott	08/31/12 14:48	Retrieve from Storage
JB14312-12.1	Adam Scott	Secured Staging Area	08/31/12 14:49	Return to Storage
JB14312-12.1	Secured Staging Area	Ye Chen	08/31/12 16:17	Retrieve from Storage
JB14312-12.1	Ye Chen	Secured Storage	08/31/12 19:40	Return to Storage
JB14312-13.1	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14312-13.1	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14312-13.1	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14312-13.1	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage
JB14312-13.1	Secured Storage	Todd Shoemaker	08/29/12 08:27	Retrieve from Storage
JB14312-13.1	Todd Shoemaker	Secured Staging Area	08/29/12 08:27	Return to Storage
JB14312-13.1	Secured Staging Area	Robert OConnor	08/29/12 08:57	Retrieve from Storage
JB14312-13.1	Robert OConnor	Secured Storage	08/29/12 11:19	Return to Storage
JB14312-13.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14312-13.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14312-13.1	Sanjay Advani	Secured Storage	08/29/12 17:01	Return to Storage
JB14312-13.1	Secured Storage	Adam Scott	08/30/12 06:59	Retrieve from Storage
JB14312-13.1	Adam Scott	Secured Staging Area	08/30/12 07:00	Return to Storage
JB14312-13.1	Secured Staging Area	Mayur Patel	08/30/12 08:10	Retrieve from Storage
JB14312-13.1	Mayur Patel	Secured Storage	08/30/12 11:42	Return to Storage
JB14312-13.1	Secured Storage	Adam Scott	08/31/12 14:48	Retrieve from Storage
JB14312-13.1	Adam Scott	Secured Staging Area	08/31/12 14:49	Return to Storage
JB14312-13.1	Secured Staging Area	Ye Chen	08/31/12 16:17	Retrieve from Storage
JB14312-13.1	Ye Chen	Secured Storage	08/31/12 19:40	Return to Storage
JB14312-15.1	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14312-15.1	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14312-15.1	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14312-15.1	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB14312R
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Received: 08/21/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB14312-15.1	Secured Storage	Todd Shoemaker	08/29/12 08:27	Retrieve from Storage
JB14312-15.1	Todd Shoemaker	Secured Staging Area	08/29/12 08:27	Return to Storage
JB14312-15.1	Secured Staging Area	Robert OConnor	08/29/12 08:57	Retrieve from Storage
JB14312-15.1	Robert OConnor	Secured Storage	08/29/12 11:19	Return to Storage
JB14312-15.1	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14312-15.1	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14312-15.1	Sanjay Advani	Secured Storage	08/29/12 17:01	Return to Storage
JB14312-15.1	Secured Storage	Adam Scott	08/30/12 06:59	Retrieve from Storage
JB14312-15.1	Adam Scott	Secured Staging Area	08/30/12 07:00	Return to Storage
JB14312-15.1	Secured Staging Area	Mayur Patel	08/30/12 08:10	Retrieve from Storage
JB14312-15.1	Mayur Patel	Secured Storage	08/30/12 11:42	Return to Storage
JB14312-15.1	Secured Storage	Adam Scott	08/31/12 14:48	Retrieve from Storage
JB14312-15.1	Adam Scott	Secured Staging Area	08/31/12 14:49	Return to Storage
JB14312-15.1	Secured Staging Area	Ye Chen	08/31/12 16:17	Retrieve from Storage
JB14312-15.1	Ye Chen	Secured Storage	08/31/12 19:40	Return to Storage
JB14312-15.2	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14312-15.2	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14312-15.2	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14312-15.2	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage
JB14312-15.2	Secured Storage	Todd Shoemaker	08/29/12 08:27	Retrieve from Storage
JB14312-15.2	Todd Shoemaker	Secured Staging Area	08/29/12 08:27	Return to Storage
JB14312-15.2	Secured Staging Area	Robert OConnor	08/29/12 08:57	Retrieve from Storage
JB14312-15.2	Robert OConnor	Secured Storage	08/29/12 11:19	Return to Storage
JB14312-15.2	Secured Storage	Adam Scott	08/31/12 14:48	Retrieve from Storage
JB14312-15.2	Adam Scott	Secured Staging Area	08/31/12 14:49	Return to Storage
JB14312-15.2	Secured Staging Area	Ye Chen	08/31/12 16:17	Retrieve from Storage
JB14312-15.2	Ye Chen	Secured Storage	08/31/12 19:40	Return to Storage
JB14312-15.2	Secured Storage	Brian Racin	09/01/12 08:33	Retrieve from Storage
JB14312-15.2	Brian Racin	Shirley Grzybowski	09/01/12 08:36	Custody Transfer
JB14312-15.2	Shirley Grzybowski	Secured Storage	09/01/12 11:01	Return to Storage
JB14312-15.3	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14312-15.3	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14312-15.3	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14312-15.3	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage
JB14312-15.3	Secured Storage	Todd Shoemaker	08/29/12 08:27	Retrieve from Storage
JB14312-15.3	Todd Shoemaker	Secured Staging Area	08/29/12 08:27	Return to Storage
JB14312-15.3	Secured Staging Area	Robert OConnor	08/29/12 08:57	Retrieve from Storage
JB14312-15.3	Robert OConnor	Secured Storage	08/29/12 11:19	Return to Storage
JB14312-15.3	Secured Storage	Brian Racin	08/29/12 13:31	Retrieve from Storage
JB14312-15.3	Brian Racin	Sanjay Advani	08/29/12 13:33	Custody Transfer
JB14312-15.3	Sanjay Advani	Secured Storage	08/29/12 17:01	Return to Storage
JB14312-15.3	Secured Storage	Adam Scott	08/30/12 06:59	Retrieve from Storage

Accutest Internal Chain of Custody

Job Number: JB14312R
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Received: 08/21/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB14312-15.3	Adam Scott	Secured Staging Area	08/30/12 07:00	Return to Storage
JB14312-15.3	Secured Staging Area	Mayur Patel	08/30/12 08:10	Retrieve from Storage
JB14312-15.3	Mayur Patel	Secured Storage	08/30/12 11:42	Return to Storage
JB14312-15.3	Secured Storage	Adam Scott	08/31/12 14:48	Retrieve from Storage
JB14312-15.3	Adam Scott	Secured Staging Area	08/31/12 14:49	Return to Storage
JB14312-15.3	Secured Staging Area	Ye Chen	08/31/12 16:17	Retrieve from Storage
JB14312-15.3	Ye Chen	Secured Storage	08/31/12 19:40	Return to Storage
JB14312-15.3	Secured Storage	Adam Scott	09/05/12 07:12	Retrieve from Storage
JB14312-15.3	Adam Scott	Secured Staging Area	09/05/12 07:13	Return to Storage
JB14312-15.3	Secured Staging Area	Jayshree Amin	09/05/12 08:47	Retrieve from Storage
JB14312-15.3	Jayshree Amin	Secured Storage	09/05/12 16:58	Return to Storage

New Jersey ACCUTEST LABORATORIES

General Chemistry

QC Data Summaries

Includes the following where applicable:

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

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: JB14312R
Account: ENSRNJ - AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GP66920/GN71477			mg/kg	40	38.7	96.8	80-120%
Chromium, Hexavalent	GP66920/GN71477	0.40	0.0	mg/kg	785.15	707	90.0	80-120%
Iron, Ferrous	GN71538	0.20	<0.20	%				
Total Organic Carbon	GP66744/GN71475	100	0.0	mg/kg	2000	1920	96.0	80-120%

Associated Samples:
Batch GN71538: JB14312-15R
Batch GP66744: JB14312-15R
Batch GP66920: JB14312-1R, JB14312-2R, JB14312-3R, JB14312-4R, JB14312-5R, JB14312-6R, JB14312-7R, JB14312-8R, JB14312-9R, JB14312-10R, JB14312-11R, JB14312-12R, JB14312-13R, JB14312-15R
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: JB14312R
Account: ENSRNJ - AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GP66920/GN71477	JB14312-15R	mg/kg	0.40 B	0.45	11.8	0-20%
Iron, Ferrous	GN71538	JB14312-15R	%	0.95	0.95	0.0	0-26%
Sulfide Screen	GN71534	JB14312-15R		NEGATIVE	NEGATIVE		0-%
Total Organic Carbon	GP66744/GN71159	JB13733-20	mg/kg	4440	3650	19.5	0-37%

Associated Samples:
Batch GN71534: JB14312-15R
Batch GN71538: JB14312-15R
Batch GP66744: JB14312-15R
Batch GP66920: JB14312-1R, JB14312-2R, JB14312-3R, JB14312-4R, JB14312-5R, JB14312-6R, JB14312-7R, JB14312-8R, JB14312-9R, JB14312-10R, JB14312-11R, JB14312-12R, JB14312-13R, JB14312-15R
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: JB14312R
Account: ENSRNJ - AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chromium, Hexavalent	GP66920/GN71477	JB14312-15R	mg/kg	0.40 B	48.5	26.6	54.0N(a)	75-125%
Chromium, Hexavalent	GP66920/GN71477	JB14312-15R	mg/kg	0.40 B	1190	1070	89.9(b)	75-125%
Iron, Ferrous	GN71538	JB14312-15R	%	0.95	57.8	56.6	96.0	62-130%
Total Organic Carbon	GP66744/GN71159	JB13733-20	mg/kg	4440	5330	8240	71.3	46-113%

Associated Samples:
Batch GN71538: JB14312-15R
Batch GP66744: JB14312-15R
Batch GP66920: JB14312-1R, JB14312-2R, JB14312-3R, JB14312-4R, JB14312-5R, JB14312-6R, JB14312-7R, JB14312-8R, JB14312-9R, JB14312-10R, JB14312-11R, JB14312-12R, JB14312-13R, JB14312-15R
(*) 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 (85.1%) on this sample.
(b) Good recovery on insoluble XCR matrix spike. See additional comments on soluble matrix spike recovery.

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB14312R
Account: ENSRNJ - AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

File ID: B20828S1.TXT Date Analyzed: 08/28/12 Methods: LLOYD KAHN 1988 MOD
Analyst: SJG Run ID: GN71159
Parameters: Total Organic Carbon

Time	Sample Description	Dilution Factor	PS Recov	Comments
10:55	GN71159-STD1	1		STDA
11:09	GN71159-STD2	1		STDB
11:59	GN71159-STD3	1		STDC
12:16	GN71159-STD4	1		STDD
12:49	GN71159-STD5	1		STDE
13:12	GN71159-STD6	1		STDF
13:27	GN71159-STD7	1		STDG
09:24	GN71159-CRI1	1		
09:39	GN71159-HSTD1	1		
09:51	GN71159-ICV1	1		
10:10	GN71159-CCV1	1		
10:28	GP66744-MB1	1		
10:41	GP66744-B1	1		
10:55	JB13733-20	1		(sample used for QC only; not part of login JB14312R)
11:05	ZZZZZZ	1		
11:17	ZZZZZZ	1		
11:44	ZZZZZZ	1		
11:57	ZZZZZZ	1		
12:10	ZZZZZZ	1		
12:26	ZZZZZZ	1		
13:00	ZZZZZZ	1		
13:18	GN71159-CCV2	1		
13:31	ZZZZZZ	1		
13:40	ZZZZZZ	1		
13:51	ZZZZZZ	1		
15:12	GP66744-D1	1		
15:27	GP66744-S1	1		
15:41	ZZZZZZ	1		
16:14	ZZZZZZ	1		
16:40	GN71159-CCV3	1		

Refer to raw data for calibration curve and standards.

Instrument QC Summary
Inorganics Analyses

Login Number: JB14312R
Account: ENSRNJ - AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

File ID: B20828S1.TXT Date Analyzed: 08/28/12 Methods: LLOYD KAHN 1988 MOD
Run ID: GN71159 Units: mg/l

Sample Number	Parameter	Result	RL	IDL/MDL	True Value	% Recov.	QC Limits
GN71159-CRI1	Total Organic Carbon	89.3	100	49	100	89.3	70-130
GN71159-HSTD1	Total Organic Carbon	4910	100	49	5000	98.2	90-110
GN71159-ICV1	Total Organic Carbon	1830	100	49	2000	91.5	90-110
GN71159-CCV1	Total Organic Carbon	2440	100	49	2500	97.6	90-110
GN71159-CCV2	Total Organic Carbon	2470	100	49	2500	98.8	90-110
GN71159-CCV3	Total Organic Carbon	2350	100	49	2500	94.0	90-110

(!) Outside of QC limits

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB14312R
Account: ENSRNJ - AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

File ID: B20904S1.TXT Date Analyzed: 09/04/12 Methods: LLOYD KAHN 1988 MOD
Analyst: SJG Run ID: GN71475
Parameters: Total Organic Carbon

Time	Sample Description	Dilution Factor	PS Recov	Comments
12:28	GN71475-STD1	1		STDA
12:53	GN71475-STD2	1		STDB
13:02	GN71475-STD3	1		STDC
13:22	GN71475-STD4	1		STDD
13:38	GN71475-STD5	1		STDE
13:51	GN71475-STD6	1		STDF
14:00	GN71475-STD7	1		STDG
09:38	GN71475-CRI1	1		
09:52	GN71475-HSTD1	1		
10:13	GN71475-ICV1	1		
10:31	GN71475-CCV1	1		
10:46	GP66744-MB2	1		
11:03	GP66744-B2	1		
11:13	JB14312-15R	1		
11:23	ZZZZZZ	1		
12:44	ZZZZZZ	1		
13:01	GN71475-CCV2	1		
13:28	ZZZZZZ	1		
14:22	ZZZZZZ	1		
14:50	ZZZZZZ	1		
15:07	GN71475-CCV3	1		

Refer to raw data for calibration curve and standards.

Instrument QC Summary
Inorganics Analyses

Login Number: JB14312R
Account: ENSRNJ - AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

File ID: B20904S1.TXT Date Analyzed: 09/04/12 Methods: LLOYD KAHN 1988 MOD
Run ID: GN71475 Units: mg/l

Sample Number	Parameter	Result	RL	IDL/MDL	True Value	% Recov.	QC Limits
GN71475-CRI1	Total Organic Carbon	94.1	100	49	100	94.1	70-130
GN71475-HSTD1	Total Organic Carbon	5060	100	49	5000	101.2	90-110
GN71475-ICV1	Total Organic Carbon	1930	100	49	2000	96.5	90-110
GN71475-CCV1	Total Organic Carbon	2690	100	49	2500	107.6	90-110
GN71475-CCV2	Total Organic Carbon	2660	100	49	2500	106.4	90-110
GN71475-CCV3	Total Organic Carbon	2660	100	49	2500	106.4	90-110

(!) Outside of QC limits

Report of Analysis

Client Sample ID:	NSB-F5-16.0-16.5		
Lab Sample ID:	JB14312-15R	**Date Sampled:**	08/21/12
Matrix:	SO - Soil	**Date Received:**	08/21/12
		Percent Solids:	83.1
Project:	PPG Northern Canal Borings, Jersey City, NJ		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.40 B	0.48	0.14	mg/kg	1	09/04/12 13:14	RI	SW846 3060A/7196A
Iron, Ferrous [a]	0.95	0.20		%	1	09/05/12	JA	ASTM D3872-86
Sulfide Screen [b]	NEGATIVE				1	09/05/12	JA	SM18 4500S2-A
Total Organic Carbon	961	120	58	mg/kg	1	09/04/12 11:13	SJG	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: JB14312R
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Sample: JB14312-1 **Analyzed:** 29-AUG-12 by RO **Method:** SM18 2540G
ClientID: NSB-D1-1.0-1.5

Wet Weight (Total)	34.07	g
Tare Weight	26.7	g
Dry Weight (Total)	33.33	g
Solids, Percent	90	%

Sample: JB14312-2 **Analyzed:** 29-AUG-12 by RO **Method:** SM18 2540G
ClientID: NSB-D1-12.0-12.5

Wet Weight (Total)	31.3	g
Tare Weight	21.6	g
Dry Weight (Total)	29.62	g
Solids, Percent	82.7	%

Sample: JB14312-3 **Analyzed:** 29-AUG-12 by RO **Method:** SM18 2540G
ClientID: NSB-D1-16.0-16.5

Wet Weight (Total)	32.59	g
Tare Weight	25.12	g
Dry Weight (Total)	31.26	g
Solids, Percent	82.2	%

Sample: JB14312-4 **Analyzed:** 29-AUG-12 by RO **Method:** SM18 2540G
ClientID: NSB-D1-20.0-20.5

Wet Weight (Total)	35.27	g
Tare Weight	25.95	g
Dry Weight (Total)	33.77	g
Solids, Percent	83.9	%

Sample: JB14312-5 **Analyzed:** 29-AUG-12 by RO **Method:** SM18 2540G
ClientID: NSB-D1-4.0-4.5

Wet Weight (Total)	33.52	g
Tare Weight	26.18	g
Dry Weight (Total)	32.28	g
Solids, Percent	83.1	%

Sample: JB14312-6 **Analyzed:** 29-AUG-12 by RO **Method:** SM18 2540G
ClientID: NSB-D1-7.7-8.2

Wet Weight (Total)	30.98	g
Tare Weight	25.15	g
Dry Weight (Total)	30.01	g
Solids, Percent	83.4	%

Percent Solids Raw Data Summary

Job Number: JB14312R
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Sample: JB14312-7 **Analyzed:** 29-AUG-12 by RO **Method:** SM18 2540G
ClientID: NSB-D2-11.3-11.8

Wet Weight (Total)	29.88	g
Tare Weight	23.06	g
Dry Weight (Total)	28.7	g
Solids, Percent	82.7	%

Sample: JB14312-8 **Analyzed:** 29-AUG-12 by RO **Method:** SM18 2540G
ClientID: NSB-D2-3.0-3.5

Wet Weight (Total)	25.63	g
Tare Weight	19.29	g
Dry Weight (Total)	24.94	g
Solids, Percent	89.1	%

Sample: JB14312-9 **Analyzed:** 29-AUG-12 by RO **Method:** SM18 2540G
ClientID: NSB-D2-3.0-3.5X

Wet Weight (Total)	28.83	g
Tare Weight	22.31	g
Dry Weight (Total)	28.02	g
Solids, Percent	87.6	%

Sample: JB14312-10 **Analyzed:** 29-AUG-12 by RO **Method:** SM18 2540G
ClientID: NSB-D2-6.0-6.5

Wet Weight (Total)	27.03	g
Tare Weight	20.88	g
Dry Weight (Total)	24.6	g
Solids, Percent	60.5	%

Sample: JB14312-11 **Analyzed:** 29-AUG-12 by RO **Method:** SM18 2540G
ClientID: NSB-D3-3.0-3.5

Wet Weight (Total)	27.76	g
Tare Weight	22.02	g
Dry Weight (Total)	26.86	g
Solids, Percent	84.3	%

Sample: JB14312-12 **Analyzed:** 29-AUG-12 by RO **Method:** SM18 2540G
ClientID: NSB-D4-1.0-1.5

Wet Weight (Total)	23.37	g
Tare Weight	17.64	g
Dry Weight (Total)	22.8	g
Solids, Percent	90.1	%

Percent Solids Raw Data Summary

Job Number: JB14312R
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Sample: JB14312-13 **Analyzed:** 29-AUG-12 by RO **Method:** SM18 2540G
ClientID: NSB-F5-20.0-20.5

Wet Weight (Total)	31.46	g
Tare Weight	22.15	g
Dry Weight (Total)	29.95	g
Solids, Percent	83.8	%

Sample: JB14312-15 **Analyzed:** 29-AUG-12 by RO **Method:** SM18 2540G
ClientID: NSB-F5-16.0-16.5

Wet Weight (Total)	28.11	g
Tare Weight	21.26	g
Dry Weight (Total)	26.95	g
Solids, Percent	83.1	%

New Jersey ACCUTEST LABORATORIES

General Chemistry

Raw Data

	Sample Name	Sample ID	Method	Type	Date / Time	Conc.	Mean Area	CV
1	CRI		tocsscal.met	Unknown	08/28/12 09:2	0.08928 %	462	4.04%
2	CRI		tocsscal.met	Unknown	08/28/12 09:2	0.08928 %	462	4.04%
3	HSTD		tocsscal.met	Unknown	08/28/12 09:3	4.908 %	19352	0.342%
4	HSTD		tocsscal.met	Unknown	08/28/12 09:3	4.908 %	19352	0.342%
5	ICV		tocsscal.met	Unknown	08/28/12 09:5	1.827 %	7273	6.68%
6	ICV		tocsscal.met	Unknown	08/28/12 09:5	1.827 %	7273	6.68%
7	CCV		tocsscal.met	Unknown	08/28/12 10:1	2.440 %	9679	0.820%
8	CCV		tocsscal.met	Unknown	08/28/12 10:1	2.440 %	9679	0.820%
9	GP66744-MB	TOCLK	tocss.met	Unknown	08/28/12 10:2	-0.00286 %	0	0.00%
10	GP66744-MB	TOCLK	tocss.met	Unknown	08/28/12 10:2	-0.00286 %	0	0.00%
11	GP66744-B1		tocss.met	Unknown	08/28/12 10:4	0.1751 %	6976	2.73%
12	GP66744-B1		tocss.met	Unknown	08/28/12 10:4	0.1751 %	6976	2.73%
13	JB13733-20	(A)	tocss.met	Unknown	08/28/12 10:5	0.3223 %	12787	13.9%
14	JB13733-20		tocss.met	Unknown	08/28/12 10:5	0.3223 %	12787	13.9%
15	JB13733-10		tocss.met	Unknown	08/28/12 11:0	1.639 %	6953	10.9%
16	JB13733-10		tocss.met	Unknown	08/28/12 11:0	1.639 %	6953	10.9%
17	JB13733-11	(2)	tocss.met	Unknown	08/28/12 11:1	0.9550 %	2077	24.7%
18	JB13733-11		tocss.met	Unknown	08/28/12 11:1	0.9550 %	2077	24.7%
19	JB13733-12	(A)	tocss.met	Unknown	08/28/12 11:4	2.596 %	10731	20.6%
20	JB13733-12		tocss.met	Unknown	08/28/12 11:4	2.596 %	10731	20.6%
21	JB13733-12		tocss.met	Unknown	08/28/12 11:4	2.596 %	10731	20.6%
22	JB13733-12		tocss.met	Unknown	08/28/12 11:4	2.596 %	10731	20.6%
23	JB13733-13		tocss.met	Unknown	08/28/12 11:5	1.635 %	6742	3.41%
24	JB13733-13		tocss.met	Unknown	08/28/12 11:5	1.635 %	6742	3.41%
25	JB13733-14		tocss.met	Unknown	08/28/12 12:1	1.298 %	18489	0.998%
26	JB13733-14		tocss.met	Unknown	08/28/12 12:1	1.298 %	18489	0.998%
27	JB13733-16		tocss.met	Unknown	08/28/12 12:2	1.159 %	16777	4.76%
28	JB13733-16		tocss.met	Unknown	08/28/12 12:2	1.159 %	16777	4.76%
29	JB13733-18		tocss.met	Unknown	08/28/12 13:0	0.4054 %	16064	20.5%
30	JB13733-18		tocss.met	Unknown	08/28/12 13:0	0.4054 %	16064	20.5%
31	JB13733-18		tocss.met	Unknown	08/28/12 13:0	0.4054 %	16064	20.5%
32	JB13733-18		tocss.met	Unknown	08/28/12 13:0	0.4054 %	16064	20.5%
33	CCV		tocsscal.met	Unknown	08/28/12 13:1	2.472 %	9802	2.52%
34	CCV		tocsscal.met	Unknown	08/28/12 13:1	2.472 %	9802	2.52%
35	JB13733-19	(A)	tocss.met	Unknown	08/28/12 13:3	3.425 %	14054	1.17%
36	JB13733-19		tocss.met	Unknown	08/28/12 13:3	3.425 %	14054	1.17%
37	JB13733-21	(2)	tocss.met	Unknown	08/28/12 13:4	0.08598 %	1860	14.5%
38	JB13733-21		tocss.met	Unknown	08/28/12 13:4	0.08598 %	1860	14.5%
39	JB13733-22	(A)	tocss.met	Unknown	08/28/12 13:5	0.2059 %	4347	11.5%
40	JB13733-22		tocss.met	Unknown	08/28/12 13:5	0.2059 %	4347	11.5%
41	GP66744-D1	JB13733-20	tocss.met	Unknown	08/28/12 15:1	0.2649 %	10553	27.8%
42	GP66744-D1	JB13733-20	tocss.met	Unknown	08/28/12 15:1	0.2649 %	10553	27.8%
43	GP66744-D1	JB13733-20	tocss.met	Unknown	08/28/12 15:1	0.2649 %	10553	27.8%
44	GP66744-D1	JB13733-20	tocss.met	Unknown	08/28/12 15:1	0.2649 %	10553	27.8%
45	GP66744-S1	JB13733-20	tocss.met	Unknown	08/28/12 15:2	0.5982 %	12227	2.30%
46	GP66744-S1	JB13733-20	tocss.met	Unknown	08/28/12 15:2	0.5982 %	12227	2.30%
47	JB13733-11	(A)	tocss.met	Unknown	08/28/12 15:4	1.678 %	16619	3.59%
48	JB13733-11		tocss.met	Unknown	08/28/12 15:4	1.678 %	16619	3.59%
49	JB13733-21		tocss.met	Unknown	08/28/12 16:1	0.2585 %	10266	39.1%

8/29/12 High CVB weight too low rerun 0.25g

weight too low rerun 1.0g

b120828S1.TOC

TOCLK

GN71159

8/29/12

7.1

7

	Sample Name	Sample ID	Method	Type	Date / Time	Conc.	Mean Area	CV
50	JB13733-21		tocss.met	Unknown	08/28/12 16:1	0.2585 %	10266	39.1%
51	JB13733-21		tocss.met	Unknown	08/28/12 16:1	0.2585 %	10266	39.1%
52	JB13733-21		tocss.met	Unknown	08/28/12 16:1	0.2585 %	10266	39.1%
53	CCV		tocsscal.met	Unknown	08/28/12 16:4	2.353 %	9338	3.08%
54	CCV		tocsscal.met	Unknown	08/28/12 16:4	2.353 %	9338	3.08%

b2082851.TOC

TOCLK

GN71159

8/29/12

7.1

7

ACCUTEST. TOCLK b20828s1.TOC

Test: **Total Organic Carbon** Units = mg/kg GN Batch ID 71159
Product: **TOC** Balance ID: B-39 Date 8/28/12
Method: **Corp. Eng. 81 M/SW846 9060 M or ~~EPA Region 2 Lloyd Kahn~~** (circle one) Analyst
RDL = 1000 mg/kg or 100 mg/kg (circle one)

Sample ID	Sample Weight	Bottle #	Sample Description & comments
CRI			
HSTD			
ICV (KHP)			
CCV			
GP66744-MB1	1.0000		middle
	1.0000		
GP66744-B1	1.0000		
	1.0000		
JB13733-20	1.0033	4	
	1.0028		
	1.0022		
	1.0008		
JB13733-10	0.1076	3	
	0.1051		
	0.1067		
	0.1031		
JB13733-11	0.0549	3	weight too low rerun 0.25g
	0.0508		
	0.0541		
	0.0526		
JB13733-12	0.1092	3	
	0.1025		
	0.1013		
	0.1065		

Analyst: Date: 8/28/12 QCReviewer: Date:
Manager Review: Date:
Comments:
MS/BS - 100µl of 20000 mg C/L → 1.0g Silica Sand TV = 2000 mg/kg
(glucose)

Form: GN-058a
Rev. Date: 11/11/08

ACCUTEST. (2)

Test: **Total Organic Carbon** Units = mg/kg GN Batch ID 71159
Product: **TOC** Balance ID: B-39 Date 8/28/12
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 B

Sample ID	Sample Weight	Bottle #	Sample Description & comments
JB13733-13	0.1039	4	
	0.1029		
	0.1009		
	0.1028		
JB13733-14	0.3630	4	
	0.3592		
	0.3596		
	0.3539		
JB13733-16	0.3770	4	
	0.3561		
	0.3628		
	0.3554		
JB13733-18	1.0032	2	
	1.0000		
	1.0069		
	1.0037		
CCV			
JB13733-19	0.1060	2	
	0.1016		
	0.1062		
	0.1064		
JB13733-21	0.5195	2	weight too low rerun 1.0g
	0.5178		
	0.5359		

Analyst: B Date: 8/28/12 QCReviewer: _____ Date: _____
Manager Review: _____ Date: _____
Comments:

Form: GN-058a
Rev. Date: 11/11/08

7.1.7

ACCUTEST. (3)

Test: **Total Organic Carbon** Units = mg/kg GN Batch ID 71159
Product: **TOC** Balance ID: B-39 Date 8/28/12
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

Sample ID	Sample Weight	Bottle #	Sample Description & comments
	0.5065		
JB13733-22	0.5330	2	
	0.5148		
	0.5377		
	0.5219		
GP66744-D1	1.0077	4	JB13733-20
→	1.0064		
	1.0039		
	1.0027		
GP66744-S1	0.5231	4	
	0.5103		TV= 3871
	0.5104		
	0.5126		
JB13733-11	0.2548	3	
	0.2472		
	0.2545		
	0.2537		
JB13733-21	1.0054	2	
	1.0011		
	1.0004		
	1.0020		
CCV			

Analyst: Date: 8/28/12 QCReviewer: Date:
Manager Review: Date:
Comments:

Form: GN-058a
Rev. Date: 11/11/08

ACCUTEST

B-39 Balance
Glass pipets Class A

GENERAL CHEMISTRY STANDARD PREPARATION LOG

Product: TOCLK

GN or GP Number: GN71159

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
GNE7-33059-TOC	Fisher 110579	Sucrose	47.5g	DI H_2O	100ml	200000	8/28/12	[signature]	8/28/12
GNE7-33060-TOC	Fisher 086673A	Glucose	12.5g	"	"	50000	"	"	"

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									
GNE7-33061-TOC	GNE7-33059-TOC	200000	0.5	DI H_2O	100ml	1000	8/28/12	[signature]	8/28/12
GNE7-33062-TOC			2.5			5000			
GNE7-33063-TOC			5.0			10000			
GNE7-33064-TOC			12.5			25000			
GNE7-33065-TOC			20.0			40000			
GNE7-33066-TOC			25.0			50000			
Glucose Stds									
GNE7-33067-TOC	GNE7-33060-TOC	50000	40.0	DI H_2O	100ml	20000	8/28/12	[signature]	
GNE7-33068-TOC	"	"	50.0	"	"	25000	"	"	"

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

ACCUTEST.

TOCLK

GN 71159

Reagent Information Log - TOC - Soil

Reagent	Reagent # or Manufacturer/Lot	
		XP
Sucrose Stock Solution, 200000 mg/L	GNE7-33059-TOC	8/28/12
Glucose Stock Solution, 50000 ug/L	GNE7-33060-TOC	8/28/12
Glucose Check Solution, 25000 ug/L	GNE7-33068-TOC	8/28/12
Nitric Acid, Reagent Grade	K50030 Baker	2/7/17
Glucose Check Stock Solution, 20000 ug/L	GNE7-33067-TOC	8/28/12
KHP 20000 ppm	GNSTK-863-TOC	11/14/12

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

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

TOC-Control

General Information

Organization: Accutest Laboratories
User:
Title:
Instrument ID: TOC2
Filename: C:\TOCCNTR\DATA\B20818S2.TOC
Comment:

Instrument Conditions

Instrument Attachments: TOC-5000 + SSM 5000

Calibration Curves

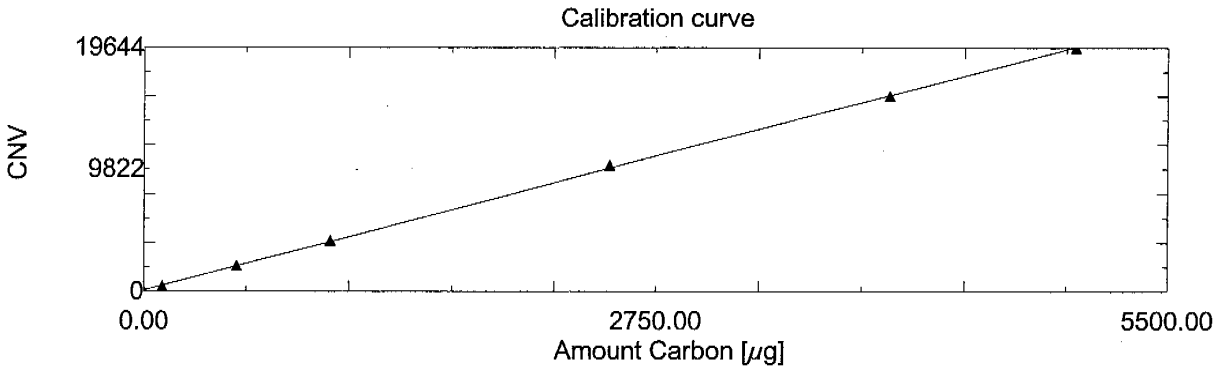
Filename: b20818s1.cal
Title: b20818s1.cal
Calculation method: Lin. regression without zero shift

Analysis	Unit	Range	Density
SSM-TC	%	5	1.000

Sample Name	Sample ID	Conc.	No. of Inj.	Mean Area	Volume	CNV	Abs C [µg	SD	CV
STDA	0.0	0.000	1	0	100.0	0	0.000	0	0.00%
STDB	0.1	0.1000	1	427	100.0	427	100.0	7	1.66%
STDC	0.5	0.5000	1	2087	100.0	2087	500.0	2	0.136%
STDD	1.0	1.000	1	4137	100.0	4136	1000	60	1.45%
STDE	2.5	2.500	1	10123	100.0	10123	2500	50	0.503%
STDF	4.0	4.000	1	15727	100.0	15726	4000	226	1.44%
STDG	5.0	5.000	1	19644	100.0	19644	5000	205	1.04%

Slope: 3.9206
Intercept: 111.99
R^2: 0.999775

TOC-Control



Samples

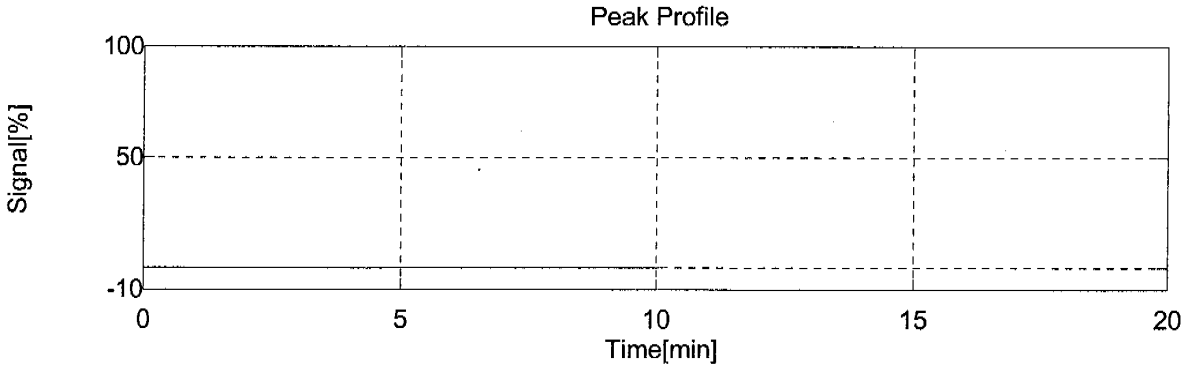
Sample Name: STDA
Sample ID: 0.0
Remark:
Comment:
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Standard	SSM-TC	1.000	08/18/2012 10:55:13

Mean Area	Conc	Result	SD	CV	CNV	Modified
0	0.000%		0.000	0.00%	0	

No.	Range	Area	CNV	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	0	0	0.0000		******	08/18/2012 10:48:13	b20818s1.cal
2	5	0	0	0.0000		******	08/18/2012 10:55:13	b20818s1.cal

TOC-Control



Samples

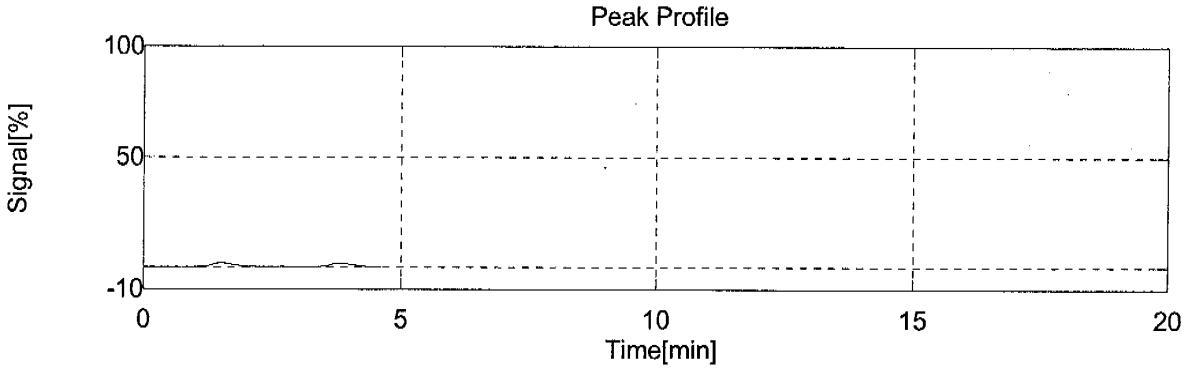
Sample Name: STDB
Sample ID: 0.1
Remark:
Comment:
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Standard	SSM-TC	1.000	08/18/2012 11:09:44

Mean Area	Conc	Result	SD	CV	CNV	Modified
427	0.1000%		0.000	0.00%	427	

No.	Range	Area	CNV	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	422	422	0.10000		******	08/18/2012 11:01:52	b20818s1.cal
2	5	432	432	0.10000		******	08/18/2012 11:09:44	b20818s1.cal

TOC-Control



Samples

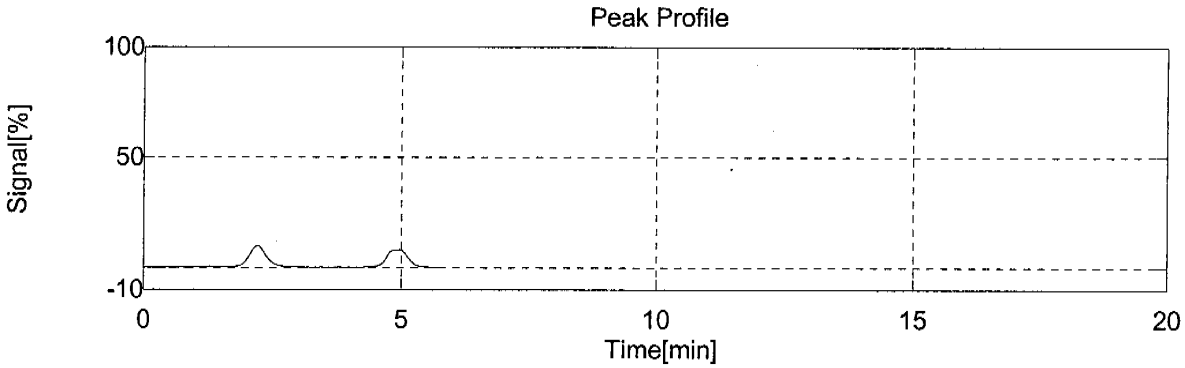
Sample Name: STDC
Sample ID: 0.5
Remark:
Comment:
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Standard	SSM-TC	1.000	08/18/2012 11:59:35

Mean Area	Conc	Result	SD	CV	CNV	Modified
2087	0.5000%		0.000	0.00%	2087	

No.	Range	Area	CNV	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	2085	2085	0.50000		******	08/18/2012 11:34:17	b20818s1.cal
2	5	2089	2089	0.50000		******	08/18/2012 11:59:35	b20818s1.cal

TOC-Control



Samples

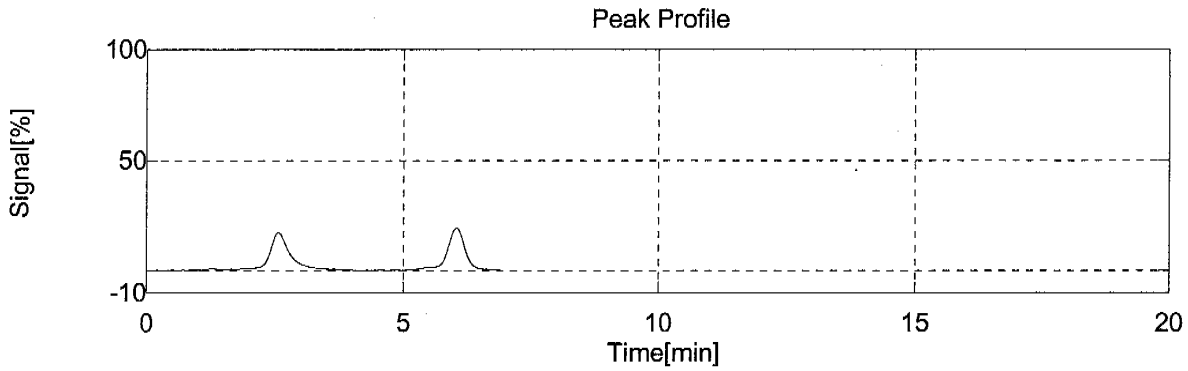
Sample Name: STDD
Sample ID: 1.0
Remark:
Comment:
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Standard	SSM-TC	1.000	08/18/2012 12:16:37

Mean Area	Conc	Result	SD	CV	CNV	Modified
4136	1.000%		0.000	0.00%	4136	

No.	Range	Area	CNV	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	4179	4179	1.0000		******	08/18/2012 12:10:59	b20818s1.cal
2	5	4094	4094	1.0000		******	08/18/2012 12:16:37	b20818s1.cal

TOC-Control



Samples

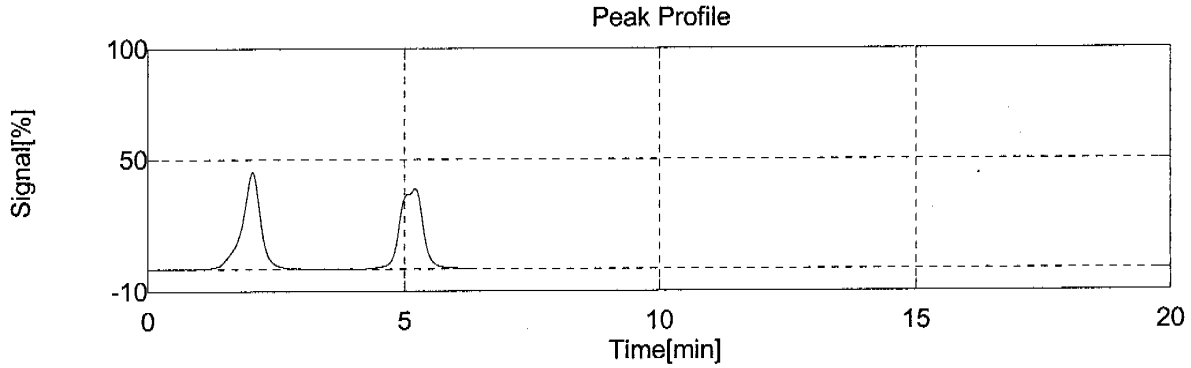
Sample Name: STDE
Sample ID: 2.5
Remark:
Comment:
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Standard	SSM-TC	1.000	08/18/2012 12:49:48

Mean Area	Conc	Result	SD	CV	CNV	Modified
10123	2.500%		0.000	0.00%	10123	

No.	Range	Area	CNV	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	10159	10159	2.5000		******	08/18/2012 12:21:40	b20818s1.cal
2	5	10087	10087	2.5000		******	08/18/2012 12:49:48	b20818s1.cal

TOC-Control



Samples

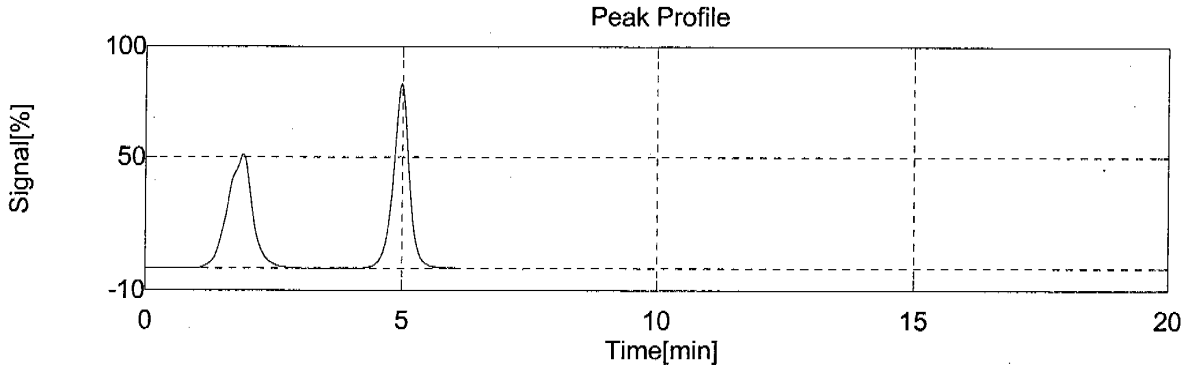
Sample Name: STDF
Sample ID: 4.0
Remark:
Comment:
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Standard	SSM-TC	1.000	08/18/2012 13:12:57

Mean Area	Conc	Result	SD	CV	CNV	Modified
15726	4.000%		0.000	0.00%	15726	

No.	Range	Area	CNV	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	15566	15566	4.0000		******	08/18/2012 12:59:09	b20818s1.cal
2	5	15887	15887	4.0000		******	08/18/2012 13:12:57	b20818s1.cal

TOC-Control



Samples

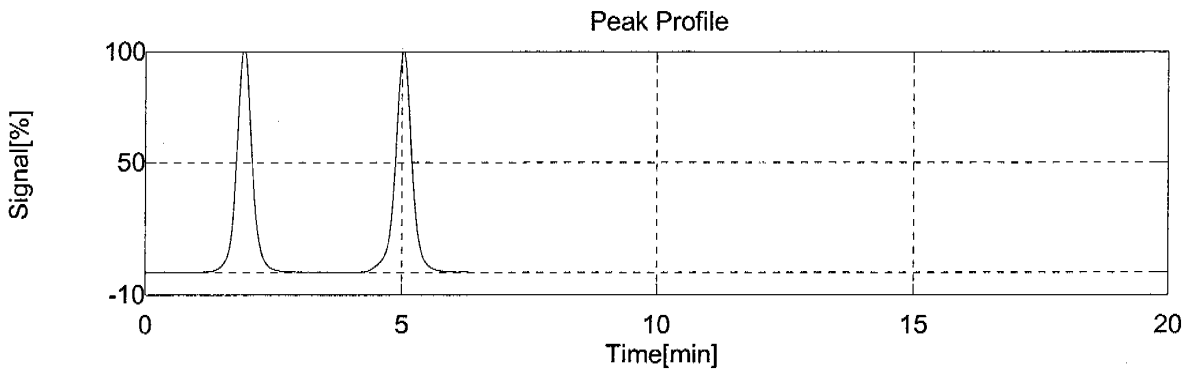
Sample Name: STDG
Sample ID: 5.0
Remark:
Comment:
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Standard	SSM-TC	1.000	08/18/2012 13:27:43

Mean Area	Conc	Result	SD	CV	CNV	Modified
19644	5.000%		0.000	0.00%	19644	

No.	Range	Area	CNV	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	19499	19499	5.0000		**h***	08/18/2012 13:20:11	b20818s1.cal
2	5	19789	19789	5.0000		******	08/18/2012 13:27:43	b20818s1.cal

TOC-Control



TOC-Control

General Information

Organization: Accutest Laboratories
User:
Title:
Instrument ID: TOC2
Filename: C:\TOCCNTR\DATA\B20828S1.TOC
Comment:

Instrument Conditions

Instrument Attachments: TOC-5000 + SSM 5000

Calibration Curves

Filename: b20818s1.cal
Title: b20818s1.cal
Calculation method: Lin. regression without zero shift

Analysis	Unit	Range	Density
SSM-TC	%	5	1.000

Sample Name	Sample ID	Conc.	No. of Inj.	Mean Area	Volume	CNV	Abs C [µg	SD	CV
STDA	0.0	0.000	2	0	0.00000	0	0.000	0	0.00%
STDB	0.1	0.1000	2	427	0.000	427	100.0	7	1.66%
STDC	0.5	0.5000	2	2087	-0.00000	2087	500.0	2	0.136%
STDD	1.0	1.000	2	4137	0.00000	4136	1000	60	1.45%
STDE	2.5	2.500	2	10123	0.00000	10123	2500	50	0.503%
STDF	4.0	4.000	2	15727	00000000	15726	4000	226	1.44%
STDG	5.0	5.000	2	19644	0.00000	19644	5000	205	1.04%

Slope: 3.9206
Intercept: 111.99
R^2: 0.999775

TOC-Control

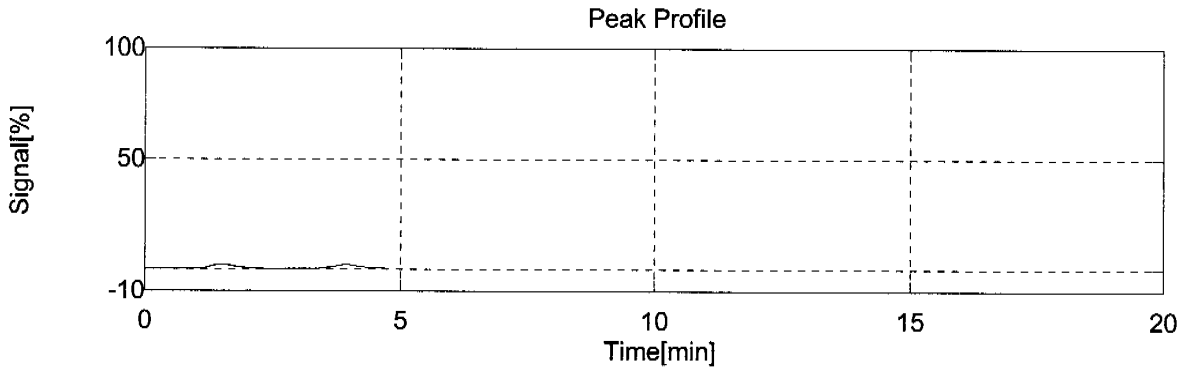
Samples

Sample Name: CRI
Sample ID:
Remark:
Comment:
Method: tocsscal.met
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	08/28/2012 09:24:15

Mean Area	Conc	Result	SD	CV	Modified
462	0.08928%		0.00361	4.04%	

No.	Range	Area	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	452	0.086725		******	08/28/2012 09:17:54	b20818s1.cal
2	5	472	0.091826		******	08/28/2012 09:24:15	b20818s1.cal



Samples

Sample Name: HSTD
Sample ID:
Remark:
Comment:
Method: tocsscal.met

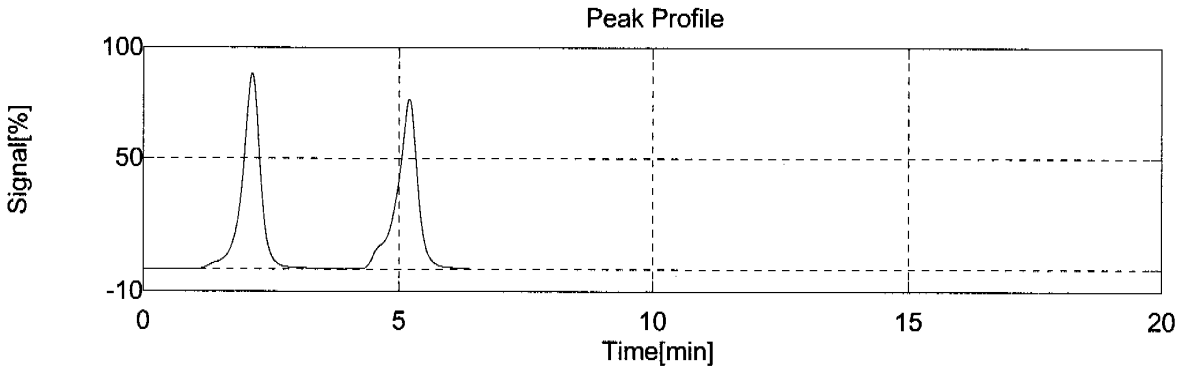
TOC-Control

Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	08/28/2012 09:39:00

Mean Area	Conc	Result	SD	CV	Modified
19352	4.908%		0.01677	0.342%	

No.	Range	Area	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	19399	4.9194		******	08/28/2012 09:33:44	b20818s1.cal
2	5	19306	4.8957		******	08/28/2012 09:39:00	b20818s1.cal



Samples

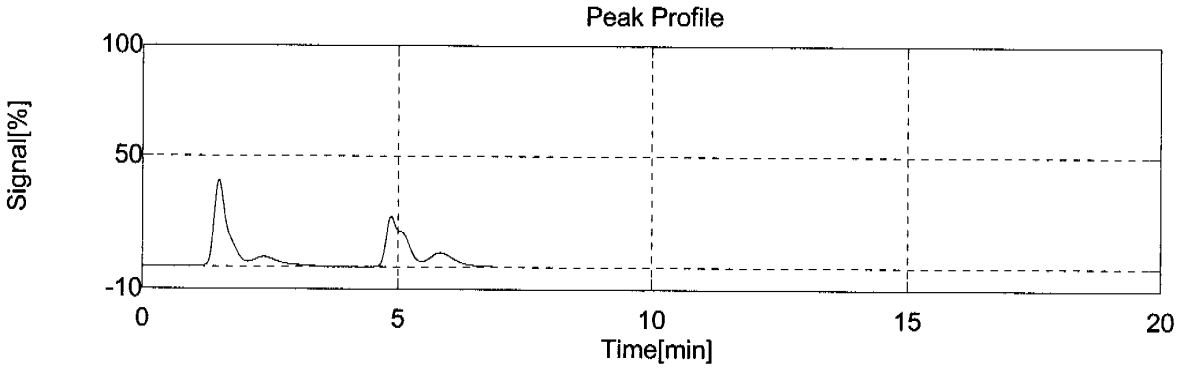
Sample Name: ICV
Sample ID:
Remark:
Comment:
Method: tocsscal.met
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	08/28/2012 09:51:15

TOC-Control

Mean Area	Conc	Result	SD	CV	Modified
7273	1.827%		0.1221	6.68%	

No.	Range	Area	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	7612	1.9130		******	08/28/2012 09:46:03	b20818s1.cal
2	5	6935	1.7403		******	08/28/2012 09:51:15	b20818s1.cal



Samples

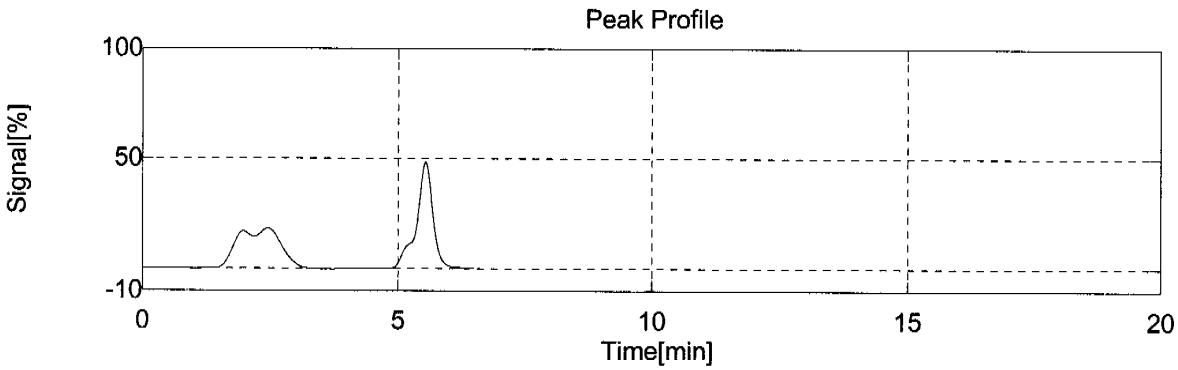
Sample Name: CCV
Sample ID:
Remark:
Comment:
Method: tocsscal.met
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	08/28/2012 10:10:49

Mean Area	Conc	Result	SD	CV	Modified
9679	2.440%		0.02002	0.820%	

TOC-Control

No.	Range	Area	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	9735	2.4545		******	08/28/2012 10:01:14	b20818s1.cal
2	5	9624	2.4262		******	08/28/2012 10:10:49	b20818s1.cal



Samples

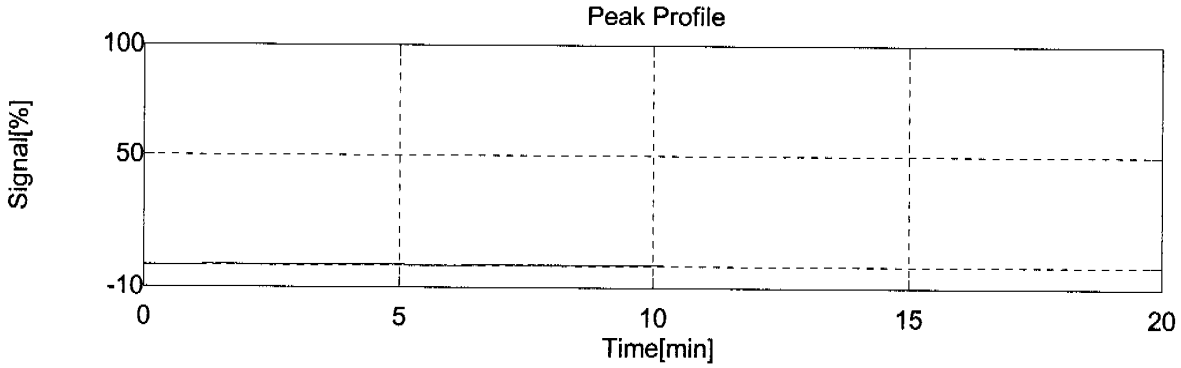
Sample Name: GP66744-MB1
Sample ID: TOCLK
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	08/28/2012 10:28:38

Mean Area	Conc	Result	SD	CV	Weight	Modified
0	-0.00286%		0.00000	0.00%	1000	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	0	1000	-0.002856		******	08/28/2012 10:22:01	b20818s1.cal
2	5	0	1000	-0.002856		******	08/28/2012 10:28:38	b20818s1.cal

TOC-Control



Samples

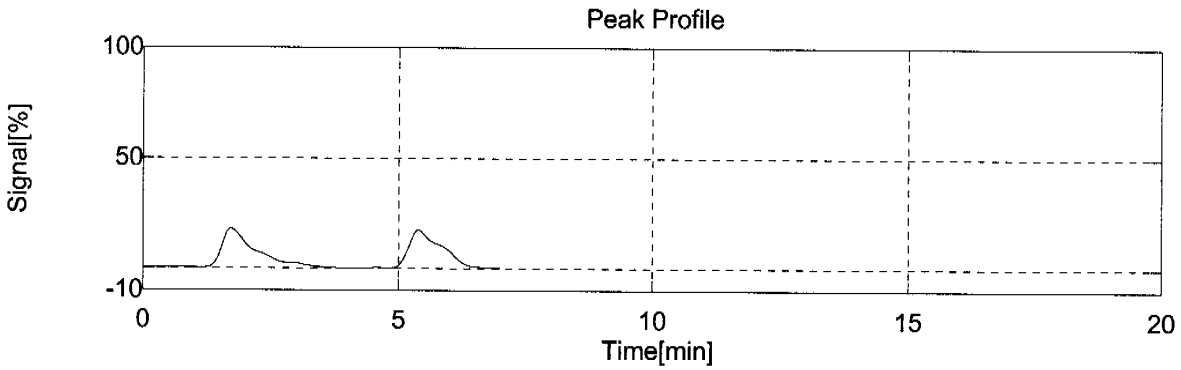
Sample Name: GP66744-B1
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	08/28/2012 10:41:28

Mean Area	Conc	Result	SD	CV	Weight	Modified
6976	0.1751%		0.00478	2.73%	1000	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	7109	1000	0.17847		******	08/28/2012 10:36:58	b20818s1.cal
2	5	6844	1000	0.17171		******	08/28/2012 10:41:28	b20818s1.cal

TOC-Control



Samples

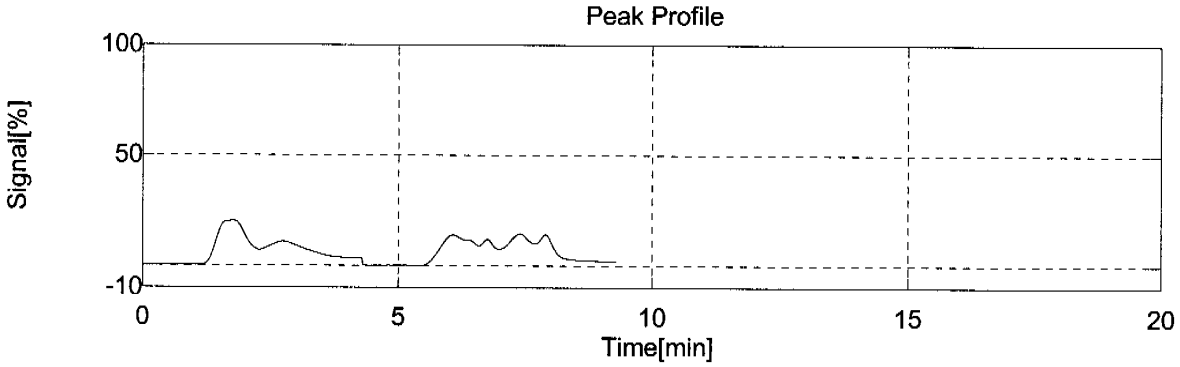
Sample Name: JB13733-20
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	08/28/2012 10:55:32

Mean Area	Conc	Result	SD	CV	Weight	Modified
12787	0.3223%		0.04485	13.9%	1003	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	11543	1003	0.29060		******	08/28/2012 10:48:59	b20818s1.cal
2	5	14031	1003	0.35403		******	08/28/2012 10:55:32	b20818s1.cal

TOC-Control



Samples

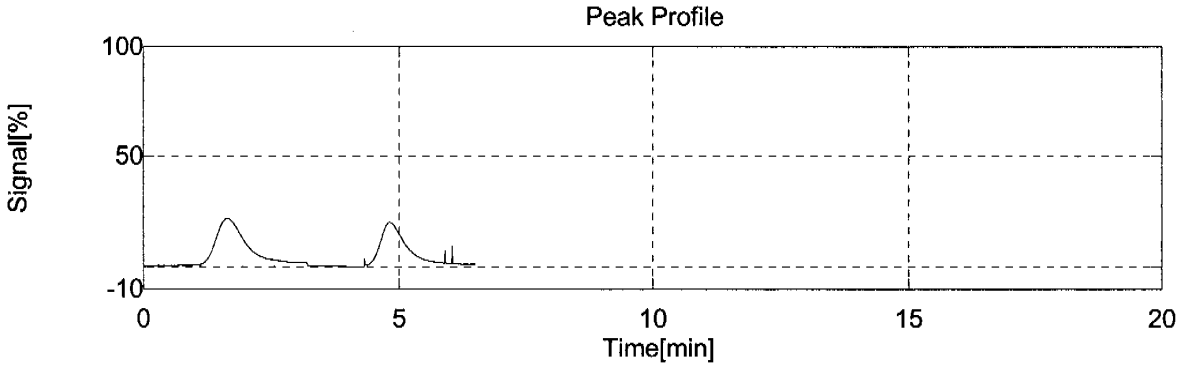
Sample Name: JB13733-10
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	08/28/2012 11:05:11

Mean Area	Conc	Result	SD	CV	Weight	Modified
6953	1.639%		0.1785	10.9%	106.4	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	7560	107.6	1.7655		******	08/28/2012 11:00:36	b20818s1.cal
2	5	6347	105.1	1.5131		******	08/28/2012 11:05:11	b20818s1.cal

TOC-Control



Samples

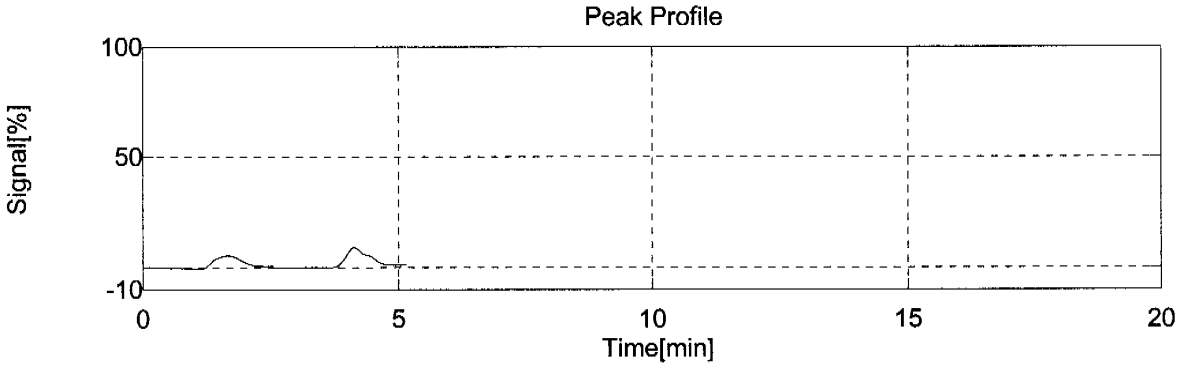
Sample Name: JB13733-11
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	08/28/2012 11:17:12

Mean Area	Conc	Result	SD	CV	Weight	Modified
2077	0.9550%		0.2356	24.7%	52.85	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	1809	54.90	0.78842		******	08/28/2012 11:12:44	b20818s1.cal
2	5	2346	50.80	1.1217		******	08/28/2012 11:17:12	b20818s1.cal

TOC-Control



Samples

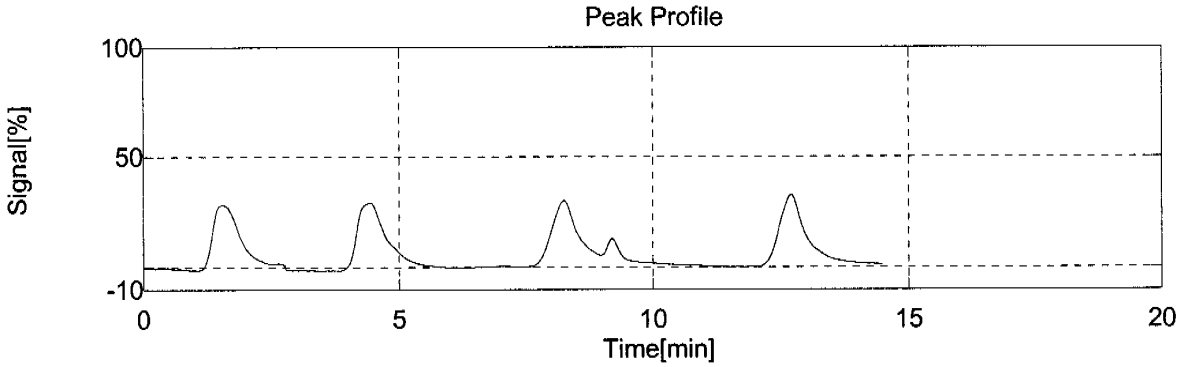
Sample Name: JB13733-12
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	08/28/2012 11:44:54

Mean Area	Conc	Result	SD	CV	Weight	Modified
10731	2.596%		0.5351	20.6%	104.9	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	8284	109.2	1.9088		******	08/28/2012 11:21:29	b20818s1.cal
2	5	11431	102.5	2.8166		******	08/28/2012 11:31:20	b20818s1.cal
3	5	12694	101.3	3.1680		******	08/28/2012 11:38:37	b20818s1.cal
4	5	10518	106.5	2.4922		******	08/28/2012 11:44:54	b20818s1.cal

TOC-Control



Samples

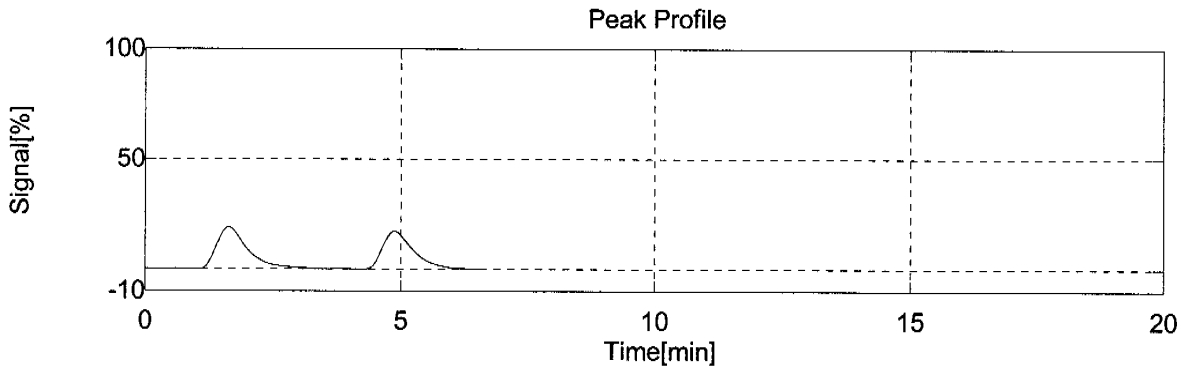
Sample Name: JB13733-13
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	08/28/2012 11:57:25

Mean Area	Conc	Result	SD	CV	Weight	Modified
6742	1.635%		0.05580	3.41%	103.4	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	6934	103.9	1.6747		******	08/28/2012 11:52:14	b20818s1.cal
2	5	6550	102.9	1.5958		******	08/28/2012 11:57:25	b20818s1.cal

TOC-Control



Samples

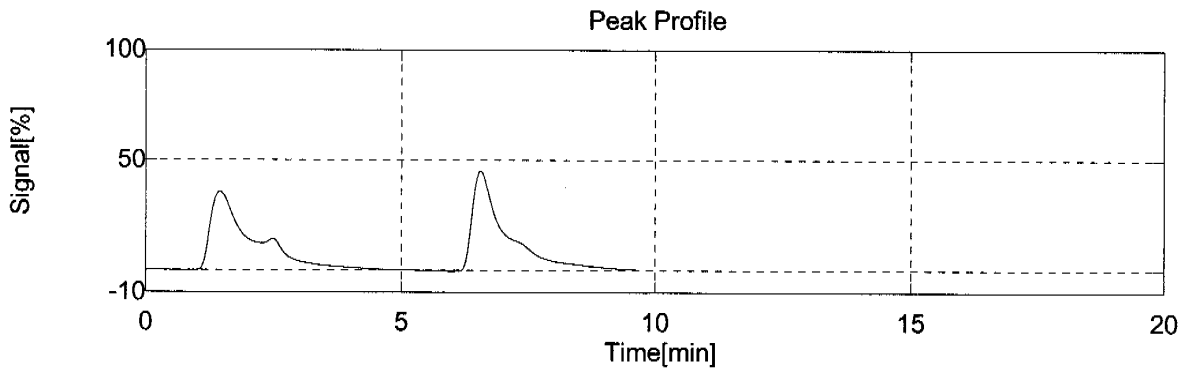
Sample Name: JB13733-14
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	08/28/2012 12:10:54

Mean Area	Conc	Result	SD	CV	Weight	Modified
18489	1.298%		0.01296	0.998%	361.1	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	18456	363.0	1.2889		******	08/28/2012 12:04:36	b20818s1.cal
2	5	18522	359.2	1.3073		******	08/28/2012 12:10:54	b20818s1.cal

TOC-Control



Samples

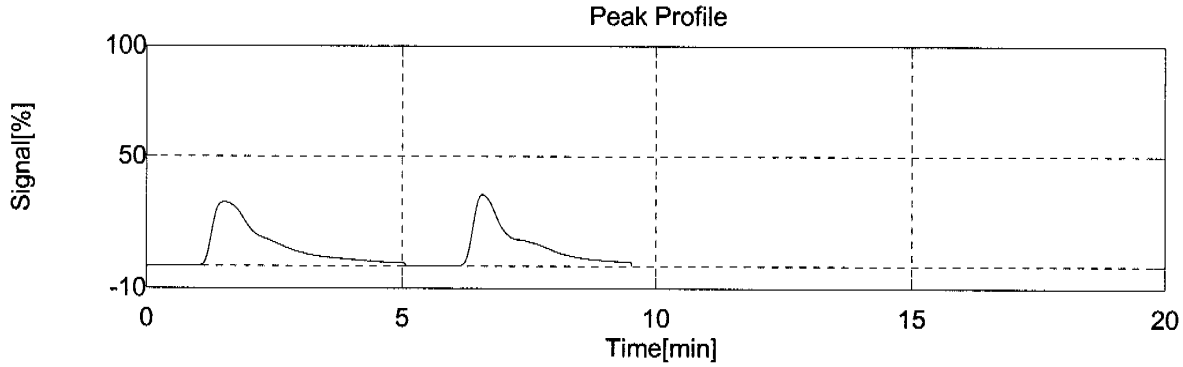
Sample Name: JB13733-16
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	08/28/2012 12:26:30

Mean Area	Conc	Result	SD	CV	Weight	Modified
16777	1.159%		0.05517	4.76%	366.5	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	17815	377.0	1.1977		******	08/28/2012 12:18:08	b20818s1.cal
2	5	15740	356.0	1.1197		******	08/28/2012 12:26:30	b20818s1.cal

TOC-Control



Samples

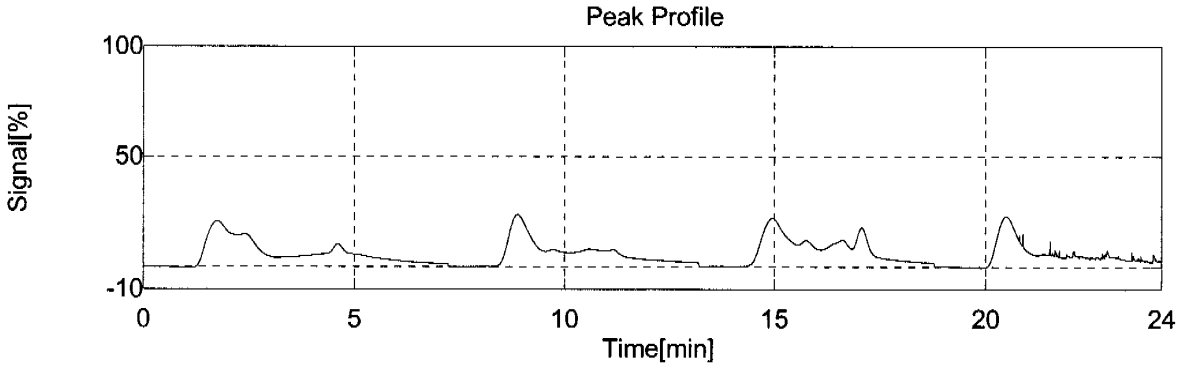
Sample Name: JB13733-18
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	08/28/2012 13:00:48

Mean Area	Conc	Result	SD	CV	Weight	Modified
16064	0.4054%		0.08291	20.5%	1003	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	19295	1003	0.48772		******	08/28/2012 12:36:03	b20818s1.cal
2	5	14889	1000	0.37691		******	08/28/2012 12:46:51	b20818s1.cal
3	5	18060	1007	0.45465		******	08/28/2012 12:53:55	b20818s1.cal
4	5	12012	1004	0.30241		******	08/28/2012 13:00:48	b20818s1.cal

TOC-Control



Samples

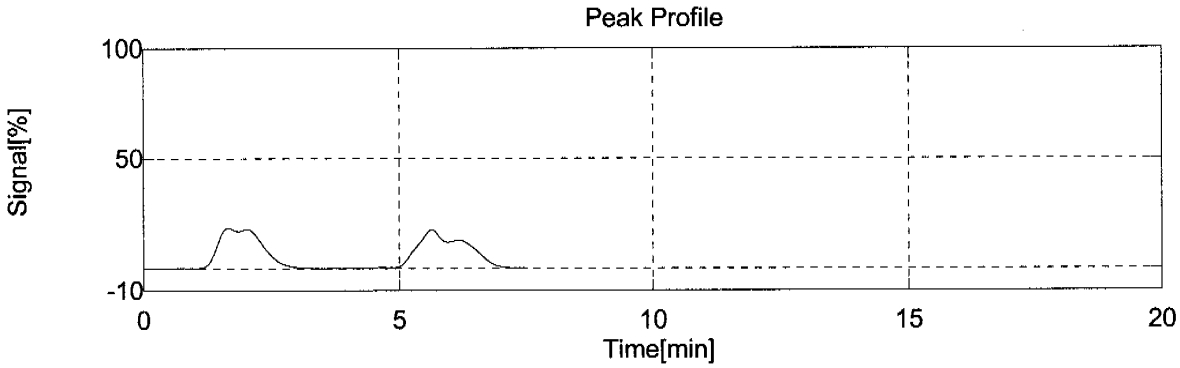
Sample Name: CCV
Sample ID:
Remark:
Comment:
Method: tocsscal.met
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	08/28/2012 13:18:41

Mean Area	Conc	Result	SD	CV	Modified
9802	2.472%		0.06222	2.52%	

No.	Range	Area	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	9630	2.4277		******	08/28/2012 13:12:57	b20818s1.cal
2	5	9975	2.5157		******	08/28/2012 13:18:41	b20818s1.cal

TOC-Control



Samples

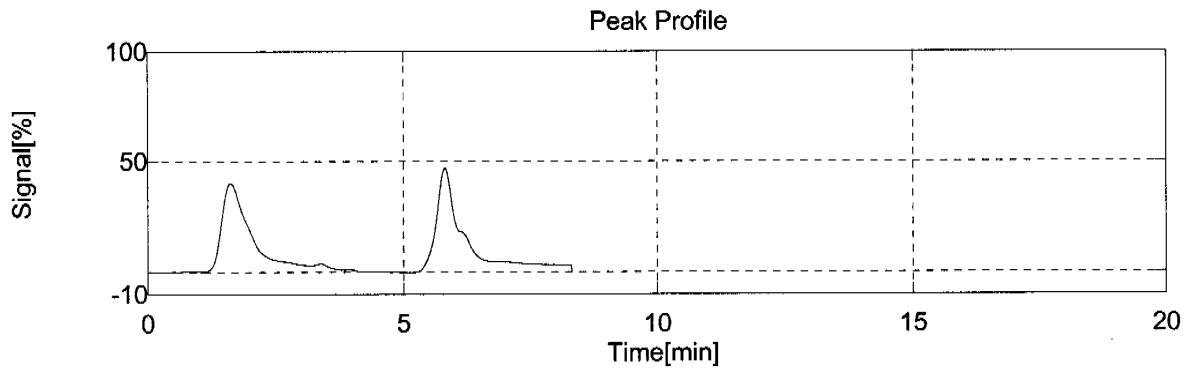
Sample Name: JB13733-19
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	08/28/2012 13:31:52

Mean Area	Conc	Result	SD	CV	Weight	Modified
14054	3.425%		0.03998	1.17%	103.8	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	14465	106.0	3.4537		******	08/28/2012 13:24:43	b20818s1.cal
2	5	13644	101.6	3.3971		******	08/28/2012 13:31:52	b20818s1.cal

TOC-Control



Samples

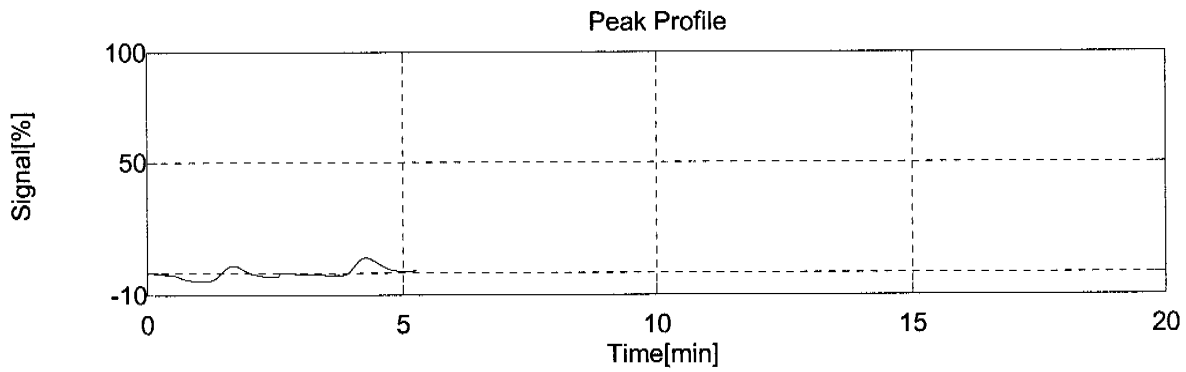
Sample Name: JB13733-21
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	08/28/2012 13:40:26

Mean Area	Conc	Result	SD	CV	Weight	Modified
1860	0.08598%		0.01251	14.5%	518.7	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	1683	519.5	0.077133		******	08/28/2012 13:36:07	b20818s1.cal
2	5	2037	517.8	0.094824		******	08/28/2012 13:40:26	b20818s1.cal

TOC-Control



Samples

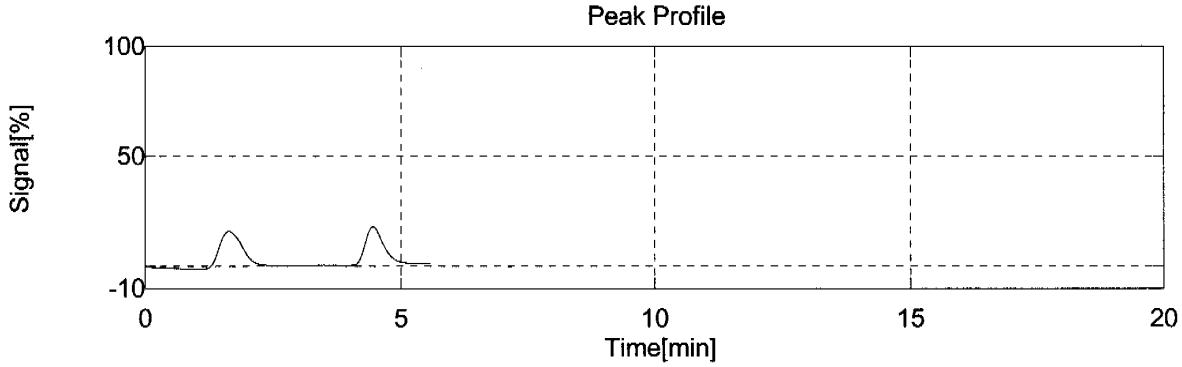
Sample Name: JB13733-22
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	08/28/2012 13:51:21

Mean Area	Conc	Result	SD	CV	Weight	Modified
4347	0.2059%		0.02365	11.5%	523.9	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	4764	533.0	0.22262		******	08/28/2012 13:47:04	b20818s1.cal
2	5	3930	514.8	0.18917		******	08/28/2012 13:51:21	b20818s1.cal

TOC-Control



Samples

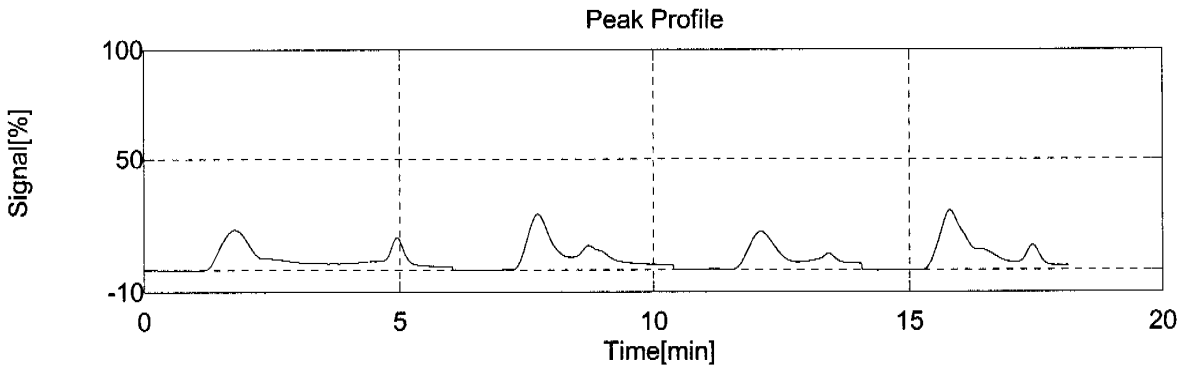
Sample Name: GP66744-D1
Sample ID: JB13733-20
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	08/28/2012 15:12:23

Mean Area	Conc	Result	SD	CV	Weight	Modified
10553	0.2649%		0.07364	27.8%	1005	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	12773	1008	0.32047		******	08/28/2012 14:01:00	b20818s1.cal
2	5	11084	1006	0.27807		******	08/28/2012 14:58:14	b20818s1.cal
3	5	6314	1004	0.15758		******	08/28/2012 15:04:46	b20818s1.cal
4	5	12043	1003	0.30350		******	08/28/2012 15:12:23	b20818s1.cal

TOC-Control



Samples

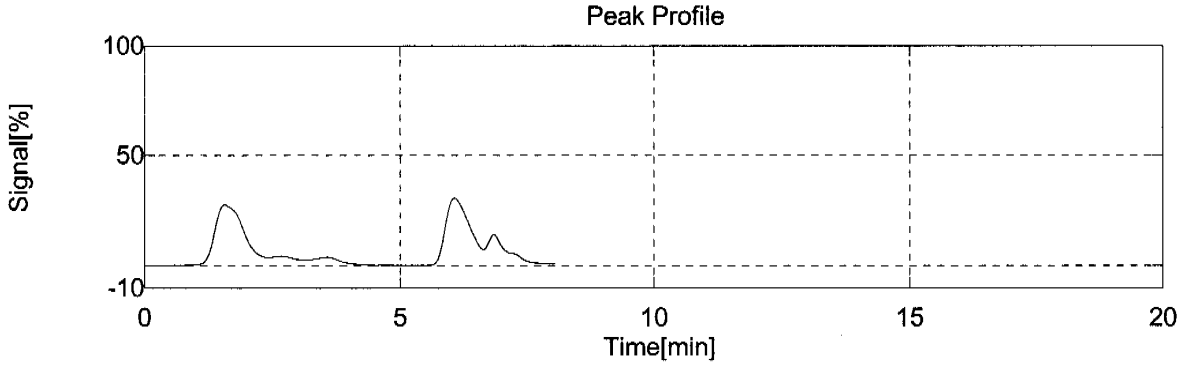
Sample Name: GP66744-S1
Sample ID: JB13733-20
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	08/28/2012 15:27:21

Mean Area	Conc	Result	SD	CV	Weight	Modified
12227	0.5982%		0.01376	2.30%	516.7	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	12180	523.1	0.58843		******	08/28/2012 15:21:06	b20818s1.cal
2	5	12274	510.3	0.60789		******	08/28/2012 15:27:21	b20818s1.cal

TOC-Control



Samples

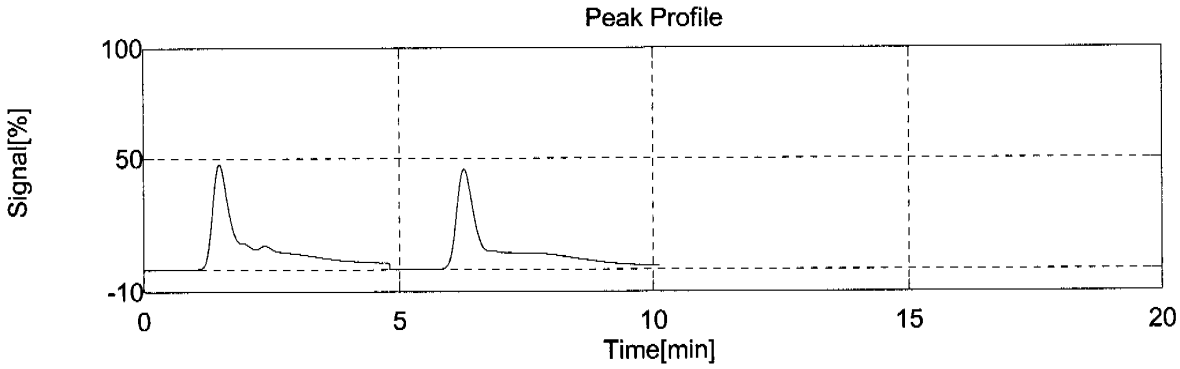
Sample Name: JB13733-11
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	08/28/2012 15:41:59

Mean Area	Conc	Result	SD	CV	Weight	Modified
16619	1.678%		0.06029	3.59%	251.0	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	16450	254.8	1.6355		******	08/28/2012 15:34:43	b20818s1.cal
2	5	16789	247.2	1.7207		******	08/28/2012 15:41:59	b20818s1.cal

TOC-Control



Samples

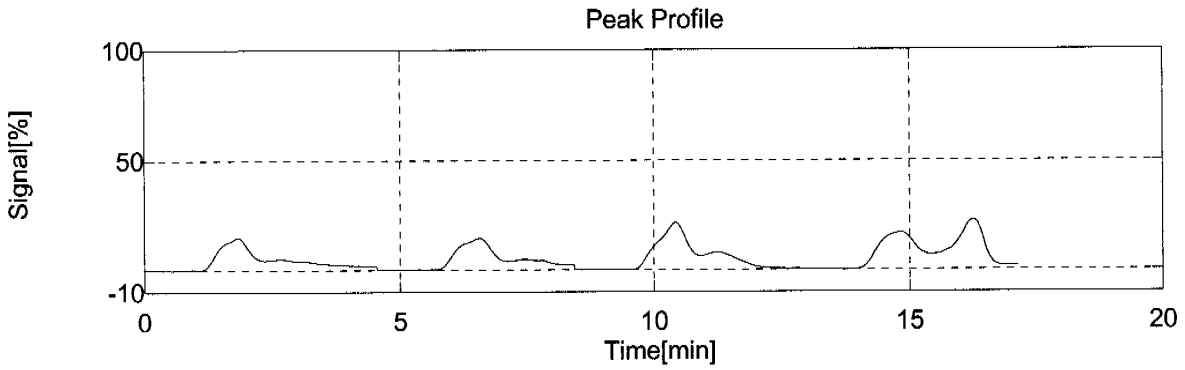
Sample Name: JB13733-21
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	08/28/2012 16:14:43

Mean Area	Conc	Result	SD	CV	Weight	Modified
10266	0.2585%		0.1010	39.1%	1002	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	7494	1005	0.18728		******	08/28/2012 15:51:15	b20818s1.cal
2	5	6876	1001	0.17233		******	08/28/2012 15:57:51	b20818s1.cal
3	5	11236	1000	0.28362		******	08/28/2012 16:06:38	b20818s1.cal
4	5	15458	1002	0.39064		******	08/28/2012 16:14:43	b20818s1.cal

TOC-Control



Samples

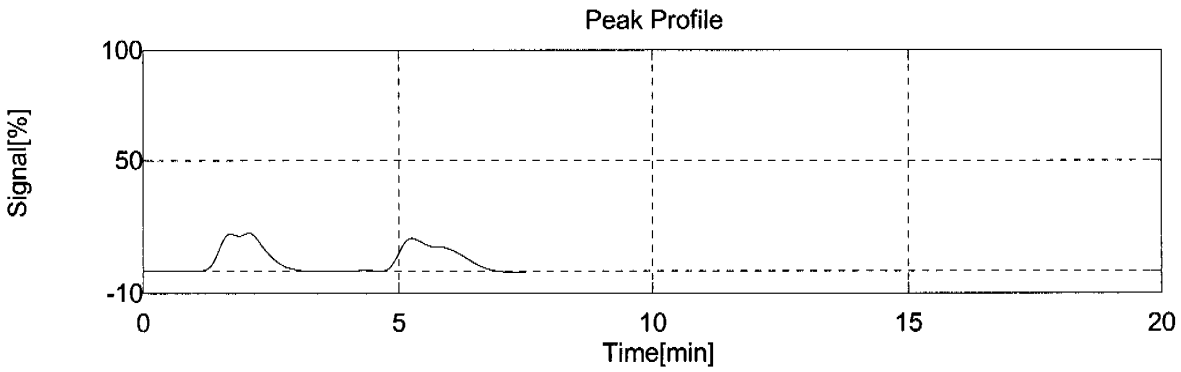
Sample Name: CCV
Sample ID:
Remark:
Comment:
Method: tocsscal.met
Cal Curve: 1: b20818s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	08/28/2012 16:40:27

Mean Area	Conc	Result	SD	CV	Modified
9338	2.353%		0.07250	3.08%	

No.	Range	Area	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	9137	2.3019		******	08/28/2012 16:33:00	b20818s1.cal
2	5	9539	2.4045		******	08/28/2012 16:40:27	b20818s1.cal

TOC-Control



Statistics / Summary

Sample Name	Analysis	Conc.	Abs C [µg]
CRI	SSM-TC	0.08928 %	89
HSTD	SSM-TC	4.908 %	4907
ICV	SSM-TC	1.827 %	1826
CCV	SSM-TC	2.422 %	2421
GP66744-MB1	SSM-TC	-0.00286 %	-28
GP66744-B1	SSM-TC	0.1751 %	1750
JB13733-20	SSM-TC	0.3223 %	3232
JB13733-10	SSM-TC	1.639 %	1745
JB13733-11	SSM-TC	1.317 %	2355
JB13733-12	SSM-TC	2.596 %	2708
JB13733-13	SSM-TC	1.635 %	1691
JB13733-14	SSM-TC	1.298 %	4687
JB13733-16	SSM-TC	1.159 %	4250
JB13733-18	SSM-TC	0.4054 %	4068
JB13733-19	SSM-TC	3.425 %	3556
JB13733-21	SSM-TC	0.1722 %	1517
JB13733-22	SSM-TC	0.2059 %	1080
GP66744-D1	SSM-TC	0.2649 %	2663
GP66744-S1	SSM-TC	0.5982 %	3090

GN 71475

	Sample Name	Sample ID	Method	Type	Date / Time	Conc.	Mean Area	CV
1	CRI		tocsscal.met	Unknown	09/04/12 09:3	0.09412 %	391	25.0%
2	CRI		tocsscal.met	Unknown	09/04/12 09:3	0.09412 %	391	25.0%
3	HSTD		tocsscal.met	Unknown	09/04/12 09:5	5.057 %	19098	1.18%
4	HSTD		tocsscal.met	Unknown	09/04/12 09:5	5.057 %	19098	1.18%
5	ICV	KHP	tocsscal.met	Unknown	09/04/12 10:1	1.927 %	7157	1.66%
6	ICV	KHP	tocsscal.met	Unknown	09/04/12 10:1	1.927 %	7157	1.66%
7	CCV		tocsscal.met	Unknown	09/04/12 10:3	2.689 %	9827	1.71%
8	CCV		tocsscal.met	Unknown	09/04/12 10:3	2.689 %	9827	1.71%
9	GP66744-MB	TOCLK	tocss.met	Unknown	09/04/12 10:4	0.000 %	0	0.00%
10	GP66744-MB	TOCLK	tocss.met	Unknown	09/04/12 10:4	0.000 %	0	0.00%
11	GP66744-B2		tocss.met	Unknown	09/04/12 11:0	0.1919 %	7129	1.02%
12	GP66744-B2		tocss.met	Unknown	09/04/12 11:0	0.1919 %	7129	1.02%
13	JB14312-15R		tocss.met	Unknown	09/04/12 11:1	0.07983 %	2650	1.74%
14	JB14312-15R		tocss.met	Unknown	09/04/12 11:1	0.07983 %	2650	1.74%
15	JB15015-1R		tocss.met	Unknown	09/04/12 11:2	0.08386 %	357	103%
16	JB15015-1R		tocss.met	Unknown	09/04/12 11:2	0.08386 %	357	103%
17	JB15015-1R		tocss.met	Unknown	09/04/12 12:4	0.06113 %	2442	42.5%
18	JB15015-1R		tocss.met	Unknown	09/04/12 12:4	0.06113 %	2442	42.5%
19	JB15015-1R		tocss.met	Unknown	09/04/12 12:4	0.06113 %	2442	42.5%
20	JB15015-1R		tocss.met	Unknown	09/04/12 12:4	0.06113 %	2442	42.5%
21	CCV		tocsscal.met	Unknown	09/04/12 13:0	2.655 %	9706	0.672%
22	CCV		tocsscal.met	Unknown	09/04/12 13:0	2.655 %	9706	0.672%
23	JB14201-12R		tocss.met	Unknown	09/04/12 13:2	25.64 %	112645	0.00%
24	JB14201-12R		tocss.met	Unknown	09/04/12 14:2	24.33 %	7928	19.0%
25	JB14201-12R		tocss.met	Unknown	09/04/12 14:2	24.33 %	7928	19.0%
26	JB14201-12R		tocss.met	Unknown	09/04/12 14:2	24.33 %	7928	19.0%
27	JB14201-12R		tocss.met	Unknown	09/04/12 14:2	24.33 %	7928	19.0%
28	JB14519-15R		tocss.met	Unknown	09/04/12 14:5	3.853 %	7318	17.9%
29	JB14519-15R		tocss.met	Unknown	09/04/12 14:5	3.853 %	7318	17.9%
30	JB14519-15R		tocss.met	Unknown	09/04/12 14:5	3.853 %	7318	17.9%
31	JB14519-15R		tocss.met	Unknown	09/04/12 14:5	3.853 %	7318	17.9%
32	CCV		tocsscal.met	Unknown	09/04/12 15:0	2.662 %	9731	0.647%
33	CCV		tocsscal.met	Unknown	09/04/12 15:0	2.662 %	9731	0.647%

ACCUTEST.

TOCLK

b209045i.TOC

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

Units = mg/kg
Balance ID: B-39

GN Batch ID 71475
Date 9/4/12
Analyst

Sample ID	Sample Weight	Bottle #	Sample Description & comments
CRI			
14STD			
ICV (KHP)			
CCV			
GP66744-MB2	1.0000		
	1.0000		
GP66744-B2	1.0000		
	1.0000		
JB14312-15R	0.8385	2	
	0.8328		
	0.8475		
	0.8262		
JB15015-1R	0.1038	2	
	0.1019		
	0.1009		
	0.1034		
JB15015-1R	1.0066	2	weight too low rerun 1.0g
	1.0063		
	1.0004		
	1.0055		
CCV			
JB14201-12R	0.1028	1	overrange rerun 0.01g
	0.1008		
	0.1046		

Analyst: Date: 9/4/12 QCReviewer: Date:
Manager Review: Date:
Comments:

BS - 100µl of 20000 mgC/L → 1.0g Silica Sand TV = 2000 mg/kg glucose

Form: GN-058a
Rev. Date: 11/11/08

ACCUTEST.

(2)

Test: **Total Organic Carbon** Units = mg/kg GN Batch ID 71475
Product: **TOC** Balance ID: B-39 Date 9/4/12
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

Sample ID	Sample Weight	Bottle #	Sample Description & comments
	0.1010		
JB14201-12A	0.0091	1	
	0.0080		
	0.0089		
	0.0091		
ccv			
JB14519-15RT	0.0512	1	
	0.0502		
	0.0515		
	0.0520		
ccv			

Analyst: Date: 9/4/12 QCReviewer: Date:
Manager Review: Date:
Comments:

Form: GN-058a
Rev. Date: 11/11/08

ACCUTEST.

B-39 Balance
Glass Pipets Class A

GENERAL CHEMISTRY STANDARD PREPARATION LOG

Product: TOCLK

GN or GP Number: GN71475

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
GNEB-33397-TOC	EMD 1400C115	Sucrose	47.5 g	DI H_2O	100mL	200 000	9/25/12		9/4/12
GNEB-33398-TOC	Fisher 120314	Glucose	12.5 g	↓	↓	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									
GNEB-33399-TOC	GNEB-33397-TOC	200 000	0.5	DI H_2O	100mL	1000	9/25/12		9/4/12
GNEB-33400-TOC	↓	↓	2.5	↓	↓	5000	↓	↓	↓
GNEB-33401-TOC			5.0			10000			
GNEB-33402-TOC			12.5			25000			
GNEB-33403-TOC			20.0			40000			
GNEB-33404-TOC			25.0			50000			
Glucose STD									
GNEB-33408-TOC	GNEB-33398-TOC	50000	40.0	DI H_2O	100mL	20000	9/25/12		
GNEB-33409-TOC	↓	↓	50.0	↓	↓	25000	↓	↓	↓

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

ACCUTEST.

TOCLK

GN 71475

Reagent Information Log - TOC - Soil

Reagent	Reagent # or Manufacturer/Lot
Sucrose Stock Solution, 200000 mg/L	GNE8-33397-TOC XP 9/25/12
Glucose Stock Solution, 50000 ug/L	GNE8-33398-TOC 9/25/12
Glucose Check Solution, 25000 ug/L	GNE8-33409-TOC 9/25/12
Nitric Acid, Reagent Grade	K50030 Baker 2/7/17
Glucose Check Stock Solution, 20000 ug/L	GNE8-33408-TOC 9/25/12 (2) 8/29/12
KHP 20000ppm Solution	GN STK-863-TOC 11/14/12

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

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

TOC-Control

General Information

Organization: Accutest Laboratories
User:
Title:
Instrument ID: TOC2
Filename: C:\TOCCNTR\DATA\B20829S1.TOC
Comment:

Instrument Conditions

Instrument Attachments: TOC-5000 + SSM 5000

Calibration Curves

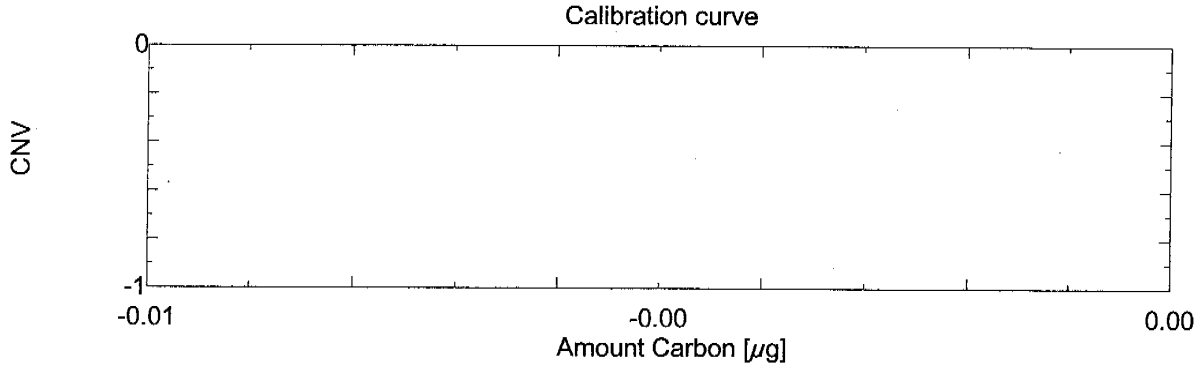
Filename: b20828s1.cal
Title: b20828s1.cal
Calculation method: Lin. regression without zero shift

Analysis	Unit	Range	Density
SSM-TC	%	5	1.000

Sample Name	Sample ID	Conc.	No. of Inj.	Mean Area	Volume	CNV	Abs C [µg	SD	CV
STDA	0.0	0.000	1	0	0.000	0	0.000	0	0.00%
STDB	0.1	0.1000	1	0	0.000	0	0.000	0	0.00%
STDC	0.5	0.5000	1	0	0.000	0	0.000	0	0.00%
STDD	1.0	1.000	1	0	0.000	0	0.000	0	0.00%
STDE	2.5	2.500	1	0	0.000	0	0.000	0	0.00%
STDF	4.0	4.000	1	0	0.000	0	0.000	0	0.00%
STDG	5.0	5.000	1	0	0.000	0	0.000	0	0.00%

Slope: 0.0000
Intercept: 0.0000
R^2: 0.00000

TOC-Control



Calibration Curves

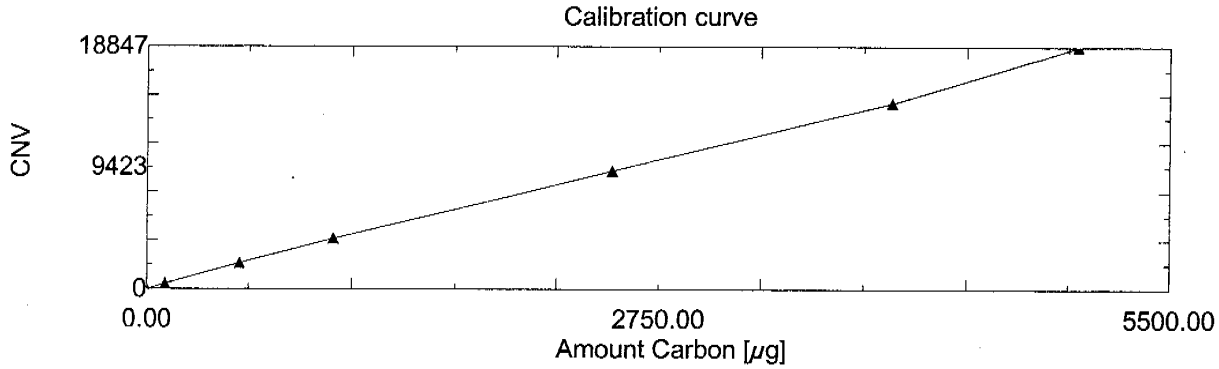
Filename: b20829s1.cal
Title: b20829s1.cal
Calculation method: Point to point without zero shift

Analysis	Unit	Range	Density
SSM-TC	%	5	1.000

Sample Name	Sample ID	Conc.	No. of Inj.	Mean Area	Volume	CNV	Abs C [µg	SD	CV
STDA	0.0	0.000	2	0	0.00000	0	0.000	0	0.00%
STDB	0.1	0.1000	2	417	0.00000	417	100.0	73	17.6%
STDC	0.5	0.5000	2	2013	0.00000	2012	500.0	111	5.52%
STDD	1.0	1.000	2	3920	0.1833	3920	1000	202	5.16%
STDE	2.5	2.500	2	9161	100.0	9160	2500	557	6.09%
STDF	4.0	4.000	2	14454	0.00000	14454	4000	328	2.27%
STDG	5.0	5.000	2	18847	66639420	18846	5000	146	0.777%

Slope: 4.1700
Intercept: 0.0000
R^2: 0.00000

TOC-Control



Samples

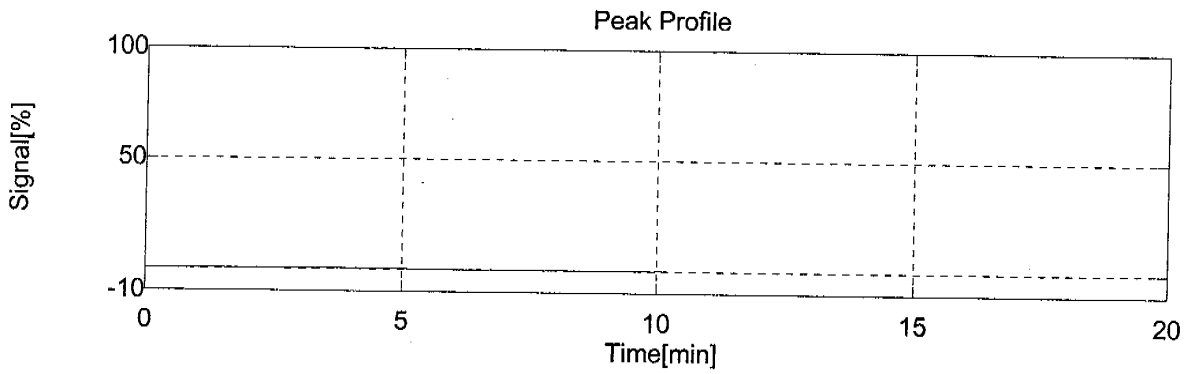
Sample Name: STDA
Sample ID: 0.0
Remark:
Comment:
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Standard	SSM-TC	1.000	08/29/2012 12:28:19

Mean Area	Conc	Result	SD	CV	CNV	Modified
0	0.000%		0.000	0.00%	0	

No.	Range	Area	CNV	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	0	0	0.0000		******	08/29/2012 12:14:56	b20829s1.cal
2	5	0	0	0.0000		******	08/29/2012 12:28:19	b20829s1.cal

TOC-Control



Samples

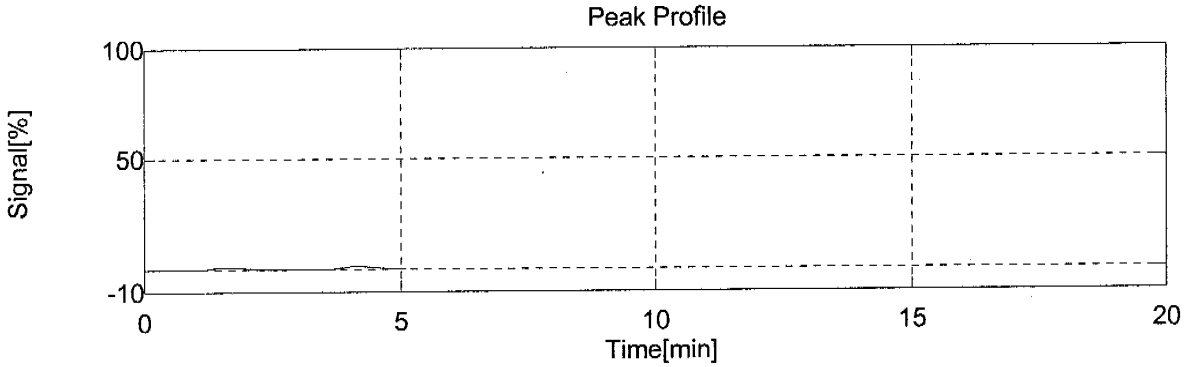
Sample Name: STDB
Sample ID: 0.1
Remark:
Comment:
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Standard	SSM-TC	1.000	08/29/2012 12:53:01

Mean Area	Conc	Result	SD	CV	CNV	Modified
417	0.1000%		0.000	0.00%	417	

No.	Range	Area	CNV	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	365	365	0.10000		******	08/29/2012 12:43:49	b20829s1.cal
2	5	469	469	0.10000		******	08/29/2012 12:53:01	b20829s1.cal

TOC-Control



Samples

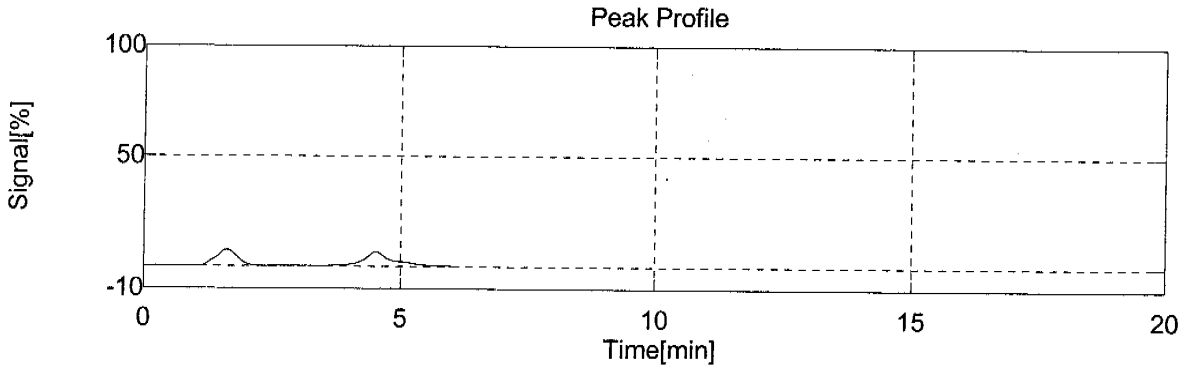
Sample Name: STDC
Sample ID: 0.5
Remark:
Comment:
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Standard	SSM-TC	1.000	08/29/2012 13:02:52

Mean Area	Conc	Result	SD	CV	CNV	Modified
2012	0.5000%		0.000	0.00%	2012	

No.	Range	Area	CNV	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	1934	1934	0.50000		******	08/29/2012 12:56:52	b20829s1.cal
2	5	2091	2091	0.50000		******	08/29/2012 13:02:52	b20829s1.cal

TOC-Control



Samples

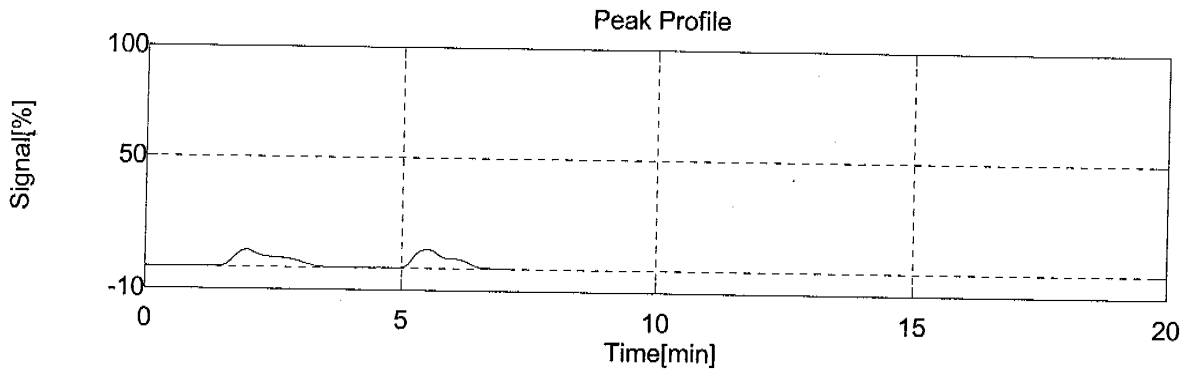
Sample Name: STDD
Sample ID: 1.0
Remark:
Comment:
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Standard	SSM-TC	1.000	08/29/2012 13:22:58

Mean Area	Conc *	Result	SD	CV	CNV	Modified
3920	1.000%		0.000	0.00%	3920	

No.	Range	Area	CNV	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	4063	4063	1.0000		******	08/29/2012 13:13:29	b20829s1.cal
2	5	3777	3777	1.0000		******	08/29/2012 13:22:58	b20829s1.cal

TOC-Control



Samples

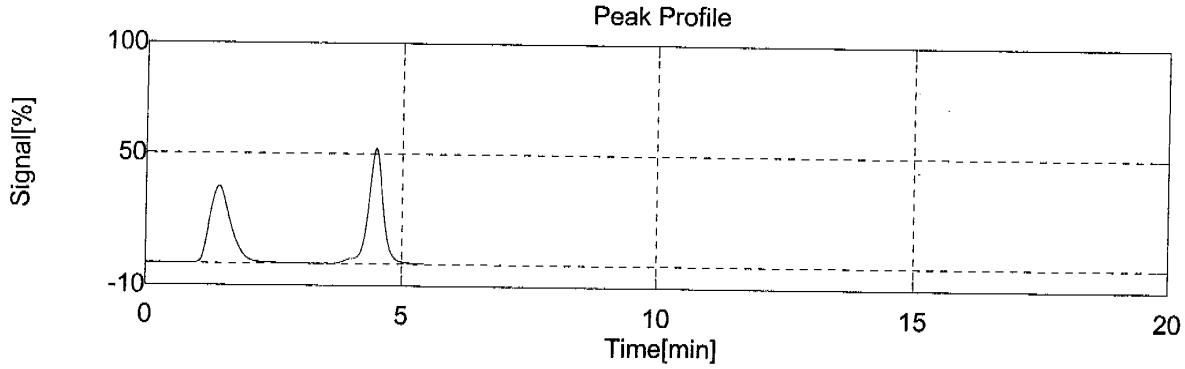
Sample Name: STDE
Sample ID: 2.5
Remark:
Comment:
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Standard	SSM-TC	1.000	08/29/2012 13:38:27

Mean Area	Conc	Result	SD	CV	CNV	Modified
9160	2.500%		0.000	0.00%	9160	

No.	Range	Area	CNV	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	8766	8766	2.5000		******	08/29/2012 13:30:59	b20829s1.cal
2	5	9555	9555	2.5000		******	08/29/2012 13:38:27	b20829s1.cal

TOC-Control



Samples

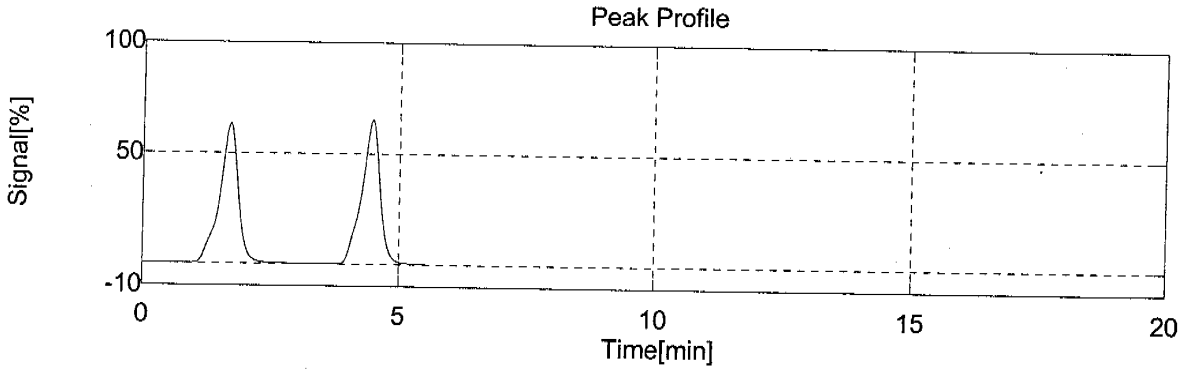
Sample Name: STDF
Sample ID: 4.0
Remark:
Comment:
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Standard	SSM-TC	1.000	08/29/2012 13:51:07

Mean Area	Conc	Result	SD	CV	CNV	Modified
14454	4.000%		0.000	0.00%	14454	

No.	Range	Area	CNV	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	14222	14222	4.0000		******	08/29/2012 13:47:02	b20829s1.cal
2	5	14686	14686	4.0000		******	08/29/2012 13:51:07	b20829s1.cal

TOC-Control



Samples

Sample Name: STDG
Sample ID: 5.0
Remark:
Comment:
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Standard	SSM-TC	1.000	08/29/2012 14:00:05

Mean Area	Conc	Result	SD	CV	CNV	Modified
18846	5.000%		0.000	0.00%	18846	

No.	Range	Area	CNV	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	18950	18950	5.0000		******	08/29/2012 13:55:36	b20829s1.cal
2	5	18743	18743	5.0000		******	08/29/2012 14:00:05	b20829s1.cal

TOC-Control

General Information

Organization: Accutest Laboratories
User:
Title:
Instrument ID: TOC2
Filename: C:\TOCCNTR\DATA\B20904S1.TOC
Comment:

Instrument Conditions

Instrument Attachments: TOC-5000 + SSM 5000

Calibration Curves

Filename: b20829s1.cal
Title: b20829s1.cal
Calculation method: Point to point without zero shift

Analysis	Unit	Range	Density
SSM-TC	%	5	1.000

Sample Name	Sample ID	Conc.	No. of Inj.	Mean Area	Volume	CNV	Abs C [µg	SD	CV
STDA	0.0	0.000	2	0	0.00000	0	0.000	0	0.00%
STDB	0.1	0.1000	2	417	0.00000	417	100.0	73	17.6%
STDC	0.5	0.5000	2	2013	0.00000	2012	500.0	111	5.52%
STDD	1.0	1.000	2	3920	0.1833	3920	1000	202	5.16%
STDE	2.5	2.500	2	9161	100.0	9160	2500	557	6.09%
STDF	4.0	4.000	2	14454	0.00000	14454	4000	328	2.27%
STDG	5.0	5.000	2	18847	66639420	18846	5000	146	0.777%

Slope: 4.1700
Intercept: 0.0000
R^2: 0.00000

TOC-Control

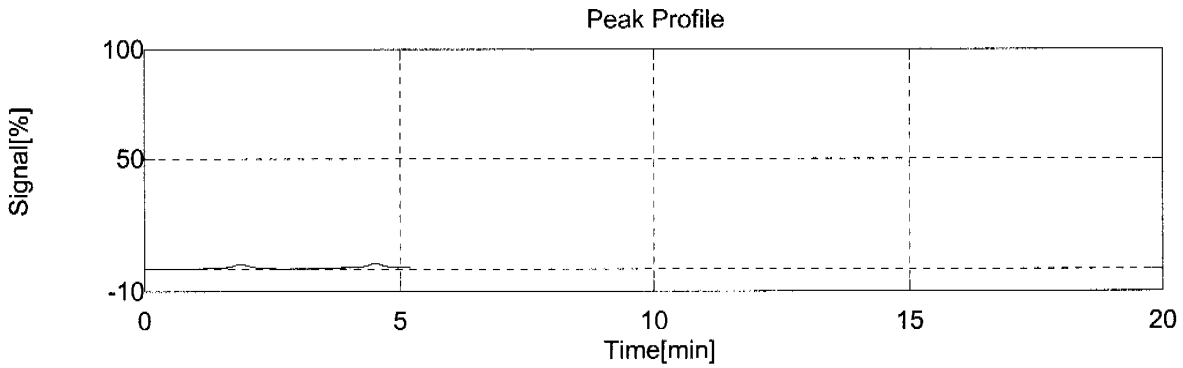
Samples

Sample Name: CRI
Sample ID:
Remark:
Comment:
Method: tocsscal.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/04/2012 09:38:38

Mean Area	Conc	Result	SD	CV	Modified
391	0.09412%		0.02356	25.0%	

No.	Range	Area	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	460	0.11078		******	09/04/2012 09:32:22	b20829s1.cal
2	5	323	0.077458		******	09/04/2012 09:38:38	b20829s1.cal



Samples

Sample Name: HSTD
Sample ID:
Remark:
Comment:
Method: tocsscal.met

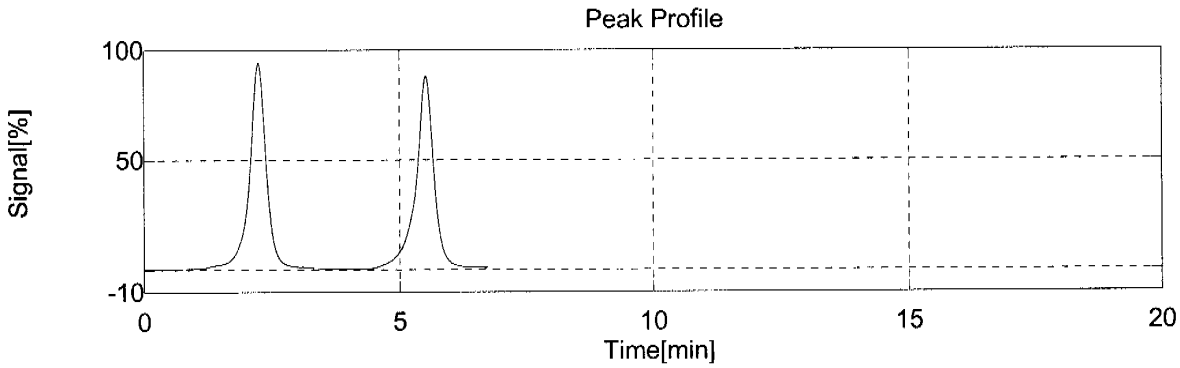
TOC-Control

Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/04/2012 09:52:44

Mean Area	Conc	Result	SD	CV	Modified
19098	5.057%		0.05956	1.18%	

No.	Range	Area	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	18913	5.0151		******	09/04/2012 09:47:08	b20829s1.cal
2	5	19283	5.0994		******	09/04/2012 09:52:44	b20829s1.cal



Samples

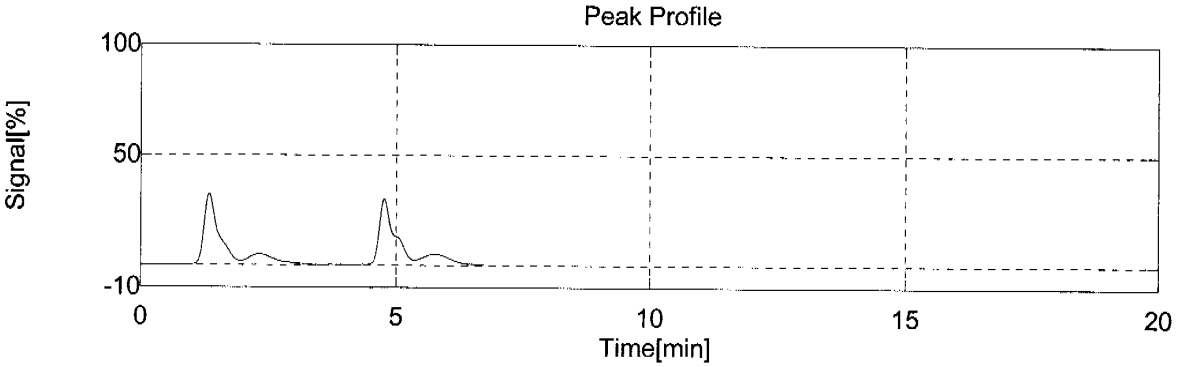
Sample Name: ICV
Sample ID: KHP
Remark:
Comment:
Method: tocsscal.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/04/2012 10:13:08

TOC-Control

Mean Area	Conc	Result	SD	CV	Modified
7157	1.927%		0.03198	1.66%	

No.	Range	Area	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	7236	1.9491		******	09/04/2012 10:06:30	b20829s1.cal
2	5	7078	1.9039		******	09/04/2012 10:13:08	b20829s1.cal



Samples

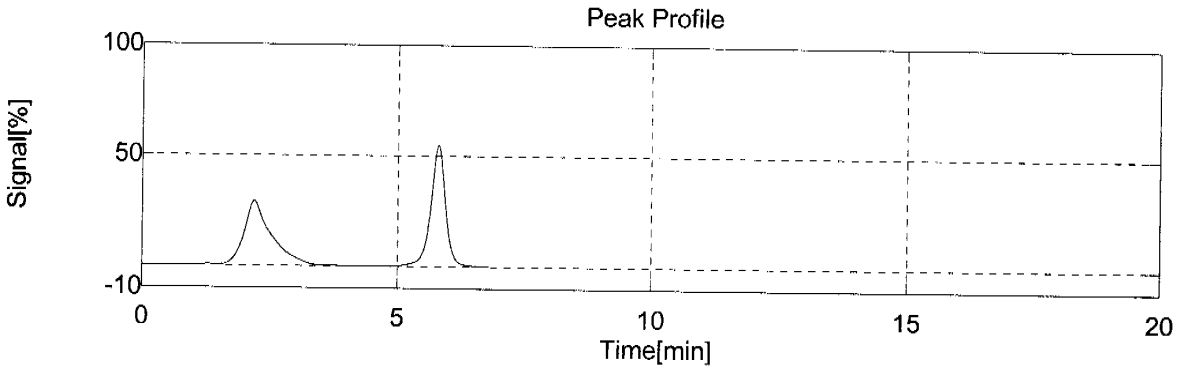
Sample Name: CCV
Sample ID:
Remark:
Comment:
Method: tocsscal.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/04/2012 10:31:34

Mean Area	Conc	Result	SD	CV	Modified
9827	2.689%		0.04588	1.71%	

TOC-Control

No.	Range	Area	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	9713	2.6566		******	09/04/2012 10:21:05	b20829s1.cal
2	5	9942	2.7215		******	09/04/2012 10:31:34	b20829s1.cal



Samples

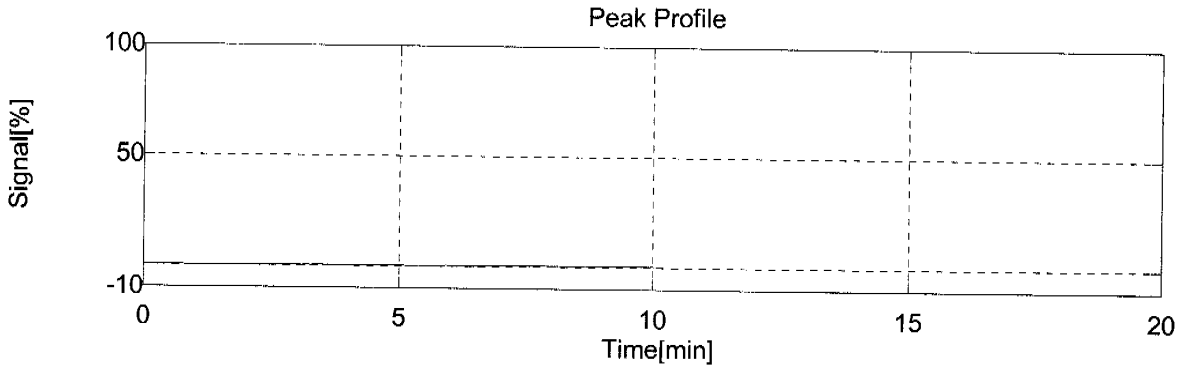
Sample Name: GP66744-MB2
Sample ID: TOCLK
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/04/2012 10:46:01

Mean Area	Conc	Result	SD	CV	Weight	Modified
0	0.000%		0.000	0.00%	1000	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	0	1000	0.0000		******	09/04/2012 10:39:07	b20829s1.cal
2	5	0	1000	0.0000		******	09/04/2012 10:46:01	b20829s1.cal

TOC-Control



Samples

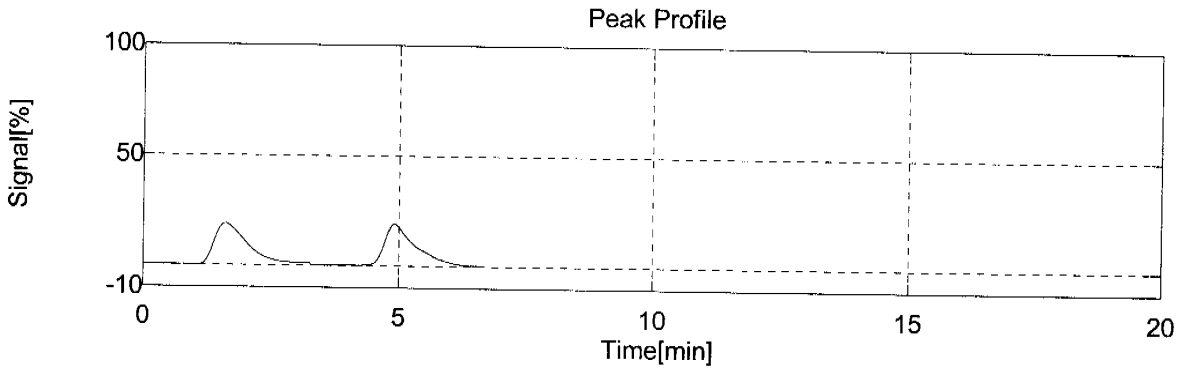
Sample Name: GP66744-B2
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/04/2012 11:03:38

Mean Area	Conc	Result	SD	CV	Weight	Modified
7129	0.1919%		0.00196	1.02%	1000	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	7178	1000	0.19325		******	09/04/2012 10:56:08	b20829s1.cal
2	5	7081	1000	0.19048		******	09/04/2012 11:03:38	b20829s1.cal

TOC-Control



Samples

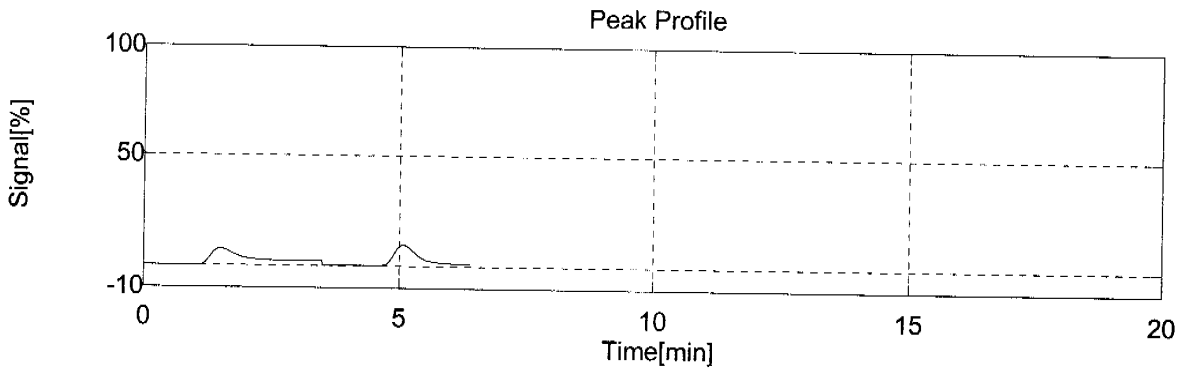
Sample Name: JB14312-15R
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/04/2012 11:13:59

Mean Area	Conc	Result	SD	CV	Weight	Modified
2650	0.07983%		0.00139	1.74%	835.7	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	2690	838.5	0.080810		******	09/04/2012 11:09:21	b20829s1.cal
2	5	2610	832.8	0.078845		******	09/04/2012 11:13:59	b20829s1.cal

TOC-Control



Samples

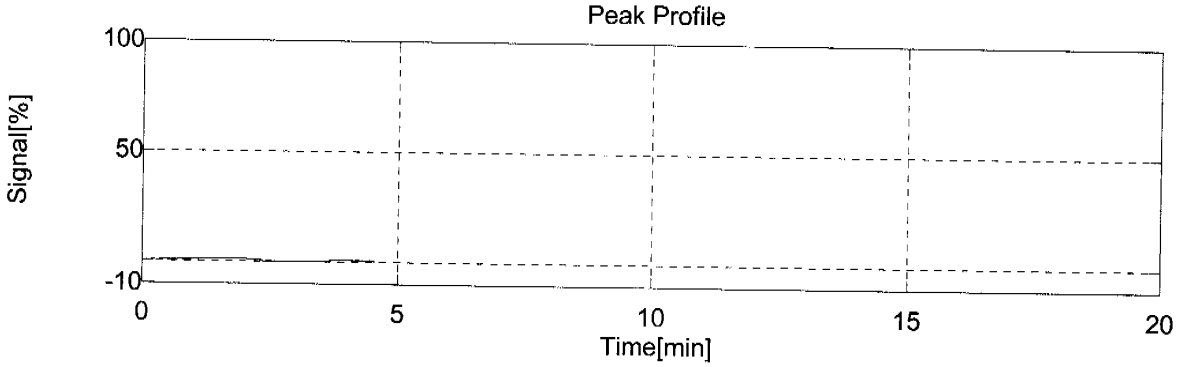
Sample Name: JB15015-1R
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/04/2012 11:23:40

Mean Area	Conc	Result	SD	CV	Weight	Modified
357	0.08386%		0.08665	103%	102.9	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	619	103.8	0.14513		******	09/04/2012 11:18:46	b20829s1.cal
2	5	96	101.9	0.022592		******	09/04/2012 11:23:40	b20829s1.cal

TOC-Control



Samples

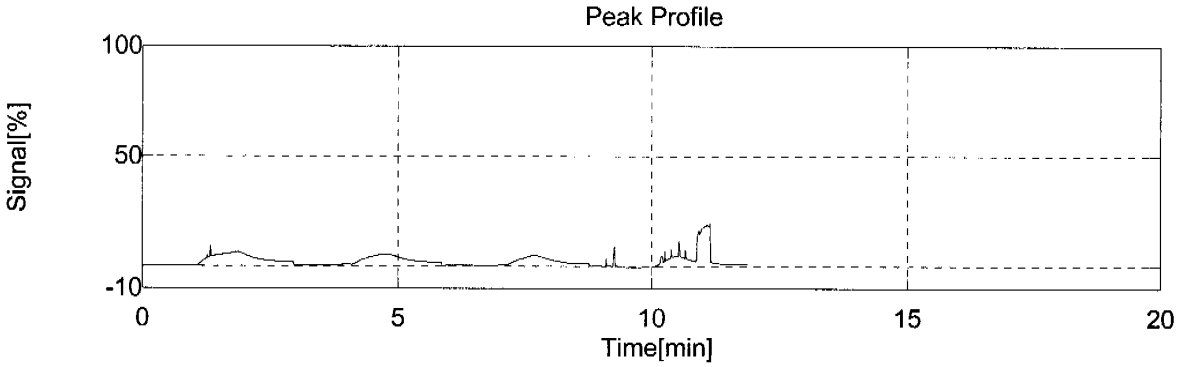
Sample Name: JB15015-1R
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/04/2012 12:44:23

Mean Area	Conc	Result	SD	CV	Weight	Modified
2442	0.06113%		0.02600	42.5%	1005	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	2589	1007	0.064684		******	09/04/2012 12:18:49	b20829s1.cal
2	5	1843	1006	0.045464		******	09/04/2012 12:24:15	b20829s1.cal
3	5	1537	1000	0.038064		******	09/04/2012 12:35:03	b20829s1.cal
4	5	3800	1006	0.096325		******	09/04/2012 12:44:23	b20829s1.cal

TOC-Control



Samples

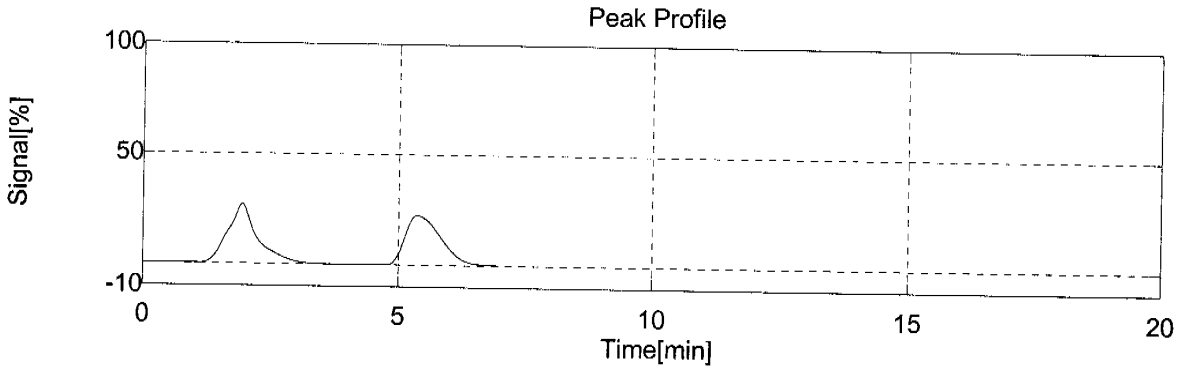
Sample Name: CCV
Sample ID:
Remark:
Comment:
Method: tocsscal.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/04/2012 13:01:49

Mean Area	Conc	Result	SD	CV	Modified
9706	2.655%		0.01783	0.672%	

No.	Range	Area	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	9751	2.6673		******	09/04/2012 12:51:39	b20829s1.cal
2	5	9662	2.6421		******	09/04/2012 13:01:49	b20829s1.cal

TOC-Control



Samples

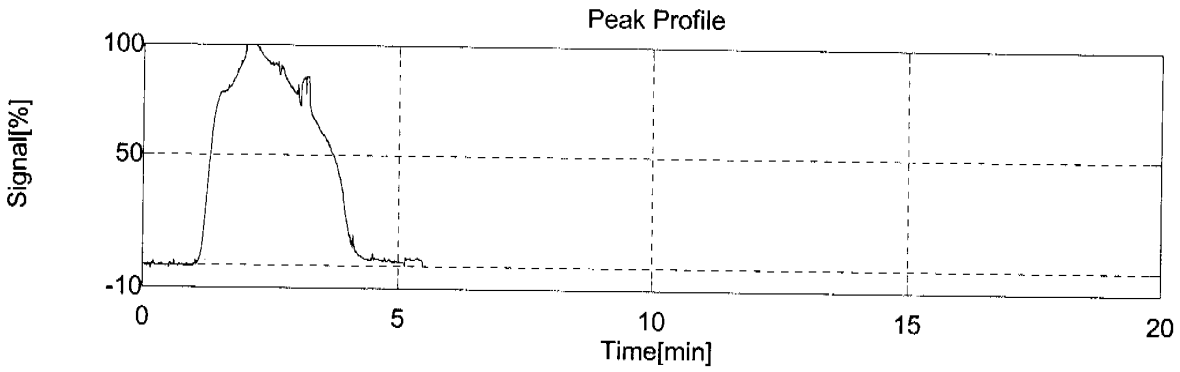
Sample Name: JB14201-12R
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/04/2012 13:28:45

Mean Area	Conc	Result	SD	CV	Weight	Modified
112645	25.64%		0.000	0.00%	102.8	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	112645	102.8	25.636		**h***	09/04/2012 13:28:45	b20829s1.cal

TOC-Control



Samples

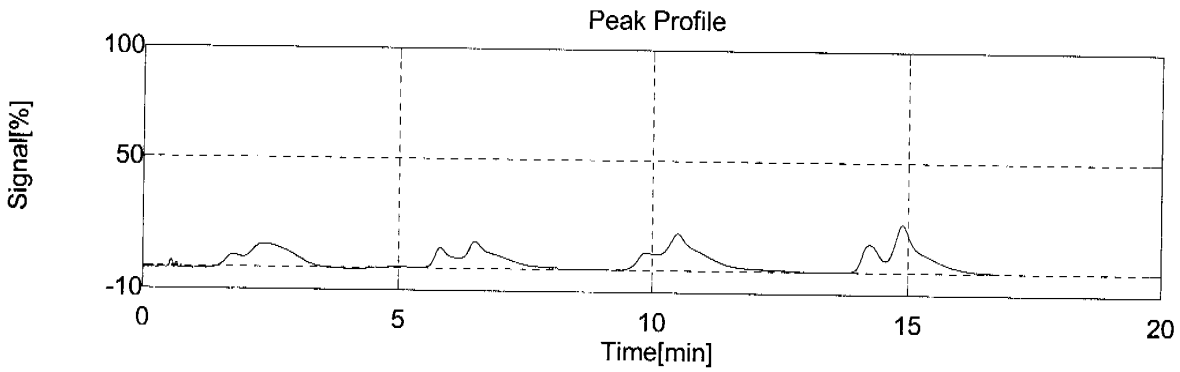
Sample Name: JB14201-12R
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/04/2012 14:22:42

Mean Area	Conc	Result	SD	CV	Weight	Modified
7928	24.33%		4.631	19.0%	8.775	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	7199	9.100	21.303		******	09/04/2012 14:04:19	b20829s1.cal
2	5	5922	8.000	19.663		******	09/04/2012 14:10:22	b20829s1.cal
3	5	8765	8.900	26.818		******	09/04/2012 14:17:18	b20829s1.cal
4	5	9826	9.100	29.545		******	09/04/2012 14:22:42	b20829s1.cal

TOC-Control



Samples

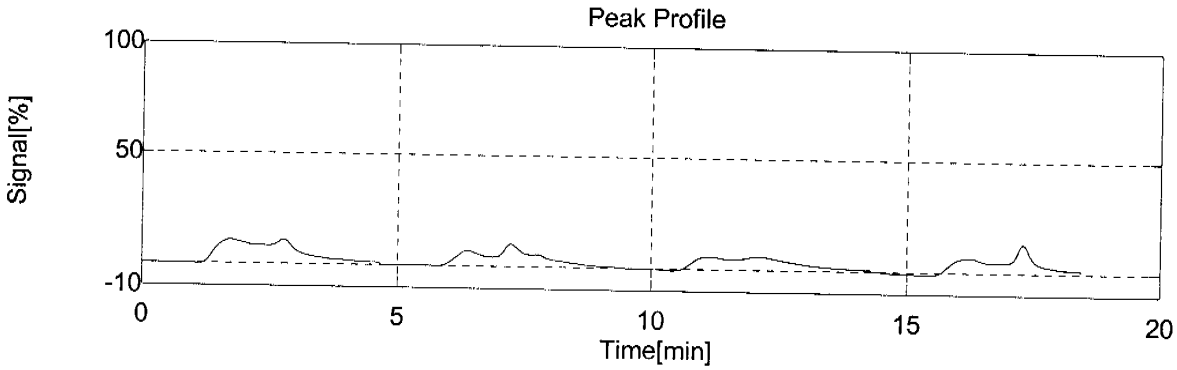
Sample Name: JB14519-15RT
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/04/2012 14:50:54

Mean Area	Conc	Result	SD	CV	Weight	Modified
7318	3.853%		0.6910	17.9%	51.23	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	9148	51.20	4.8758		******	09/04/2012 14:30:55	b20829s1.cal
2	5	6835	50.20	3.6541		******	09/04/2012 14:37:05	b20829s1.cal
3	5	6718	51.50	3.4969		******	09/04/2012 14:44:30	b20829s1.cal
4	5	6574	52.00	3.3840		******	09/04/2012 14:50:54	b20829s1.cal

TOC-Control



Samples

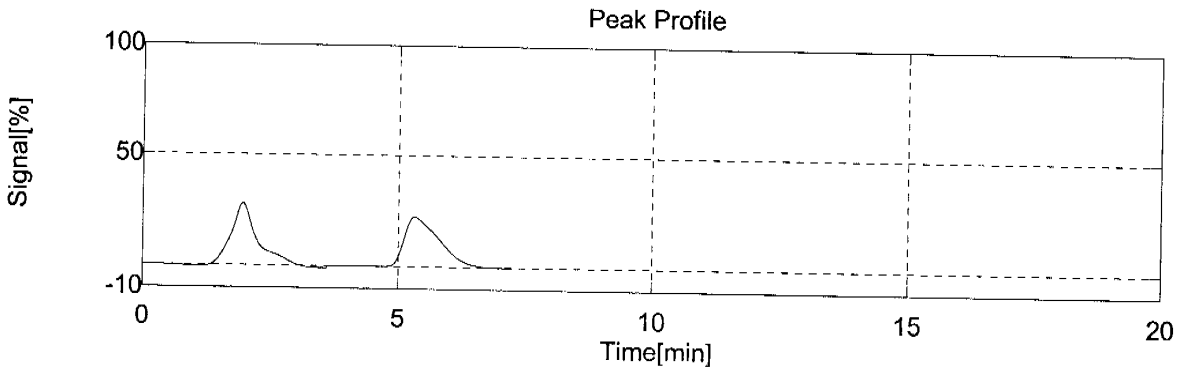
Sample Name: CCV
Sample ID:
Remark:
Comment:
Method: tocsscal.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/04/2012 15:07:35

Mean Area	Conc	Result	SD	CV	Modified
9731	2.662%		0.01723	0.647%	

No.	Range	Area	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	9774	2.6738		******	09/04/2012 14:56:29	b20829s1.cal
2	5	9688	2.6495		******	09/04/2012 15:07:35	b20829s1.cal

TOC-Control



Statistics / Summary

Sample Name	Analysis	Conc.	Abs C [µg]
CRI	SSM-TC	0.09412 %	94
HSTD	SSM-TC	5.057 %	5057
ICV	SSM-TC	1.927 %	1926
CCV	SSM-TC	2.668 %	2668
GP66744-MB2	SSM-TC	0.000 %	0
GP66744-B2	SSM-TC	0.1919 %	1918
JB14312-15R	SSM-TC	0.07983 %	667
JB15015-1R	SSM-TC	0.07250 %	350
JB14201-12R	SSM-TC	24.98 %	14250
JB14519-15RT	SSM-TC	3.853 %	1972

Hexavalent Chromium

Test Title:	XCRA
GN Batch:	GN71477
Analyst:	RI
Prep Date:	8/31/2012
Analysis Date:	9/4/2012
Instrument ID:	G

Method: SW846 3060A, 7196A

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

Corr. Coef: 0.99992

Slope: 0.9241

Y intercept: -0.0007

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	12:28	0.000	0.0000							
	STD 1	0.009	NA	NA	0.009	0.0100							
	STD 2	0.046	NA	NA	0.046	0.0500							
	STD 3	0.092	NA	NA	0.092	0.1000							
	STD 4	0.273	NA	NA	0.273	0.3000							
	STD 5	0.466	NA	NA	0.466	0.5000							
	STD 6	0.730	NA	NA	0.730	0.8000							
	STD 7	0.929	NA	12:34	0.929	1.0000							
	CCV	0.425	NA	13:07	0.425	0.4606	NA	NA	NA	NA	mg/l	0.003	0.010
	CCB	0.000	NA	13:07	0.000	0.0008	NA	NA	NA	NA	mg/l	0.003	0.010
	GP66920-MB1	0.000	0.000	13:14	0.000	0.0008	100.0	2.5000	1	0.030	mg/kg	0.117	0.400
	GP66920-B1	0.893	0.000	13:14	0.893	0.9671	100.0	2.5000	1	38.683	mg/kg	0.117	0.400
	GP66920-S1	0.510	0.005	13:14	0.505	0.5472	100.0	2.4800	1	22.065	mg/kg	0.118	0.403
	GP66920-D1	0.013	0.005	13:14	0.008	0.0094	100.0	2.5400	1	0.371	mg/kg	0.115	0.394
	JB14312-15R	0.013	0.006	13:14	0.007	0.0083	100.0	2.5300	1	0.329	mg/kg	0.116	0.395
	JB14312-15RPSCON	0.407	0.002	13:14	0.405	0.4390	100.0	2.5300	2	34.704	mg/kg	0.232	0.791
	GP66920-B2	>3	OVR		FALSE	0.0008	100.0	2.5000	1	0.030	mg/kg	0.117	0.400
	GP66920-S2	>3	OVR		FALSE	0.0008	100.0	2.5400	1	0.030	mg/kg	0.115	0.394
	GP66920-B2	0.326	0.000	13:14	0.326	0.3535	100.0	2.5000	50	707.043	mg/kg	5.860	20.000
	GP66920-S2	0.417	0.000	13:14	0.417	0.4520	100.0	2.5400	50	889.749	mg/kg	5.768	19.685
	CCV	0.425	NA	13:14	0.425	0.4606	NA	NA	NA	NA	mg/l	0.003	0.010
	CCB	0.000	NA	13:15	0.000	0.0008	NA	NA	NA	NA	mg/l	0.003	0.010
					FALSE	0.0008	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	0.0008	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	0.0008	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	0.0008	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	0.0008	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	0.0008	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	0.0008	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	0.0008	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	0.0008	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	0.0008	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
	CCV	0.423	NA	15:23	0.423	0.4585	NA	NA	NA	NA	mg/l	0.003	0.010
	CCB	0.000	NA	15:23	0.000	0.0008	NA	NA	NA	NA	mg/l	0.003	0.010
	JB14312-1R	0.142	0.104	15:35	0.038	0.0419	100.0	2.5500	1	1.642	mg/kg	0.115	0.392
	JB14312-2R	0.035	0.028	15:35	0.007	0.0083	100.0	2.5000	1	0.333	mg/kg	0.117	0.400
	JB14312-3R	0.031	0.000	15:35	0.031	0.0343	100.0	2.5500	1	1.345	mg/kg	0.115	0.392
	JB14312-4R	0.008	0.000	15:35	0.008	0.0094	100.0	2.4500	1	0.384	mg/kg	0.120	0.408
	JB14312-5R	0.126	0.045	15:35	0.081	0.0884	100.0	2.4800	1	3.565	mg/kg	0.118	0.403
	JB14312-6R	0.037	0.031	15:35	0.006	0.0072	100.0	2.4700	1	0.294	mg/kg	0.119	0.405
	JB14312-7R	0.021	0.015	15:35	0.006	0.0072	100.0	2.5100	1	0.289	mg/kg	0.117	0.398
	JB14312-8R	0.072	0.012	15:35	0.060	0.0657	100.0	2.4900	1	2.638	mg/kg	0.118	0.402
	JB14312-9R	0.050	0.008	15:35	0.042	0.0462	100.0	2.4600	1	1.878	mg/kg	0.119	0.407
	JB14312-10R	0.000	0.000	15:35	0.000	0.0008	100.0	2.5400	1	0.030	mg/kg	0.115	0.394
	CCV	0.423	NA	15:35	0.423	0.4585	NA	NA	NA	NA	mg/l	0.003	0.010
	CCB	0.000	NA	15:35	0.000	0.0008	NA	NA	NA	NA	mg/l	0.003	0.010
	JB14312-11R	0.381	0.254	15:38	0.127	0.1382	100.0	2.5000	1	5.527	mg/kg	0.117	0.400
	JB14312-12R	0.088	0.042	15:38	0.046	0.0505	100.0	2.4600	1	2.054	mg/kg	0.119	0.407
	JB14312-13R	0.009	0.000	15:38	0.009	0.0105	100.0	2.5400	1	0.413	mg/kg	0.115	0.394
					FALSE	0.0008	100.0	2.5000	1	0.030	mg/kg	0.117	0.400
					FALSE	0.0008	100.0	2.5000	1	0.030	mg/kg	0.117	0.400
					FALSE	0.0008	100.0	2.5000	1	0.030	mg/kg	0.117	0.400
					FALSE	0.0008	100.0	2.5000	1	0.030	mg/kg	0.117	0.400
					FALSE	0.0008	100.0	2.5000	1	0.030	mg/kg	0.117	0.400
					FALSE	0.0008	100.0	2.5000	1	0.030	mg/kg	0.117	0.400
					FALSE	0.0008	100.0	2.5000	1	0.030	mg/kg	0.117	0.400
	CCV	0.423	NA	15:38	0.423	0.4585	NA	NA	NA	NA	mg/l	0.003	0.010
	CCB	0.000	NA	15:38	0.000	0.0008	NA	NA	NA	NA	mg/l	0.003	0.010
					FALSE	0.0008	100.0	2.5000	1	0.030	mg/kg	0.117	0.400
					FALSE	0.0008	100.0	2.5000	1	0.030	mg/kg	0.117	0.400
					FALSE	0.0008	100.0	2.5000	1	0.030	mg/kg	0.117	0.400
					FALSE	0.0008	100.0	2.5000	1	0.030	mg/kg	0.117	0.400
					FALSE	0.0008	100.0	2.5000	1	0.030	mg/kg	0.117	0.400

9/5/12

ACCUTEST LABS
DAYTON, NJ

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

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?
JB14312-15R	2.53	1.1385	0.329	0.455	yes	1	2	0.228	0.23	0.515	40.404	efault (40 mg/kg) spike
		0		0.000	no	0		#DIV/0!		#DIV/0!	#DIV/0!	efault (40 mg/kg) spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike

3060A/7196A INSOLUBLE SPIKE CALCULATION

Weight of PbCrO4	Weight of Sample	Amount Spiked
0.0122	2.5	785.149
0.0156	2.54	988.150
		#VALUE!
		#VALUE!
		#VALUE!
		#VALUE!
		#VALUE!
		#VALUE!
		#VALUE!

ACCUTEST

Test: **Hexavalent Chromium** MDL = 0.117 mg/kg GNBatch ID: GN 71477
Product: **XCr** RDL = 0.40 mg/kg Date: 9-4-2012
Method: **SW846 3060A/7196A**

Digestion Batch QC Summary Units = mg/kg

Method Blank ID: GN6692-MB1 Date: 9-4-12 Result: <RDL RDL: 0.40 <RDL: Yes
Sol. Spike Blank ID: B1 Date: Result: 38.68 Spike: 40.00 %Rec.: 96.71
Insol. Spike Blank ID: B2 Date: Result: 707.04 Spike: 785.15 %Rec.: 90.05
Duplicate ID: B1 Samp. Result: 0.329 Dup. Result: 0.371 %RPD: 12.0
Sol. MS ID: S1 Samp. Result: MS Result: 22.07 Spike: 40.32 %Rec: 53.91
Insol. MS ID: S2 Samp. Result: MS Result: 889.75 Spike: 988.15 %Rec: 90.01
Post Spike ID: JB14312-15R Samp. Result: PS Result: 34.704 Spike: 40.40 %Rec: 85.08
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:	9-4-12	Result:	0.4606	TV: 0.500	%Rec.: 92.12
CCV:		Result:		TV: 0.500	%Rec.:
CCV:		Result:	0.4585	TV: 0.500	%Rec.: 91.70
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:	9-4-12	Result:	<RDL	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: TZ Date: 9-4-2012

Comments:

Form: GN066-01
Rev. Date: 4/25/11

ACCUTEST

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

pH Meter ID: pH48
Digestion Date: 8/31/2012
pH adj. Date: 9-4-2012
GN Batch ID: GN71477

H adj. start time: 12:47 14:53 12:57 15:13
H adj. end time: 12:51 15:00 13:01 15:22

GP66920 Sample ID	Sample Weight in g	pH after HNO3	Final Volume (ml)	pH after H2SO4	bkg pH after H2SO4	Spike Amounts	Spike Solution	Digestate Description/Comments
CV		7.29	100	2.01	–	5mL	10 ppm	Clear
CV		7.95		1.92	–			
CV								
CV								
CB		7.13	100	1.95	–			
CB		7.51		1.80	–			
CB								
CB								
S (Sol) JB14312-15R	2.48	7.82	100	2.10	1.92	1mL	100 ppm	Absolute
S (Insol.)	2.54	7.65		1.93	OVR	.0156	PbCrO4	
UP	2.54	7.47		1.95	1.97			
3 (Sol)	2.50	7.72		1.99	1.89	1mL	100ppm	Absolute
3 (Insol)	2.50	7.66		2.00	OVR	.0122	PbCrO4	
3	2.50	7.13		1.95	1.89			
JB14312-15R	2.53	7.63		2.04	1.99			light yellow
1R	2.55	7.72		2.12	1.93			Brown
2R	2.50	7.90		2.00	1.92			Dark yellow
3R	2.55	7.89		2.12	1.89			clear (light yellow)
4R	2.45	7.90		1.99	1.90			Clear
5R	2.48	7.69		2.01	1.94			Brown
6R	2.47	7.45		2.11	1.93			yellow
7R	2.51	7.77		1.95	1.89			yellow
8R	2.49	7.80		2.03	1.92			light yellow
9R	2.46	7.95		1.96	1.82			light yellow
10R	2.54	7.88		1.89	1.93			clear
11R	2.50	7.82		2.05	1.90			yellow Brown
12R	2.46	7.69		2.11	1.82			Brown
13R	2.54	7.10		1.96	1.82			Clear ~~Brown~~ ~~Clear~~ (RC 8/31)
3 (Insol)	2.50	7.66	100	1.99	1.89			dilution 1:50
S (Insol.)	2.54	7.65		2.01	1.92			dilution 1:50
S	2.53	7.63		1.94	2.05	0.23ml	100ppm Al[illegible]	1:2 → 50ml
H adjusted PS								
5 dil.								
JB14312-15R[illegible]	2.57							

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

000000 ug/g x Insoluble spike wt(g) x 52/323.2}/ms sample wt(g) = Insoluble spike amount of PbCrO4

2nd analyst check: MP 9/4/12

Anayst: RZ
Date: 9-4-2012

Form: GN-067

ACCUTEST

GP66920

HEXAVALENT CHROMIUM TEMPERATURE AND TIME DIGESTON LOG - METHOD 3060A

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

Thermometer ID: 381/317/182/175
Thermometer Correction factor: 01-2/3/10

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
	Starting Time	12:00	90/90	92/90	90/92	90/90
	Time 1	16:30	90/90	92/90	90/92	90/90
	Ending Time	17:00	90/90	92/90	90/92	90/90
	Starting Time	17:15	90/90	92/90	90/92	90/90
	Time 1	17:45	90/90	92/90	90/92	90/90
	Ending Time	18:15	90/90	92/90	90/92	90/90
	Starting Time	18:20	90/90	92/90	90/92	90/90
	Time 1	18:50	90/90	92/90	90/92	90/90
	Ending Time	19:20	90/90	92/90	90/92	90/90

Analyst: MD / YC (LS)
Date: 8/31/12 (LS)
2nd Analyst Check: _____

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

ACCUTEST

GN/GP Batch ID: GN 71477 GP66920

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

Reagent	Exp. Date	Reagent # or Manufacturer/Lot
Calibration Source: Hexavalent Chromium, 1000 mg/L Stock	4/12/2015	Absolute Grade Lot # 041212
Calibration Checks: Hexavalent Chromium, 1000 mg/L Stock	5/31/2017	Ultra lot # L00439
Spiking Solution Source	4/12/2015	Absolute Grade Lot # 041212
Lead Chromate (Insoluble Hexavalent Chromium Spike)	7/26/2017	Sigma Aldrich Lot # BCBG0578V
Magnesium Chloride, Anhydrous	7/11/2016	Alfa Aesar Lot # B17X012
1N NaOH	NA	
Digestion Solution	9/30/2012	GNE8-33421-XCR/XCRA
Phosphate Buffer Solution	2/14/2013	GNE8-33273-XCRA
5.0 M Nitric Acid	3-3-13	GNE F-33425 XCRA
Diphenylcarbazide Solution	10-4-12	GNR-9-33446 XCR
Sulfuric Acid, 10%	2-21-13	GNR F-33334 XCR
Filter	NA	F2EA19811
Teflon Chips	NA	919120

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

ACCUTEST.

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

pH adj. start time: 12:04 | 12:14

pH adj. end time: 12:09 | 12:17

pH adjustment Date: 9-4-2012

GN Batch ID: GN71477

Sample ID	Sample Weight in g	pH after HNO3	Final Volume (ml)	pH after H2SO4	Comments	Spike Info.
Calibration Blank	NA	7.21	100	2.04	0	
0.010 mg/l standard	NA	7.24		1.90	10ppb Abs=14n	0.10 ml of 10 mg/l
0.050 mg/l standard	NA	7.44		1.95		0.50 ml of 10 mg/l
0.100 mg/l standard	NA	7.98		1.98		1.00 ml of 10 mg/l
0.300 mg/l standard	NA	7.53		2.01		3.00 ml of 10 mg/l
0.500 mg/l standard	NA	7.72		2.10		5.00 ml of 10 mg/l
0.800 mg/l standard	NA	7.44		2.02		8.00 ml of 10 mg/l
1.00 mg/l standard	NA	7.90		1.89		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: RJ

Date: 9-3-2012

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

ACCUTEST.

HEXAVALENT CHROMIUM STANDARD PREPARATION LOG

Product: XCR

GN or GP Number: GN 71477

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 # 041215	1000 ppm	1.0 ml	DI	100 mls	10 mg/l	4/12/2015	RZ	9-4-12
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	9-5-12	RZ	9-4-12
.050 ppm	↓	↓	0.5 ppm	DI	↓	0.05 mg/l	↓	↓	↓
.10 ppm	↓	↓	1.0 ppm	DI	↓	0.10 mg/l	↓	↓	↓
.30 ppm	↓	↓	3.0 ppm	DI	↓	0.30 mg/l	↓	↓	↓
.50 ppm	↓	↓	5.0 ppm	DI	↓	0.50 mg/l	↓	↓	↓
.80 ppm	↓	↓	8.0 ppm	DI	↓	0.80 mg/l	↓	↓	↓
1.00 ppm	↓	↓	10.0 ppm	DI	↓	1.0 mg/l	↓	↓	↓

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

GN71534

ACCUTEST.

Analyst JAA

Method Sulfs

Prep Date 9/5/12

Balance # B-1A

GP # GN71534

Sample Prep Log

Sample ID	Sample Size	Final Volume
DUP JB14312-15R	+ 10ml DI H_2O	negative
JB14312-15R	10.10 gms	
JB15015-1R	10.05 gms	
JB14201-12R	10.20	
JB14519-15RT	10.15	
JB14036-1RT	10.03	
JB14198-5RT	10.50	
JB14307-3RT	10.33	
JB14785-1RT	10.49	
~~JB14655-1RT~~	10.53 gms + 10ml DI H_2O	negative
JB13560-1RT		
JAA 9/5 #4		

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

QC Review

ACCUTEST.

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

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

ANALYST: JAA
DATE: 9/5/12

F = 0.0061

GN BATCH: GN 71538
REAGENT ID's: See attached

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

within limits? (Y/N)

QC Summary
Dup. Sample ID: D1 Original: 0.95 Duplicate: 0.95 RPD: 0.0 Units: ✓
MS Sample ID: S1 Original: 0.95 Amt. Spiked: 57.8 MS: 56.6 REC: 96.1 ✓
MB ID and prep date: 9/5/12 Result: 20.2 RDL: 0.2 <RDL? Y
SB ID and prep date: Amt. Spiked: Result: REC:
External ID: Known: Result: REC:

Spike prep: 0.25 gms ceise → 0.52 gms sample

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 71538 -MB 1		10:40	0.0	0.10	0.10	0.12	20.2	0.2	%
GN 71538 -B 1			0.0	41.30	41.20	for Standardization only			%
1 JB14312-1SR	0.50		0.0	0.65	0.65	0.95	0.95		%
GN 71538 -D 1	0.50		0.0	0.65	0.65	0.95	0.95		%
GN 71538 -S 1	0.52		0.0	40.10	40.10	56.6	56.6		%
2 JB15015-1R	0.52		0.0	1.30	1.30	1.59	1.59		%
3 JB14201-12R	0.52		0.0	1.00	1.00	1.42	1.42		%
4 JB14519-15R	0.50		0.0	0.90	0.90	1.27	1.27		%
5 JB14036-1RT	0.51		0.0	0.65	0.65	0.87	0.87		%
6 JB14198-5RT	0.49		0.0	1.30	1.30	1.83	1.83		%
7 JB14307-3RT	0.47		0.0	0.35	0.35	0.49	0.49		%
8 JB14785-1RT	0.49		0.0	0.75	0.75	1.2	1.2		%
9 ~~JB14655-1RT~~	0.49	14:05	0.0	0.50	0.50	0.73	0.73	↓	%
10 JB13560-1RT									%
(#4) 11									%
12 JB14312-1SR	—	83.1			MS =	0.25 / 0.52	× 100 × 1/.831		%
13 JB15015-1R	—	96.1				= 57.8			%
14 JB14201-12R	—	82.9							%
15 JB14519-15RT	—	86.5							%
16 JB14036-1RT	—	89.7							%
17 JB14198-5RT	—	90.6							%
18 JB14307-3RT	—	92.0							%
19 JB14785-1RT	—	77.8							%
20 ~~JB14655~~ JB13560-1RT	—	85.8							%

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

ANALYST: JAA DATE: 9/5/12 QC REVIEW: DATE:

COMMENTS:

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

ACCUTEST.

Reagent Information Log
Fe2/7

Work Group #_____

7.5
7

Reagent	Reagent # or Manufacturer/Lot	
Iron Wire Std	Aldrich # MKBH5978V	NA
HCL (1:1)	Fme4-31822-Fe2/7	11/12/12
60% Sulfuric Acid/Phosphoric Acid	Fme6-32705-Fe2/7	12/26/12
Potassium Dichromate Solution	Fme6-32673-Fe2/7	12/22/12
Diphenyl Amino Indicator	Fme4-31960-Fe2/7	10/24/12

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

AECOM
250 Apollo Drive
Chelmsford, MA 01824

978-905-2100 tel
978-905-2101 fax

Data Validation Report

Project:	PPG – Garfield Ave Supplemental Remedial Investigation (GARIS) Northern Canal Borings
Laboratory:	Accutest, Dayton, NJ
Laboratory Job No.:	JB14404
Analysis/Method:	Hexavalent Chromium SW846 3060A/7196A
Validation Level:	Full (Hexavalent Chromium)
Site Location/Address:	PPG Site 114 – Garfield Avenue, Jersey City, NJ
AECOM Project Number:	60213772 – 5.A
Prepared by: Justin Webster/AECOM	Completed on: September 7, 2012
Reviewed by: Lisa Krowitz/AECOM	File Name: 2012-09-07 DV Report JB14404-F.docx

Introduction

The data were reviewed in accordance with the FSP-QAPP and the following NJDEP and/or Region 2 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

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.

Sample Information

The samples listed below were collected by AECOM on August 22, 2012 as part of the Garfield Ave Supplemental Remedial Investigation (GARIS) Northern Canal Boring Sampling at the PPG Site - 114 Jersey City, New Jersey.

Field ID	Laboratory ID	Matrix	Fraction
NSB-EB20120822 (Equipment Blank)	JB14404-2	Aqueous	Hexavalent Chromium
NSB-D4-20.0-20.5	JB14404-3	Soil	Hexavalent Chromium
NSB-D4-16.5-17.0	JB14404-4	Soil	Hexavalent Chromium
NSB-D4-12.0-12.5	JB14404-5	Soil	Hexavalent Chromium
NSB-D4-10.5-11.0	JB14404-6	Soil	Hexavalent Chromium
NSB-D4-6.0-6.5	JB14404-7	Soil	Hexavalent Chromium
NSB-D3-21.0-21.5	JB14404-9	Soil	Hexavalent Chromium
NSB-D3-15.0-15.5	JB14404-10	Soil	Hexavalent Chromium
NSB-D3-10.8-11.3	JB14404-11	Soil	Hexavalent Chromium
NSB-D3-6.5-7.0	JB14404-12	Soil	Hexavalent Chromium
NSB-D2-16.6-17.1	JB14404-13	Soil	Hexavalent Chromium
NSB-D2-15.0-15.5	JB14404-14	Soil	Hexavalent Chromium
NSB-D2-20.0-20.5	JB14404-15	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 Sites 114, 132, 133, 135, 137, 143, and 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

Matrix Spike Results

Sample NSB-D4-20.0-20.5 (JB14404-3) was selected for the matrix spike (MS) analysis associated with the samples in this SDG and was used for supporting data quality recommendations. The soluble and insoluble MS recoveries (batch GP66904/GN71388) were 95.6% and 106%, respectively; both results met the quality control criteria of 75-125%. The post digestion spike (PDS) recovery was 94.7%, which met the PDS criteria of 85-115%. No data qualification was required on the basis of spike recoveries.

Percent Moisture

Due to high sample moisture content, greater than 50 percent, the detect result for sample NSB-D3-10.8-11.3 was qualified as estimated (J).

Reporting Limits

Reported results less than the reporting limit (RL), but greater than or equal to the method detection limit (MDL) are approximate values and have been qualified as estimated (J).

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 discussed in attachments A and B below.

The hexavalent chromium result for sample NSB-D3-10.8-11.3 is usable as an estimated value with an unknown bias based on high moisture content.

In addition, all results reported between the RL and the MDL are usable as estimated values.

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 PPG –GARIS Northern Canal Borings PPG Site 114, Jersey City, NJ
Sampling Date August 22, 2012
Lab Name/ID Accutest Laboratories, Dayton, NJ
SDG No JB14404
Sample Matrix Soil
Trip Blank ID NA
Field Blank ID NSB-EB20120822

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
NSB-D2-16.6-17.1	JB14404-13	CHROMIUM (HEXAVALENT)	U	0.27	0.27	0.56	Qualify	31
NSB-D2-20.0-20.5	JB14404-15	CHROMIUM (HEXAVALENT)	U	1.2	1.2	0.50		
NSB-D3-10.8-11.3	JB14404-11	CHROMIUM (HEXAVALENT)	U	1.3	1.3	0.94	Qualify	22
NSB-D3-21.0-21.5	JB14404-9	CHROMIUM (HEXAVALENT)	U	0.47	0.47	0.46		
NSB-D3-6.5-7.0	JB14404-12	CHROMIUM (HEXAVALENT)	U	0.43	0.43	0.62	Qualify	31
NSB-D4-10.5-11.0	JB14404-6	CHROMIUM (HEXAVALENT)	U	0.57	0.57	0.56		
NSB-D4-12.0-12.5	JB14404-5	CHROMIUM (HEXAVALENT)	U	1.1	1.1	0.51		
NSB-D4-16.5-17.0	JB14404-4	CHROMIUM (HEXAVALENT)	U	0.64	0.64	0.46		
NSB-D4-20.0-20.5	JB14404-3	CHROMIUM (HEXAVALENT)	U	1.1	1.1	0.45		

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 $\pm$ 20 percent for sample results > 4xRL or $\pm$ 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 rejected because the laboratory exceeded the holding time for digestion and 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 %.

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 90°C.

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 6ºC.

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.

Attachment B

Data Validation Report Form

Client Name: PPG Industries	**Project Number:** 60213772 – 5.A
Site Location: PPG –GARIS Northern Canal Borings	**Project Manager:** Robert Cataldo
Laboratory: Accutest, Dayton, New Jersey	**Limited or Full Validation (circle one)**
Laboratory Job No: JB14404	**Date Checked:** 09/07/2012
Validator: Justin Webster	**Peer:** Lisa Krowitz

ITEM	YES	NO	N/A	COMMENTS
Sample results included?	x			12 soils and 1 field blank
Reporting Limits met project requirements?	x			
Field I.D. included?	x			
Laboratory I.D. included?	x			
Sample matrix included?	x			
Sample receipt temperature 2-6ºC?	x			2.0°C
Signed COCs included?	x			
Date of sample collection included?	x			08/24/2012
Date of sample digestion included?	x			Soil: JB14404 HxCr prepped on 08/30/2012;
Holding time to digestion met criteria? Soils -30 days from collection to digestion.	x			See below " Holding Times"
Date of analysis included?	x			Soil: JB14404 HxCr analyzed on 08/31/2012. Aqueous: JB14404 08/22/2012 @ 20:25.
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			3060A/7196A
Laboratory Case Narrative included?	x			
Sample Dilutions		x		
Field Duplicates ("x "appended to sample ID) (RPD calculation on separate sheet)		x		See "Field Duplicate" table below for results.

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

Comments

ITEM	YES	NO	N/A	COMMENTS
Initial Calibration Documentation Included in Lab Package?	x			Cal source (AQ: Absolute Grade Lot# 011212) and (SO: Absolute Grade lot# 041212)
1. Blank plus 7 standards (7196A) or blank plus 4 standards (7199). 2. Correlation coefficient of ≥0.995 (7196A) or ≥0.999 (7199). 3. Calibrate daily or each time instrument is set up.	x x x			1. Yes for all analyses 2. All analyses meet CC 3. Yes
Calibration Check Standard (CCS) for 7196A and Quality Control Sample (QCS) for 7199 Included in Lab Package?	x			Check source (AQ: Ultra Scientific lot # L00439) and (SO: Ultra lot # L00439)
1. %R criteria met? (90 - 110%). 2. Correct frequency of once every 10 samples 3. CCS and QCS from independent source and at mid level of calibration curve.	x x x			1. Yes 2. Analyzed every 10 samples 3. Yes
Calibration Blanks	x			
1. Analyzed prior to initial calibration standards and after each CCS/QCS? 2. Absolute value should not exceed MDL	x x			1. Yes 2. Yes
Method Blank and Field Blanks Included in Lab Package?	x			NSB-EB20120822 was nondetect.
1. Method blank analyzed with each preparation batch? 2. Absolute value should not exceed MDL.	x x			1. Yes 2. Yes
Eh and pH data Included in Lab Package?	x			
Eh and pH data was included and plotted for all samples?	x			
Soluble Matrix Spike Data Included in Lab Package?	x			NSB-E4-20.0-20.5 (JB14404-3)
1. %R criteria met? (75-125%R) 2. Was the spike concentration 40 mg/Kg? 3. Was a sample spiked at the frequency of 1/batch or 20 samples?	x x x			1. Yes, JB14404-3 (95.6%R) 2. Yes, JB14404-3 (39.84 mg/kg) 3. Yes
Insoluble Matrix Spike Data Included in Lab Package?	x			NSB-E4-20.0-20.5 (JB14404-3)
1. %R criteria met? (75-125%R) 2. Was the spike concentration 400 to 800 mg/Kg? 3. Was a sample spiked at the frequency of 1/batch or 20 samples?	x x	x		1. Yes, JB14404-3 (106%R) 2. No, JB14404-3 (903.81 mg/kg), no impact to data 3. Yes
Post Digestion Spike	x			NSB-E4-20.0-20.5 (JB14404-3)
1. %R criteria met? (85-115%R). 2. Was the spike concentration 40 mg/Kg (soluble) or twice the sample concentration? 3. Was a sample spiked at the frequency of 1/batch or 20 samples?	x x x			1. Yes, JB14404-3 (94.7%R) 2. Yes, JB14404-3 (40.40 mg/kg) 3. Yes
Sample Duplicate Data Included in Lab Package?	x			NSB-E4-20.0-20.5 (JB14404-3)
1. RPD criteria met? (RPD < 20%) if both results are ≥4x RL or control limit of ±RL if both results are <4x RL. 2. Was a sample spiked at the frequency of 1/batch or 20 samples?	x x			1. Yes, JB14404-3 the absolute difference with within ± RL for sample results <4x RL. 2. Yes

ITEM	YES	NO	N/A	COMMENTS
Was a Laboratory Control Sample (LCS) Included in Lab Package?	x			
1. %R criteria met? (80-120%R soil, 90-110% aq). 2. Was an LCS analyzed at the frequency of 1/batch or 20 samples?	x x			1. Yes, all criteria were met for AQ and SO analyses. 2. Yes
Miscellaneous Items.				
1. For soils by 7196A, was the pH within a range of 7.0-8.0? 2. For soils by 7199, was the pH within a range of 9.0-9.5? 3. For aqueous by 7196A, was the pH with a range of 1.5-2,5? 4. For soils (3060A), was the digestion temperature 90-95°C for at least 60 minutes? 5. For 7199, was each sample injected twice and was the RPD ≤20?	x x x 		 x x	1. Yes 2. NA 3. Yes 4. Yes 5. NA

SDG#: JB14404
Batch: GN71388
Cr+6 ICAL - 08/31/2012
Soils
(p. 46 of data pkg)

x - concentration	y - response
0	0
0.01	0.009
0.05	0.044
0.1	0.088
0.3	0.275
0.5	0.44
0.8	0.715
1	0.898

(p. 46 of data pkg)

AECOM Calculated Intercept	-0.0004	OK	Reported intercept	-0.0004
AECOM Slope	0.8956	OK rounding	Reported Slope	0.8956
AECOM Calculated r	0.99993	OK	Reported r	0.99993

LCS calculation	**GP66904-B1**	**pg. 46**		
Background absorbance	0			
Sample absorbance	0.89			
LCS Soluble Instrument Response	0.89			
Instrument Concentration (mg/L)	0.994			
Sample weight (kg)	0.0025			
Percent solids	1			
Dilution Factor	1			
AECOM Calculated LCS Result (mg/Kg)	39.8	OK	Reported Result (mg/Kg)	39.8

%R = Found/True*100	**GP66863-B1**	**pg. 35**		
True Value (mg/kg)	40.0			
AECOM Calculated %R	99.5	OK	Reported %R	99.5

MS calculation (GP66863-S2)	**NSB-D4-20.0-20.5**	**pg. 46**		
Background reading	0			
Total absorbance	0.43			
Total absorbance - background	0.43			
Instrument Concentration (mg/L)	0.481			
Sample weight (kg)	0.00251			
Percent solids	0.888			
Dilution Factor	50			
AECOM Calculated MS Result (mg/Kg)	1078	OK rounding	Reported Result (mg/Kg)	1080

%R = Found/True*100	**NSB-D4-20.0-20.5**	**pg. 37**		
True Value (mg/kg)	1020			
Native concentration (mg/Kg)	1.1			
%R	106	OK	Reported %R	106

Percent Solids	**NSB-D4-20.0-20.5**	**pg. 38**		
Empty dish weight (g)=	25.81			
Wet weight (g)=	35.72			
Dry weight (g)=	34.61			
AECOM%solids =	88.8	OK	Reported %solids=	88.8

Reporting Limit	**NSB-D4-20.0-20.5**	**pgs. 10, 46**		
Low Standard	0.01			
Initial weight (kg)	0.00242			
Final volume (L)	0.1			
Percent solids	0.888			
Dilution Factor	1.00			
Reporting Limit	0.47	OK rounding	Reported RL (mg/Kg)=	0.45

Sample Calculations

NSB-D4-20.0-20.5		**pgs. 10, 46**		
Background reading	0.001			
Total absorbance	0.022			
Total absorbance - background	0.021			
Instrument Response (mg/L)	0.024			
Sample weight (kg)	0.00242			
Final Volume (L)	0.1			
Percent solids	0.89			
Dilution Factor	1			
AECOM Calculated Result (mg/Kg)	1.1	OK rounding	Reported Result (mg/Kg)	1.0

NSB-D3-21.0-21.5		**pgs. 15, 46**		
Background reading	0			
Total absorbance	0.009			
Total absorbance - background	0.009			
Instrument Response (mg/L)	0.010			
Sample weight (kg)	0.00256			
Final Volume (L)	0.1			
Percent solids	0.86			
Dilution Factor	1			
AECOM Calculated Result (mg/Kg)	0.47	OK	Reported Result (mg/Kg)	0.47

Holding Times

Sample ID	Method	Days from Sampling to Prep	Days from Prep to Analysis	Days from Sampling to Analysis	Sampling to Prep Status	Prep to Analysis Status	Sampling to Analysis Status
NSB-EB20120822	SW7196			0			OK @1 days
NSB-D2-15.0-15.5	SW7196	8	1	9	OK @30 days	OK @7 days	OK @37 days
NSB-D2-16.6-17.1	SW7196	8	1	9	OK @30 days	OK @7 days	OK @37 days
NSB-D2-20.0-20.5	SW7196	8	1	9	OK @30 days	OK @7 days	OK @37 days
NSB-D3-10.8-11.3	SW7196	8	1	9	OK @30 days	OK @7 days	OK @37 days
NSB-D3-15.0-15.5	SW7196	8	1	9	OK @30 days	OK @7 days	OK @37 days
NSB-D3-21.0-21.5	SW7196	8	1	9	OK @30 days	OK @7 days	OK @37 days
NSB-D3-6.5-7.0	SW7196	8	1	9	OK @30 days	OK @7 days	OK @37 days
NSB-D4-10.5-11.0	SW7196	8	1	9	OK @30 days	OK @7 days	OK @37 days
NSB-D4-12.0-12.5	SW7196	8	1	9	OK @30 days	OK @7 days	OK @37 days
NSB-D4-16.5-17.0	SW7196	8	1	9	OK @30 days	OK @7 days	OK @37 days
NSB-D4-20.0-20.5	SW7196	8	1	9	OK @30 days	OK @7 days	OK @37 days
NSB-D4-6.0-6.5	SW7196	8	1	9	OK @30 days	OK @7 days	OK @37 days

Percent Solids

Sample ID	Percent Solids (%)	Status
NSB-D2-15.0-15.5	59.6	ok @50%
NSB-D2-16.6-17.1	71.5	ok @50%
NSB-D2-20.0-20.5	80.2	ok @50%
NSB-D3-10.8-11.3	42.6	<50%
NSB-D3-15.0-15.5	53.2	ok @50%
NSB-D3-21.0-21.5	86.1	ok @50%
NSB-D3-6.5-7.0	65	ok @50%
NSB-D4-10.5-11.0	71.6	ok @50%
NSB-D4-12.0-12.5	79	ok @50%
NSB-D4-16.5-17.0	87	ok @50%
NSB-D4-20.0-20.5	88.8	ok @50%
NSB-D4-6.0-6.5	67.9	ok @50%

Matrix Spikes

Sample ID	Compound	Analysis batch	MSs % Recovery	MSI % Recovery	PDS %R	Adj pH PDS %R	Lower Limit	Upper Limit
NSB-D4-20.0-20.5	CHROMIUM (HEXAVALENT)	GN71388	95.6	106	94.7	NA	75	125

New Jersey ACCUTEST LABORATORIES

09/06/12

Technical Report for

AECOM, INC.

PPG Northern Canal Borings, Jersey City, NJ

60213772.5.A

Accutest Job Number: JB14404

Sampling Date: 08/22/12

Report to:

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

Total number of pages in report: **63**

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.

Paul Ioannidis
Lab Director

Client Service contact: Matt Cordova 732-329-0200

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

Sections: 1 2 3 4 5 6 7

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Sample Summary

AECOM, INC.

Job No: JB14404

PPG Northern Canal Borings, Jersey City, NJ
Project No: 60213772.5.A

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JB14404-2	08/22/12	15:00	CM	08/22/12	AQ	Equipment Blank	NSB-EB20120822
JB14404-3	08/22/12	14:07	CM	08/22/12	SO	Soil	NSB-D4-20.0-20.5
JB14404-4	08/22/12	13:56	CM	08/22/12	SO	Soil	NSB-D4-16.5-17.0
JB14404-5	08/22/12	13:44	CM	08/22/12	SO	Soil	NSB-D4-12.0-12.5
JB14404-6	08/22/12	13:41	CM	08/22/12	SO	Soil	NSB-D4-10.5-11.0
JB14404-7	08/22/12	13:30	CM	08/22/12	SO	Soil	NSB-D4-6.0-6.5
JB14404-9	08/22/12	10:50	CM	08/22/12	SO	Soil	NSB-D3-21.0-21.5
JB14404-10	08/22/12	10:40	CM	08/22/12	SO	Soil	NSB-D3-15.0-15.5
JB14404-11	08/22/12	10:15	CM	08/22/12	SO	Soil	NSB-D3-10.8-11.3
JB14404-12	08/22/12	09:45	CM	08/22/12	SO	Soil	NSB-D3-6.5-7.0
JB14404-13	08/22/12	09:12	CM	08/22/12	SO	Soil	NSB-D2-16.6-17.1
JB14404-14	08/22/12	09:06	CM	08/22/12	SO	Soil	NSB-D2-15.0-15.5
JB14404-15	08/22/12	09:25	CM	08/22/12	SO	Soil	NSB-D2-20.0-20.5

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

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	AECOM, INC.	**Job No**	JB14404
Site:	PPG Northern Canal Borings, Jersey City, NJ	**Report Date**	9/5/2012 12:50:04 PM

On 08/22/2012, 15 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at Accutest Laboratories at a temperature of 2 C. Samples were intact and chemically preserved, unless noted below. An Accutest Job Number of JB14404 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. 13 Samples were active for this report.

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:** GN71442

- Sample(s) JB14404-2DUP were used as the QC samples for Redox Potential Vs H2.

Wet Chemistry By Method SM18 2540G

Matrix: SO **Batch ID:** GN71220

- The data for SM18 2540G meets quality control requirements.

Matrix: SO **Batch ID:** GN71231

- The data for SM18 2540G meets quality control requirements.

Wet Chemistry By Method SM20 4500H B

Matrix: AQ **Batch ID:** R115504

- The data for SM20 4500H B meets quality control requirements.
- JB14404-2 for pH: Sample received out of holding time for pH analysis.

Wet Chemistry By Method SW846 3060A/7196A

Matrix: SO **Batch ID:** GP66904

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB14404-3MS, JB14404-3DUP were used as the QC samples for Chromium, Hexavalent.
- RPD(s) for Duplicate for Chromium, Hexavalent are outside control limits. RPD acceptable due to low duplicate and sample concentrations.
- GP66904-S1 for Chromium, Hexavalent: Good recovery on soluble XCR matrix spike. Good recovery (94.7%) on the post-spike.
- GP66904-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:** GN70910

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB14375-1DUP, JB14375-1MS were used as the QC samples for Chromium, Hexavalent.

Wet Chemistry By Method SW846 9045C,D

Matrix:	SO	Batch ID:	GN71397

- Sample(s) JB14404-3DUP 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: JB14404
Account: AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Collected: 08/22/12

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JB14404-2	**NSB-EB20120822**					
Redox Potential Vs H2		313			mv	ASTM D1498-76
pH [a]		6.05			su	SM20 4500H B
JB14404-3	**NSB-D4-20.0-20.5**					
Chromium, Hexavalent		1.1	0.45	0.13	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		191			mv	ASTM D1498-76M
pH		8.83			su	SW846 9045C,D
JB14404-4	**NSB-D4-16.5-17.0**					
Chromium, Hexavalent		0.64	0.46	0.13	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		190			mv	ASTM D1498-76M
pH		8.91			su	SW846 9045C,D
JB14404-5	**NSB-D4-12.0-12.5**					
Chromium, Hexavalent		1.1	0.51	0.15	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		45.4			mv	ASTM D1498-76M
pH		8.54			su	SW846 9045C,D
JB14404-6	**NSB-D4-10.5-11.0**					
Chromium, Hexavalent		0.57	0.56	0.16	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		151			mv	ASTM D1498-76M
pH		8.82			su	SW846 9045C,D
JB14404-7	**NSB-D4-6.0-6.5**					
Redox Potential Vs H2		144			mv	ASTM D1498-76M
pH		8.26			su	SW846 9045C,D
JB14404-9	**NSB-D3-21.0-21.5**					
Chromium, Hexavalent		0.47	0.46	0.14	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		210			mv	ASTM D1498-76M
pH		8.39			su	SW846 9045C,D
JB14404-10	**NSB-D3-15.0-15.5**					
Redox Potential Vs H2		15.7			mv	ASTM D1498-76M
pH		8.27			su	SW846 9045C,D

Summary of Hits

Job Number: JB14404
Account: AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Collected: 08/22/12

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JB14404-11	**NSB-D3-10.8-11.3**					
Chromium, Hexavalent		1.3	0.94	0.27	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		37.7			mv	ASTM D1498-76M
pH		7.78			su	SW846 9045C,D
JB14404-12	**NSB-D3-6.5-7.0**					
Chromium, Hexavalent		0.43 B	0.62	0.18	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		146			mv	ASTM D1498-76M
pH		7.63			su	SW846 9045C,D
JB14404-13	**NSB-D2-16.6-17.1**					
Chromium, Hexavalent		0.27 B	0.56	0.16	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		87.9			mv	ASTM D1498-76M
pH		8.09			su	SW846 9045C,D
JB14404-14	**NSB-D2-15.0-15.5**					
pH		7.89			su	SW846 9045C,D
JB14404-15	**NSB-D2-20.0-20.5**					
Chromium, Hexavalent		1.2	0.50	0.15	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		164			mv	ASTM D1498-76M
pH		8.20			su	SW846 9045C,D

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

New Jersey ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID: NSB-EB20120822
Lab Sample ID: JB14404-2
Matrix: AQ - Equipment Blank
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/22/12
Date Received: 08/22/12
Percent Solids: n/a

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.0014 U	0.010	0.0014	mg/l	1	08/22/12 20:25	MM	SW846 7196A
Redox Potential Vs H2	313			mv	1	09/01/12	SA	ASTM D1498-76
pH [a]	6.05			su	1	08/22/12 18:15	AS	SM20 4500H B

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

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

Report of Analysis

Client Sample ID: NSB-D4-20.0-20.5
Lab Sample ID: JB14404-3
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/22/12
Date Received: 08/22/12
Percent Solids: 88.8

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	1.1	0.45	0.13	mg/kg	1	08/31/12 12:40	RI	SW846 3060A/7196A
Redox Potential Vs H2	191			mv	1	08/31/12	SA	ASTM D1498-76M
Solids, Percent	88.8			%	1	08/29/12 11:45	RO	SM18 2540G
pH	8.83			su	1	08/31/12 14:08	SA	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: NSB-D4-16.5-17.0
Lab Sample ID: JB14404-4
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/22/12
Date Received: 08/22/12
Percent Solids: 87.0

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.64	0.46	0.13	mg/kg	1	08/31/12 13:28	RI	SW846 3060A/7196A
Redox Potential Vs H2	190			mv	1	08/31/12	SA	ASTM D1498-76M
Solids, Percent	87			%	1	08/29/12 11:45	RO	SM18 2540G
pH	8.91			su	1	08/31/12 14:08	SA	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: NSB-D4-12.0-12.5
Lab Sample ID: JB14404-5
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/22/12
Date Received: 08/22/12
Percent Solids: 79.0

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	1.1	0.51	0.15	mg/kg	1	08/31/12 13:28	RI	SW846 3060A/7196A
Redox Potential Vs H2	45.4			mv	1	08/31/12	SA	ASTM D1498-76M
Solids, Percent	79			%	1	08/29/12 11:45	RO	SM18 2540G
pH	8.54			su	1	08/31/12 14:08	SA	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: NSB-D4-10.5-11.0
Lab Sample ID: JB14404-6
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/22/12
Date Received: 08/22/12
Percent Solids: 71.6

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.57	0.56	0.16	mg/kg	1	08/31/12 13:28	RI	SW846 3060A/7196A
Redox Potential Vs H2	151			mv	1	08/31/12	SA	ASTM D1498-76M
Solids, Percent	71.6			%	1	08/29/12 11:45	RO	SM18 2540G
pH	8.82			su	1	08/31/12 14:08	SA	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: NSB-D4-6.0-6.5
Lab Sample ID: JB14404-7
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/22/12
Date Received: 08/22/12
Percent Solids: 67.9

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.17 U	0.59	0.17	mg/kg	1	08/31/12 13:28	RI	SW846 3060A/7196A
Redox Potential Vs H2	144			mv	1	08/31/12	SA	ASTM D1498-76M
Solids, Percent	67.9			%	1	08/29/12 11:45	RO	SM18 2540G
pH	8.26			su	1	08/31/12 14:08	SA	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: NSB-D3-21.0-21.5
Lab Sample ID: JB14404-9
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/22/12
Date Received: 08/22/12
Percent Solids: 86.1

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.47	0.46	0.14	mg/kg	1	08/31/12 13:28	RI	SW846 3060A/7196A
Redox Potential Vs H2	210			mv	1	08/31/12	SA	ASTM D1498-76M
Solids, Percent	86.1			%	1	08/29/12 11:45	RO	SM18 2540G
pH	8.39			su	1	08/31/12 14:08	SA	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: NSB-D3-15.0-15.5
Lab Sample ID: JB14404-10
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/22/12
Date Received: 08/22/12
Percent Solids: 53.2

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.22 U	0.75	0.22	mg/kg	1	08/31/12 13:28	RI	SW846 3060A/7196A
Redox Potential Vs H2	15.7			mv	1	08/31/12	SA	ASTM D1498-76M
Solids, Percent	53.2			%	1	08/29/12 11:45	RO	SM18 2540G
pH	8.27			su	1	08/31/12 14:08	SA	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: NSB-D3-10.8-11.3
Lab Sample ID: JB14404-11
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/22/12
Date Received: 08/22/12
Percent Solids: 42.6

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	1.3	0.94	0.27	mg/kg	1	08/31/12 13:28	RI	SW846 3060A/7196A
Redox Potential Vs H2	37.7			mv	1	08/31/12	SA	ASTM D1498-76M
Solids, Percent	42.6			%	1	08/29/12 11:45	RO	SM18 2540G
pH	7.78			su	1	08/31/12 14:08	SA	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: NSB-D3-6.5-7.0
Lab Sample ID: JB14404-12
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/22/12
Date Received: 08/22/12
Percent Solids: 65.0

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.43 B	0.62	0.18	mg/kg	1	08/31/12 13:28	RI	SW846 3060A/7196A
Redox Potential Vs H2	146			mv	1	08/31/12	SA	ASTM D1498-76M
Solids, Percent	65			%	1	08/29/12 11:45	RO	SM18 2540G
pH	7.63			su	1	08/31/12 14:08	SA	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: NSB-D2-16.6-17.1
Lab Sample ID: JB14404-13
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/22/12
Date Received: 08/22/12
Percent Solids: 71.5

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.27 B	0.56	0.16	mg/kg	1	08/31/12 13:28	RI	SW846 3060A/7196A
Redox Potential Vs H2	87.9			mv	1	08/31/12	SA	ASTM D1498-76M
Solids, Percent	71.5			%	1	08/29/12 11:45	RO	SM18 2540G
pH	8.09			su	1	08/31/12 14:08	SA	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: NSB-D2-15.0-15.5
Lab Sample ID: JB14404-14
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/22/12
Date Received: 08/22/12
Percent Solids: 59.6

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.20 U	0.67	0.20	mg/kg	1	08/31/12 13:28	RI	SW846 3060A/7196A
Redox Potential Vs H2	-7.5			mv	1	08/31/12	SA	ASTM D1498-76M
Solids, Percent	59.6			%	1	08/29/12 11:45	RO	SM18 2540G
pH	7.89			su	1	08/31/12 14:08	SA	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: NSB-D2-20.0-20.5
Lab Sample ID: JB14404-15
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/22/12
Date Received: 08/22/12
Percent Solids: 80.2

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	1.2	0.50	0.15	mg/kg	1	08/31/12 13:30	RI	SW846 3060A/7196A
Redox Potential Vs H2	164			mv	1	08/31/12	SA	ASTM D1498-76M
Solids, Percent	80.2			%	1	08/29/12 11:45	RO	SM18 2540G
pH	8.20			su	1	08/31/12 14:08	SA	SW846 9045C,D

RL = Reporting Limit
MDL = Method Detection Limit

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

New Jersey ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

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

AECOM

CHAIN-OF-CUSTODY / Analytical Request Document
2012-08-22_RI_ACCUTEST_COC

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

Page: 1 of 2

Task:	GARIS- Northern Canal Borings
Total # of Samples: 15	JB14404
TAT	see Spec. Instructions / Rush
Notes: F= Field Filtered, H= Hold	

Lab Information:

Lab:	ACCUTEST
Address:	2235 Route 130, Dayton NJ 08810
Lab PM:	Matt Cordova
Phone/Fax:	732-329-0200/
PM email:	

Project Information:

Site ID #:	PPG Garfield Ave
Project #:	60213772.5.A
Site Address:	70 Carteret Avenue
City	Jersey City; State, Zip NJ 07304
PM Name:	Chris Martell
Phone/Fax:	732-564-3633
PM Email:	Christopher.Martell@aecom.com

Other Information:

Send Invoice to:	Lisa Krowitz
Address:	250 Apollo Drive
City/State.	Chelmsford, MA 01824; Phone #: 978-905-2278
PO #:	40256ACM
Send EDD to:	NJLABDATA@aecom.com
CC Hardcopy to	Erin Farrell, AECOM, Piscataway, NJ

ITEM #	Field Sample No. /Identification	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comment	GARA-HexChrom	GARA-pH-ORP	* pH 8/22/12
1	SCB-EB20120822 -1	WQ	G	08/22/2012 15:05	2	Preserved: None	X	X	6.02
2	NSB-EB20120822 -2	WQ	G	08/22/2012 15:00	2	Preserved: None	X	X	6.04
3	NSB-D4-20.0-20.5 -3	SO	G	08/22/2012 14:07	1		X	X	
4	NSB-D4-16.5-17.0 -4	SO	G	08/22/2012 13:56	1	ME41, WC54 / EX65	X	X	
5	NSB-D4-12.0-12.5 -5	SO	G	08/22/2012 13:44	1		X	X	
6	NSB-D4-10.5-11.0 -6	SO	G	08/22/2012 13:41	1		X	X	
7	NSB-D4-6.0-6.5 -7	SO	G	08/22/2012 13:30	1		X	X	
8	SCB-18-3.0-3.5 -8	SO	G	08/22/2012 11:38	1		X	X	
9	NSB-D3-21.0-21.5 -9	SO	G	08/22/2012 10:50	1		X	X	
10	NSB-D3-15.0-15.5 -10	SO	G	08/22/2012 10:40	1		X	X	
11	NSB-D3-10.8-11.3 -11	SO	G	08/22/2012 10:15	1		X	X	

Additional Comments/Special Instructions:
Standard TAT

* pH out of hold 8/22/12

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
[signature] / AECOM	8/22/12		[signature]	8/22/12	1535
[signature]	8/22/12	1825	[signature] Accutest	8/22/12	1825

Shipper:		DATE/TIME:	
Tracking #:		Custody Seal(s):	

Sample Receipt Conditions

Temp in 0C	Samples on Ice?	Sample intact?	Trip Blank?
Y/N	Y/N	Y/N	Y/N
	Y (circled)	Y (circled)	N (circled)
Y/N	Y/N	Y/N	Y/N
Y/N	Y/N	Y/N	Y/N

1 Cooler (R) 2.0°C G.P.

5.1

5

JB14404: Chain of Custody
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AECOM

SO

CHAIN-OF-CUSTODY / Analytical Request Document

2012-08-22_RI_ACCUTEST_COC

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

Task: GARIS- Northern Canal Borings
Total # of Samples: 15
JB14404

Lab Information:		Project Information:		Other Information:			
Lab:	ACCUTEST	Site ID #:	PPG Garfield Ave	Send Invoice to:	Lisa Krowitz		
Address:	2235 Route 130 , Dayton NJ 08810	Project #:	60213772.5.A	Address:	250 Apollo Drive		
		Site Address:	70 Carteret Avenue	City/State.	Chelmsford, MA 01824	Phone #:	978-905-2278
Lab PM:	Matt Cordova	City	Jersey City	State, Zip	NJ 07304	PO #:	40256ACM
Phone/Fax:	732-329-0200/	PM Name:	Chris Martell	Send EDD to:	NJLABDATA@aecom.com		
PM email:		Phone/Fax:	732-564-3633	CC Hardcopy to	Erin Farrell, AECOM, Piscataway, NJ		
		PM Email:	Christopher.Martell@aecom.com				

TAT see Spec. Instructions **Rush**

Notes: F= Field Filtered , H= Hold

ITEM #	Field Sample No. /Identification	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comment	Analysis: GARA-HexChrom	GARA-pH-ORP
12	NSB-D3-6.5-7.0 ~ 12	SO	G	08/22/2012 09:45	1		X	X
13	NSB-D2-16.6-17.1 ~ 13	SO	G	08/22/2012 09:12	1		X	X
14	NSB-D2-15.0-15.5 ~ 14	SO	G	08/22/2012 09:06	1		X	X
15	NSB-D2-20.0-20.5 ~ 15	SO	G	08/22/2012 09:25	3	2 Jars for MS/MSD	X	X

Additional Comments/Special Instructions:
Standard TAT

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
[illegible] AECOM	8/24/12		[illegible] Accutest	8/24/12	1535
[illegible]	8/24/12	1825	[illegible]	8/24/12	1825

Sample Receipt Conditions

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

Shipper:		DATE/TIME:	
Tracking #:		Custody Seal(s):	

2.0 C FA

5.1 5

JB14404: Chain of Custody
Page 2 of 4

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: JB14404 **Client:** **Project:**

Date / Time Received: 8/22/2012 **Delivery Method:** **Airbill #'s:**

Cooler Temps (Initial/Adjusted): #1: (2/2); 0

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

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

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

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

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

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

Comments

Job Change Order: JB14404_8/23/2012

Requested Date:	8/23/2012	**Received Date:**	8/22/2012
Account Name:	AECOM, INC.	**Due Date:**	9/5/2012
Project	PPG Northern Canal Borings, Jersey City, NJ	**Deliverable:**	FULT1
CSR:	MC	**TAT (Days):**	14

Change: Please cancel all analysis

Sample #:
JB14404-1,8

Above Changes Per: J Webster **Date:** 8/23/2012

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

Page 1 of 1

5.1

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JB14404: Chain of Custody
Page 4 of 4

Internal Sample Tracking Chronicle

AECOM, INC.

Job No: JB14404

PPG Northern Canal Borings, Jersey City, NJ
Project No: 60213772.5.A

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB14404-2 Collected: 22-AUG-12 15:00 By: CM Received: 22-AUG-12 By: MPC NSB-EB20120822						
JB14404-2	SM20 4500H B	22-AUG-12 18:15	AS			PH
JB14404-2	SW846 7196A	22-AUG-12 20:25	MM			XCR
JB14404-2	ASTM D1498-76	01-SEP-12	SA			EH
JB14404-3 Collected: 22-AUG-12 14:07 By: CM Received: 22-AUG-12 By: MPC NSB-D4-20.0-20.5						
JB14404-3	SM18 2540G	29-AUG-12 11:45	RO			SOL104
JB14404-3	ASTM D1498-76M	31-AUG-12	SA			EH
JB14404-3	SW846 3060A/7196A	31-AUG-12 12:40	RI	30-AUG-12	MD	XCRA
JB14404-3	SW846 9045C,D	31-AUG-12 14:08	SA			PH
JB14404-4 Collected: 22-AUG-12 13:56 By: CM Received: 22-AUG-12 By: MPC NSB-D4-16.5-17.0						
JB14404-4	SM18 2540G	29-AUG-12 11:45	RO			SOL104
JB14404-4	ASTM D1498-76M	31-AUG-12	SA			EH
JB14404-4	SW846 3060A/7196A	31-AUG-12 13:28	RI	30-AUG-12	MD	XCRA
JB14404-4	SW846 9045C,D	31-AUG-12 14:08	SA			PH
JB14404-5 Collected: 22-AUG-12 13:44 By: CM Received: 22-AUG-12 By: MPC NSB-D4-12.0-12.5						
JB14404-5	SM18 2540G	29-AUG-12 11:45	RO			SOL104
JB14404-5	ASTM D1498-76M	31-AUG-12	SA			EH
JB14404-5	SW846 3060A/7196A	31-AUG-12 13:28	RI	30-AUG-12	MD	XCRA
JB14404-5	SW846 9045C,D	31-AUG-12 14:08	SA			PH
JB14404-6 Collected: 22-AUG-12 13:41 By: CM Received: 22-AUG-12 By: MPC NSB-D4-10.5-11.0						
JB14404-6	SM18 2540G	29-AUG-12 11:45	RO			SOL104
JB14404-6	ASTM D1498-76M	31-AUG-12	SA			EH
JB14404-6	SW846 3060A/7196A	31-AUG-12 13:28	RI	30-AUG-12	MD	XCRA
JB14404-6	SW846 9045C,D	31-AUG-12 14:08	SA			PH

Internal Sample Tracking Chronicle

AECOM, INC.

Job No: JB14404

PPG Northern Canal Borings, Jersey City, NJ
Project No: 60213772.5.A

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB14404-7	Collected: 22-AUG-12 13:30 By: CM		Received: 22-AUG-12 By: MPC			
NSB-D4-6.0-6.5						
JB14404-7	SM18 2540G	29-AUG-12 11:45	RO			SOL104
JB14404-7	ASTM D1498-76M	31-AUG-12	SA			EH
JB14404-7	SW846 3060A/7196A	31-AUG-12 13:28	RI	30-AUG-12	MD	XCRA
JB14404-7	SW846 9045C,D	31-AUG-12 14:08	SA			PH
JB14404-9	Collected: 22-AUG-12 10:50 By: CM		Received: 22-AUG-12 By: MPC			
NSB-D3-21.0-21.5						
JB14404-9	SM18 2540G	29-AUG-12 11:45	RO			SOL104
JB14404-9	ASTM D1498-76M	31-AUG-12	SA			EH
JB14404-9	SW846 3060A/7196A	31-AUG-12 13:28	RI	30-AUG-12	MD	XCRA
JB14404-9	SW846 9045C,D	31-AUG-12 14:08	SA			PH
JB14404-10	Collected: 22-AUG-12 10:40 By: CM		Received: 22-AUG-12 By: MPC			
NSB-D3-15.0-15.5						
JB14404-10	SM18 2540G	29-AUG-12 11:45	RO			SOL104
JB14404-10	ASTM D1498-76M	31-AUG-12	SA			EH
JB14404-10	SW846 3060A/7196A	31-AUG-12 13:28	RI	30-AUG-12	MD	XCRA
JB14404-10	SW846 9045C,D	31-AUG-12 14:08	SA			PH
JB14404-11	Collected: 22-AUG-12 10:15 By: CM		Received: 22-AUG-12 By: MPC			
NSB-D3-10.8-11.3						
JB14404-11	SM18 2540G	29-AUG-12 11:45	RO			SOL104
JB14404-11	ASTM D1498-76M	31-AUG-12	SA			EH
JB14404-11	SW846 3060A/7196A	31-AUG-12 13:28	RI	30-AUG-12	MD	XCRA
JB14404-11	SW846 9045C,D	31-AUG-12 14:08	SA			PH
JB14404-12	Collected: 22-AUG-12 09:45 By: CM		Received: 22-AUG-12 By: MPC			
NSB-D3-6.5-7.0						
JB14404-12	SM18 2540G	29-AUG-12 11:45	RO			SOL104
JB14404-12	ASTM D1498-76M	31-AUG-12	SA			EH
JB14404-12	SW846 3060A/7196A	31-AUG-12 13:28	RI	30-AUG-12	MD	XCRA
JB14404-12	SW846 9045C,D	31-AUG-12 14:08	SA			PH

Internal Sample Tracking Chronicle

AECOM, INC.

Job No: JB14404

PPG Northern Canal Borings, Jersey City, NJ
Project No: 60213772.5.A

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB14404-13	Collected: 22-AUG-12 09:12 By: CM		Received: 22-AUG-12 By: MPC			
NSB-D2-16.6-17.1						
JB14404-13	SM18 2540G	29-AUG-12 11:45	RO			SOL104
JB14404-13	ASTM D1498-76M	31-AUG-12	SA			EH
JB14404-13	SW846 3060A/7196A	31-AUG-12 13:28	RI	30-AUG-12	MD	XCRA
JB14404-13	SW846 9045C,D	31-AUG-12 14:08	SA			PH
JB14404-14	Collected: 22-AUG-12 09:06 By: CM		Received: 22-AUG-12 By: MPC			
NSB-D2-15.0-15.5						
JB14404-14	SM18 2540G	29-AUG-12 11:45	RO			SOL104
JB14404-14	ASTM D1498-76M	31-AUG-12	SA			EH
JB14404-14	SW846 3060A/7196A	31-AUG-12 13:28	RI	30-AUG-12	MD	XCRA
JB14404-14	SW846 9045C,D	31-AUG-12 14:08	SA			PH
JB14404-15	Collected: 22-AUG-12 09:25 By: CM		Received: 22-AUG-12 By: MPC			
NSB-D2-20.0-20.5						
JB14404-15	SM18 2540G	29-AUG-12 11:45	RO			SOL104
JB14404-15	ASTM D1498-76M	31-AUG-12	SA			EH
JB14404-15	SW846 3060A/7196A	31-AUG-12 13:30	RI	30-AUG-12	MD	XCRA
JB14404-15	SW846 9045C,D	31-AUG-12 14:08	SA			PH

Accutest Internal Chain of Custody

Job Number: JB14404
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Received: 08/22/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB14404-2.1	Secured Storage	Mehmet Temizsu	08/22/12 20:03	Retrieve from Storage
JB14404-2.1	Mehmet Temizsu	Megan Melkowitz	08/22/12 20:06	Custody Transfer
JB14404-2.1	Megan Melkowitz	Secured Storage	08/22/12 23:36	Return to Storage
JB14404-2.2	Secured Storage	Brian Racin	09/01/12 09:06	Retrieve from Storage
JB14404-2.2	Brian Racin	Sanjay Advani	09/01/12 09:09	Custody Transfer
JB14404-2.2	Sanjay Advani	Secured Storage	09/01/12 16:45	Return to Storage
JB14404-3.1	Secured Storage	Todd Shoemaker	08/29/12 08:27	Retrieve from Storage
JB14404-3.1	Todd Shoemaker	Secured Staging Area	08/29/12 08:27	Return to Storage
JB14404-3.1	Secured Staging Area	Robert OConnor	08/29/12 08:57	Retrieve from Storage
JB14404-3.1	Robert OConnor	Secured Storage	08/29/12 11:18	Return to Storage
JB14404-3.1	Secured Storage	Adam Scott	08/30/12 15:12	Retrieve from Storage
JB14404-3.1	Adam Scott	Matt Del Ciello	08/30/12 15:14	Custody Transfer
JB14404-3.1	Matt Del Ciello	Secured Storage	08/30/12 18:02	Return to Storage
JB14404-3.1	Secured Storage	Sanjay Advani	08/31/12 08:43	Retrieve from Storage
JB14404-3.1	Sanjay Advani	Secured Storage	08/31/12 16:34	Return to Storage
JB14404-4.1	Secured Storage	Todd Shoemaker	08/29/12 08:27	Retrieve from Storage
JB14404-4.1	Todd Shoemaker	Secured Staging Area	08/29/12 08:27	Return to Storage
JB14404-4.1	Secured Staging Area	Robert OConnor	08/29/12 08:57	Retrieve from Storage
JB14404-4.1	Robert OConnor	Secured Storage	08/29/12 11:18	Return to Storage
JB14404-4.1	Secured Storage	Adam Scott	08/30/12 15:12	Retrieve from Storage
JB14404-4.1	Adam Scott	Matt Del Ciello	08/30/12 15:14	Custody Transfer
JB14404-4.1	Matt Del Ciello	Secured Storage	08/30/12 18:02	Return to Storage
JB14404-4.1	Secured Storage	Sanjay Advani	08/31/12 08:43	Retrieve from Storage
JB14404-4.1	Sanjay Advani	Secured Storage	08/31/12 16:34	Return to Storage
JB14404-5.1	Secured Storage	Todd Shoemaker	08/29/12 08:27	Retrieve from Storage
JB14404-5.1	Todd Shoemaker	Secured Staging Area	08/29/12 08:27	Return to Storage
JB14404-5.1	Secured Staging Area	Robert OConnor	08/29/12 08:57	Retrieve from Storage
JB14404-5.1	Robert OConnor	Secured Storage	08/29/12 11:18	Return to Storage
JB14404-5.1	Secured Storage	Adam Scott	08/30/12 15:12	Retrieve from Storage
JB14404-5.1	Adam Scott	Matt Del Ciello	08/30/12 15:14	Custody Transfer
JB14404-5.1	Matt Del Ciello	Secured Storage	08/30/12 18:02	Return to Storage
JB14404-5.1	Secured Storage	Sanjay Advani	08/31/12 08:43	Retrieve from Storage
JB14404-5.1	Sanjay Advani	Secured Storage	08/31/12 16:34	Return to Storage
JB14404-6.1	Secured Storage	Todd Shoemaker	08/29/12 08:27	Retrieve from Storage
JB14404-6.1	Todd Shoemaker	Secured Staging Area	08/29/12 08:27	Return to Storage
JB14404-6.1	Secured Staging Area	Robert OConnor	08/29/12 08:57	Retrieve from Storage
JB14404-6.1	Robert OConnor	Secured Storage	08/29/12 11:18	Return to Storage
JB14404-6.1	Secured Storage	Adam Scott	08/30/12 15:12	Retrieve from Storage
JB14404-6.1	Adam Scott	Matt Del Ciello	08/30/12 15:14	Custody Transfer

Accutest Internal Chain of Custody

Job Number: JB14404
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Received: 08/22/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB14404-6.1	Matt Del Ciello	Secured Storage	08/30/12 18:02	Return to Storage
JB14404-6.1	Secured Storage	Sanjay Advani	08/31/12 08:43	Retrieve from Storage
JB14404-6.1	Sanjay Advani	Secured Storage	08/31/12 16:34	Return to Storage
JB14404-7.1	Secured Storage	Todd Shoemaker	08/29/12 08:27	Retrieve from Storage
JB14404-7.1	Todd Shoemaker	Secured Staging Area	08/29/12 08:27	Return to Storage
JB14404-7.1	Secured Staging Area	Robert OConnor	08/29/12 08:57	Retrieve from Storage
JB14404-7.1	Robert OConnor	Secured Storage	08/29/12 11:18	Return to Storage
JB14404-7.1	Secured Storage	Adam Scott	08/30/12 15:12	Retrieve from Storage
JB14404-7.1	Adam Scott	Matt Del Ciello	08/30/12 15:14	Custody Transfer
JB14404-7.1	Matt Del Ciello	Secured Storage	08/30/12 18:02	Return to Storage
JB14404-7.1	Secured Storage	Sanjay Advani	08/31/12 08:43	Retrieve from Storage
JB14404-7.1	Sanjay Advani	Secured Storage	08/31/12 16:34	Return to Storage
JB14404-9.1	Secured Storage	Todd Shoemaker	08/29/12 08:27	Retrieve from Storage
JB14404-9.1	Todd Shoemaker	Secured Staging Area	08/29/12 08:27	Return to Storage
JB14404-9.1	Secured Staging Area	Robert OConnor	08/29/12 08:57	Retrieve from Storage
JB14404-9.1	Robert OConnor	Secured Storage	08/29/12 11:18	Return to Storage
JB14404-9.1	Secured Storage	Adam Scott	08/30/12 15:12	Retrieve from Storage
JB14404-9.1	Adam Scott	Matt Del Ciello	08/30/12 15:14	Custody Transfer
JB14404-9.1	Matt Del Ciello	Secured Storage	08/30/12 18:02	Return to Storage
JB14404-9.1	Secured Storage	Sanjay Advani	08/31/12 08:43	Retrieve from Storage
JB14404-9.1	Sanjay Advani	Secured Storage	08/31/12 16:34	Return to Storage
JB14404-10.1	Secured Storage	Todd Shoemaker	08/29/12 08:27	Retrieve from Storage
JB14404-10.1	Todd Shoemaker	Secured Staging Area	08/29/12 08:27	Return to Storage
JB14404-10.1	Secured Staging Area	Robert OConnor	08/29/12 08:57	Retrieve from Storage
JB14404-10.1	Robert OConnor	Secured Storage	08/29/12 11:18	Return to Storage
JB14404-10.1	Secured Storage	Adam Scott	08/30/12 15:12	Retrieve from Storage
JB14404-10.1	Adam Scott	Matt Del Ciello	08/30/12 15:14	Custody Transfer
JB14404-10.1	Matt Del Ciello	Secured Storage	08/30/12 18:02	Return to Storage
JB14404-10.1	Secured Storage	Sanjay Advani	08/31/12 08:43	Retrieve from Storage
JB14404-10.1	Sanjay Advani	Secured Storage	08/31/12 16:34	Return to Storage
JB14404-11.1	Secured Storage	Todd Shoemaker	08/29/12 08:27	Retrieve from Storage
JB14404-11.1	Todd Shoemaker	Secured Staging Area	08/29/12 08:27	Return to Storage
JB14404-11.1	Secured Staging Area	Robert OConnor	08/29/12 08:57	Retrieve from Storage
JB14404-11.1	Robert OConnor	Secured Storage	08/29/12 11:18	Return to Storage
JB14404-11.1	Secured Storage	Adam Scott	08/30/12 15:12	Retrieve from Storage
JB14404-11.1	Adam Scott	Matt Del Ciello	08/30/12 15:14	Custody Transfer
JB14404-11.1	Matt Del Ciello	Secured Storage	08/30/12 18:02	Return to Storage
JB14404-11.1	Secured Storage	Sanjay Advani	08/31/12 08:43	Retrieve from Storage
JB14404-11.1	Sanjay Advani	Secured Storage	08/31/12 16:34	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB14404
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Received: 08/22/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB14404-12.1	Secured Storage	Todd Shoemaker	08/29/12 08:27	Retrieve from Storage
JB14404-12.1	Todd Shoemaker	Secured Staging Area	08/29/12 08:27	Return to Storage
JB14404-12.1	Secured Staging Area	Robert OConnor	08/29/12 08:57	Retrieve from Storage
JB14404-12.1	Robert OConnor	Secured Storage	08/29/12 11:18	Return to Storage
JB14404-12.1	Secured Storage	Adam Scott	08/30/12 15:12	Retrieve from Storage
JB14404-12.1	Adam Scott	Matt Del Ciello	08/30/12 15:14	Custody Transfer
JB14404-12.1	Matt Del Ciello	Secured Storage	08/30/12 18:02	Return to Storage
JB14404-12.1	Secured Storage	Sanjay Advani	08/31/12 08:43	Retrieve from Storage
JB14404-12.1	Sanjay Advani	Secured Storage	08/31/12 16:34	Return to Storage
JB14404-13.1	Secured Storage	Todd Shoemaker	08/29/12 08:27	Retrieve from Storage
JB14404-13.1	Todd Shoemaker	Secured Staging Area	08/29/12 08:27	Return to Storage
JB14404-13.1	Secured Staging Area	Robert OConnor	08/29/12 08:57	Retrieve from Storage
JB14404-13.1	Robert OConnor	Secured Storage	08/29/12 11:18	Return to Storage
JB14404-13.1	Secured Storage	Adam Scott	08/30/12 15:12	Retrieve from Storage
JB14404-13.1	Adam Scott	Matt Del Ciello	08/30/12 15:14	Custody Transfer
JB14404-13.1	Matt Del Ciello	Secured Storage	08/30/12 18:02	Return to Storage
JB14404-13.1	Secured Storage	Sanjay Advani	08/31/12 08:43	Retrieve from Storage
JB14404-13.1	Sanjay Advani	Secured Storage	08/31/12 16:34	Return to Storage
JB14404-14.1	Secured Storage	Todd Shoemaker	08/29/12 08:27	Retrieve from Storage
JB14404-14.1	Todd Shoemaker	Secured Staging Area	08/29/12 08:27	Return to Storage
JB14404-14.1	Secured Staging Area	Robert OConnor	08/29/12 08:57	Retrieve from Storage
JB14404-14.1	Robert OConnor	Secured Storage	08/29/12 11:18	Return to Storage
JB14404-14.1	Secured Storage	Adam Scott	08/30/12 15:12	Retrieve from Storage
JB14404-14.1	Adam Scott	Matt Del Ciello	08/30/12 15:14	Custody Transfer
JB14404-14.1	Matt Del Ciello	Secured Storage	08/30/12 18:02	Return to Storage
JB14404-14.1	Secured Storage	Sanjay Advani	08/31/12 08:43	Retrieve from Storage
JB14404-14.1	Sanjay Advani	Secured Storage	08/31/12 16:34	Return to Storage
JB14404-15.1	Secured Storage	Todd Shoemaker	08/29/12 08:27	Retrieve from Storage
JB14404-15.1	Todd Shoemaker	Secured Staging Area	08/29/12 08:27	Return to Storage
JB14404-15.1	Secured Staging Area	Robert OConnor	08/29/12 08:57	Retrieve from Storage
JB14404-15.1	Robert OConnor	Secured Storage	08/29/12 11:18	Return to Storage
JB14404-15.1	Secured Storage	Sanjay Advani	08/31/12 08:43	Retrieve from Storage
JB14404-15.1	Sanjay Advani	Secured Storage	08/31/12 16:34	Return to Storage
JB14404-15.2	Secured Storage	Todd Shoemaker	08/29/12 08:27	Retrieve from Storage
JB14404-15.2	Todd Shoemaker	Secured Staging Area	08/29/12 08:27	Return to Storage
JB14404-15.2	Secured Staging Area	Robert OConnor	08/29/12 08:57	Retrieve from Storage
JB14404-15.2	Robert OConnor	Secured Storage	08/29/12 11:18	Return to Storage
JB14404-15.2	Secured Storage	Sanjay Advani	08/31/12 08:43	Retrieve from Storage
JB14404-15.2	Sanjay Advani	Secured Storage	08/31/12 16:34	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB14404
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Received: 08/22/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB14404-15.3	Secured Storage	Todd Shoemaker	08/29/12 08:27	Retrieve from Storage
JB14404-15.3	Todd Shoemaker	Secured Staging Area	08/29/12 08:27	Return to Storage
JB14404-15.3	Secured Staging Area	Robert OConnor	08/29/12 08:57	Retrieve from Storage
JB14404-15.3	Robert OConnor	Secured Storage	08/29/12 11:18	Return to Storage
JB14404-15.3	Secured Storage	Adam Scott	08/30/12 15:12	Retrieve from Storage
JB14404-15.3	Adam Scott	Matt Del Ciello	08/30/12 15:14	Custody Transfer
JB14404-15.3	Matt Del Ciello	Secured Storage	08/30/12 18:02	Return to Storage
JB14404-15.3	Secured Storage	Sanjay Advani	08/31/12 08:43	Retrieve from Storage
JB14404-15.3	Sanjay Advani	Secured Storage	08/31/12 16:34	Return to Storage

New Jersey ACCUTEST LABORATORIES

General Chemistry

QC Data Summaries

Includes the following where applicable:

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

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: JB14404
Account: ENSRNJ - AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GN70910	0.010	0.0	mg/l	.15	0.15	100.0	90-110%
Chromium, Hexavalent	GP66904/GN71388			mg/kg	40	39.8	99.5	80-120%
Chromium, Hexavalent	GP66904/GN71388	0.40	0.0	mg/kg	1055.45	963	91.2	80-120%

Associated Samples:
Batch GN70910: JB14404-2
Batch GP66904: JB14404-3, JB14404-4, JB14404-5, JB14404-6, JB14404-7, JB14404-9, JB14404-10, JB14404-11, JB14404-12, JB14404-13, JB14404-14, JB14404-15
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: JB14404
Account: ENSRNJ - AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GN70910	JB14375-1	mg/l	0.0078	0.0078	0.0	0-20%
Chromium, Hexavalent	GP66904/GN71388	JB14404-3	mg/kg	1.1	0.72	41.8(a)	0-20%
Redox Potential Vs H2	GN71398	JB14404-3	mv	191	198	3.6	0-10%
Redox Potential Vs H2	GN71442	JB14404-2	mv	313	305	2.6	0-10%
pH	GN71397	JB14404-3	su	8.83	8.79	0.5	0-5%

Associated Samples:
Batch GN70910: JB14404-2
Batch GN71397: JB14404-3, JB14404-4, JB14404-5, JB14404-6, JB14404-7, JB14404-9, JB14404-10, JB14404-11, JB14404-12, JB14404-13, JB14404-14, JB14404-15
Batch GN71398: JB14404-3, JB14404-4, JB14404-5, JB14404-6, JB14404-7, JB14404-9, JB14404-10, JB14404-11, JB14404-12, JB14404-13, JB14404-14, JB14404-15
Batch GN71442: JB14404-2
Batch GP66904: JB14404-3, JB14404-4, JB14404-5, JB14404-6, JB14404-7, JB14404-9, JB14404-10, JB14404-11, JB14404-12, JB14404-13, JB14404-14, JB14404-15
(*) Outside of QC limits
(a) RPD acceptable due to low duplicate and sample concentrations.

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: JB14404
Account: ENSRNJ - AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chromium, Hexavalent	GN70910	JB14375-1	mg/l	0.0078	.15	0.15	94.8	85-115%
Chromium, Hexavalent	GP66904/GN71388	JB14404-3	mg/kg	1.1	1020	1080	106.0(a)	75-125%
Chromium, Hexavalent	GP66904/GN71388	JB14404-3	mg/kg	1.1	44.9	44.0	95.6(b)	75-125%

Associated Samples:
Batch GN70910: JB14404-2
Batch GP66904: JB14404-3, JB14404-4, JB14404-5, JB14404-6, JB14404-7, JB14404-9, JB14404-10, JB14404-11, JB14404-12, JB14404-13, JB14404-14, JB14404-15
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(a) Good recovery on insoluble XCR matrix spike. See additional comments on soluble matrix spike recovery.
(b) Good recovery on soluble XCR matrix spike. Good recovery (94.7%) on the post-spike.

Percent Solids Raw Data Summary

Job Number: JB14404
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Sample: JB14404-3 **Analyzed:** 29-AUG-12 by RO **Method:** SM18 2540G
ClientID: NSB-D4-20.0-20.5

Wet Weight (Total)	35.72	g
Tare Weight	25.81	g
Dry Weight (Total)	34.61	g
Solids, Percent	88.8	%

Sample: JB14404-4 **Analyzed:** 29-AUG-12 by RO **Method:** SM18 2540G
ClientID: NSB-D4-16.5-17.0

Wet Weight (Total)	34.66	g
Tare Weight	26.99	g
Dry Weight (Total)	33.66	g
Solids, Percent	87	%

Sample: JB14404-5 **Analyzed:** 29-AUG-12 by RO **Method:** SM18 2540G
ClientID: NSB-D4-12.0-12.5

Wet Weight (Total)	35.89	g
Tare Weight	28.03	g
Dry Weight (Total)	34.24	g
Solids, Percent	79	%

Sample: JB14404-6 **Analyzed:** 29-AUG-12 by RO **Method:** SM18 2540G
ClientID: NSB-D4-10.5-11.0

Wet Weight (Total)	32.98	g
Tare Weight	26.16	g
Dry Weight (Total)	31.04	g
Solids, Percent	71.6	%

Sample: JB14404-7 **Analyzed:** 29-AUG-12 by RO **Method:** SM18 2540G
ClientID: NSB-D4-6.0-6.5

Wet Weight (Total)	27.14	g
Tare Weight	18.48	g
Dry Weight (Total)	24.36	g
Solids, Percent	67.9	%

Sample: JB14404-9 **Analyzed:** 29-AUG-12 by RO **Method:** SM18 2540G
ClientID: NSB-D3-21.0-21.5

Wet Weight (Total)	34.64	g
Tare Weight	27.31	g
Dry Weight (Total)	33.62	g
Solids, Percent	86.1	%

Percent Solids Raw Data Summary

Job Number: JB14404
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Sample: JB14404-10 **Analyzed:** 29-AUG-12 by RO **Method:** SM18 2540G
ClientID: NSB-D3-15.0-15.5

Wet Weight (Total)	29.1	g
Tare Weight	22.67	g
Dry Weight (Total)	26.09	g
Solids, Percent	53.2	%

Sample: JB14404-11 **Analyzed:** 29-AUG-12 by RO **Method:** SM18 2540G
ClientID: NSB-D3-10.8-11.3

Wet Weight (Total)	32.49	g
Tare Weight	25.59	g
Dry Weight (Total)	28.53	g
Solids, Percent	42.6	%

Sample: JB14404-12 **Analyzed:** 29-AUG-12 by RO **Method:** SM18 2540G
ClientID: NSB-D3-6.5-7.0

Wet Weight (Total)	33.15	g
Tare Weight	24.59	g
Dry Weight (Total)	30.15	g
Solids, Percent	65	%

Sample: JB14404-13 **Analyzed:** 29-AUG-12 by RO **Method:** SM18 2540G
ClientID: NSB-D2-16.6-17.1

Wet Weight (Total)	31.06	g
Tare Weight	24.57	g
Dry Weight (Total)	29.21	g
Solids, Percent	71.5	%

Sample: JB14404-14 **Analyzed:** 29-AUG-12 by RO **Method:** SM18 2540G
ClientID: NSB-D2-15.0-15.5

Wet Weight (Total)	35.84	g
Tare Weight	29.25	g
Dry Weight (Total)	33.18	g
Solids, Percent	59.6	%

Sample: JB14404-15 **Analyzed:** 29-AUG-12 by RO **Method:** SM18 2540G
ClientID: NSB-D2-20.0-20.5

Wet Weight (Total)	33.37	g
Tare Weight	26.55	g
Dry Weight (Total)	32.02	g
Solids, Percent	80.2	%

New Jersey ACCUTEST LABORATORIES

General Chemistry

Raw Data

Hexavalent Chromium

Test Title: XCr
GN Batch: GN70910
Analyst: MM
Prep Date: NA
Analysis Date: 8/22/2012
Instrument ID: H

1 Method: SW846 7196A

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

Corr. Coef: 0.99991
Slope: 0.8851
Y intercept: 0.0011

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	20:11	0.000	0.0000							
	STD1	0.010	NA	NA	0.010	0.0100							
	STD2	0.045	NA	NA	0.045	0.0500							
	STD3	0.089	NA	NA	0.089	0.1000							
	STD4	0.268	NA	NA	0.268	0.3000							
	STD5	0.442	NA	NA	0.442	0.5000							
	STD6	0.719	NA	NA	0.719	0.8000							
	STD7	0.879	NA	20:13	0.879	1.0000							
	CCV	0.441	NA	20:20	0.441	0.4970	NA	NA	NA	NA	mg/l	0.001	0.010
	CCB	0.000	NA	20:20	0.000	-0.0013	NA	NA	NA	NA	mg/l	0.0013	0.010
	GN70910-MB1	0.000	0.000	20:25	0.000	-0.0013	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
	GN70910-B1	0.135	0.000	20:25	0.135	0.1512	50.0	50.0	1	0.151	mg/l	0.0014	0.010
	GN70910-S1	0.141	0.007	20:25	0.134	0.1501	50.0	50.0	1	0.150	mg/l	0.0014	0.010
	GN70910-D1	0.015	0.007	20:25	0.008	0.0078	50.0	50.0	1	0.008	mg/l	0.0014	0.010
26	JB14375-1	0.015	0.007	20:25	0.008	0.0078	50.0	50.0	1	0.008	mg/l	0.0014	0.010
1	JB14404-1 (6)	0.000	0.000	20:25	0.000	-0.0013	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
1	JB14404-2	0.000	0.000	20:25	0.000	-0.0013	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0013	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0013	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0013	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
	CCV	0.437	NA	20:25	0.437	0.4924	NA	NA	NA	NA	mg/l	0.0013	0.010
	CCB	0.000	NA	20:25	0.000	-0.0013	NA	NA	NA	NA	mg/l	0.0013	0.010
					FALSE	-0.0013	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0013	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
	(6) Not needed, analyzed per Q.O.				FALSE	-0.0013	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
			[illegible] 8-22-12		FALSE	-0.0013	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0013	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0013	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0013	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0013	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0013	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0013	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
	CCV		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.0013	0.010
	CCB		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.0013	0.010
					FALSE	-0.0013	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0013	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0013	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0013	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0013	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0013	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0013	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0013	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0013	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0013	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
	CCV		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.0013	0.010
	CCB		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.0013	0.010
					FALSE	-0.0013	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0013	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0013	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0013	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0013	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0013	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0013	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0013	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0013	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0013	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
	CCV		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.0013	0.010
	CCB		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.0013	0.010
					FALSE	-0.0013	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0013	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0013	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0013	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0013	50.0	50.0	1	-0.001	mg/l	0.0014	0.010

ACCUTEST.

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

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

GNBatch ID: GN70910
Date: 8/22/2012

Digestion Batch QC Summary Units = mg/l

Method Blank ID: GN70910-MB1 Date: 8/22/2012 Result: <MDL RDL: 0.010 <RDL: Yes

Spike Blank ID: GN70910-BS1 Date: " Result: .151 Spike: .15 %Rec.: 100.7%

Duplicate ID: GN70910-D1 Samp. Result: .008 Dup. Result: .008 %RPD: 0

MS ID: GN70910-S1 Samp. Result: .008 MS Result: .150 Spike: .15 %Rec: 94.7%

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:	8/22/2012	Result:	.497	TV:	.50	%Rec.:	99.4%
CCV:	"	Result:	.492	TV:	"	%Rec.:	98.4%
CCV:		Result:		TV:		%Rec.:	
CCV:		Result:		TV:		%Rec.:	
CCV:		Result:		TV:		%Rec.:	
CCV:		Result:		TV:		%Rec.:	

CCB:	8/22/2012	Result:	<MDL	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: _____ Date: 8/22/2012

Comments: _____

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

ACCUTEST.

Hexavalent Chromium pH Adjustment Log

Method: SW846 7196A

pH adj. start time: 20:15 _____ pH Adjust. Date: 8/22/2012

pH adj. end time: 20:18 _____ GN Batch ID: GN70910

Sample ID	Initial Sample Volume (ml)	Final Volume (ml)	pH after H2SO4	bkg pH after H2SO4	Spike Info	Comments
CCV	45	50			5mL	5ppm Mstd
CCV						
CCV						
CCV						
CCB	45	50				
CCB						
CCB						
CCB						
MS JB14375-1	45	50	1.93	1.80	1mL	75 ppm Mstd
DUP	↓	↓	1.87	1.73		
SB B1			1.99	1.82	1mL	75 ppm Mstd
PB MB1			1.86	1.74		
1. JB14375-1			1.84	1.79		
2. JB14404-1			1.92	1.81		
3. 2	↓	↓	1.94	1.84		
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						
13.						
14.						
15.						
16.						
17.						
18.						
19.						
20.						
PS						
DIL						
DIL						

Reagent Information: _____

Analyst: _____ Date: 8/22/2012 QC Reviewer: _____ Date: _____

Form: GN077-01

Rev. Date: 1/10/11

ACCUTEST

Hexavalent Chromium pH Adjustment Log

Method: SW846 7196A

pH adj. start time: 20:01 _____ pH Adjust. Date: 8/22/202

pH adj. end time: 20:05 _____ GN Batch ID: GN70910

Sample ID	Initial Sample Volume (ml)	Final Volume (ml)	pH after H2SO4	Comments	Spike Info.
Calibration Blank	45	50	1.88		
0.010 mg/l standard	"	"	1.92	5 ppm Mocdutl	0.10 ml of 5 mg/l to 50 ml FV
0.050 mg/l standard	"	"	1.84	"	0.50 ml of 5 mg/l to 50 mL FV
0.100 mg/l standard	"	"	1.76	"	1.00 ml of 5 mg/l to 50 mL FV
0.300 mg/l standard	"	"	1.98	"	3.00 ml of 5 mg/l to 50 mL FV
0.500 mg/l standard	"	"	1.73	"	5.00 ml of 5 mg/l to 50 mL FV
0.800 mg/l standard	"	"	1.96	"	8.00 ml of 5 mg/l to 50 mL FV
1.00 mg/l standard	"	"	1.84	"	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:

Analyst: _____ Date: 8/22/202

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

7.1

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ACCUTEST

Reagent Information Log - XCR - water - 7196A

Reagent	Exp. Date	Reagent # or Manufacturer/Lot
Calibration Source: Hexavalent Chromium, 1000 mg/L Stock	1/12/2015	Absolute Grade Lot# 011212
Calibration Checks: Hexavalent Chromium, 1000 mg/L Stock	5/31/2017	Ultra Scientific Lot# L00439
External Check	NA	NA
Spiking Solution Source	1/12/2015	Absolute Grade Lot# 011212
Diphenyl carbazide Solution	9/21/2015	GN150-33339-XCR
Sulfuric Acid, 10%	2/21/2015	GN150-33334-XCR

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

Test Title:	XCRA
GN Batch:	GN71388
Analyst:	RI
Prep Date:	8/30/2012
Analysis Date:	8/31/2012
Instrument ID:	D

Method: SW846 3060A, 7196A

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

Corr. Coef: 0.99993

Slope: 0.8956

Y intercept: -0.0004

ottle #	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	9:21	0.000	0.0000							
	STD 1	0.009	NA	NA	0.009	0.0100							
	STD 2	0.044	NA	NA	0.044	0.0500							
	STD 3	0.088	NA	NA	0.088	0.1000							
	STD 4	0.275	NA	NA	0.275	0.3000							
	STD 5	0.440	NA	NA	0.440	0.5000							
	STD 6	0.715	NA	NA	0.715	0.8000	Final Vol.	Sam. Wt.					
	STD 7	0.898	NA	9:25	0.898	1.0000	(ml)	(g)	Dilution	Final Conc.	Units	MDL	RDL
	CCV	0.431	NA	12:32	0.431	0.4816	NA	NA	NA	NA	mg/l	0.003	0.010
	CCB	0.000	NA	12:32	0.000	0.0004	NA	NA	NA	NA	mg/l	0.003	0.010
	GP66904-MB1	0.000	0.000	12:40	0.000	0.0004	100.0	2.5000	1	0.016	mg/kg	0.117	0.400
	GP66904-B1	0.890	0.000	12:40	0.890	0.9941	100.0	2.5000	1	39.766	mg/kg	0.117	0.400
	GP66904-S1	0.879	0.002	12:40	0.877	0.9796	100.0	2.5100	1	39.029	mg/kg	0.117	0.398
	GP66904-D1	0.016	0.002	12:40	0.014	0.0160	100.0	2.5100	1	0.639	mg/kg	0.117	0.398
	JB14404-3	0.022	0.001	12:40	0.021	0.0238	100.0	2.4200	1	0.985	mg/kg	0.121	0.413
	JB14404-3PSCONF	0.425	0.000	12:40	0.425	0.4749	100.0	2.4200	2	39.251	mg/kg	0.242	0.826
	GP66904-B2	>3	OVR		FALSE	0.0004	100.0	2.5000	1	0.016	mg/kg	0.117	0.400
	GP66904-S2	>3	OVR		FALSE	0.0004	100.0	2.5100	1	0.016	mg/kg	0.117	0.398
	GP66904-B2	0.431	0.000	12:40	0.431	0.4816	100.0	2.5000	50	963.280	mg/kg	5.860	20.000
	GP66904-S2	0.430	0.000	12:40	0.430	0.4805	100.0	2.5100	50	957.218	mg/kg	5.837	19.920
	CCV	0.431	NA	12:40	0.431	0.4816	NA	NA	NA	NA	mg/l	0.003	0.010
	CCB	0.000	NA	12:40	0.000	0.0004	NA	NA	NA	NA	mg/l	0.003	0.010
					FALSE	0.0004	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	0.0004	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	0.0004	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	0.0004	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	0.0004	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	0.0004	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	0.0004	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	0.0004	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	0.0004	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	0.0004	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
	CCV	0.425	NA	13:14	0.425	0.4749	NA	NA	NA	NA	mg/l	0.003	0.010
	CCB	0.000	NA	13:14	0.000	0.0004	NA	NA	NA	NA	mg/l	0.003	0.010
	JB14404-4	0.012	0.000	13:28	0.012	0.0138	100.0	2.4800	1	0.556	mg/kg	0.118	0.403
	JB14404-5	0.079	0.060	13:28	0.019	0.0216	100.0	2.5400	1	0.851	mg/kg	0.115	0.394
	JB14404-6	0.009	0.000	13:28	0.009	0.0104	100.0	2.5500	1	0.410	mg/kg	0.115	0.392
	JB14404-7	0.005	0.006	13:28	0.000	0.0004	100.0	2.5600	1	0.016	mg/kg	0.114	0.391
	JB14404-9	0.009	0.000	13:28	0.009	0.0104	100.0	2.5600	1	0.408	mg/kg	0.114	0.391
	JB14404-10	0.103	0.105	13:28	0.000	0.0004	100.0	2.5200	1	0.016	mg/kg	0.116	0.397
	JB14404-11	0.039	0.027	13:28	0.012	0.0138	100.0	2.4300	1	0.568	mg/kg	0.121	0.412
	JB14404-12	0.012	0.006	13:28	0.006	0.0071	100.0	2.5200	1	0.282	mg/kg	0.116	0.397
	JB14404-13	0.126	0.122	13:28	0.004	0.0049	100.0	2.5600	1	0.190	mg/kg	0.114	0.391
	JB14404-14	0.215	0.269	13:28	0.000	0.0004	100.0	2.5200	1	0.016	mg/kg	0.116	0.397
	CCV	0.425	NA	13:28	0.425	0.4749	NA	NA	NA	NA	mg/l	0.003	0.010
	CCB	0.000	NA	13:28	0.000	0.0004	NA	NA	NA	NA	mg/l	0.003	0.010
	JB14404-15	0.050	0.029	13:30	0.021	0.0238	100.0	2.4700	1	0.965	mg/kg	0.119	0.405
					FALSE	0.0004	100.0	2.5000	1	0.016	mg/kg	0.117	0.400
					FALSE	0.0004	100.0	2.5000	1	0.016	mg/kg	0.117	0.400
					FALSE	0.0004	100.0	2.5000	1	0.016	mg/kg	0.117	0.400
					FALSE	0.0004	100.0	2.5000	1	0.016	mg/kg	0.117	0.400
					FALSE	0.0004	100.0	2.5000	1	0.016	mg/kg	0.117	0.400
					FALSE	0.0004	100.0	2.5000	1	0.016	mg/kg	0.117	0.400
					FALSE	0.0004	100.0	2.5000	1	0.016	mg/kg	0.117	0.400
					FALSE	0.0004	100.0	2.5000	1	0.016	mg/kg	0.117	0.400
					FALSE	0.0004	100.0	2.5000	1	0.016	mg/kg	0.117	0.400
	CCV	0.425	NA	13:30	0.425	0.4749	NA	NA	NA	NA	mg/l	0.003	0.010
	CCB	0.000	NA	13:30	0.000	0.0004	NA	NA	NA	NA	mg/l	0.003	0.010
					FALSE	0.0004	100.0	2.5000	1	0.016	mg/kg	0.117	0.400
					FALSE	0.0004	100.0	2.5000	1	0.016	mg/kg	0.117	0.400
					FALSE	0.0004	100.0	2.5000	1	0.016	mg/kg	0.117	0.400
					FALSE	0.0004	100.0	2.5000	1	0.016	mg/kg	0.117	0.400
					FALSE	0.0004	100.0	2.5000	1	0.016	mg/kg	0.117	0.400

9/5/12

7.2

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ACCUTEST LABS
DAYTON, NJ

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

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?
JB14404-3	2.42	1.089	0.985	0.436	no	1	2	0.218	0.22	0.501	40.404	efault (40 mg/kg) spike
		0		0.000	no	0		#DIV/0!		#DIV/0!	#DIV/0!	efault (40 mg/kg) spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike

3060A/7196A INSOLUBLE SPIKE CALCULATION

Weight of PbCrO4	Weight of Sample	Amount Spiked
0.0164	2.5	1055.446
0.0141	2.51	903.811
		#VALUE!
		#VALUE!
		#VALUE!
		#VALUE!
		#VALUE!
		#VALUE!
		#VALUE!

ACCUTEST.

Test: **Hexavalent Chromium** MDL = 0.117 mg/kg GNBatch ID: GN 7138F
Product: **XCr** RDL = 0.40 mg/kg Date: 8-31-2012
Method: **SW846 3060A/7196A**

Digestion Batch QC Summary Units = mg/kg

Method Blank ID: GP66904-MB1 Date: 8-31-12 Result: <RDL RDL: 0.40 <RDL: Y
Sol. Spike Blank ID: B1 Date: Result: 39.77 Spike: 40.00 %Rec.: 99.42
Insol. Spike Blank ID: B2 Date: Result: 967.28 Spike: 1055.44 %Rec.: 91.27
Duplicate ID: D1 Samp. Result: 0.995 Dup. Result: 0.639 %RPD: 42.1
Sol. MS ID: S1 Samp. Result: MS Result: 39.03 Spike: 39.84 %Rec: 95.49
Insol. MS ID: S2 Samp. Result: MS Result: 957.22 Spike: 903.81 %Rec: 105.90
Post Spike ID: JB14404-3 Samp. Result: PS Result: 39.25 Spike: 40.40 %Rec: 94.71
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:	8-31-2012	Result:	0.4816	TV: 0.500	%Rec.: 96.32
CCV:		Result:		TV: 0.500	%Rec.:
CCV:		Result:	0.4749	TV: 0.500	%Rec.: 94.98
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:	8-31-2012	Result:	<RDL	RDL: 0.010	<RDL: Y
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: JZ Date: 8-31-2012

Comments:

Form: GN066-01
Rev. Date: 4/25/11

ACCUTEST

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

pH Meter ID: pH 4P
Digestion Date: 8/30/12
pH adj. Date: 8-31-2012
GN Batch ID: GN 71388

adj. start time: 12:09 | 12:49 | 12:22 | 13:03
adj. end time: 12:15 | 12:54 | 12:25 | 13:08

GP66904 (Sa)mple ID	Sample Weight in g	pH after HNO3	Final Volume (ml)	pH after H2SO4	bkg pH after H2SO4	Spike Amounts	Spike Solution	Digestate Description/Comments
		7.54	100	2.11	—	5.0 mL	10 ppm Water	
		7.92		1.99	—	↓	↓	
		7.76	100	1.95	—			
		7.92		2.00	—			
(Sol) JB14404-3	2.51	7.32	100	2.04	2.00	1.0 mL	100 ppm Abs	
(Insol.)	2.51	7.24		2.06	OVR	0.0141	PbCrO4	
	2.51	7.11		2.11	1.93			
(Sol)	2.50	7.78		2.01	1.99	1.0 mL	100 ppm Abs	
(Insol)	2.50	7.57		2.11	OVR	0.0164	PbCrO4	
	2.50	7.76		1.95	1.90			
(JB)14404-3	2.42	7.55		2.03	1.92			clear
-4	2.48	7.36		1.99	1.87			clear
-5	2.54	7.58		2.14	1.94			amber
-6	2.55	7.23		2.05	1.88			clear
-7	2.56	7.61		1.99	1.90			clear
-9	2.56	7.88		2.10	1.99			clear
-10	2.52	7.85		2.03	1.92			green
-11	2.43	7.60		1.95	1.93			yellow
-12	2.52	7.49		1.99	1.89			white
-13	2.56	7.36		2.04	1.93			amber
-14	2.52	7.39		2.00	1.95			black-green
-15	2.47	7.81		1.99	2.00			amber
(In)sol)	2.50	7.57	100	1.93	1.90			dilution 1:50
(In)sol.)	2.51	7.24		2.14	1.82			dilution 1:50
	2.42	7.55	↓	2.15	1.94	0.22 mL	100ppm Abs soln	1:2 ↑50mL
(Ad)justed PS								
(Bl)l.								
(JB)14404-3	2.49							

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

(1)0000 ug/g x Insoluble spike wt(g) x 52/323.2}/ms sample wt(g) = Insoluble spike amount of PbCrO4

analyst check: [signature] 8/31/12

Anayst: [signature] RZ
Date: 8/30/12 8-31-2012

ACCUTEST

GN/GP Batch ID: GP66904 GN 71388

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

Reagent	Exp. Date	Reagent # or Manufacturer/Lot
Calibration Source: Hexavalent Chromium, 1000 mg/L Stock	4/12/2015	Absolute Grade Lot # 041212
Calibration Checks: Hexavalent Chromium, 1000 mg/L Stock	5/31/2017	Ultra lot # L00439
Spiking Solution Source	4/12/2015	Absolute Grade Lot # 041212
Lead Chromate (Insoluble Hexavalent Chromium Spike)	7/26/2017	Sigma Aldrich Lot # BCBG0578V
Magnesium Chloride, Anhydrous	7/11/2016	Alfa Aesar Lot # B17X012
1N NaOH	NA	NA
Digestion Solution	2/3/13	GNE8-33421-XCR/XCRA
Phosphate Buffer Solution	2/14/13	GNE8-33273-XCRA
5.0 M Nitric Acid	7-7-13	GNEP-33425XCR
Diphenylcarbazide Solution	9-22-12	GNEP-33349XCR
Sulfuric Acid, 10%	2-21-13	GNEP-33334XCR
Filter	-	FREA14811
Teflon Chips	NA	919120

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

ACCUTEST.

GP66404

HEXAVALENT CHROMIUM TEMPERATURE AND TIME DIGESTON LOG - METHOD 3060A

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

Thermometer ID: 381/347/182/175
Thermometer Correction factor: 0/-2/2/0

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
GP66403 GP66404 GP66405	Starting Time	18:05	90/90	92/90	90/92	90/90
	Time 1	18:35	90/90	92/90	90/92	90/90
	Ending Time	19:05	90/90	92/90	90/92	90/90
	Starting Time	19:10	90/90	92/90	90/92	90/90
	Time 1	19:40	90/90	92/90	90/92	90/90
	Ending Time	20:10	90/90	92/90	90/92	90/90
	Starting Time	20:15	90/90	92/90	90/92	90/90
	Time 1	20:45	90/90	92/90	90/92	90/90
	Ending Time	21:15	90/90	92/90	90/92	90/90

Analyst: _____ Date: 8/30/12
2nd Analyst Check: 8/30/12

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

ACCUTEST.

Hexavalent Chromium pH Adjustment Log

Method: SW846 3060A/7196A

pH adj. start time: 9:00 9:11

pH adj. end time: 9:06 9:15

pH adjustment Date: 8-31-2012

GN Batch ID: ~~GN71366~~ / GN71388

Sample ID	Sample Weight in g	pH after HNO3	Final Volume (ml)	pH after H2SO4	Comments	Spike Info.
Calibration Blank	NA	7.87	100	2.11	0	
0.010 mg/l standard	NA	7.72		2.04	10 ppm Absolute	0.10 ml of 10 mg/l
0.050 mg/l standard	NA	7.36		2.05		0.50 ml of 10 mg/l
0.100 mg/l standard	NA	7.92		1.99		1.00 ml of 10 mg/l
0.300 mg/l standard	NA	7.78		2.03		3.00 ml of 10 mg/l
0.500 mg/l standard	NA	7.96		2.10		5.00 ml of 10 mg/l
0.800 mg/l standard	NA	7.36		2.04		8.00 ml of 10 mg/l
1.00 mg/l standard	NA	7.34		1.90		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: RT

Date: 8-31-2012

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

ACCUTEST.

HEXAVALENT CHROMIUM STANDARD PREPARATION LOG

Product: XCR

GN or GP Number: ~~GN71365~~ / GN71388

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 # 041215	1000 ppm	1.0 ml	DI	100 mls	10 mg/l	4/12/2015	RZ	8-31-12
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	9-1-12	RZ	8-31-12
.050 ppm			0.5 ppm	DI		0.05 mg/l			
.10 ppm			1.0 ppm	DI		0.10 mg/l			
.30 ppm			3.0 ppm	DI		0.30 mg/l			
.50 ppm			5.0 ppm	DI		0.50 mg/l			
.80 ppm			8.0 ppm	DI		0.80 mg/l			
1.00 ppm			10.0 ppm	DI		1.0 mg/l			

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

ACCUTEST LABORATORIES

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

Product: **PH, CORR**
Analyst: SANJAYA
GN Batch ID: GN71397
Analysis Date: 8/31/2012
pH Meter ID: 50

Thermometer ID: 6539
Correction Factor: 0

QC Summary

Duplicate ID: GN71397-D1
Dup Result: 8.79
Sample ID: JB14404-3
% RPD: 0.45%

Sample ID	Wt./Vol. used for soilds	Uncorrected/ Corrected Temp in Deg C.	Result	Corrosivity	Read time
Buffer Check: 4		25	3.95		12:59
Buffer Check: 7		25	6.96		
Buffer Check: 10		25	9.96		
GN71397-D1		25	8.79		
JB14404-10		25	8.27		
JB14404-11		25	7.78		
JB14404-12		25	7.63		
JB14404-13		25	8.09		
JB14404-14		25	7.89		
JB14404-15		25	8.20		
JB14404-3		25	8.83		
JB14404-4		25	8.91		
JB14404-5		25	8.54		
Buffer Check: 4		25	3.98		
Buffer Check: 10		25	9.98		
JB14404-6		25	8.82		
JB14404-7		25	8.26		
JB14404-9		25	8.39		
JB14445-12		25	7.85		
JB14445-2		25	6.11		
JB14445-37		25	8.88		
JB14445-4		25	7.32		
JB14445-5		25	7.47		
JB14446-3		25	5.51		
Buffer Check: 7		25	7.01		
Buffer Check: 10		25	10.03		14:08
Buffer Check:					
Buffer Check:					

Comments:

Validated By: Nancy Cole
Validated Date: 8/7/2012
Document Control #: **AGN-PH CORR-AQ-01**

7.3
7

GN71397

ACCUTEST.

Analyst S.A

Method EH/pH

Prep Date 8/31/12

GP # GN71397-pH
GN71398-eH

Balance # 38

Sample Prep Log

Sample ID	Sample Size	Final Volume
JB14404-3	50.4g	added 50mL DI H2O
-3Dup	50.7g	
-4	50.8g	
-5	50.0g	
-6	50.2g	
-7	50.9g	
-9	50.8g	
-10	50.0g	
-11	50.3g	
JB14404-12	50.2g	
-13	50.3g	
-14	50.8g	
-15	50.8g	
JB14445-2	30.3g	added 30mL DI H2O
-4	50.1g	added 50mL DI H2O
-5	50.7g	
-12	50.8g	
-37	50.5g	
JB14446-3	30.8g	added 30mL DI H2O

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

QC Review_____

Reagent Information Log
Test Name:_____pH_____

GN71397

Reagent

pH 2 Buffer Solution	FICHER LOT#115910 EXP 11/30/13
pH 4 Buffer Solution	BDH LOT#2110255 EXP 9/30/13
pH 7 Buffer Solution	RICCA LOT#2111388 EXP 10/30/13
pH 10 Buffer Solution	FISCHER LOT#105427 EXP 09/30/12
pH 13 Buffer Solution	AQUA SOL. LOT#1080516 EXP 08/30/

7.3

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Form: GN087-01
Rev. Date:8/30/2012

ACCUTEST.

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

Matrix: Aqueous ○ | Method: ASTM D1498-76 | **Date:** 08/31/12

Matrix: Solid ◉ | Method: ASTM D1498-76 Mod. | **GN Batch ID:** GN71398

Temp (Deg C): 25

Quality Control Summary

Sample ID:	GN71398-D1	Results: **191**	Dup: **198.1**	% RPD:	**3.65%**
Ferrous-Ferric True: 675			Found **623.9**	% Rec	**92.43%**
pH 4 Quinhydrone True: 462			Found **471.7**	% Rec	**102.10%**
pH 4 Quinhydrone True: 462			Found **441.6**	% Rec	**95.58%**
pH 4 Quinhydrone True: 462			Found **437.5**	% Rec	**94.70%**
pH 7 Quinhydrone True: 285			Found **282.3**	% Rec	**99.05%**
pH 7 Quinhydrone True: 285			Found **259.5**	% Rec	**91.05%**
pH 7 Quinhydrone True: 285			Found **264.9**	% Rec	**92.95%**

Sample #:	mv vs. Ag/AgCl Electrode	Corrected results (mv vs. Hydrogen electrode) ***
Ferrous-Ferric Solution	448.6	623.9
pH 4 Quinhydrone	296	471.7
pH 7 Quinhydrone	106.8	282.3
Dup GN71398-D1	22.6	198.1
1. JB14404-10	-159.8	15.7
2. JB14404-11	-137.8	37.7
3. JB14404-12	-28.9	146.4
4. JB14404-13	-87.7	87.9
5. JB14404-14	-183.1	-7.5
6. JB14404-15	-11.1	164.4
7. JB14404-3	15.6	191
8. JB14404-4	14.9	190.2
9. JB14404-5	-130.1	45.4
pH 4 Quinhydrone	266.2	441.6
pH 7 Quinhydrone	84.1	259.5
10. JB14404-6	-24.9	150.5
11. JB14404-7	-31.1	144.3
12. JB14404-9	34.4	209.6
13.		
14.		
15.		
16.		
17.		
18.		
19.		
pH 4 Quinhydrone	262.2	437.5
pH 7 Quinhydrone	89.5	264.9

*** 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: Redox Standard: GNE-31456-ORP Exp:9/15/12

Comments:

Analyst: S.A. Date: 08/31/12 QC Reviewer: _____ Date: _____

F/N GN141.DOC

Rev. Date: 3/27/2007

GN71398

ACCUTEST

Analyst S.A

Method EH/PH

Prep Date 8/31/12

GP # GN71397-pH
GN71398-eH

Balance # 38

Sample Prep Log

Sample ID	Sample Size	Final Volume
JB14404-3	50.4g	added 50mL DI H2O
-3Dup	50.7g	
-4	50.8g	
-5	50.0g	
-6	50.2g	
-7	50.9g	
-9	50.8g	
-10	50.0g	
-11	50.3g	
JB14404-12	50.2g	
-13	50.3g	
-14	50.8g	
-15	50.8g	
JB14445-2	30.3g	added 50mL DI H2O
-4	50.1g	added 50mL DI H2O
-5	50.7g	
-12	50.8g	
-37	50.5g	
JB14446-3	30.8g	added 30mL DI H2O

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

QC Review_____

ACCUTEST.

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

Matrix: Aqueous ○ | Method: ASTM D1498-76 | **Date:** 09/01/12

Matrix: Solid ◉ | Method: ASTM D1498-76 Mod. | **GN Batch ID:** GN71442

Temp (Deg C): 25

Quality Control Summary

Sample ID:	GN71442-D1	Results: **313.2**	Dup: **304.8**	% RPD:	**2.72%**
Ferrous-Ferric True: 675			Found **653**	% Rec	**96.74%**
pH 4 Quinhydrone True: 462			Found **453**	% Rec	**98.05%**
pH 4 Quinhydrone True: 462			Found **448**	% Rec	**96.97%**
pH 4 Quinhydrone True: 462			Found	% Rec	
pH 7 Quinhydrone True: 285			Found **263.7**	% Rec	**92.53%**
pH 7 Quinhydrone True: 285			Found **273.7**	% Rec	**96.04%**
pH 7 Quinhydrone True: 285			Found	% Rec	

Sample #:	mv vs. Ag/AgCl Electrode	Corrected results (mv vs. Hydrogen electrode) ***
Ferrous-Ferric Solution	477.6	653
pH 4 Quinhydrone	277.6	453
pH 7 Quinhydrone	88.2	263.7
Dup GN71442-D1	129.5	304.8
1. JB14375-1	107.1	282.6
2. JB14404-2	137.8	313.2
3.		
4.		
5.		
6.		
7.		
8.		
9.		
pH 4 Quinhydrone	272.6	448
pH 7 Quinhydrone	98.2	273.7
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: Redox Standard: GNE-31456-ORP Exp:9/15/12

Comments:

Analyst: S.A. Date: 09/01/12 QC Reviewer: Date:

F/N GN141.DOC

Rev. Date: 3/27/2007

ACCUTEST

Analyst S.A

Method EH

Prep Date 9/11/12

Balance # 38

GP # GN71442_EH

Sample Prep Log

	Sample ID	Sample Size	Final Volume
2	JB14404-2	60mL	
2	-2Dup	60mL	
8	SB14375-1	60mL	

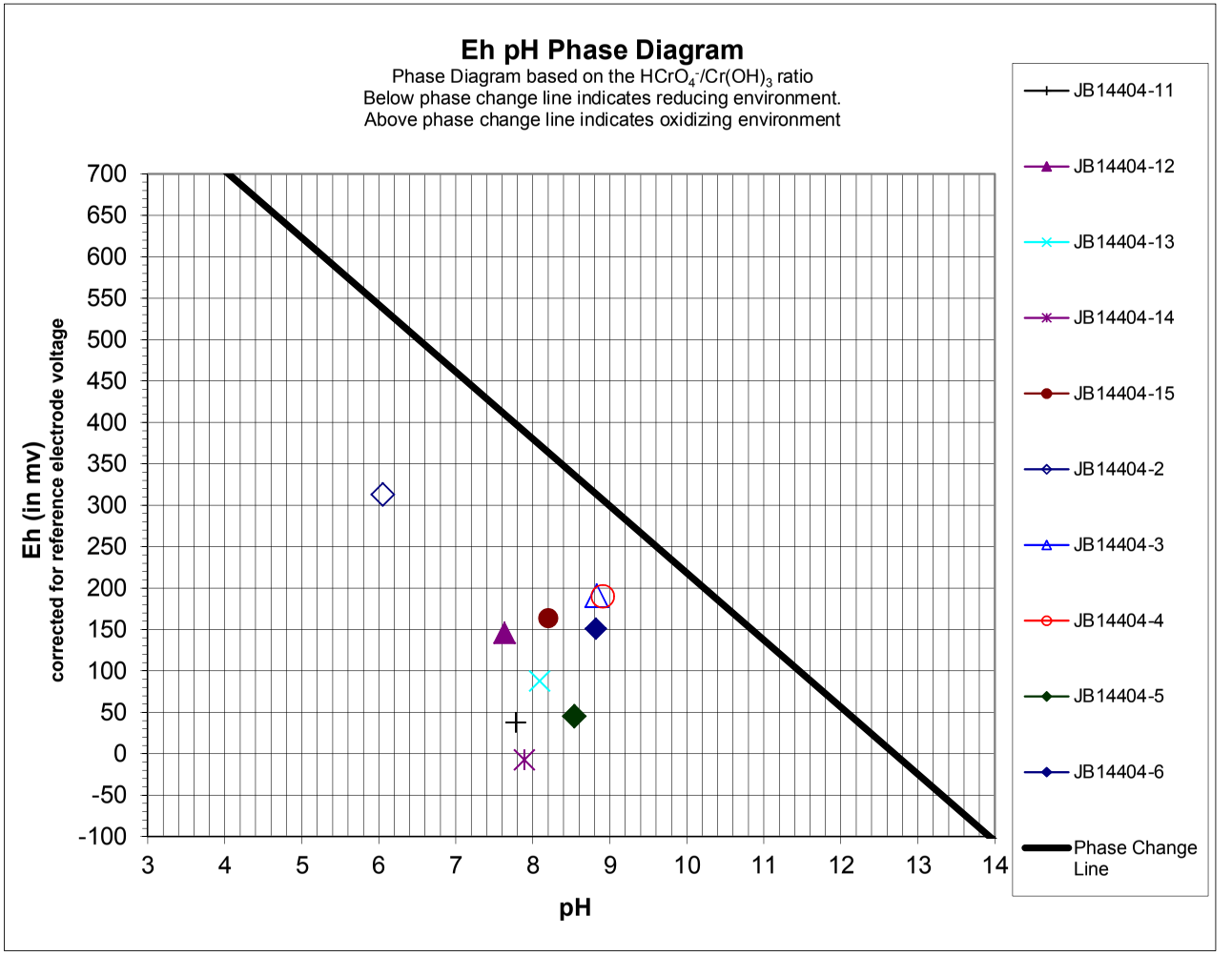
Form: GN166-02
Rev. Date: 8/5/05

QC Review_____

ACCUTEST

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

Sample Number	pH	eH (mv)
JB14404-11	7.78	37.7
JB14404-12	7.63	146
JB14404-13	8.09	87.9
JB14404-14	7.89	-7.5
JB14404-15	8.2	164
JB14404-2	6.05	313
JB14404-3	8.83	191
JB14404-4	8.91	190
JB14404-5	8.54	45.4
JB14404-6	8.82	151



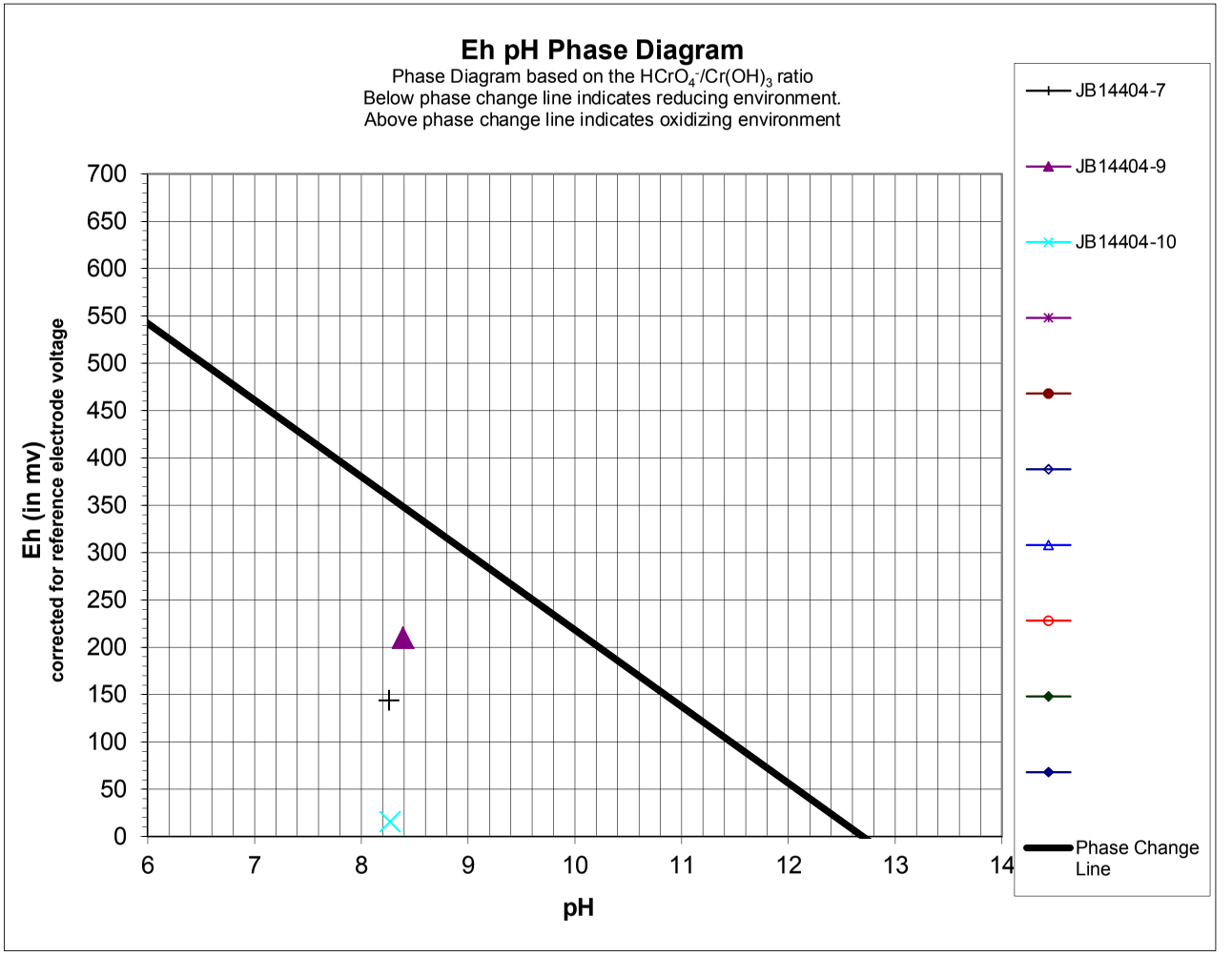
Note that the Eh values plotted on this diagram are corrected for the reference electrode voltage and the values shown are versus the standard hydrogen electrode

Reference for graph: SW846 method 3060A

ACCUTEST

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

Sample Number	pH	eH (mv)
JB14404-7	8.26	144
JB14404-9	8.39	210
JB14404-10	8.27	15.7



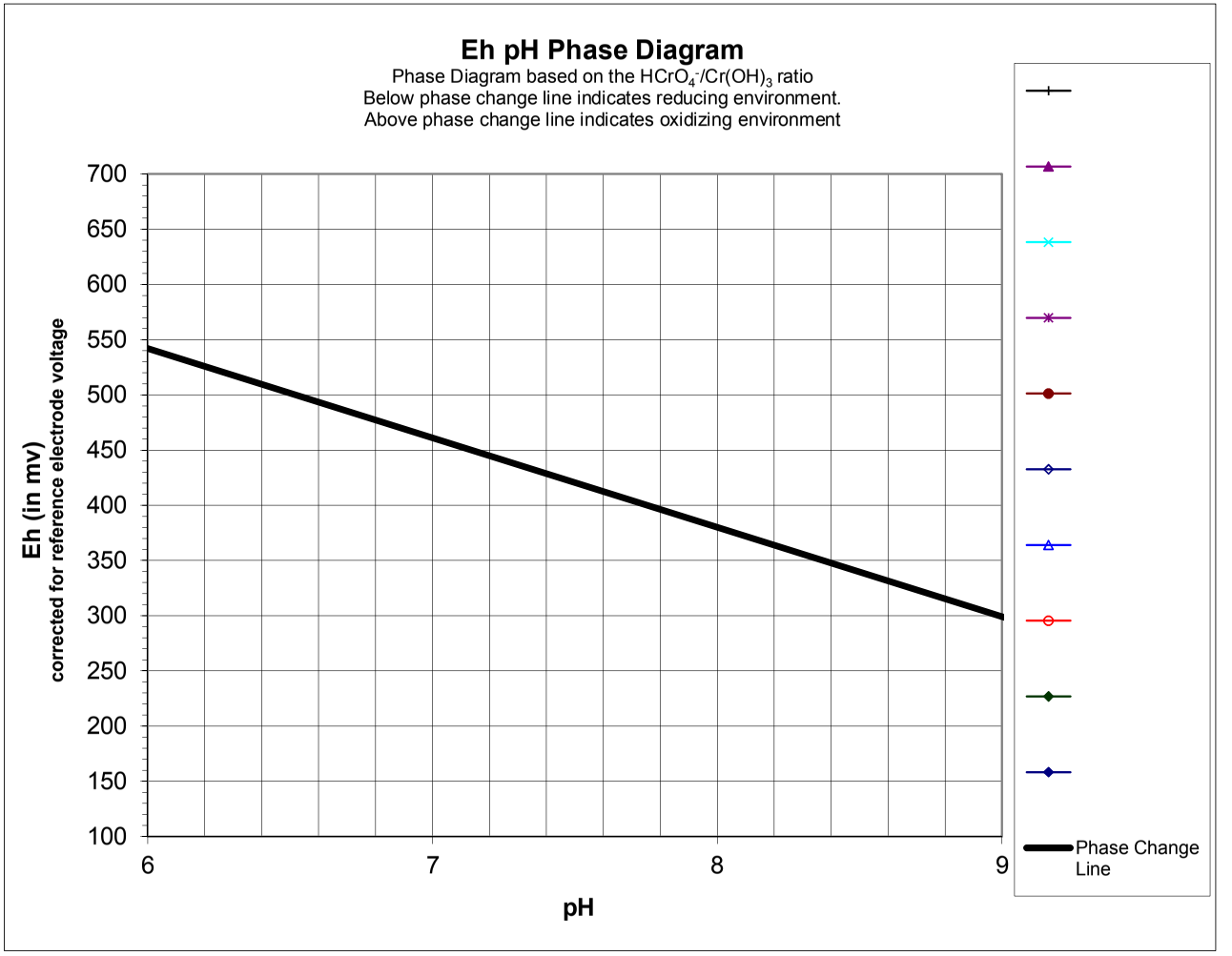
Note that the Eh values plotted on this diagram are corrected for the reference electrode voltage and the values shown are versus the standard hydrogen electrode

Reference for graph: SW846 method 3060A

ACCUTEST

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

Sample Number	pH	eH (mv)



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

AECOM
250 Apollo Drive
Chelmsford, MA 01824

978-905-2100 tel
978-905-2101 fax

Data Validation Report

Project:	PPG – Garfield Ave Supplemental Remedial Investigation (GARIS) Northern Canal Borings
Laboratory:	Accutest, Dayton, NJ
Laboratory Job No.:	JB14656
Analysis/Method:	Hexavalent Chromium SW846 3060A/7196A
Validation Level:	Full (Hexavalent Chromium)
Site Location/Address:	PPG Site 114 – Garfield Avenue, Jersey City, NJ
AECOM Project Number:	60213772 – 5.A
Prepared by: Justin Webster/AECOM	Completed on: September 5, 2012
Reviewed by: Lisa Krowitz/AECOM	File Name: 2012-09-05 DV Report JB14656-F.docx

Introduction

The data were reviewed in accordance with the FSP-QAPP and the following NJDEP and/or Region 2 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

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.

Sample Information

The samples listed below were collected by AECOM on August 24, 2012 as part of the Garfield Ave Supplemental Remedial Investigation (GARIS) Northern Canal Boring Sampling at the PPG Site - 114 Jersey City, New Jersey.

Field ID	Laboratory ID	Matrix	Fraction
NSB-E4-4.0-4.5	JB14656-1	Soil	Hexavalent Chromium
NSB-E4-1.0-1.5	JB14656-2	Soil	Hexavalent Chromium
NSB-E3-20.0-20.5	JB14656-3	Soil	Hexavalent Chromium
NSB-E3-16.0-16.5	JB14656-4	Soil	Hexavalent Chromium
NSB-E3-10.0-10.5	JB14656-5	Soil	Hexavalent Chromium
NSB-E3-5.5-6.0	JB14656-6	Soil	Hexavalent Chromium
NSB-E2-21.0-21.5	JB14656-7	Soil	Hexavalent Chromium
NSB-E2-16.0-16.5	JB14656-8	Soil	Hexavalent Chromium
NSB-E2-12.5-13.0	JB14656-9	Soil	Hexavalent Chromium
NSB-E3-4.0-4.5	JB14656-10	Soil	Hexavalent Chromium
NSB-E1-0.5-1.0	JB14656-11	Soil	Hexavalent Chromium
NSB-E1-20.0-20.5	JB14656-12	Soil	Hexavalent Chromium
NSB-E1-16.0-16.5	JB14656-13	Soil	Hexavalent Chromium
NSB-E1-12.5-13.0	JB14656-14	Soil	Hexavalent Chromium
NSB-E1-10.0-10.5	JB14656-15	Soil	Hexavalent Chromium
NSB-E2-4.0-4.5	JB14656-16	Soil	Hexavalent Chromium
NSB-E2-1.0-1.5X (Field Duplicate of NSB-E1-1.0-1.5)	JB14656-17	Soil	Hexavalent Chromium
NSB-E2-1.0-1.5	JB14656-18	Soil	Hexavalent Chromium
NSB-E1-4.0-4.5	JB14656-19	Soil	Hexavalent Chromium
NSB-EB20120824 (Equipment Blank)	JB14656-20	Aqueous	Hexavalent Chromium
NSB-E1-2.0-2.5	JB14656-21	Soil	Hexavalent Chromium

Note: Sample NSB-E3-0.5-1.0 was received at the laboratory with the incorrect depth of 0.5-1.5. The laboratory was contacted and COC was corrected. See Attachment C for the revised COC.

The samples were collected following the procedures detailed in the Remedial Investigation Work Plan – Soil for Non-Residential Chromate Chemical Production Waste Sites 114, 132, 133, 135, 137, 143, and 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

Matrix Spike Results

Sample NSB-E1-20.0-20.5 (JB14656-12) was selected for the matrix spike (MS) analysis associated with the samples in this SDG and was used for supporting data quality recommendations. The soluble and insoluble MS recoveries (batch GP66863/GN71343) were 89.1% and 81.4%, respectively; both results met the quality control criteria of 75-125%. The post digestion spike (PDS) recovery was 84.2% and after pH adjustment 101%, which met the PDS criteria of 85-115%. No data qualification was required on the basis of spike recoveries.

Field Duplicate Precision

Sample NSB-E2-1.0-1.5X was the field duplicate of sample NSB-E2-1.0-1.5. The absolute difference criteria of ±RL for sample results less than or equal to four times the reporting limit was exceeded. Due to poor laboratory precision, all soil hexavalent chromium samples in this SDG were qualified as estimated (J/UJ) with the potential for bias in an unknown direction.

Reporting Limits

Reported results less than the reporting limit (RL), but greater than or equal to the method detection limit (MDL) are approximate values and have been qualified as estimated (J).

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 discussed in attachments A and B below.

All soil samples from this SDG are usable as estimated values with potential bias in an unknown direction due to poor laboratory duplicate precision.

In addition, all results reported between the RL and the MDL are usable as estimated values.

Attachments

Attachment A Target Analyte Summary Hitlist(s)

Attachment B Data Validation Report Form

Attachment C Supplemental Data

Attachment A

Target Analyte Summary Hitlist(s)

Soil Target Analyte Summary Hit List (Hexavalent Chromium)

Site Name PPG –GARIS Northern Canal Borings at PPG Site 114, Jersey City, NJ
Sampling Date August 24, 2012
Lab Name/ID Accutest Laboratories, Dayton, NJ
SDG No JB14656
Sample Matrix Soil
Trip Blank ID NA
Field Blank ID NSB-EB20120824

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
NSB-E1-10.0-10.5	JB14656-15	CHROMIUM (HEXAVALENT)	U	U	U	0.44	Qualify	29
NSB-E1-12.5-13.0	JB14656-14	CHROMIUM (HEXAVALENT)	U	0.17	0.17	0.47	Qualify	29, 31
NSB-E1-16.0-16.5	JB14656-13	CHROMIUM (HEXAVALENT)	U	U	U	0.46	Qualify	29
NSB-E1-2.0-2.5	JB14656-21	CHROMIUM (HEXAVALENT)	U	1.3	1.3	0.47	Qualify	29
NSB-E1-20.0-20.5	JB14656-12	CHROMIUM (HEXAVALENT)	U	U	U	0.46	Qualify	29
NSB-E1-4.0-4.5	JB14656-19	CHROMIUM (HEXAVALENT)	U	9.2	9.2	0.49	Qualify	29
NSB-E2-1.0-1.5	JB14656-18	CHROMIUM (HEXAVALENT)	U	U	U	0.47	Qualify	29
NSB-E2-1.0-1.5X	JB14656-17	CHROMIUM (HEXAVALENT)	U	4.6	4.6	0.47	Qualify	29
NSB-E2-12.5-13.0	JB14656-9	CHROMIUM (HEXAVALENT)	U	0.46	0.46	0.58	Qualify	29, 31
NSB-E2-16.0-16.5	JB14656-8	CHROMIUM (HEXAVALENT)	U	U	U	0.45	Qualify	29
NSB-E2-21.0-21.5	JB14656-7	CHROMIUM (HEXAVALENT)	U	U	U	0.45	Qualify	29
NSB-E2-4.0-4.5	JB14656-16	CHROMIUM (HEXAVALENT)	U	4.8	4.8	0.61	Qualify	29
NSB-E3-0.5-1.0	JB14656-11	CHROMIUM (HEXAVALENT)	U	1.2	1.2	0.46	Qualify	29
NSB-E3-10.0-10.5	JB14656-5	CHROMIUM (HEXAVALENT)	U	U	U	0.66	Qualify	29
NSB-E3-16.0-16.5	JB14656-4	CHROMIUM (HEXAVALENT)	U	U	U	0.47	Qualify	29
NSB-E3-20.0-20.5	JB14656-3	CHROMIUM (HEXAVALENT)	U	2.6	2.6	0.45	Qualify	29
NSB-E3-4.0-4.5	JB14656-10	CHROMIUM (HEXAVALENT)	U	0.92	0.92	0.46	Qualify	29
NSB-E3-5.5-6.0	JB14656-6	CHROMIUM (HEXAVALENT)	U	U	U	0.60	Qualify	29
NSB-E4-1.0-1.5	JB14656-2	CHROMIUM (HEXAVALENT)	U	1.3	1.3	0.45	Qualify	29
NSB-E4-4.0-4.5	JB14656-1	CHROMIUM (HEXAVALENT)	U	1.1	1.1	0.44	Qualify	29

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 $\pm$ 20 percent for sample results > 4xRL or $\pm$ 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 rejected because the laboratory exceeded the holding time for digestion and 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 %.

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 90°C.

29. In the Field Duplicate Sample Analysis, Hexavalent Chromium fell outside the control limits of ≤ 20% for sample results > 4xRL or $\pm$ 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 6ºC.

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

Attachment B

Data Validation Report Form

Client Name: PPG Industries	**Project Number:** 60213772 – 5.A
Site Location: PPG –GARIS Northern Canal Borings	**Project Manager:** Robert Cataldo
Laboratory: Accutest, Dayton, New Jersey	**Limited or Full Validation (circle one)**
Laboratory Job No: JB14656	**Date Checked:** 09/05/2012
Validator: Justin Webster	**Peer:** Lisa Krowitz

ITEM	YES	NO	N/A	COMMENTS
Sample results included?	x			20 soils and 1 field blank
Reporting Limits met project requirements?	x			
Field I.D. included?	x			
Laboratory I.D. included?	x			
Sample matrix included?	x			
Sample receipt temperature 2-6ºC?	x			3.0°C
Signed COCs included?	x			
Date of sample collection included?	x			08/24/2012
Date of sample digestion included?	x			Soil: JB14656 HxCr prepped on 08/29/2012;
Holding time to digestion met criteria? Soils -30 days from collection to digestion.	x			See below " Holding Times"
Date of analysis included?	x			Soil: JB14656 HxCr analyzed on 08/30/2012. Aqueous: JB14656 08/24/2012 @ 21:14.
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			3060A/7196A
Laboratory Case Narrative included?	x			
Sample Dilutions		x		
Field Duplicates ("x "appended to sample ID) (RPD calculation on separate sheet)	x			See "Field Duplicate" table below for results.

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

Comments

Field Duplicate: NSB-E2-1.0-1.5 and NSB-E2-1.0-1.5x. The absolute difference criteria of ±RL for sample results less than or equal to four times the RL was exceeded, thus estimate in all soil samples (J/UJ).

ITEM	YES	NO	N/A	COMMENTS
Initial Calibration Documentation Included in Lab Package?	x			Cal source (AQ: Absolute Grade Lot# 031912) and (SO: Absolute Grade lot# 041212)
1. Blank plus 7 standards (7196A) or blank plus 4 standards (7199). 2. Correlation coefficient of ≥0.995 (7196A) or ≥0.999 (7199). 3. Calibrate daily or each time instrument is set up.	x x x			1. Yes for all analyses 2. All analyses meet CC 3. Yes
Calibration Check Standard (CCS) for 7196A and Quality Control Sample (QCS) for 7199 Included in Lab Package?	x			Check source (AQ: Ultra Scientific lot # L00439) and (SO: Ultra lot # L00439)
1. %R criteria met? (90 - 110%). 2. Correct frequency of once every 10 samples 3. CCS and QCS from independent source and at mid level of calibration curve.	x x x			1. Yes 2. Analyzed every 10 samples 3. Yes
Calibration Blanks	x			
1. Analyzed prior to initial calibration standards and after each CCS/QCS? 2. Absolute value should not exceed MDL	x x			1. Yes 2. Yes
Method Blank and Field Blanks Included in Lab Package?	x			NSB-EB20120824 was nondetect.
1. Method blank analyzed with each preparation batch? 2. Absolute value should not exceed MDL.	x x			1. Yes 2. Yes
Eh and pH data Included in Lab Package?	x			
Eh and pH data was included and plotted for all samples?	x			
Soluble Matrix Spike Data Included in Lab Package?	x			NSB-E1-20.0-20.5 (JB14656-12)
1. %R criteria met? (75-125%R) 2. Was the spike concentration 40 mg/Kg? 3. Was a sample spiked at the frequency of 1/batch or 20 samples?	x x x			1. Yes, JB14656-12 (89.1%R) 2. Yes, JB14656-12 (39.84 mg/kg) 3. Yes
Insoluble Matrix Spike Data Included in Lab Package?	x			NSB-E1-20.0-20.5 (JB14656-12)
1. %R criteria met? (75-125%R) 2. Was the spike concentration 400 to 800 mg/Kg? 3. Was a sample spiked at the frequency of 1/batch or 20 samples?	x x	 x 		1. Yes, JB14656-12 (81.4%R) 2. No, JB14656-12 (1049.56 mg/kg), no impact to data 3. Yes
Post Digestion Spike	x			NSB-E1-20.0-20.5 (JB14656-12)
1. %R criteria met? (85-115%R). 2. Was the spike concentration 40 mg/Kg (soluble) or twice the sample concentration? 3. Was a sample spiked at the frequency of 1/batch or 20 samples?	x			1. Yes, JB14656-12 (84.2%R) and pH adjusted (101%R) 2. Yes, JB14656-12 (40.04 mg/kg) and pH adjusted (41.09 mg/kg). 3. Yes
Sample Duplicate Data Included in Lab Package?	x			NSB-E1-20.0-20.5 (JB14656-12)
1. RPD criteria met? (RPD < 20%) if both results are ≥4x RL or control limit of ±RL if both results are <4x RL. 2. Was a sample spiked at the frequency of 1/batch or 20 samples?	x x			1. Yes, JB14656-12 the absolute difference with within ± RL for sample results <4x RL. 2. Yes

ITEM	YES	NO	N/A	COMMENTS
Was a Laboratory Control Sample (LCS) Included in Lab Package?	x			
1. %R criteria met? (80-120%R soil, 90-110% aq). 2. Was an LCS analyzed at the frequency of 1/batch or 20 samples?	x x			1. Yes, all criteria were met for AQ and SO analyses. 2. Yes
Miscellaneous Items.				
1. For soils by 7196A, was the pH within a range of 7.0-8.0? 2. For soils by 7199, was the pH within a range of 9.0-9.5? 3. For aqueous by 7196A, was the pH with a range of 1.5-2,5? 4. For soils (3060A), was the digestion temperature 90-95°C for at least 60 minutes? 5. For 7199, was each sample injected twice and was the RPD ≤20?	x x x 		 x x	1. Yes 2. NA 3. Yes 4. Yes 5. NA

SDG#: JB14656
Batch: GN71343
Cr+6 ICAL - 08/30/2012
Soils
(p. 77 of data pkg)

x - concentration	y - response
0	0
0.01	0.011
0.05	0.045
0.1	0.094
0.3	0.273
0.5	0.45
0.8	0.742
1	0.894

				(p. 77 of data pkg)
AECOM Calculated Intercept	0.0017	OK	Reported intercept	0.0017
AECOM Slope	0.9041	OK rounding	Reported Slope	0.9042
AECOM Calculated r	0.99973	OK	Reported r	0.99973

LCS calculation	**GP66863-B1**	**pg. 77**		
Background absorbance	0			
Sample absorbance	0.818			
LCS Soluble Instrument Response	0.818			
Instrument Concentration (mg/L)	0.903			
Sample weight (kg)	0.0025			
Percent solids	1			
Dilution Factor	1			
AECOM Calculated LCS Result (mg/Kg)	36.1	OK	Reported Result (mg/Kg)	36.1

%R = Found/True*100	**GP66863-B1**	**pg. 51**		
True Value (mg/kg)	40.0			
AECOM Calculated %R	90.3	OK	Reported %R	90.3

MS calculation (GP66863-S1)	**NSB-E1-20.0-20.5**	**pg. 77**		
Background reading	0.006			
Total absorbance	0.813			
Total absorbance - background	0.807			
Instrument Concentration (mg/L)	0.891			
Sample weight (kg)	0.00251			
Percent solids	0.874			
Dilution Factor	1			
AECOM Calculated MS Result (mg/Kg)	40.6	OK	Reported Result (mg/Kg)	40.6

%R = Found/True*100	**NSB-E1-20.0-20.5**	**pg. 53**		
True Value (mg/kg)	45.6			
Native concentration (mg/Kg)	0			
%R	89.0	OK rounding	Reported %R	89.1

Percent Solids	**NSB-E1-20.0-20.5**	**pg. 55**		
Empty dish weight (g)=	18.64			
Wet weight (g)=	25.00			
Dry weight (g)=	24.2			
AECOM%solids =	87.4	OK	Reported %solids=	87.4

Reporting Limit	**NSB-E1-20.0-20.5**	**pgs. 23, 77**		
Low Standard	0.01			
Initial weight (kg)	0.00255			
Final volume (L)	0.1			
Percent solids	0.874			
Dilution Factor	1.00			
Reporting Limit	0.45	OK rounding	Reported RL (mg/Kg)=	0.46

Sample Calculations

NSB-E1-20.0-20.5		**pgs. 23, 77**		
Background reading	0			
Total absorbance	0.003			
Total absorbance - background	0.003			
Instrument Response (mg/L)	0.001			
Sample weight (kg)	0.00255			
Final Volume (L)	0.1			
Percent solids	0.87			
Dilution Factor	1			
AECOM Calculated Result (mg/Kg)	0.06	OK ND <0.46	Reported Result (mg/Kg)	0.46 U

NSB-E1-4.0-4.5		**pgs. 30, 78**		
Background reading	0.036			
Total absorbance	0.211			
Total absorbance - background	0.175			
Instrument Response (mg/L)	0.192			
Sample weight (kg)	0.00257			
Final Volume (L)	0.1			
Percent solids	0.81			
Dilution Factor	1			
AECOM Calculated Result (mg/Kg)	9.2	OK	Reported Result (mg/Kg)	9.2

Holding Times

Sample ID	Method	Days from Sampling to Prep	Days from Prep to Analysis	Days from Sampling to Analysis	Sampling to Prep Status	Prep to Analysis Status	Sampling to Analysis Status
NSB-EB20120824	SW7196			0			OK @1 days
NSB-E1-10.0-10.5	SW7196	5	1	6	OK @30 days	OK @7 days	OK @37 days
NSB-E1-12.5-13.0	SW7196	5	1	6	OK @30 days	OK @7 days	OK @37 days
NSB-E1-16.0-16.5	SW7196	5	1	6	OK @30 days	OK @7 days	OK @37 days
NSB-E1-2.0-2.5	SW7196	5	1	6	OK @30 days	OK @7 days	OK @37 days
NSB-E1-20.0-20.5	SW7196	5	1	6	OK @30 days	OK @7 days	OK @37 days
NSB-E1-4.0-4.5	SW7196	5	1	6	OK @30 days	OK @7 days	OK @37 days
NSB-E2-1.0-1.5	SW7196	5	1	6	OK @30 days	OK @7 days	OK @37 days
NSB-E2-1.0-1.5X	SW7196	5	1	6	OK @30 days	OK @7 days	OK @37 days
NSB-E2-12.5-13.0	SW7196	5	1	6	OK @30 days	OK @7 days	OK @37 days
NSB-E2-16.0-16.5	SW7196	5	1	6	OK @30 days	OK @7 days	OK @37 days
NSB-E2-21.0-21.5	SW7196	5	1	6	OK @30 days	OK @7 days	OK @37 days
NSB-E2-4.0-4.5	SW7196	5	1	6	OK @30 days	OK @7 days	OK @37 days
NSB-E3-0.5-1.0	SW7196	5	1	6	OK @30 days	OK @7 days	OK @37 days
NSB-E3-10.0-10.5	SW7196	5	1	6	OK @30 days	OK @7 days	OK @37 days
NSB-E3-16.0-16.5	SW7196	5	1	6	OK @30 days	OK @7 days	OK @37 days
NSB-E3-20.0-20.5	SW7196	5	1	6	OK @30 days	OK @7 days	OK @37 days
NSB-E3-4.0-4.5	SW7196	5	1	6	OK @30 days	OK @7 days	OK @37 days
NSB-E3-5.5-6.0	SW7196	5	1	6	OK @30 days	OK @7 days	OK @37 days
NSB-E4-1.0-1.5	SW7196	5	1	6	OK @30 days	OK @7 days	OK @37 days
NSB-E4-4.0-4.5	SW7196	5	1	6	OK @30 days	OK @7 days	OK @37 days

Percent Solids

Sample ID	Percent Solids (%)	Status
NSB-E1-10.0-10.5	90.4	ok @50%
NSB-E1-12.5-13.0	84.7	ok @50%
NSB-E1-16.0-16.5	87.3	ok @50%
NSB-E1-2.0-2.5	85.9	ok @50%
NSB-E1-20.0-20.5	87.4	ok @50%
NSB-E1-4.0-4.5	81.1	ok @50%
NSB-E2-1.0-1.5	84.4	ok @50%
NSB-E2-1.0-1.5X	85.1	ok @50%
NSB-E2-12.5-13.0	69	ok @50%
NSB-E2-16.0-16.5	88.5	ok @50%
NSB-E2-21.0-21.5	88.1	ok @50%
NSB-E2-4.0-4.5	65.7	ok @50%
NSB-E3-0.5-1.0	86.5	ok @50%
NSB-E3-10.0-10.5	60.5	ok @50%

NSB-E3-16.0-16.5	85.9	ok @50%
NSB-E3-20.0-20.5	89.7	ok @50%
NSB-E3-4.0-4.5	87.5	ok @50%
NSB-E3-5.5-6.0	67	ok @50%
NSB-E4-1.0-1.5	89.5	ok @50%
NSB-E4-4.0-4.5	91.7	ok @50%

Matrix Spikes

Sample ID	Compound	Analysis batch	MSs % Recovery	MSI % Recovery	PDS %R	Adj pH PDS %R	Lower Limit	Upper Limit
NSB-E1-20.0-20.5	CHROMIUM (HEXAVALENT)	GN71343	89.1	81.4	84.2	101	75	125

Field Duplicate

Sample ID	Duplicate ID	Compound	Sample Result	Sample Lab Qualifier	Duplicate Result	Dup Lab Qualifier	QL	Units	RPD	Action
NSB-E2-1.0-1.5	NSB-E2-1.0-1.5X	CHROMIUM (HEXAVALENT)	0.47	U	4.6		0.47	mg/kg	162.9	±RL if result < 4xRL.

Attachment C

Supplemental Data

AECOM

CHAIN-OF-CUSTODY / Analytical Request Document

2012-08-24_RI_ACCUTEST_COC_NSB

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

Task: GARIS- Northern Canal Borings

Total # of Samples: **21**

TAT *see Spec. Instructions* **Rush**

Notes: F= Field Filtered , H= Hold

Lab Information:

Lab:	ACCUTEST
Address:	2235 Route 130 , Dayton NJ 08810
Lab PM:	Matt Cordova
Phone/Fax:	732-329-0200/
PM email:	

Project Information:

Site ID #:	PPG Garfield Ave		
Project #:	60213772.5.A		
Site Address:	70 Carteret Avenue		
City	Jersey City	State, Zip NJ	07304
PM Name:	Chris Martell		
Phone/Fax:	732-564-3633		
PM Email:	Christopher.Martell@aecom.com		

Other Information:

Send Invoice to:	Lisa Krowitz		
Address:	250 Apollo Drive		
City/State.	Chelmsford, MA 01824	Phone #:	978-905-2278
PO #:	40256ACM		
Send EDD to:	NJLABDATA@aecom.com		
CC Hardcopy to	Erin Farrell, AECOM, Piscataway, NJ		

ITEM #	Field Sample No. /Identification	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comment	Analysis	GARA-HexChrom	GARA-pH-ORP						
							Lab Notes								
							Preservative								
1	NSB-E4-4.0-4.5	SO	G	08/24/2012 15:15	1			X	X						
2	NSB-E4-1.0-1.5	SO	G	08/24/2012 15:10	1			X	X						
3	NSB-E3-20.0-20.5	SO	G	08/24/2012 15:00	1			X	X						
4	NSB-E3-16.0-16.5	SO	G	08/24/2012 14:50	1			X	X						
5	NSB-E3-10.0-10.5	SO	G	08/24/2012 14:30	1			X	X						
6	NSB-E3-5.5-6.0	SO	G	08/24/2012 14:21	1			X	X						
7	NSB-E3-21.0-21.5	SO	G	08/24/2012 14:05	1			X	X						
8	NSB-E2-16.0-16.5	SO	G	08/24/2012 13:50	1			X	X						
9	NSB-E2-12.5-13.0	SO	G	08/24/2012 13:40	1			X	X						
10	NSB-E3-4.0-4.5	SO	G	08/24/2012 13:15	1			X	X						
11	NSB-E3-0.5-1.0	SO	G	08/24/2012 13:10	1			X	X						

Additional Comments/Special Instructions:

Standard TAT

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME

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

Shipper:		DATE/TIME:	
Tracking #:		Custody Seal(s):	

AECOM

CHAIN-OF-CUSTODY / Analytical Request Document

2012-08-24_RI_ACCUTEST_COC_NSB

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

Task: GARIS- Northern Canal Borings

Total # of Samples: **21**

TAT *see Spec. Instructions* **Rush**

Notes: F= Field Filtered , H= Hold

Lab Information:		**Project Information:**				**Other Information:**			
Lab:	ACCUTEST	Site ID #:	PPG Garfield Ave			Send Invoice to:	Lisa Krowitz		
Address:	2235 Route 130 , Dayton NJ 08810	Project #:	60213772.5.A			Address:	250 Apollo Drive		
		Site Address:	70 Carteret Avenue			City/State.	Chelmsford, MA 01824	Phone #:	978-905-2278
Lab PM:	Matt Cordova	City	Jersey City	State, Zip	NJ 07304	PO #:	40256ACM		
Phone/Fax:	732-329-0200/	PM Name:	Chris Martell			Send EDD to:	NJLABDATA@aecom.com		
PM email:		Phone/Fax:	732-564-3633			CC Hardcopy to	Erin Farrell, AECOM, Piscataway, NJ		
		PM Email:	Christopher.Martell@aecom.com						

ITEM #	Field Sample No. /Identification	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comment	Analysis	GARA-HexChrom	GARA-pH-ORP
12	NSB-E1-20.0-20.5	SO	G	08/24/2012 11:50	1			X	X
13	NSB-E1-16.0-16.5	SO	G	08/24/2012 11:35	1			X	X
14	NSB-E1-12.5-13.0	SO	G	08/24/2012 11:20	1			X	X
15	NSB-E1-10.0-10.5	SO	G	08/24/2012 11:15	1			X	X
16	NSB-E2-4.0-4.5	SO	G	08/24/2012 11:05	1			X	X
17	NSB-E2-1.0-1.5X	SO	G	08/24/2012 10:12	1			X	X
18	NSB-E2-1.0-1.5	SO	G	08/24/2012 10:10	1			X	X
19	NSB-EB20120824	WQ	G	08/24/2012 15:30	2	Preserved: None		X	X
20	NSB-E1-2.0-2.5	SO	G	08/24/2012 09:35	2	1 JAR FOR MS/MSD		X	X
21	NSB-E1-4.0-4.5	SO	G	08/24/2012 09:50	1			X	X

New Jersey ACCUTEST LABORATORIES

08/31/12

Technical Report for

AECOM, INC.

PPG Northern Canal Borings, Jersey City, NJ

60213772.5.A

Accutest Job Number: JB14656

Sampling Date: 08/24/12

Report to:

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

Total number of pages in report: **89**

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.

Paul Ioannidis
Lab Director

Client Service contact: Matt Cordova 732-329-0200

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

Sections: 1 2 3 4 5 6 7

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Sections:

1 2 3 4 5 6 7

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Accutest Laboratories

Sample Summary

AECOM, INC.

Job No: JB14656

PPG Northern Canal Borings, Jersey City, NJ
Project No: 60213772.5.A

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JB14656-1	08/24/12	15:15	CM	08/24/12	SO	Soil	NSB-E4-4.0-4.5
JB14656-2	08/24/12	15:10	CM	08/24/12	SO	Soil	NSB-E4-1.0-1.5
JB14656-3	08/24/12	15:00	CM	08/24/12	SO	Soil	NSB-E3-20.0-20.5
JB14656-4	08/24/12	14:50	CM	08/24/12	SO	Soil	NSB-E3-16.0-16.5
JB14656-5	08/24/12	14:30	CM	08/24/12	SO	Soil	NSB-E3-10.0-10.5
JB14656-6	08/24/12	14:21	CM	08/24/12	SO	Soil	NSB-E3-5.5-6.0
JB14656-7	08/24/12	14:05	CM	08/24/12	SO	Soil	NSB-E2-21.0-21.5
JB14656-8	08/24/12	13:50	CM	08/24/12	SO	Soil	NSB-E2-16.0-16.5
JB14656-9	08/24/12	13:40	CM	08/24/12	SO	Soil	NSB-E2-12.5-13.0
JB14656-10	08/24/12	13:15	CM	08/24/12	SO	Soil	NSB-E3-4.0-4.5
JB14656-11	08/24/12	13:10	CM	08/24/12	SO	Soil	NSB-E3-0.5-1.0
JB14656-12	08/24/12	11:50	CM	08/24/12	SO	Soil	NSB-E1-20.0-20.5
JB14656-13	08/24/12	11:35	CM	08/24/12	SO	Soil	NSB-E1-16.0-16.5

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

Sample Summary
(continued)

AECOM, INC.

Job No: JB14656

PPG Northern Canal Borings, Jersey City, NJ
Project No: 60213772.5.A

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JB14656-14	08/24/12	11:20	CM	08/24/12	SO	Soil	NSB-E1-12.5-13.0
JB14656-15	08/24/12	11:15	CM	08/24/12	SO	Soil	NSB-E1-10.0-10.5
JB14656-16	08/24/12	11:05	CM	08/24/12	SO	Soil	NSB-E2-4.0-4.5
JB14656-17	08/24/12	10:12	CM	08/24/12	SO	Soil	NSB-E2-1.0-1.5X
JB14656-18	08/24/12	10:10	CM	08/24/12	SO	Soil	NSB-E2-1.0-1.5
JB14656-19	08/24/12	09:50	CM	08/24/12	SO	Soil	NSB-E1-4.0-4.5
JB14656-20	08/24/12	15:30	CM	08/24/12	AQ	Equipment Blank	NSB-EB20120824
JB14656-21	08/24/12	09:35	CM	08/24/12	SO	Soil	NSB-E1-2.0-2.5

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

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: AECOM, INC. **Job No** JB14656

Site: PPG Northern Canal Borings, Jersey City, NJ **Report Date** 8/31/2012 12:33:15 P

On 08/24/2012, 21 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at Accutest Laboratories at a temperature of 3 C. Samples were intact and chemically preserved, unless noted below. An Accutest Job Number of JB14656 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:** GN71230

- Sample(s) JB14656-20DUP were used as the QC samples for Redox Potential Vs H2.

Wet Chemistry By Method ASTM D1498-76M

Matrix: SO **Batch ID:** GN71238

- Sample(s) JB14656-1DUP were used as the QC samples for Redox Potential Vs H2.

Matrix: SO **Batch ID:** GN71253

- Sample(s) JB14656-14DUP were used as the QC samples for Redox Potential Vs H2.

Wet Chemistry By Method SM18 2540G

Matrix: SO **Batch ID:** GN71133

- The data for SM18 2540G meets quality control requirements.

Wet Chemistry By Method SM20 4500H B

Matrix: AQ **Batch ID:** R115502

- The data for SM20 4500H B meets quality control requirements.
- JB14656-20 for pH: Sample received out of holding time for pH analysis.

Wet Chemistry By Method SW846 3060A/7196A

Matrix: SO **Batch ID:** GP66863

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB14656-12DUP, JB14656-12MS were used as the QC samples for Chromium, Hexavalent.
- GP66863-S2 for Chromium, Hexavalent: Good recovery on insoluble XCR matrix spike. See additional comments on soluble matrix spike recovery.
- GP66863-S1 for Chromium, Hexavalent: Good recovery on soluble XCR matrix spike. Low recovery (84.2%) on the post-spike.Good recovery on pH adjusted post spike (101%). Good agreement between the sample and 1:5 dilution.

Wet Chemistry By Method SW846 7196A

Matrix: AQ	Batch ID: GN71049

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB14205-45DUP, JB14205-45MS were used as the QC samples for Chromium, Hexavalent.

Wet Chemistry By Method SW846 9045C,D

Matrix: SO	Batch ID: GN71237

- Sample(s) JB14656-1DUP were used as the QC samples for pH.

Matrix: SO	Batch ID: GN71252

- Sample(s) JB14656-14DUP 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: JB14656
Account: AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Collected: 08/24/12

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JB14656-1	**NSB-E4-4.0-4.5**					
Chromium, Hexavalent		1.1	0.44	0.13	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		678			mv	ASTM D1498-76M
pH		7.79			su	SW846 9045C,D
JB14656-2	**NSB-E4-1.0-1.5**					
Chromium, Hexavalent		1.3	0.45	0.13	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		388			mv	ASTM D1498-76M
pH		8.08			su	SW846 9045C,D
JB14656-3	**NSB-E3-20.0-20.5**					
Chromium, Hexavalent		2.6	0.45	0.13	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		316			mv	ASTM D1498-76M
pH		9.34			su	SW846 9045C,D
JB14656-4	**NSB-E3-16.0-16.5**					
Redox Potential Vs H2		304			mv	ASTM D1498-76M
pH		9.11			su	SW846 9045C,D
JB14656-5	**NSB-E3-10.0-10.5**					
Redox Potential Vs H2		56.0			mv	ASTM D1498-76M
pH		7.92			su	SW846 9045C,D
JB14656-6	**NSB-E3-5.5-6.0**					
Redox Potential Vs H2		242			mv	ASTM D1498-76M
pH		7.84			su	SW846 9045C,D
JB14656-7	**NSB-E2-21.0-21.5**					
Redox Potential Vs H2		216			mv	ASTM D1498-76M
pH		8.50			su	SW846 9045C,D
JB14656-8	**NSB-E2-16.0-16.5**					
Redox Potential Vs H2		219			mv	ASTM D1498-76M
pH		8.53			su	SW846 9045C,D

Summary of Hits

Job Number: JB14656
Account: AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Collected: 08/24/12

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JB14656-9	**NSB-E2-12.5-13.0**					
Chromium, Hexavalent		0.46 B	0.58	0.17	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		73.5			mv	ASTM D1498-76M
pH		7.91			su	SW846 9045C,D
JB14656-10	**NSB-E3-4.0-4.5**					
Chromium, Hexavalent		0.92	0.46	0.13	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		429			mv	ASTM D1498-76M
pH		8.11			su	SW846 9045C,D
JB14656-11	**NSB-E3-0.5-1.0**					
Chromium, Hexavalent		1.2	0.46	0.14	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		422			mv	ASTM D1498-76M
pH		8.21			su	SW846 9045C,D
JB14656-12	**NSB-E1-20.0-20.5**					
Redox Potential Vs H2		376			mv	ASTM D1498-76M
pH		8.24			su	SW846 9045C,D
JB14656-13	**NSB-E1-16.0-16.5**					
Redox Potential Vs H2		365			mv	ASTM D1498-76M
pH		8.06			su	SW846 9045C,D
JB14656-14	**NSB-E1-12.5-13.0**					
Chromium, Hexavalent		0.17 B	0.47	0.14	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		214			mv	ASTM D1498-76M
pH		7.69			su	SW846 9045C,D
JB14656-15	**NSB-E1-10.0-10.5**					
Redox Potential Vs H2		159			mv	ASTM D1498-76M
pH		7.41			su	SW846 9045C,D
JB14656-16	**NSB-E2-4.0-4.5**					
Chromium, Hexavalent		4.8	0.61	0.18	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		292			mv	ASTM D1498-76M
pH		7.45			su	SW846 9045C,D

Summary of Hits

Job Number: JB14656
Account: AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Collected: 08/24/12

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JB14656-17	**NSB-E2-1.0-1.5X**					
Chromium, Hexavalent		4.6	0.47	0.14	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		298			mv	ASTM D1498-76M
pH		8.17			su	SW846 9045C,D
JB14656-18	**NSB-E2-1.0-1.5**					
Redox Potential Vs H2		305			mv	ASTM D1498-76M
pH		8.10			su	SW846 9045C,D
JB14656-19	**NSB-E1-4.0-4.5**					
Chromium, Hexavalent		9.2	0.49	0.14	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		309			mv	ASTM D1498-76M
pH		7.94			su	SW846 9045C,D
JB14656-20	**NSB-EB20120824**					
Redox Potential Vs H2		372			mv	ASTM D1498-76
pH [a]		6.54			su	SM20 4500H B
JB14656-21	**NSB-E1-2.0-2.5**					
Chromium, Hexavalent		1.3	0.47	0.14	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		305			mv	ASTM D1498-76M
pH		8.29			su	SW846 9045C,D

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

New Jersey ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID: NSB-E4-4.0-4.5
Lab Sample ID: JB14656-1
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/24/12
Date Received: 08/24/12
Percent Solids: 91.7

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	1.1	0.44	0.13	mg/kg	1	08/30/12 12:00	JOO	SW846 3060A/7196A
Redox Potential Vs H2	678			mv	1	08/29/12	SA	ASTM D1498-76M
Solids, Percent	91.7			%	1	08/27/12 22:00	MH	SM18 2540G
pH	7.79			su	1	08/29/12 12:02	SA	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: NSB-E4-1.0-1.5
Lab Sample ID: JB14656-2
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/24/12
Date Received: 08/24/12
Percent Solids: 89.5

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	1.3	0.45	0.13	mg/kg	1	08/30/12 13:26	JOO	SW846 3060A/7196A
Redox Potential Vs H2	388			mv	1	08/29/12	SA	ASTM D1498-76M
Solids, Percent	89.5			%	1	08/27/12 22:00	MH	SM18 2540G
pH	8.08			su	1	08/29/12 12:02	SA	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: NSB-E3-20.0-20.5
Lab Sample ID: JB14656-3
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/24/12
Date Received: 08/24/12
Percent Solids: 89.7

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	2.6	0.45	0.13	mg/kg	1	08/30/12 13:26	JOO	SW846 3060A/7196A
Redox Potential Vs H2	316			mv	1	08/29/12	SA	ASTM D1498-76M
Solids, Percent	89.7			%	1	08/27/12 22:00	MH	SM18 2540G
pH	9.34			su	1	08/29/12 12:02	SA	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: NSB-E3-16.0-16.5
Lab Sample ID: JB14656-4
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/24/12
Date Received: 08/24/12
Percent Solids: 85.9

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.14 U	0.47	0.14	mg/kg	1	08/30/12 13:26	JOO	SW846 3060A/7196A
Redox Potential Vs H2	304			mv	1	08/29/12	SA	ASTM D1498-76M
Solids, Percent	85.9			%	1	08/27/12 22:00	MH	SM18 2540G
pH	9.11			su	1	08/29/12 12:02	SA	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: NSB-E3-10.0-10.5
Lab Sample ID: JB14656-5
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/24/12
Date Received: 08/24/12
Percent Solids: 60.5

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.19 U	0.66	0.19	mg/kg	1	08/30/12 13:26	JOO	SW846 3060A/7196A
Redox Potential Vs H2	56.0			mv	1	08/29/12	SA	ASTM D1498-76M
Solids, Percent	60.5			%	1	08/27/12 22:00	MH	SM18 2540G
pH	7.92			su	1	08/29/12 12:02	SA	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: NSB-E3-5.5-6.0
Lab Sample ID: JB14656-6
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/24/12
Date Received: 08/24/12
Percent Solids: 67.0

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.17 U	0.60	0.17	mg/kg	1	08/30/12 13:26	JOO	SW846 3060A/7196A
Redox Potential Vs H2	242			mv	1	08/29/12	SA	ASTM D1498-76M
Solids, Percent	67			%	1	08/27/12 22:00	MH	SM18 2540G
pH	7.84			su	1	08/29/12 12:02	SA	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: NSB-E2-21.0-21.5
Lab Sample ID: JB14656-7
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/24/12
Date Received: 08/24/12
Percent Solids: 88.1

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.13 U	0.45	0.13	mg/kg	1	08/30/12 13:26	JOO	SW846 3060A/7196A
Redox Potential Vs H2	216			mv	1	08/29/12	SA	ASTM D1498-76M
Solids, Percent	88.1			%	1	08/27/12 22:00	MH	SM18 2540G
pH	8.50			su	1	08/29/12 12:02	SA	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: NSB-E2-16.0-16.5
Lab Sample ID: JB14656-8
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/24/12
Date Received: 08/24/12
Percent Solids: 88.5

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.13 U	0.45	0.13	mg/kg	1	08/30/12 13:26	JOO	SW846 3060A/7196A
Redox Potential Vs H2	219			mv	1	08/29/12	SA	ASTM D1498-76M
Solids, Percent	88.5			%	1	08/27/12 22:00	MH	SM18 2540G
pH	8.53			su	1	08/29/12 12:02	SA	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: NSB-E2-12.5-13.0
Lab Sample ID: JB14656-9
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/24/12
Date Received: 08/24/12
Percent Solids: 69.0

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.46 B	0.58	0.17	mg/kg	1	08/30/12 13:26	JOO	SW846 3060A/7196A
Redox Potential Vs H2	73.5			mv	1	08/29/12	SA	ASTM D1498-76M
Solids, Percent	69			%	1	08/27/12 22:00	MH	SM18 2540G
pH	7.91			su	1	08/29/12 12:02	SA	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: NSB-E3-4.0-4.5
Lab Sample ID: JB14656-10
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/24/12
Date Received: 08/24/12
Percent Solids: 87.5

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.92	0.46	0.13	mg/kg	1	08/30/12 13:26	JOO	SW846 3060A/7196A
Redox Potential Vs H2	429			mv	1	08/29/12	SA	ASTM D1498-76M
Solids, Percent	87.5			%	1	08/27/12 22:00	MH	SM18 2540G
pH	8.11			su	1	08/29/12 12:02	SA	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: NSB-E3-0.5-1.0
Lab Sample ID: JB14656-11
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/24/12
Date Received: 08/24/12
Percent Solids: 86.5

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	1.2	0.46	0.14	mg/kg	1	08/30/12 16:26	JOO	SW846 3060A/7196A
Redox Potential Vs H2	422			mv	1	08/29/12	SA	ASTM D1498-76M
Solids, Percent	86.5			%	1	08/27/12 22:00	MH	SM18 2540G
pH	8.21			su	1	08/29/12 12:02	SA	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: NSB-E1-20.0-20.5
Lab Sample ID: JB14656-12
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/24/12
Date Received: 08/24/12
Percent Solids: 87.4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.13 U	0.46	0.13	mg/kg	1	08/30/12 12:00	JOO	SW846 3060A/7196A
Redox Potential Vs H2	376			mv	1	08/29/12	SA	ASTM D1498-76M
Solids, Percent	87.4			%	1	08/27/12 22:00	MH	SM18 2540G
pH	8.24			su	1	08/29/12 12:02	SA	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: NSB-E1-16.0-16.5
Lab Sample ID: JB14656-13
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/24/12
Date Received: 08/24/12
Percent Solids: 87.3

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.13 U	0.46	0.13	mg/kg	1	08/30/12 16:26	JOO	SW846 3060A/7196A
Redox Potential Vs H2	365			mv	1	08/29/12	SA	ASTM D1498-76M
Solids, Percent	87.3			%	1	08/27/12 22:00	MH	SM18 2540G
pH	8.06			su	1	08/29/12 12:02	SA	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: NSB-E1-12.5-13.0
Lab Sample ID: JB14656-14
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/24/12
Date Received: 08/24/12
Percent Solids: 84.7

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.17 B	0.47	0.14	mg/kg	1	08/30/12 16:26	JOO	SW846 3060A/7196A
Redox Potential Vs H2	214			mv	1	08/29/12	SA	ASTM D1498-76M
Solids, Percent	84.7			%	1	08/27/12 22:00	MH	SM18 2540G
pH	7.69			su	1	08/29/12 13:49	SA	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: NSB-E1-10.0-10.5
Lab Sample ID: JB14656-15
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/24/12
Date Received: 08/24/12
Percent Solids: 90.4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.13 U	0.44	0.13	mg/kg	1	08/30/12 16:26	JOO	SW846 3060A/7196A
Redox Potential Vs H2	159			mv	1	08/29/12	SA	ASTM D1498-76M
Solids, Percent	90.4			%	1	08/27/12 22:00	MH	SM18 2540G
pH	7.41			su	1	08/29/12 13:49	SA	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: NSB-E2-4.0-4.5
Lab Sample ID: JB14656-16
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/24/12
Date Received: 08/24/12
Percent Solids: 65.7

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	4.8	0.61	0.18	mg/kg	1	08/30/12 16:26	JOO	SW846 3060A/7196A
Redox Potential Vs H2	292			mv	1	08/29/12	SA	ASTM D1498-76M
Solids, Percent	65.7			%	1	08/27/12 22:00	MH	SM18 2540G
pH	7.45			su	1	08/29/12 13:49	SA	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: NSB-E2-1.0-1.5X
Lab Sample ID: JB14656-17
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/24/12
Date Received: 08/24/12
Percent Solids: 85.1

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	4.6	0.47	0.14	mg/kg	1	08/30/12 16:26	JOO	SW846 3060A/7196A
Redox Potential Vs H2	298			mv	1	08/29/12	SA	ASTM D1498-76M
Solids, Percent	85.1			%	1	08/27/12 22:00	MH	SM18 2540G
pH	8.17			su	1	08/29/12 13:49	SA	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: NSB-E2-1.0-1.5
Lab Sample ID: JB14656-18
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/24/12
Date Received: 08/24/12
Percent Solids: 84.4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.14 U	0.47	0.14	mg/kg	1	08/30/12 16:26	JOO	SW846 3060A/7196A
Redox Potential Vs H2	305			mv	1	08/29/12	SA	ASTM D1498-76M
Solids, Percent	84.4			%	1	08/27/12 22:00	MH	SM18 2540G
pH	8.10			su	1	08/29/12 13:49	SA	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: NSB-E1-4.0-4.5
Lab Sample ID: JB14656-19
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/24/12
Date Received: 08/24/12
Percent Solids: 81.1

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	9.2	0.49	0.14	mg/kg	1	08/30/12 16:26	JOO	SW846 3060A/7196A
Redox Potential Vs H2	309			mv	1	08/29/12	SA	ASTM D1498-76M
Solids, Percent	81.1			%	1	08/27/12 22:00	MH	SM18 2540G
pH	7.94			su	1	08/29/12 13:49	SA	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:	NSB-EB20120824		
Lab Sample ID:	JB14656-20	**Date Sampled:**	08/24/12
Matrix:	AQ - Equipment Blank	**Date Received:**	08/24/12
		Percent Solids:	n/a
Project:	PPG Northern Canal Borings, Jersey City, NJ		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.0014 U	0.010	0.0014	mg/l	1	08/24/12 21:14	MM	SW846 7196A
Redox Potential Vs H2	372			mv	1	08/29/12	SA	ASTM D1498-76
pH [a]	6.54			su	1	08/24/12 19:57	AS	SM20 4500H B

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

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID: NSB-E1-2.0-2.5
Lab Sample ID: JB14656-21
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/24/12
Date Received: 08/24/12
Percent Solids: 85.9

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	1.3	0.47	0.14	mg/kg	1	08/30/12 16:26	JOO	SW846 3060A/7196A
Redox Potential Vs H2	305			mv	1	08/29/12	SA	ASTM D1498-76M
Solids, Percent	85.9			%	1	08/27/12 22:00	MH	SM18 2540G
pH	8.29			su	1	08/29/12 13:49	SA	SW846 9045C,D

RL = Reporting Limit
MDL = Method Detection Limit

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

New Jersey ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

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

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CHAIN-OF-CUSTODY / Analytical Request Document

2012-08-23_RI_ACCUTEST_COC_NSB

Page: 1 of 2

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

Lab Information:		Project Information:		Other Information:			
Lab:	ACCUTEST	Site ID #:	PPG Garfield Ave	Send Invoice to:	Lisa Krowitz		
Address:	2235 Route 130 , Dayton NJ 08810	Project #:	60213772.5.A	Address:	250 Apollo Drive		
		Site Address:	70 Carteret Avenue	City/State.	Chelmsford, MA 01824	Phone #:	978-905-2278
Lab PM:	Matt Cordova	City	Jersey City	State, Zip	NJ 07304	PO #:	40256ACM
Phone/Fax:	732-329-0200/	PM Name:	Chris Martell	Send EDD to:	NJLABDATA@aecom.com		
PM email:		Phone/Fax:	732-564-3633	CC Hardcopy to	Erin Farrell, AECOM, Piscataway, NJ		
		PM Email:	Christopher.Martell@aecom.com				

Task: GARIS- Northern Canal Borings

Total # of Samples: 21

JB14656

TAT: see Spec. Instructions — Rush

Notes: F= Field Filtered , H= Hold

Lab Notes | Preservative | Analysis

ITEM #	Field Sample No. /Identification	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comment	GARA-pH-ORP	GARA-HexChrom
1	NSB-E4-4.0-4.5 -1	SO	G	08/24/2012 15:15	1		X	X
2	NSB-E4-1.0-1.5 -2	SO	G	08/24/2012 15:10	1		X	X
3	NSB-E3-20.0-20.5 -3	SO	G	08/24/2012 15:00	1		X	X
4	NSB-E3-16.0-16.5 -4	SO	G	08/24/2012 14:50	1	ME4, WC28	X	X
5	NSB-E3-~~10.0-10.5~~ 10.0-10.5 -5	SO	G	08/24/2012 14:30	1	UK5	X	X
6	NSB-E3-5.5-6.0 -6	SO	G	08/24/2012 14:21	1		X	X
7	NSB-E2-21.0-21.5 -7	SO	G	08/24/2012 14:05	1		X	X
8	NSB-E2-16.0-16.5 -8	SO	G	08/24/2012 13:50	1		X	X
9	NSB-E2-12.5-13.0 -9	SO	G	08/24/2012 13:40	1		X	X
10	NSB-E3-4.0-4.5 -10	SO	G	08/24/2012 13:15	1		X	X
11	NSB-E3-0.5-1.0 -11	SO	G	08/24/2012 13:10	1		X	X

Additional Comments/Special Instructions:
Standard TAT

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	8/24/12	1630		8/24/12	1730
	8/24/12	1937	Fedex Ground		

Sample Receipt Conditions			
	Y / N	Y / N	Y / N
	(Y) N	(Y) N	Y (N)
	Y / N	Y / N	Y / N
	Y / N	Y / N	Y / N
	Temp in OC	Samples on Ice?	Sample intact?	Trip Blank?

Shipper:

Tracking #:

DATE/TIME:

Custody Seal(s):

2A

1 Cooler

3.0°C GP

5.1

5

JB14656: Chain of Custody

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AECOM

SO
FB

CHAIN-OF-CUSTODY / Analytical Request Document

2012-08-23_RI_ACCUTEST_COC_NSB

Page: 2 of 2

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

Lab Information:

Lab:	ACCUTEST
Address:	2235 Route 130 , Dayton NJ 08810
Lab PM:	Matt Cordova
Phone/Fax:	732-329-0200/
PM email:	

Project Information:

Site ID #:	PPG Garfield Ave
Project #:	60213772.5.A
Site Address:	70 Carteret Avenue
City	Jersey City
State, Zip	NJ 07304
PM Name:	Chris Martell
Phone/Fax:	732-564-3633
PM Email:	Christopher.Martell@aecom.com

Other Information:

Send Invoice to:	Lisa Krowitz
Address:	250 Apollo Drive
City/State.	Chelmsford, MA 01824
Phone #:	978-905-2278
PO #:	40256ACM
Send EDD to:	NJLABDATA@aecom.com
CC Hardcopy to	Erin Farrell, AECOM, Piscataway, NJ

Task: GARIS- Northern Canal Borings

Total # of Samples: 21

JB14656

TAT see Spec. Instructions **Rush**

Notes: F= Field Filtered , H= Hold

ITEM #	Field Sample No. /Identification	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comment	Preservative / Lab Notes	Analysis: GARA-pH-ORP	Analysis: GARA-HexChrom
12	NSB-E1-20.0-20.5 -12	SO	G	08/24/2012 11:50	1			X	X
13	NSB-E1-16.0-16.5 -13	SO	G	08/24/2012 11:35	1			X	X
14	NSB-E1-12.5-13.0 -14	SO	G	08/24/2012 11:20	1			X	X
15	NSB-E1-10.0-10.5 -15	SO	G	08/24/2012 11:15	1			X	X
16	NSB-E2-4.0-4.5 -16	SO	G	08/24/2012 11:05	1			X	X
17	NSB-E2-1.0-1.5X -17	SO	G	08/24/2012 10:12	1			X	X
18	NSB-E2-1.0-1.5 -18	SO	G	08/24/2012 10:10	1			X	X
19	NSB-E1-4.0-4.5 -19	SO	G	08/24/2012 09:50	1			X	X
20	NSB-EB20120824 ★ -20	WQ	G	08/24/2012 15:30	2	Preserved: None		X	X
21	NSB-E1-2.0-2.5 -21	SO	G	08/24/2012 09:35	2	1 jar for ms/msd		X	X

Additional Comments/Special Instructions:

Standard TAT

★ pH = 6.54 (A) 8/24/12

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	8/24/12	1935	Accutest	8/24/12	1320

Shipper:

Tracking #:

DATE/TIME:

Custody Seal(s):

Cooler 3.0C

Sample Receipt Conditions

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

JB14656: Chain of Custody

Page 2 of 6

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: JB14656 **Client:** **Project:**

Date / Time Received: 8/24/2012 **Delivery Method:** **Airbill #'s:**

Cooler Temps (Initial/Adjusted): #1: (3/3); 0

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

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

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

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

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

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

Comments

Job Change Order: JB14656_8/27/2012

Requested Date:	8/27/2012	**Received Date:**	8/24/2012
Account Name:	AECOM, INC.	**Due Date:**	9/7/2012
Project	PPG Northern Canal Borings, Jersey City, NJ	**Deliverable:**	FULT1
CSR:	MC	**TAT (Days):**	7

Sample #:
JB14656-All

Change: revise to 1 week TAT due 8/31

Above Changes Per: Lisa Krowitz **Date:** 8/27/2012

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

Page 1 of 1

JB14656: Chain of Custody
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CHAIN-OF-CUSTODY / Analytical Request Document

2012-08-24_RI_ACCUTEST_COC_NSB

Page: JB14656 REVISED

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

Lab Information:		Project Information:		Other Information:			
Lab:	ACCUTEST	Site ID #:	PPG Garfield Ave	Send Invoice to:	Lisa Krowitz		
Address:	2235 Route 130 , Dayton NJ 08810	Project #:	60213772.5.A	Address:	250 Apollo Drive		
		Site Address:	70 Carteret Avenue	City/State.	Chelmsford, MA 01824	Phone #:	978-905-2278
Lab PM:	Matt Cordova	City	Jersey City	State, Zip	NJ	07304	
Phone/Fax:	732-329-0200/	PM Name:	Chris Martell	PO #:	40256ACM		
PM email:		Phone/Fax:	732-564-3633	Send EDD to:	NJLABDATA@aecom.com		
		PM Email:	Christopher.Martell@aecom.com	CC Hardcopy to	Erin Farrell, AECOM, Piscataway, NJ		

Task:	GARIS- Northern Canal Borings
Total # of Samples:	20
TAT	see Spec. Instructions / Rush

Notes: F= Field Filtered , H= Hold

ITEM #	Field Sample No. /Identification	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comment	Preservative	Lab Notes	Analysis: GARA-HexChrom	Analysis: GARA-pH-ORP
1	NSB-E4-4.0-4.5	SO	G	08/24/2012 15:15	1				X	X
2	NSB-E4-1.0-1.5	SO	G	08/24/2012 15:10	1				X	X
3	NSB-E3-20.0-20.5	SO	G	08/24/2012 15:00	1				X	X
4	NSB-E3-16.0-16.5	SO	G	08/24/2012 14:50	1				X	X
5	NSB-E3-10.0-10.5	SO	G	08/24/2012 14:30	1				X	X
6	NSB-E3-5.5-6.0	SO	G	08/24/2012 14:21	1				X	X
7	NSB-E3-21.0-21.5	SO	G	08/24/2012 14:05	1				X	X
8	NSB-E2-16.0-16.5	SO	G	08/24/2012 13:50	1				X	X
9	NSB-E2-12.5-13.0	SO	G	08/24/2012 13:40	1				X	X
10	NSB-E3-4.0-4.5	SO	G	08/24/2012 13:15	1				X	X
11	NSB-E3-0.5-1.0	SO	G	08/24/2012 13:10	1				X	X

Additional Comments/Special Instructions:
Standard TAT

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME

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

Shipper:		DATE/TIME:	
Tracking #:		Custody Seal(s):	

5.1 5

JB14656: Chain of Custody
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CHAIN-OF-CUSTODY / Analytical Request Document

2012-08-24_RI_ACCUTEST_COC_NSB

Page: JB14656 REVISED

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

Lab Information:		Project Information:		Other Information:			
Lab:	ACCUTEST	Site ID #:	PPG Garfield Ave	Send Invoice to:	Lisa Krowitz		
Address:	2235 Route 130 , Dayton NJ 08810	Project #:	60213772.5.A	Address:	250 Apollo Drive		
		Site Address:	70 Carteret Avenue	City/State.	Chelmsford, MA 01824	Phone #:	978-905-2278
Lab PM:	Matt Cordova	City	Jersey City	State, Zip	NJ 07304	PO #:	40256ACM
Phone/Fax:	732-329-0200/	PM Name:	Chris Martell	Send EDD to:	NJLABDATA@aecom.com		
PM email:		Phone/Fax:	732-564-3633	CC Hardcopy to	Erin Farrell, AECOM, Piscataway, NJ		
		PM Email:	Christopher.Martell@aecom.com				

Task:	GARIS- Northern Canal Borings
Total # of Samples:	20
TAT	see Spec. Instructions / Rush
Notes:	F= Field Filtered , H= Hold

ITEM #	Field Sample No. /Identification	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comment	Preservative / Lab Notes	Analysis: GARA-HexChrom	Analysis: GARA-pH-ORP
12	NSB-E1-20.0-20.5	SO	G	08/24/2012 11:50	1			X	X
13	NSB-E1-16.0-16.5	SO	G	08/24/2012 11:35	1			X	X
14	NSB-E1-12.5-13.0	SO	G	08/24/2012 11:20	1			X	X
15	NSB-E1-10.0-10.5	SO	G	08/24/2012 11:15	1			X	X
16	NSB-E2-4.0-4.5	SO	G	08/24/2012 11:05	1			X	X
17	NSB-E2-1.0-1.5X	SO	G	08/24/2012 10:12	1			X	X
18	NSB-E2-1.0-1.5	SO	G	08/24/2012 10:10	1			X	X
19	NSB-EB20120824	WQ	G	08/24/2012 15:30	2	Preserved: None		X	X
20	NSB-E1-2.0-2.5	SO	G	08/24/2012 09:35	2	1 JAR FOR MS/MSD		X	X

JB14656: Chain of Custody

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Internal Sample Tracking Chronicle

AECOM, INC.

Job No: JB14656

PPG Northern Canal Borings, Jersey City, NJ
Project No: 60213772.5.A

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB14656-1 Collected: 24-AUG-12 15:15 By: CM Received: 24-AUG-12 By: MPC NSB-E4-4.0-4.5						
JB14656-1	SM18 2540G	27-AUG-12 22:00	MH			SOL104
JB14656-1	ASTM D1498-76M	29-AUG-12	SA			EH
JB14656-1	SW846 9045C,D	29-AUG-12 12:02	SA			PH
JB14656-1	SW846 3060A/7196A	30-AUG-12 12:00	JOO	29-AUG-12	MP	XCRA
JB14656-2 Collected: 24-AUG-12 15:10 By: CM Received: 24-AUG-12 By: MPC NSB-E4-1.0-1.5						
JB14656-2	SM18 2540G	27-AUG-12 22:00	MH			SOL104
JB14656-2	ASTM D1498-76M	29-AUG-12	SA			EH
JB14656-2	SW846 9045C,D	29-AUG-12 12:02	SA			PH
JB14656-2	SW846 3060A/7196A	30-AUG-12 13:26	JOO	29-AUG-12	MP	XCRA
JB14656-3 Collected: 24-AUG-12 15:00 By: CM Received: 24-AUG-12 By: MPC NSB-E3-20.0-20.5						
JB14656-3	SM18 2540G	27-AUG-12 22:00	MH			SOL104
JB14656-3	ASTM D1498-76M	29-AUG-12	SA			EH
JB14656-3	SW846 9045C,D	29-AUG-12 12:02	SA			PH
JB14656-3	SW846 3060A/7196A	30-AUG-12 13:26	JOO	29-AUG-12	MP	XCRA
JB14656-4 Collected: 24-AUG-12 14:50 By: CM Received: 24-AUG-12 By: MPC NSB-E3-16.0-16.5						
JB14656-4	SM18 2540G	27-AUG-12 22:00	MH			SOL104
JB14656-4	ASTM D1498-76M	29-AUG-12	SA			EH
JB14656-4	SW846 9045C,D	29-AUG-12 12:02	SA			PH
JB14656-4	SW846 3060A/7196A	30-AUG-12 13:26	JOO	29-AUG-12	MP	XCRA
JB14656-5 Collected: 24-AUG-12 14:30 By: CM Received: 24-AUG-12 By: MPC NSB-E3-10.0-10.5						
JB14656-5	SM18 2540G	27-AUG-12 22:00	MH			SOL104
JB14656-5	ASTM D1498-76M	29-AUG-12	SA			EH
JB14656-5	SW846 9045C,D	29-AUG-12 12:02	SA			PH
JB14656-5	SW846 3060A/7196A	30-AUG-12 13:26	JOO	29-AUG-12	MP	XCRA

Internal Sample Tracking Chronicle

AECOM, INC.

Job No: JB14656

PPG Northern Canal Borings, Jersey City, NJ
Project No: 60213772.5.A

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB14656-6	Collected: 24-AUG-12 14:21 By: CM		Received: 24-AUG-12 By: MPC			
NSB-E3-5.5-6.0						
JB14656-6	SM18 2540G	27-AUG-12 22:00	MH			SOL104
JB14656-6	ASTM D1498-76M	29-AUG-12	SA			EH
JB14656-6	SW846 9045C,D	29-AUG-12 12:02	SA			PH
JB14656-6	SW846 3060A/7196A	30-AUG-12 13:26	JOO	29-AUG-12	MP	XCRA
JB14656-7	Collected: 24-AUG-12 14:05 By: CM		Received: 24-AUG-12 By: MPC			
NSB-E2-21.0-21.5						
JB14656-7	SM18 2540G	27-AUG-12 22:00	MH			SOL104
JB14656-7	ASTM D1498-76M	29-AUG-12	SA			EH
JB14656-7	SW846 9045C,D	29-AUG-12 12:02	SA			PH
JB14656-7	SW846 3060A/7196A	30-AUG-12 13:26	JOO	29-AUG-12	MP	XCRA
JB14656-8	Collected: 24-AUG-12 13:50 By: CM		Received: 24-AUG-12 By: MPC			
NSB-E2-16.0-16.5						
JB14656-8	SM18 2540G	27-AUG-12 22:00	MH			SOL104
JB14656-8	ASTM D1498-76M	29-AUG-12	SA			EH
JB14656-8	SW846 9045C,D	29-AUG-12 12:02	SA			PH
JB14656-8	SW846 3060A/7196A	30-AUG-12 13:26	JOO	29-AUG-12	MP	XCRA
JB14656-9	Collected: 24-AUG-12 13:40 By: CM		Received: 24-AUG-12 By: MPC			
NSB-E2-12.5-13.0						
JB14656-9	SM18 2540G	27-AUG-12 22:00	MH			SOL104
JB14656-9	ASTM D1498-76M	29-AUG-12	SA			EH
JB14656-9	SW846 9045C,D	29-AUG-12 12:02	SA			PH
JB14656-9	SW846 3060A/7196A	30-AUG-12 13:26	JOO	29-AUG-12	MP	XCRA
JB14656-10	Collected: 24-AUG-12 13:15 By: CM		Received: 24-AUG-12 By: MPC			
NSB-E3-4.0-4.5						
JB14656-10	SM18 2540G	27-AUG-12 22:00	MH			SOL104
JB14656-10	ASTM D1498-76M	29-AUG-12	SA			EH
JB14656-10	SW846 9045C,D	29-AUG-12 12:02	SA			PH
JB14656-10	SW846 3060A/7196A	30-AUG-12 13:26	JOO	29-AUG-12	MP	XCRA

Internal Sample Tracking Chronicle

AECOM, INC.

Job No: JB14656

PPG Northern Canal Borings, Jersey City, NJ
Project No: 60213772.5.A

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB14656-11 Collected: 24-AUG-12 13:10 By: CM Received: 24-AUG-12 By: MPC NSB-E3-0.5-1.0						
JB14656-11	SM18 2540G	27-AUG-12 22:00	MH			SOL104
JB14656-11	ASTM D1498-76M	29-AUG-12	SA			EH
JB14656-11	SW846 9045C,D	29-AUG-12 12:02	SA			PH
JB14656-11	SW846 3060A/7196A	30-AUG-12 16:26	JOO	29-AUG-12	MP	XCRA
JB14656-12 Collected: 24-AUG-12 11:50 By: CM Received: 24-AUG-12 By: MPC NSB-E1-20.0-20.5						
JB14656-12	SM18 2540G	27-AUG-12 22:00	MH			SOL104
JB14656-12	ASTM D1498-76M	29-AUG-12	SA			EH
JB14656-12	SW846 9045C,D	29-AUG-12 12:02	SA			PH
JB14656-12	SW846 3060A/7196A	30-AUG-12 12:00	JOO	29-AUG-12	MP	XCRA
JB14656-13 Collected: 24-AUG-12 11:35 By: CM Received: 24-AUG-12 By: MPC NSB-E1-16.0-16.5						
JB14656-13	SM18 2540G	27-AUG-12 22:00	MH			SOL104
JB14656-13	ASTM D1498-76M	29-AUG-12	SA			EH
JB14656-13	SW846 9045C,D	29-AUG-12 12:02	SA			PH
JB14656-13	SW846 3060A/7196A	30-AUG-12 16:26	JOO	29-AUG-12	MP	XCRA
JB14656-14 Collected: 24-AUG-12 11:20 By: CM Received: 24-AUG-12 By: MPC NSB-E1-12.5-13.0						
JB14656-14	SM18 2540G	27-AUG-12 22:00	MH			SOL104
JB14656-14	ASTM D1498-76M	29-AUG-12	SA			EH
JB14656-14	SW846 9045C,D	29-AUG-12 13:49	SA			PH
JB14656-14	SW846 3060A/7196A	30-AUG-12 16:26	JOO	29-AUG-12	MP	XCRA
JB14656-15 Collected: 24-AUG-12 11:15 By: CM Received: 24-AUG-12 By: MPC NSB-E1-10.0-10.5						
JB14656-15	SM18 2540G	27-AUG-12 22:00	MH			SOL104
JB14656-15	ASTM D1498-76M	29-AUG-12	SA			EH
JB14656-15	SW846 9045C,D	29-AUG-12 13:49	SA			PH
JB14656-15	SW846 3060A/7196A	30-AUG-12 16:26	JOO	29-AUG-12	MP	XCRA

Internal Sample Tracking Chronicle

AECOM, INC.

Job No: JB14656

PPG Northern Canal Borings, Jersey City, NJ
Project No: 60213772.5.A

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB14656-16 Collected: 24-AUG-12 11:05 By: CM Received: 24-AUG-12 By: MPC NSB-E2-4.0-4.5						
JB14656-16	SM18 2540G	27-AUG-12 22:00	MH			SOL104
JB14656-16	ASTM D1498-76M	29-AUG-12	SA			EH
JB14656-16	SW846 9045C,D	29-AUG-12 13:49	SA			PH
JB14656-16	SW846 3060A/7196A	30-AUG-12 16:26	JOO	29-AUG-12	MP	XCRA
JB14656-17 Collected: 24-AUG-12 10:12 By: CM Received: 24-AUG-12 By: MPC NSB-E2-1.0-1.5X						
JB14656-17	SM18 2540G	27-AUG-12 22:00	MH			SOL104
JB14656-17	ASTM D1498-76M	29-AUG-12	SA			EH
JB14656-17	SW846 9045C,D	29-AUG-12 13:49	SA			PH
JB14656-17	SW846 3060A/7196A	30-AUG-12 16:26	JOO	29-AUG-12	MP	XCRA
JB14656-18 Collected: 24-AUG-12 10:10 By: CM Received: 24-AUG-12 By: MPC NSB-E2-1.0-1.5						
JB14656-18	SM18 2540G	27-AUG-12 22:00	MH			SOL104
JB14656-18	ASTM D1498-76M	29-AUG-12	SA			EH
JB14656-18	SW846 9045C,D	29-AUG-12 13:49	SA			PH
JB14656-18	SW846 3060A/7196A	30-AUG-12 16:26	JOO	29-AUG-12	MP	XCRA
JB14656-19 Collected: 24-AUG-12 09:50 By: CM Received: 24-AUG-12 By: MPC NSB-E1-4.0-4.5						
JB14656-19	SM18 2540G	27-AUG-12 22:00	MH			SOL104
JB14656-19	ASTM D1498-76M	29-AUG-12	SA			EH
JB14656-19	SW846 9045C,D	29-AUG-12 13:49	SA			PH
JB14656-19	SW846 3060A/7196A	30-AUG-12 16:26	JOO	29-AUG-12	MP	XCRA
JB14656-20 Collected: 24-AUG-12 15:30 By: CM Received: 24-AUG-12 By: MPC NSB-EB20120824						
JB14656-20	SM20 4500H B	24-AUG-12 19:57	AS			PH
JB14656-20	SW846 7196A	24-AUG-12 21:14	MM			XCR
JB14656-20	ASTM D1498-76	29-AUG-12	SA			EH

Internal Sample Tracking Chronicle

AECOM, INC.

Job No: JB14656

PPG Northern Canal Borings, Jersey City, NJ
Project No: 60213772.5.A

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB14656-21	Collected: 24-AUG-12 09:35 By: CM		Received: 24-AUG-12 By: MPC			
NSB-E1-2.0-2.5						
JB14656-21	SM18 2540G	27-AUG-12 22:00	MH			SOL104
JB14656-21	ASTM D1498-76M	29-AUG-12	SA			EH
JB14656-21	SW846 9045C,D	29-AUG-12 13:49	SA			PH
JB14656-21	SW846 3060A/7196A	30-AUG-12 16:26	JOO	29-AUG-12	MP	XCRA

Accutest Internal Chain of Custody

Job Number: JB14656
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Received: 08/24/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB14656-1.1	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14656-1.1	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14656-1.1	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14656-1.1	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage
JB14656-1.1	Secured Storage	Dave Hunkele	08/29/12 06:07	Retrieve from Storage
JB14656-1.1	Dave Hunkele	Secured Staging Area	08/29/12 06:07	Return to Storage
JB14656-1.1	Secured Staging Area	Mayur Patel	08/29/12 08:10	Retrieve from Storage
JB14656-1.1	Mayur Patel	Secured Storage	08/29/12 10:39	Return to Storage
JB14656-2.1	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14656-2.1	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14656-2.1	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14656-2.1	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage
JB14656-2.1	Secured Storage	Dave Hunkele	08/29/12 06:07	Retrieve from Storage
JB14656-2.1	Dave Hunkele	Secured Staging Area	08/29/12 06:07	Return to Storage
JB14656-2.1	Secured Staging Area	Mayur Patel	08/29/12 08:10	Retrieve from Storage
JB14656-2.1	Mayur Patel	Secured Storage	08/29/12 10:39	Return to Storage
JB14656-3.1	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14656-3.1	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14656-3.1	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14656-3.1	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage
JB14656-3.1	Secured Storage	Dave Hunkele	08/29/12 06:07	Retrieve from Storage
JB14656-3.1	Dave Hunkele	Secured Staging Area	08/29/12 06:07	Return to Storage
JB14656-3.1	Secured Staging Area	Mayur Patel	08/29/12 08:10	Retrieve from Storage
JB14656-3.1	Mayur Patel	Secured Storage	08/29/12 10:39	Return to Storage
JB14656-4.1	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14656-4.1	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14656-4.1	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14656-4.1	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage
JB14656-4.1	Secured Storage	Dave Hunkele	08/29/12 06:07	Retrieve from Storage
JB14656-4.1	Dave Hunkele	Secured Staging Area	08/29/12 06:07	Return to Storage
JB14656-4.1	Secured Staging Area	Mayur Patel	08/29/12 08:10	Retrieve from Storage
JB14656-4.1	Mayur Patel	Secured Storage	08/29/12 10:39	Return to Storage
JB14656-5.1	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14656-5.1	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14656-5.1	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14656-5.1	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage
JB14656-5.1	Secured Storage	Dave Hunkele	08/29/12 06:07	Retrieve from Storage
JB14656-5.1	Dave Hunkele	Secured Staging Area	08/29/12 06:07	Return to Storage
JB14656-5.1	Secured Staging Area	Mayur Patel	08/29/12 08:10	Retrieve from Storage
JB14656-5.1	Mayur Patel	Secured Storage	08/29/12 10:39	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB14656
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Received: 08/24/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB14656-6.1	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14656-6.1	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14656-6.1	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14656-6.1	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage
JB14656-6.1	Secured Storage	Dave Hunkele	08/29/12 06:07	Retrieve from Storage
JB14656-6.1	Dave Hunkele	Secured Staging Area	08/29/12 06:07	Return to Storage
JB14656-6.1	Secured Staging Area	Mayur Patel	08/29/12 08:10	Retrieve from Storage
JB14656-6.1	Mayur Patel	Secured Storage	08/29/12 10:39	Return to Storage
JB14656-7.1	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14656-7.1	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14656-7.1	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14656-7.1	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage
JB14656-7.1	Secured Storage	Dave Hunkele	08/29/12 06:07	Retrieve from Storage
JB14656-7.1	Dave Hunkele	Secured Staging Area	08/29/12 06:07	Return to Storage
JB14656-7.1	Secured Staging Area	Mayur Patel	08/29/12 08:10	Retrieve from Storage
JB14656-7.1	Mayur Patel	Secured Storage	08/29/12 10:39	Return to Storage
JB14656-8.1	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14656-8.1	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14656-8.1	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14656-8.1	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage
JB14656-8.1	Secured Storage	Dave Hunkele	08/29/12 06:07	Retrieve from Storage
JB14656-8.1	Dave Hunkele	Secured Staging Area	08/29/12 06:07	Return to Storage
JB14656-8.1	Secured Staging Area	Mayur Patel	08/29/12 08:10	Retrieve from Storage
JB14656-8.1	Mayur Patel	Secured Storage	08/29/12 10:39	Return to Storage
JB14656-9.1	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14656-9.1	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14656-9.1	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14656-9.1	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage
JB14656-9.1	Secured Storage	Dave Hunkele	08/29/12 06:07	Retrieve from Storage
JB14656-9.1	Dave Hunkele	Secured Staging Area	08/29/12 06:07	Return to Storage
JB14656-9.1	Secured Staging Area	Mayur Patel	08/29/12 08:10	Retrieve from Storage
JB14656-9.1	Mayur Patel	Secured Storage	08/29/12 10:39	Return to Storage
JB14656-10.1	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14656-10.1	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14656-10.1	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14656-10.1	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage
JB14656-10.1	Secured Storage	Dave Hunkele	08/29/12 06:07	Retrieve from Storage
JB14656-10.1	Dave Hunkele	Secured Staging Area	08/29/12 06:07	Return to Storage
JB14656-10.1	Secured Staging Area	Mayur Patel	08/29/12 08:10	Retrieve from Storage

Accutest Internal Chain of Custody

Job Number: JB14656
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Received: 08/24/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB14656-10.1	Mayur Patel	Secured Storage	08/29/12 10:39	Return to Storage
JB14656-11.1	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14656-11.1	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14656-11.1	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14656-11.1	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage
JB14656-11.1	Secured Storage	Dave Hunkele	08/29/12 06:07	Retrieve from Storage
JB14656-11.1	Dave Hunkele	Secured Staging Area	08/29/12 06:07	Return to Storage
JB14656-11.1	Secured Staging Area	Mayur Patel	08/29/12 08:10	Retrieve from Storage
JB14656-11.1	Mayur Patel	Secured Storage	08/29/12 10:39	Return to Storage
JB14656-12.1	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14656-12.1	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14656-12.1	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14656-12.1	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage
JB14656-12.1	Secured Storage	Dave Hunkele	08/29/12 06:07	Retrieve from Storage
JB14656-12.1	Dave Hunkele	Secured Staging Area	08/29/12 06:07	Return to Storage
JB14656-12.1	Secured Staging Area	Mayur Patel	08/29/12 08:10	Retrieve from Storage
JB14656-12.1	Mayur Patel	Secured Storage	08/29/12 10:39	Return to Storage
JB14656-13.1	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14656-13.1	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14656-13.1	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14656-13.1	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage
JB14656-13.1	Secured Storage	Dave Hunkele	08/29/12 06:07	Retrieve from Storage
JB14656-13.1	Dave Hunkele	Secured Staging Area	08/29/12 06:07	Return to Storage
JB14656-13.1	Secured Staging Area	Mayur Patel	08/29/12 08:10	Retrieve from Storage
JB14656-13.1	Mayur Patel	Secured Storage	08/29/12 10:39	Return to Storage
JB14656-14.1	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14656-14.1	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14656-14.1	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14656-14.1	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage
JB14656-14.1	Secured Storage	Dave Hunkele	08/29/12 06:07	Retrieve from Storage
JB14656-14.1	Dave Hunkele	Secured Staging Area	08/29/12 06:07	Return to Storage
JB14656-14.1	Secured Staging Area	Mayur Patel	08/29/12 08:10	Retrieve from Storage
JB14656-14.1	Mayur Patel	Secured Storage	08/29/12 10:39	Return to Storage
JB14656-15.1	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14656-15.1	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14656-15.1	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14656-15.1	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage
JB14656-15.1	Secured Storage	Dave Hunkele	08/29/12 06:07	Retrieve from Storage
JB14656-15.1	Dave Hunkele	Secured Staging Area	08/29/12 06:07	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB14656
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Received: 08/24/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB14656-15.1	Secured Staging Area	Mayur Patel	08/29/12 08:10	Retrieve from Storage
JB14656-15.1	Mayur Patel	Secured Storage	08/29/12 10:39	Return to Storage
JB14656-16.1	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14656-16.1	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14656-16.1	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14656-16.1	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage
JB14656-16.1	Secured Storage	Dave Hunkele	08/29/12 06:07	Retrieve from Storage
JB14656-16.1	Dave Hunkele	Secured Staging Area	08/29/12 06:07	Return to Storage
JB14656-16.1	Secured Staging Area	Mayur Patel	08/29/12 08:10	Retrieve from Storage
JB14656-16.1	Mayur Patel	Secured Storage	08/29/12 10:39	Return to Storage
JB14656-17.1	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14656-17.1	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14656-17.1	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14656-17.1	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage
JB14656-17.1	Secured Storage	Dave Hunkele	08/29/12 06:07	Retrieve from Storage
JB14656-17.1	Dave Hunkele	Secured Staging Area	08/29/12 06:07	Return to Storage
JB14656-17.1	Secured Staging Area	Mayur Patel	08/29/12 08:10	Retrieve from Storage
JB14656-17.1	Mayur Patel	Secured Storage	08/29/12 10:39	Return to Storage
JB14656-18.1	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14656-18.1	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14656-18.1	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14656-18.1	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage
JB14656-18.1	Secured Storage	Dave Hunkele	08/29/12 06:07	Retrieve from Storage
JB14656-18.1	Dave Hunkele	Secured Staging Area	08/29/12 06:07	Return to Storage
JB14656-18.1	Secured Staging Area	Mayur Patel	08/29/12 08:10	Retrieve from Storage
JB14656-18.1	Mayur Patel	Secured Storage	08/29/12 10:39	Return to Storage
JB14656-19.1	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14656-19.1	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14656-19.1	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14656-19.1	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage
JB14656-19.1	Secured Storage	Dave Hunkele	08/29/12 06:07	Retrieve from Storage
JB14656-19.1	Dave Hunkele	Secured Staging Area	08/29/12 06:07	Return to Storage
JB14656-19.1	Secured Staging Area	Mayur Patel	08/29/12 08:10	Retrieve from Storage
JB14656-19.1	Mayur Patel	Secured Storage	08/29/12 10:39	Return to Storage
JB14656-20.1	Secured Storage	Mehmet Temizsu	08/24/12 20:41	Retrieve from Storage
JB14656-20.1	Mehmet Temizsu	Megan Melkowitz	08/24/12 20:42	Custody Transfer
JB14656-20.1	Megan Melkowitz	Secured Storage	08/24/12 23:26	Return to Storage
JB14656-20.2	Secured Storage	Dave Hunkele	08/29/12 06:09	Retrieve from Storage

Accutest Internal Chain of Custody

Job Number: JB14656
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Received: 08/24/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB14656-20.2	Dave Hunkele	Secured Staging Area	08/29/12 06:09	Return to Storage
JB14656-20.2	Secured Staging Area	Sanjay Advani	08/29/12 08:36	Retrieve from Storage
JB14656-20.2	Sanjay Advani	Mayur Patel	08/29/12 10:08	Custody Transfer
JB14656-20.2	Mayur Patel	Secured Storage	08/29/12 10:39	Return to Storage
JB14656-21.1	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14656-21.1	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14656-21.1	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14656-21.1	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage
JB14656-21.1	Secured Storage	Dave Hunkele	08/29/12 06:07	Retrieve from Storage
JB14656-21.1	Dave Hunkele	Secured Staging Area	08/29/12 06:07	Return to Storage
JB14656-21.1	Secured Staging Area	Mayur Patel	08/29/12 08:10	Retrieve from Storage
JB14656-21.1	Mayur Patel	Sanjay Advani	08/29/12 10:43	Custody Transfer
JB14656-21.1	Sanjay Advani	Secured Storage	08/29/12 17:01	Return to Storage
JB14656-21.2	Secured Storage	Dave Hunkele	08/27/12 13:59	Retrieve from Storage
JB14656-21.2	Dave Hunkele	Secured Staging Area	08/27/12 13:59	Return to Storage
JB14656-21.2	Secured Staging Area	Minhaj Hashmi	08/27/12 15:08	Retrieve from Storage
JB14656-21.2	Minhaj Hashmi	Secured Storage	08/27/12 22:07	Return to Storage
JB14656-21.2	Secured Storage	Dave Hunkele	08/29/12 06:07	Retrieve from Storage
JB14656-21.2	Dave Hunkele	Secured Staging Area	08/29/12 06:07	Return to Storage
JB14656-21.2	Secured Staging Area	Mayur Patel	08/29/12 08:10	Retrieve from Storage
JB14656-21.2	Mayur Patel	Secured Storage	08/29/12 10:39	Return to Storage

New Jersey ACCUTEST LABORATORIES

General Chemistry

QC Data Summaries

Includes the following where applicable:

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

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: JB14656
Account: ENSRNJ - AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GN71049	0.010	0.0	mg/l	.15	0.15	100.0	90-110%
Chromium, Hexavalent	GP66863/GN71343	0.40	0.0	mg/kg	40	36.1	90.3	80-120%
Chromium, Hexavalent	GP66863/GN71343			mg/kg	843.07	759	90.1	80-120%

Associated Samples:
Batch GN71049: JB14656-20
Batch GP66863: JB14656-1, JB14656-2, JB14656-3, JB14656-4, JB14656-5, JB14656-6, JB14656-7, JB14656-8, JB14656-9, JB14656-10, JB14656-11, JB14656-12, JB14656-13, JB14656-14, JB14656-15, JB14656-16, JB14656-17, JB14656-18, JB14656-19, JB14656-21
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: JB14656
Account: ENSRNJ - AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GN71049	JB14205-45	mg/l	0.0020	0.0020	0.0	0-20%
Chromium, Hexavalent	GP66863/GN71343	JB14656-12	mg/kg	0.13 U	0.0	0.0	0-20%
Redox Potential Vs H2	GN71230	JB14656-20	mv	372	370	0.5	0-10%
Redox Potential Vs H2	GN71238	JB14656-1	mv	678	677	0.1	0-13%
Redox Potential Vs H2	GN71253	JB14656-14	mv	214	195	9.3	0-13%
pH	GN71237	JB14656-1	su	7.79	7.79	0.0	0-5%
pH	GN71252	JB14656-14	su	7.69	7.67	0.3	0-5%

Associated Samples:
Batch GN71049: JB14656-20
Batch GN71230: JB14656-20
Batch GN71237: JB14656-1, JB14656-2, JB14656-3, JB14656-4, JB14656-5, JB14656-6, JB14656-7, JB14656-8, JB14656-9, JB14656-10, JB14656-11, JB14656-12, JB14656-13
Batch GN71238: JB14656-1, JB14656-2, JB14656-3, JB14656-4, JB14656-5, JB14656-6, JB14656-7, JB14656-8, JB14656-9, JB14656-10, JB14656-11, JB14656-12, JB14656-13
Batch GN71252: JB14656-14, JB14656-15, JB14656-16, JB14656-17, JB14656-18, JB14656-19, JB14656-21
Batch GN71253: JB14656-14, JB14656-15, JB14656-16, JB14656-17, JB14656-18, JB14656-19, JB14656-21
Batch GP66863: JB14656-1, JB14656-2, JB14656-3, JB14656-4, JB14656-5, JB14656-6, JB14656-7, JB14656-8, JB14656-9, JB14656-10, JB14656-11, JB14656-12, JB14656-13, JB14656-14, JB14656-15, JB14656-16, JB14656-17, JB14656-18, JB14656-19, JB14656-21
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: JB14656
Account: ENSRNJ - AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chromium, Hexavalent	GN71049	JB14205-45	mg/l	0.0020	.15	0.15	98.7	85-115%
Chromium, Hexavalent	GP66863/GN71343	JB14656-12	mg/kg	0.13 U	45.6	40.6	89.1(a)	75-125%
Chromium, Hexavalent	GP66863/GN71343	JB14656-12	mg/kg	0.13 U	1200	977	81.4(b)	75-125%

Associated Samples:
Batch GN71049: JB14656-20
Batch GP66863: JB14656-1, JB14656-2, JB14656-3, JB14656-4, JB14656-5, JB14656-6, JB14656-7, JB14656-8, JB14656-9, JB14656-10, JB14656-11, JB14656-12, JB14656-13, JB14656-14, JB14656-15, JB14656-16, JB14656-17, JB14656-18, JB14656-19, JB14656-21
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(a) Good recovery on soluble XCR matrix spike. Low recovery (84.2%) on the post-spike.Good recovery on pH adjusted post spike (101%). Good agreement between the sample and 1:5 dilution.
(b) Good recovery on insoluble XCR matrix spike. See additional comments on soluble matrix spike recovery.

Percent Solids Raw Data Summary

Job Number: JB14656
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Sample: JB14656-1 **Analyzed:** 27-AUG-12 by MH **Method:** SM18 2540G
ClientID: NSB-E4-4.0-4.5

Wet Weight (Total)	35.69	g
Tare Weight	29.42	g
Dry Weight (Total)	35.17	g
Solids, Percent	91.7	%

Sample: JB14656-2 **Analyzed:** 27-AUG-12 by MH **Method:** SM18 2540G
ClientID: NSB-E4-1.0-1.5

Wet Weight (Total)	31.23	g
Tare Weight	25.61	g
Dry Weight (Total)	30.64	g
Solids, Percent	89.5	%

Sample: JB14656-3 **Analyzed:** 27-AUG-12 by MH **Method:** SM18 2540G
ClientID: NSB-E3-20.0-20.5

Wet Weight (Total)	34.8	g
Tare Weight	28.88	g
Dry Weight (Total)	34.19	g
Solids, Percent	89.7	%

Sample: JB14656-4 **Analyzed:** 27-AUG-12 by MH **Method:** SM18 2540G
ClientID: NSB-E3-16.0-16.5

Wet Weight (Total)	32.08	g
Tare Weight	25.56	g
Dry Weight (Total)	31.16	g
Solids, Percent	85.9	%

Sample: JB14656-5 **Analyzed:** 27-AUG-12 by MH **Method:** SM18 2540G
ClientID: NSB-E3-10.0-10.5

Wet Weight (Total)	29.37	g
Tare Weight	23.52	g
Dry Weight (Total)	27.06	g
Solids, Percent	60.5	%

Sample: JB14656-6 **Analyzed:** 27-AUG-12 by MH **Method:** SM18 2540G
ClientID: NSB-E3-5.5-6.0

Wet Weight (Total)	31.58	g
Tare Weight	26.01	g
Dry Weight (Total)	29.74	g
Solids, Percent	67	%

Percent Solids Raw Data Summary

Job Number: JB14656
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Sample: JB14656-7 **Analyzed:** 27-AUG-12 by MH **Method:** SM18 2540G
ClientID: NSB-E2-21.0-21.5

Wet Weight (Total)	31.43	g
Tare Weight	24.78	g
Dry Weight (Total)	30.64	g
Solids, Percent	88.1	%

Sample: JB14656-8 **Analyzed:** 27-AUG-12 by MH **Method:** SM18 2540G
ClientID: NSB-E2-16.0-16.5

Wet Weight (Total)	27.54	g
Tare Weight	19.52	g
Dry Weight (Total)	26.62	g
Solids, Percent	88.5	%

Sample: JB14656-9 **Analyzed:** 27-AUG-12 by MH **Method:** SM18 2540G
ClientID: NSB-E2-12.5-13.0

Wet Weight (Total)	31.89	g
Tare Weight	23.34	g
Dry Weight (Total)	29.24	g
Solids, Percent	69	%

Sample: JB14656-10 **Analyzed:** 27-AUG-12 by MH **Method:** SM18 2540G
ClientID: NSB-E3-4.0-4.5

Wet Weight (Total)	25.35	g
Tare Weight	19.17	g
Dry Weight (Total)	24.58	g
Solids, Percent	87.5	%

Sample: JB14656-11 **Analyzed:** 27-AUG-12 by MH **Method:** SM18 2540G
ClientID: NSB-E3-0.5-1.0

Wet Weight (Total)	26.83	g
Tare Weight	21.5	g
Dry Weight (Total)	26.11	g
Solids, Percent	86.5	%

Sample: JB14656-12 **Analyzed:** 27-AUG-12 by MH **Method:** SM18 2540G
ClientID: NSB-E1-20.0-20.5

Wet Weight (Total)	25	g
Tare Weight	18.64	g
Dry Weight (Total)	24.2	g
Solids, Percent	87.4	%

Percent Solids Raw Data Summary

Job Number: JB14656
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Sample: JB14656-13 **Analyzed:** 27-AUG-12 by MH **Method:** SM18 2540G
ClientID: NSB-E1-16.0-16.5

Wet Weight (Total)	33.83	g
Tare Weight	26.05	g
Dry Weight (Total)	32.84	g
Solids, Percent	87.3	%

Sample: JB14656-14 **Analyzed:** 27-AUG-12 by MH **Method:** SM18 2540G
ClientID: NSB-E1-12.5-13.0

Wet Weight (Total)	34.02	g
Tare Weight	26.43	g
Dry Weight (Total)	32.86	g
Solids, Percent	84.7	%

Sample: JB14656-15 **Analyzed:** 27-AUG-12 by MH **Method:** SM18 2540G
ClientID: NSB-E1-10.0-10.5

Wet Weight (Total)	32.97	g
Tare Weight	27.13	g
Dry Weight (Total)	32.41	g
Solids, Percent	90.4	%

Sample: JB14656-16 **Analyzed:** 27-AUG-12 by MH **Method:** SM18 2540G
ClientID: NSB-E2-4.0-4.5

Wet Weight (Total)	34.21	g
Tare Weight	27.1	g
Dry Weight (Total)	31.77	g
Solids, Percent	65.7	%

Sample: JB14656-17 **Analyzed:** 27-AUG-12 by MH **Method:** SM18 2540G
ClientID: NSB-E2-1.0-1.5X

Wet Weight (Total)	30.93	g
Tare Weight	24.97	g
Dry Weight (Total)	30.04	g
Solids, Percent	85.1	%

Sample: JB14656-18 **Analyzed:** 27-AUG-12 by MH **Method:** SM18 2540G
ClientID: NSB-E2-1.0-1.5

Wet Weight (Total)	28.26	g
Tare Weight	22.35	g
Dry Weight (Total)	27.34	g
Solids, Percent	84.4	%

Percent Solids Raw Data Summary

Job Number: JB14656
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Sample: JB14656-19 **Analyzed:** 27-AUG-12 by MH **Method:** SM18 2540G
ClientID: NSB-E1-4.0-4.5

Wet Weight (Total)	28.69	g
Tare Weight	22.28	g
Dry Weight (Total)	27.48	g
Solids, Percent	81.1	%

Sample: JB14656-21 **Analyzed:** 27-AUG-12 by MH **Method:** SM18 2540G
ClientID: NSB-E1-2.0-2.5

Wet Weight (Total)	25.57	g
Tare Weight	17.89	g
Dry Weight (Total)	24.49	g
Solids, Percent	85.9	%

New Jersey ACCUTEST LABORATORIES

General Chemistry

Raw Data

Hexavalent Chromium

Test Title: XCr
GN Batch: GN71049
Analyst: MM
Prep Date: NA
Analysis Date: 8/24/2012
Instrument ID: H

1 Method: SW846 7196A

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

Corr. Coef: 0.99986
Slope: 0.8863
Y intercept: -0.0008

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	11:10	0.000	0.0000							
	STD1	0.008	NA	NA	0.008	0.0100							
	STD2	0.044	NA	NA	0.044	0.0500							
	STD3	0.088	NA	NA	0.088	0.1000							
	STD4	0.265	NA	NA	0.265	0.3000							
	STD5	0.445	NA	NA	0.445	0.5000							
	STD6	0.696	NA	NA	0.696	0.8000							
	STD7	0.894	NA	11:05	0.894	1.0000							
	CCV	0.443	NA	20:59	0.443	0.5007	NA	NA	NA	NA	mg/l	0.001	0.010
	CCB	0.000	NA	20:59	0.000	0.0009	NA	NA	NA	NA	mg/l	0.0013	0.010
	GN71049-MB1	0.000	0.000	21:06	0.000	0.0009	50.0	50.0	1	0.001	mg/l	0.0014	0.010
	GN71049-B1	0.132	0.000	21:06	0.132	0.1498	50.0	50.0	1	0.150	mg/l	0.0014	0.010
	GN71049-S1	0.133	0.000	21:06	0.133	0.1509	50.0	50.0	1	0.151	mg/l	0.0014	0.010
	GN71049-D1	0.001	0.000	21:06	0.001	0.0020	50.0	50.0	1	0.002	mg/l	0.0014	0.010
4	JB14205-41	0.092	0.064	21:06	0.028	0.0325	50.0	50.0	1	0.032	mg/l	0.0014	0.010
5	JB14205-43	0.020	0.010	21:06	0.010	0.0121	50.0	50.0	1	0.012	mg/l	0.0014	0.010
5	JB14205-44	0.013	0.001	21:06	0.012	0.0144	50.0	50.0	1	0.014	mg/l	0.0014	0.010
5	JB14205-45	0.001	0.000	21:06	0.001	0.0020	50.0	50.0	1	0.002	mg/l	0.0014	0.010
5	JB14205-46	0.013	0.006	21:06	0.007	0.0088	50.0	50.0	1	0.009	mg/l	0.0014	0.010
5	JB14205-47	0.000	0.000	21:06	0.000	0.0009	50.0	50.0	1	0.001	mg/l	0.0014	0.010
	CCV	0.438	NA	21:06	0.438	0.4951	NA	NA	NA	NA	mg/l	0.0013	0.010
	CCB	0.000	NA	21:06	0.000	0.0009	NA	NA	NA	NA	mg/l	0.0013	0.010
5	JB14205-48	0.000	0.000	21:14	0.000	0.0009	50.0	50.0	1	0.001	mg/l	0.0014	0.010
5	JB14205-49	0.010	0.002	21:14	0.008	0.0099	50.0	50.0	1	0.010	mg/l	0.0014	0.010
5	JB14205-50	0.018	0.005	21:14	0.013	0.0155	50.0	50.0	1	0.016	mg/l	0.0014	0.010
5	JB14205-51	0.001	0.000	21:14	0.001	0.0020	50.0	50.0	1	0.002	mg/l	0.0014	0.010
12	JB14655-1	0.286	0.286	21:14	0.000	0.0009	50.0	50.0	1	0.001	mg/l	0.0014	0.010
1	~~JB14646-20~~	0.000	0.000	21:14	0.000	0.0009	50.0	50.0	1	0.001	mg/l	0.0014	0.010
	GN71049-S2	0.392	0.286	21:14	0.106	0.1205	50.0	50.0	1	0.120	mg/l	0.0014	0.010
	GN71049-D2	0.286	0.286	21:14	0.000	0.0009	50.0	50.0	1	0.001	mg/l	0.0014	0.010
	JB14655-1DILCONF	0.048	0.047	21:14	0.001	0.0020	50.0	50.0	5	0.010	mg/l	0.0070	0.050
	JB14655-1PHADJPSCO	0.433	0.291	21:14	0.142	0.1611	50.0	50.0	1	0.161	mg/l	0.0014	0.010
	CCV	0.431	NA	21:14	0.431	0.4872	NA	NA	NA	NA	mg/l	0.0013	0.010
	CCB	0.000	NA	21:14	0.000	0.0009	NA	NA	NA	NA	mg/l	0.0013	0.010
					FALSE	0.0009	50.0	50.0	1	0.001	mg/l	0.0014	0.010
					FALSE	0.0009	50.0	50.0	1	0.001	mg/l	0.0014	0.010
	JB14656-20				FALSE	0.0009	50.0	50.0	1	0.001	mg/l	0.0014	0.010
					FALSE	0.0009	50.0	50.0	1	0.001	mg/l	0.0014	0.010
	MM 8-27-12				FALSE	0.0009	50.0	50.0	1	0.001	mg/l	0.0014	0.010
					FALSE	0.0009	50.0	50.0	1	0.001	mg/l	0.0014	0.010
					FALSE	0.0009	50.0	50.0	1	0.001	mg/l	0.0014	0.010
					FALSE	0.0009	50.0	50.0	1	0.001	mg/l	0.0014	0.010
					FALSE	0.0009	50.0	50.0	1	0.001	mg/l	0.0014	0.010
					FALSE	0.0009	50.0	50.0	1	0.001	mg/l	0.0014	0.010
	CCV		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.0013	0.010
	CCB		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.0013	0.010
					FALSE	0.0009	50.0	50.0	1	0.001	mg/l	0.0014	0.010
					FALSE	0.0009	50.0	50.0	1	0.001	mg/l	0.0014	0.010
					FALSE	0.0009	50.0	50.0	1	0.001	mg/l	0.0014	0.010
					FALSE	0.0009	50.0	50.0	1	0.001	mg/l	0.0014	0.010
					FALSE	0.0009	50.0	50.0	1	0.001	mg/l	0.0014	0.010
					FALSE	0.0009	50.0	50.0	1	0.001	mg/l	0.0014	0.010
					FALSE	0.0009	50.0	50.0	1	0.001	mg/l	0.0014	0.010
					FALSE	0.0009	50.0	50.0	1	0.001	mg/l	0.0014	0.010
					FALSE	0.0009	50.0	50.0	1	0.001	mg/l	0.0014	0.010
					FALSE	0.0009	50.0	50.0	1	0.001	mg/l	0.0014	0.010
	CCV		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.0013	0.010
	CCB		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.0013	0.010
					FALSE	0.0009	50.0	50.0	1	0.001	mg/l	0.0014	0.010
					FALSE	0.0009	50.0	50.0	1	0.001	mg/l	0.0014	0.010
					FALSE	0.0009	50.0	50.0	1	0.001	mg/l	0.0014	0.010
					FALSE	0.0009	50.0	50.0	1	0.001	mg/l	0.0014	0.010
					FALSE	0.0009	50.0	50.0	1	0.001	mg/l	0.0014	0.010

ACCUTEST.

Test: **Hexavalent Chromium** MDL = 0.0013 mg/l GNBatch ID: GN71049
Product: **XCr** RDL = 0.010 mg/l Date: 8/24/20
Method: **SW846 7196A**

Digestion Batch QC Summary Units = mg/l

Method Blank ID: GN71049-MB1 Date: 8/24/20 Result: <MDL RDL: 0.010 <RDL: Yes
Spike Blank ID: GN71049-B1 Date: " Result: .15 Spike: .15 %Rec.: 100%
Duplicate ID: GN71049-D1 Samp. Result: .002 Dup. Result: .002 %RPD: 0
MS ID: GN71049-S1 Samp. Result: .002 MS Result: .151 Spike: .15 %Rec: 99.3%
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:	8/22/20	Result:	.501	TV:	.50	%Rec.:	100.2%
CCV:	"	Result:	.495	TV:	"	%Rec.:	99.0%
CCV:	"	Result:	.487	TV:	"	%Rec.:	97.4%
CCV:		Result:		TV:		%Rec.:	
CCV:		Result:		TV:		%Rec.:	
CCV:		Result:		TV:		%Rec.:	

CCB:	8/22/20	Result:	<MDL	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: _____ Date: 8/22/20 (8/24/20)

Comments: _____

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

ACCUTEST.

Test: **Hexavalent Chromium** MDL = 0.0013 mg/l GNBatch ID: GN71049
Product: **XCr** RDL = 0.010 mg/l Date: 8/24/22
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: GN71049-D1 Samp. Result: .001 Dup. Result: .001 %RPD: 0

MS ID: GN71049-S2 Samp. Result: .001 MS Result: .120 Spike: .15 %Rec: 80%

Diluted Sample ID: JB14655-1 Samp. Result: .001 Dil. Result: .010 %RPD: 163.1%

pH adj. PS ID: + Samp. Result: .001 MS Result: .161 Spike: .15 %Rec: 107.7%

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:

Initial Calibration Source:

Continuing Calibration Source:

Analyst: NM Date: 8/24/22

Comments:_____

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

ACCUTEST.

Hexavalent Chromium pH Adjustment Log

Method: SW846 7196A

pH adj. start time: 20:44 _____ _____ pH Adjust. Date: 8/24/12

pH adj. end time: 20:51 _____ _____ GN Batch ID: GN71049

Sample ID	Initial Sample Volume (ml)	Final Volume (ml)	pH after H2SO4	bkg pH after H2SO4	Spike Info	Comments
CCV	45	50	1.83		5mL 5ppm Ultra	
CCV						
CCV						
CCV						
CCB	45	50	1.79			
CCB						
CCB						
CCB						
MS JB14205-45	45	50	1.98	1.83	1mL	75 ppm Absolute
DUP	↓	↓	1.87	1.76		
SB B1			1.89	1.74	1mL	75ppm Absolute
PB MB1			1.93	1.81		
1. JB14205-41			1.95	1.89		
2. -43			1.85	1.79		
3. -44			1.80	1.71		
4. -45			1.84	1.70		
5. -46			1.95	1.85		
6. -47			1.97	1.87		
7. -48			1.91	1.89		
8. -50			1.90	1.91		
9. -49			1.80	1.71		
10. -51			1.92	1.80		
11. JB14055-1			1.94	1.83		
12. JB14056-20	↓	↓	1.83	1.75		
13.						
SD 14. JB14055-1	45	50	1.87	1.79	1mL	75 ppm Absolute
DL 15. ↓	↓	↓	1.84	1.71		
16.						
17.						
18.						
19.						
20.						
PS JB14055-1	45	50	1.83	1.85	pH 4 8.21	1mL IN 1mL 75ppm Absolute
DIL ↓	↓	↓	1.89	1.73		1:5 dilution
DIL						

Reagent Information:

Analyst: _____ Date: 8/24/12 QC Reviewer: _____ Date: _____

8/24/12

Form: GN077-01

Rev. Date:1/10/11

ACCUTEST.

Hexavalent Chromium pH Adjustment Log
Method: SW846 7196A (NJDEP mod)

pH adj. start time: 10:57
pH adj. end time: 11:03

pH Adjust. Date: 8/24/12
GN Batch ID: GN71049

Sample ID	Initial Sample Volume (ml)	Final Volume (ml)	pH after H2SO4	Comments	Spike Info.
Calibration Blank	45	50	1.91		
0.010 mg/l standard			1.85	5 ppm Absolute	0.10 ml of 5 mg/l to 50 ml FV
0.050 mg/l standard			1.96		0.50 ml of 5 mg/l to 50 mL FV
0.100 mg/l standard			1.80		1.00 ml of 5 mg/l to 50 mL FV
0.300 mg/l standard			1.88		3.00 ml of 5 mg/l to 50 mL FV
0.500 mg/l standard			1.94		5.00 ml of 5 mg/l to 50 mL FV
0.800 mg/l standard			1.98		8.00 ml of 5 mg/l to 50 mL FV
1.00 mg/l standard			1.86		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

ent Information: See attached

t: Date: 8/24/12

orm: GN078-01
ev. Date: 10/7/2010

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ACCUTEST

Reagent Information Log - XCR - water - 7196A

Reagent	Exp. Date	Reagent # or Manufacturer/Lot
Calibration Source: Hexavalent Chromium, 1000 mg/L Stock	3/19/2015	Absolute Grade Lot # 031912
Calibration Checks: Hexavalent Chromium, 1000 mg/L Stock	5/31/2017	Ultra lot # L00439
External Check	5/31/2017	Ultra lot # L00439
Spiking Solution Source	4/12/2015	Absolute Grade Lot # 041212
Diphenyl carbazide Solution	9/13/2012	GNE7-33249-XCR
Sulfuric Acid, 10%	2/4/2013	GNE8-33134XCR

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

ACCUTEST.

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

Matrix: Aqueous ○ | Method: ASTM D1498-76 | **Date:** 08/29/12

Matrix: Solid ◉ | Method: ASTM D1498-76 Mod. | **GN Batch ID:** GN71230

Temp (Deg C): 25

Quality Control Summary

Sample ID:	GN71230-D1	Results: **372.3**	Dup:	**370.3**	% RPD: **0.54%**
Ferrous-Ferric True: 675			Found	**653.4**	% Rec **96.80%**
pH 4 Quinhydrone True: 462			Found	**458.7**	% Rec **99.29%**
pH 4 Quinhydrone True: 462			Found	**447.7**	% Rec **96.90%**
pH 4 Quinhydrone True: 462			Found		% Rec
pH 7 Quinhydrone True: 285			Found	**259.1**	% Rec **90.91%**
pH 7 Quinhydrone True: 285			Found	**260.2**	% Rec **91.30%**
pH 7 Quinhydrone True: 285			Found		% Rec

Sample #:	**mv vs. Ag/AgCl Electrode**	**Corrected results (mv vs. Hydrogen electrode) *****
Ferrous-Ferric Solution	478.1	653.4
pH 4 Quinhydrone	283.3	458.7
pH 7 Quinhydrone	83.7	259.1
Dup GN71230-D1	194.9	370.3
1. JB14656-20	197	372.3
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
pH 4 Quinhydrone	272.3	447.7
pH 7 Quinhydrone	84.8	260.2
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: Redox Standard: GNE-31456-ORP Exp:9/15/12

Comments:

Analyst: S.A. Date: 08/29/12 QC Reviewer: Date:

F/N GN141.DOC

Rev. Date: 3/27/2007

ACCUTEST.

Analyst SA

Method EH

Prep Date 8/29/12

GP # GN71230 EH

Balance # 38

Sample Prep Log

Sample ID	Sample Size	Final Volume
2 JB14656-20	40mL	
2 -20Dup	40mL	

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

QC Review_____

ACCUTEST LABORATORIES

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

Product: PH, CORR
Analyst: SANJAYA
GN Batch ID: GN71237
Analysis Date: 8/29/2012
pH Meter ID: 50

Thermometer ID: 6539
Correction Factor: 0

QC Summary

Duplicate ID: GN71237-D1
Dup Result: 7.79
Sample ID: JB14656-1
% RPD: 0.00%

Sample ID	Wt./Vol. used for soilds	Uncorrected/ Corrected Temp in Deg C.	Result	Corrosivity	Read time
Buffer Check: 4		25	4.01		11:24
Buffer Check: 7		25	7.04		
Buffer Check: 10		25	10.02		
GN71237-D1		25	7.79		
JB14656-1		25	7.79		
JB14656-10		25	8.11		
JB14656-11		25	8.21		
JB14656-12		25	8.24		
JB14656-13		25	8.06		
JB14656-2		25	8.08		
JB14656-3		25	9.34		
JB14656-4		25	9.11		
JB14656-5		25	7.92		
Buffer Check: 4		25	4.03		
Buffer Check: 10		25	10.01		
JB14656-6		25	7.84		
JB14656-7		25	8.50		
JB14656-8		25	8.53		
JB14656-9		25	7.91		
Buffer Check: 7		25	7.02		
Buffer Check: 10		25	10.03		12:02
Buffer Check:					
Buffer Check:					

Comments:

Validated By: Nancy Cole
Validated Date: 8/7/2012
Document Control #: **AGN-PH CORR-AQ-01**

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ACCUTEST.

Analyst S.A

Method EH/PH

Prep Date 8/29/12

GP # GN71237-pH
GN 71238

Balance # 38

Sample Prep Log

Sample ID	Sample Size	Final Volume
SB14652-1	50.3g	added 50mL DI H2O
-1Dup	50.5g	
-2	50.6g	
-7	50.2g	
-8	50.7g	
-9	50.1g	
-14	50.6g	
SB14656-1	50.0g	
-2	50.4g	
-3	50.3g	
-4	50.6g	
-5	50.1g	
-6	50.4g	
-7	50.7g	
-8	50.2g	
-9	50.9g	
-10	50.0g	
-11	50.0g	
-12	50.4g	
-13	50.2g	
SB14656-1	50.0g	

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

QC Review

Reagent Information Log
Test Name:_____pH_____

GN 71237

Reagent	
pH 2 Buffer Solution	FICHER LOT#115910 EXP 11/30/13
pH 4 Buffer Solution	BDH LOT#2110255 EXP 9/30/13
pH 7 Buffer Solution	RICCA LOT#2111388 EXP 10/30/13
pH 10 Buffer Solution	FISCHER LOT#105427 EXP 09/30/12
pH 13 Buffer Solution	AQUA SOL. LOT#1080516 EXP 08/30/

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Form: GN087-01
Rev. Date:8/23/2012

ACCUTEST.

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

Matrix: Aqueous ○ | Method: ASTM D1498-76 | **Date:** 08/29/12

Matrix: Solid ◉ | Method: ASTM D1498-76 Mod. | **GN Batch ID:** GN71238

Temp (Deg C): 25

Quality Control Summary

Sample ID:	GN71238-D1	Results: **677.8**	Dup: **676.8**	% RPD:	**0.15%**
Ferrous-Ferric True: 675			Found **667.2**	% Rec	**98.84%**
pH 4 Quinhydrone True: 462			Found **493.5**	% Rec	**106.82%**
pH 4 Quinhydrone True: 462			Found **449.6**	% Rec	**97.32%**
pH 4 Quinhydrone True: 462			Found **480.3**	% Rec	**103.96%**
pH 7 Quinhydrone True: 285			Found **279.7**	% Rec	**98.14%**
pH 7 Quinhydrone True: 285			Found **247.7**	% Rec	**86.91%**
pH 7 Quinhydrone True: 285			Found **263.8**	% Rec	**92.56%**

Sample #:		mv vs. Ag/AgCl Electrode	Corrected results (mv vs. Hydrogen electrode) ***
Ferrous-Ferric Solution		491.9	667.2
pH 4 Quinhydrone		318	493.5
pH 7 Quinhydrone		104.2	279.7
Dup	GN71238-D1	501.5	676.8
1.	JB14656-1	502.4	677.8
2.	JB14656-10	254	429.4
3.	JB14656-11	246.7	422.1
4.	JB14656-12	200.2	375.8
5.	JB14656-13	189.7	365.1
6.	JB14656-2	212	387.5
7.	JB14656-3	140.2	315.6
8.	JB14656-4	128.5	303.9
9.	JB14656-5	-119.5	56
pH 4 Quinhydrone		274.3	449.6
pH 7 Quinhydrone		72.3	247.7
10.	JB14656-6	66.4	241.9
11.	JB14656-7	40.5	215.9
12.	JB14656-8	43.5	218.9
13.	JB14656-9	-102	73.5
14.			
15.			
16.			
17.			
18.			
19.			
pH 4 Quinhydrone		304.9	480.3
pH 7 Quinhydrone		88.3	263.8

*** 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: Redox Standard: GNE-31456-ORP Exp:9/15/12

Comments:

Analyst: S.A. Date: 08/29/12 QC Reviewer: Date:

F/N GN141.DOC

Rev. Date: 3/27/2007

ACCUTEST.

Analyst S.A

Method EH/PH

Prep Date 8/29/12

GP # GN71237-PH
GN 71238

Balance # 38

Sample Prep Log

Sample ID	Sample Size	Final Volume
SB14652-1	50.3g	added 50mL DI H2O
-1Dup	50.5g	
-2	50.6g	
-7	50.2g	
-8	50.7g	
-9	50.1g	
-14	50.6g	
SB14656-1	50.0g	
-2	50.4g	
-3	50.3g	
-4	50.6g	
-5	50.1g	
-6	50.4g	
-7	50.7g	
-8	50.2g	
-9	50.8g	
-10	50.0g	
-11	50.0g	
-12	50.4g	
-13	50.2g	
SB14656-1	50.0g	

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

QC Review_____

ACCUTEST LABORATORIES

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

Product: PH, CORR
Analyst: SANJAYA
GN Batch ID: GN71252
Analysis Date: 8/29/2012
pH Meter ID: 50

Thermometer ID: 6539
Correction Factor: 0

QC Summary

Duplicate ID: GN71252-D1
Dup Result: 7.67
Sample ID: JB14656-14
% RPD: 0.26%

Sample ID	Wt./Vol. used for soilds	Uncorrected/ Corrected Temp in Deg C.	Result	Corrosivity	Read time
Buffer Check: 4		25	4.01		13:07
Buffer Check: 7		25	6.99		
Buffer Check: 10		25	9.95		
GN71252-D1		25	7.67		
JB14105-2		25	2.24		
JB14105-4		25	1.87		
JB14105-6		25	1.79		
JB14656-14		25	7.69		
JB14656-15		25	7.41		
JB14656-16		25	7.45		
JB14656-17		25	8.17		
JB14656-18		25	8.10		
JB14656-19		25	7.94		
Buffer Check: 2		25	2.02		
Buffer Check: 10		25	10.00		
JB14656-21		25	8.29		
JB14785-1		25	6.76		
JB14785-2		25	7.81		
JB14785-6		25	7.72		
Buffer Check: 7		25	7.04		
Buffer Check: 10		25	10.03		13:49
Buffer Check:					
Buffer Check:					

Comments:

Validated By: Nancy Cole
Validated Date: 8/7/2012
Document Control #: **AGN-PH CORR-AQ-01**

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ACCUTEST

Analyst SA

Method EH/PH

Prep Date 8/29/12

GP # GN 71252-PH
GN 71253-EH

Balance # 38

Sample Prep Log

Sample ID	Sample Size	Final Volume
SB14658-14	50.7g	added 50mL DI H2O
-14MS	50.3g	
-15	50.2g	
-16	50.0g	
-17	50.7g	
-18	50.2g	
-19	50.1g	
-21	50.2g	
SB14105-2	30.8g	added 30mL DI H2O
-4	30.2g	↓
-6	30.0g	↓
SB14785-1	50.8g	added 50mL DI H2O
-2	50.6g	
-6	50.9g	↓

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

QC Review_____

Reagent Information Log
Test Name:_____pH_____

GN71252

Reagent	
pH 2 Buffer Solution	FICHER LOT#115910 EXP 11/30/13
pH 4 Buffer Solution	BDH LOT#2110255 EXP 9/30/13
pH 7 Buffer Solution	RICCA LOT#2111388 EXP 10/30/13
pH 10 Buffer Solution	FISCHER LOT#105427 EXP 09/30/12
pH 13 Buffer Solution	AQUA SOL. LOT#1080516 EXP 08/30/

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Form: GN087-01
Rev. Date:8/23/2012

ACCUTEST.

Test: Redox Potential
Matrix: Aqueous ○
Matrix: Solid ◉

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

Analyst: SANJAYA
Date: 08/29/12
GN Batch ID: GN71253
Temp (Deg C): 25

Quality Control Summary

Sample ID:	GN71253-D1	Results:	**214.1**	Dup:	**195.1**
Ferrous-Ferric True: 675				Found	**617.4**
pH 4 Quinhydrone True: 462				Found	**468.7**
pH 4 Quinhydrone True: 462				Found	**443**
pH 4 Quinhydrone True: 462				Found	**442.2**
pH 7 Quinhydrone True: 285				Found	**260.2**
pH 7 Quinhydrone True: 285				Found	**269.6**
pH 7 Quinhydrone True: 285				Found	**269.1**

	% RPD:	**9.29%**
	% Rec	**91.47%**
	% Rec	**101.45%**
	% Rec	**95.89%**
	% Rec	**95.71%**
	% Rec	**91.30%**
	% Rec	**94.60%**
	% Rec	**94.42%**

Sample #:	mv vs. Ag/AgCl Electrode	Corrected results (mv vs. Hydrogen electrode) ***
Ferrous-Ferric Solution	442.1	617.4
pH 4 Quinhydrone	293.3	468.7
pH 7 Quinhydrone	84.7	260.2
Dup GN71253-D1	19.4	195.1
1. JB14656-14	38.8	214.1
2. JB14656-15	-16	159.4
3. JB14656-16	116.6	291.9
4. JB14656-17	122.3	297.7
5. JB14656-18	129	304.5
6. JB14656-19	133.1	308.6
7. JB14656-21	129.5	304.9
8. JB14785-1	123.6	298.9
9. JB14785-2	95.2	270.7
pH 4 Quinhydrone	267.7	443
pH 7 Quinhydrone	94.2	269.6
10. JB14785-6	50.9	226.4
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.		
19.		
pH 4 Quinhydrone	266.9	442.2
pH 7 Quinhydrone	93.7	269.1

*** 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: Redox Standard: GNE-31456-ORP Exp:9/15/12

Comments:

Analyst: S.A. Date: 08/29/12 QC Reviewer: Date:

F/N GN141.DOC
Rev. Date: 3/27/2007

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ACCUTEST

Analyst SA

Method EH/PH

Prep Date 8/29/12

Balance # 38

GP # GN 71252-PH
GN 71253-EH

Sample Prep Log

Sample ID	Sample Size	Final Volume
SB14656-14	50.7g	added 50mL DI H2O
-14MS	50.3g	
-15	50.2g	
-16	50.0g	
-17	50.7g	
-18	50.2g	
-19	50.1g	
-21	50.2g	
SB14105-2	30.8g	added 30mL DI H2O
-4	30.2g	↓
-6	30.0g	
SB14785-1	50.8g	added 50mL DI H2O
-2	50.6g	
-6	50.9g	↓

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

QC Review

Hexavalent Chromium

Test Title:	XCRA
GN Batch:	GN71343
Analyst:	JO
Prep Date:	8/29/2012
Analysis Date:	8/30/2012
Instrument ID:	H

Method: SW846 3060A, 7196A

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

Corr. Coef: 0.99973

Slope: 0.9042

Y intercept: 0.0017

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	10:20	0.000	0.0000							
	STD 1	0.011	NA	NA	0.011	0.0100							
	STD 2	0.045	NA	NA	0.045	0.0500							
	STD 3	0.094	NA	NA	0.094	0.1000							
	STD 4	0.273	NA	NA	0.273	0.3000							
	STD 5	0.450	NA	NA	0.450	0.5000							
	STD 6	0.742	NA	NA	0.742	0.8000							
	STD 7	0.894	NA	10:29	0.894	1.0000							
	CCV	0.430	NA	11:40	0.430	0.4737	NA	NA	NA	NA	mg/l	0.003	0.010
	CCB	0.000	NA	11:41	0.000	-0.0019	NA	NA	NA	NA	mg/l	0.003	0.010
	GP66863-MB1	0.000	0.000	12:00	0.000	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
	GP66863-B1	0.818	0.000	12:00	0.818	0.9028	100.0	2.5000	1	36.111	mg/kg	0.117	0.400
	GP66863-S1	0.813	0.006	12:00	0.807	0.8906	100.0	2.5100	1	35.483	mg/kg	0.117	0.398
	GP66863-D1	0.004	0.009	12:00	0.000	-0.0019	100.0	2.5400	1	-0.074	mg/kg	0.115	0.394
	JB14656-12	0.003	0.000	12:00	0.003	0.0014	100.0	2.5500	1	0.057	mg/kg	0.115	0.392
	GP66863-B2	OVR			FALSE	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
	GP66863-S2	OVR			FALSE	-0.0019	100.0	2.5600	1	-0.073	mg/kg	0.114	0.391
	GP66863-B2	0.345	0.000	12:00	0.345	0.3797	100.0	2.5000	50	759.342	mg/kg	5.860	20.000
	GP66863-S2	0.397	0.000	12:00	0.397	0.4372	100.0	2.5600	50	853.866	mg/kg	5.723	19.531
	JB14656-1	0.026	0.002	12:00	0.024	0.0247	100.0	2.4800	1	0.995	mg/kg	0.118	0.403
	CCV	0.432	NA	12:00	0.432	0.4759	NA	NA	NA	NA	mg/l	0.003	0.010
	CCB	0.000	NA	12:01	0.000	-0.0019	NA	NA	NA	NA	mg/l	0.003	0.010
					FALSE	-0.0019	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	-0.0019	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	-0.0019	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	-0.0019	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	-0.0019	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	-0.0019	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	-0.0019	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	-0.0019	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	-0.0019	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	-0.0019	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
	CCV	0.441	NA	13:12	0.441	0.4858	NA	NA	NA	NA	mg/l	0.003	0.010
	CCB	0.000	NA	13:13	0.000	-0.0019	NA	NA	NA	NA	mg/l	0.003	0.010
	GP66863-PS1CONF	0.391	0.000	13:26	0.391	0.4305	100.0	2.5500	2	33.768	mg/kg	0.230	0.784
	JB14656-2	0.030	0.001	13:26	0.029	0.0302	100.0	2.5000	1	1.208	mg/kg	0.117	0.400
	JB14656-3	0.053	0.000	13:26	0.053	0.0567	100.0	2.4600	1	2.306	mg/kg	0.119	0.407
	JB14656-4	0.000	0.000	13:26	0.000	-0.0019	100.0	2.5400	1	-0.074	mg/kg	0.115	0.394
	JB14656-5	0.000	0.000	13:26	0.000	-0.0019	100.0	2.5300	1	-0.074	mg/kg	0.116	0.395
	JB14656-6	0.021	0.018	13:26	0.003	0.0014	100.0	2.5200	1	0.057	mg/kg	0.116	0.397
	JB14656-7	0.000	0.000	13:26	0.000	-0.0019	100.0	2.5400	1	-0.074	mg/kg	0.115	0.394
	JB14656-8	0.000	0.000	13:26	0.000	-0.0019	100.0	2.5300	1	-0.074	mg/kg	0.116	0.395
	JB14656-9	0.009	0.000	13:26	0.009	0.0081	100.0	2.5600	1	0.316	mg/kg	0.114	0.391
	JB14656-10	0.038	0.018	13:26	0.020	0.0202	100.0	2.5100	1	0.807	mg/kg	0.117	0.398
	CCV	0.441	NA	13:26	0.441	0.4858	NA	NA	NA	NA	mg/l	0.003	0.010
	CCB	0.000	NA	13:27	0.000	-0.0019	NA	NA	NA	NA	mg/l	0.003	0.010
					FALSE	-0.0019	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	-0.0019	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	-0.0019	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	-0.0019	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	-0.0019	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	-0.0019	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	-0.0019	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	-0.0019	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	-0.0019	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	-0.0019	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
	CCV	0.435	NA	16:10	0.435	0.4792	NA	NA	NA	NA	mg/l	0.003	0.010
	CCB	0.000	NA	16:11	0.000	-0.0019	NA	NA	NA	NA	mg/l	0.003	0.010
	JB14656-11	0.040	0.014	16:26	0.026	0.0269	100.0	2.5300	1	1.062	mg/kg	0.116	0.395
	JB14656-13	0.006	0.002	16:26	0.004	0.0025	100.0	2.5200	1	0.101	mg/kg	0.116	0.397
	JB14656-14	0.055	0.050	16:26	0.005	0.0037	100.0	2.5600	1	0.143	mg/kg	0.114	0.391
	JB14656-15	0.040	0.037	16:26	0.003	0.0014	100.0	2.5200	1	0.057	mg/kg	0.116	0.397
	JB14656-16	0.089	0.015	16:26	0.074	0.0800	100.0	2.5600	1	3.124	mg/kg	0.114	0.391

8-31-12

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	JB14656-17	0.112	0.019	16:26	0.093	0.1010	100.0	2.5600	1	3.944	mg/kg	0.114	0.391
	JB14656-18	0.010	0.025	16:26	0.000	-0.0019	100.0	2.5300	1	-0.074	mg/kg	0.116	0.395
	JB14656-19	0.211	0.036	16:26	0.175	0.1917	100.0	2.5700	1	7.458	mg/kg	0.114	0.389
	JB14656-21	0.026	0.000	16:26	0.026	0.0269	100.0	2.4500	1	1.097	mg/kg	0.120	0.408
					FALSE	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
	CCV	0.441	NA	16:26	0.441	0.4858	NA	NA	NA	NA	mg/l	0.003	0.010
	CCB	0.000	NA	16:27	0.000	-0.0019	NA	NA	NA	NA	mg/l	0.003	0.010
					FALSE	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
					FALSE	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
					FALSE	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
					FALSE	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
					FALSE	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
					FALSE	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
					FALSE	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
					FALSE	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
					FALSE	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
					FALSE	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
	CCV	0.445	NA	17:25	0.445	0.4903	NA	NA	NA	NA	mg/l	0.003	0.010
	CCB	0.000	NA	17:26	0.000	-0.0019	NA	NA	NA	NA	mg/l	0.003	0.010
	GP66863-PSCONF	0.468	0.000	0:00	0.468	0.5157	100.0	2.5100	2	41.092	mg/kg	0.233	0.797
	JB14656-12	0.000	0.000	0:00	0.000	-0.0019	100.0	2.5100	5	-0.374	mg/kg	0.584	1.992
				17:32	FALSE	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
					FALSE	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
					FALSE	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
					FALSE	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
				AY 8.31.11	FALSE	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
					FALSE	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
					FALSE	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
				17:32	FALSE	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
	CCV	0.468	NA	0:00	0.468	0.5157	NA	NA	NA	NA	mg/l	0.003	0.010
	CCB	0.000	NA	17:32	0.000	-0.0019	NA	NA	NA	NA	mg/l	0.003	0.010
					FALSE	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
					FALSE	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
					FALSE	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
					FALSE	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
					FALSE	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
					FALSE	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
					FALSE	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
					FALSE	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
					FALSE	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
					FALSE	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
	CCV		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.003	0.010
	CCB		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.003	0.010
					FALSE	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
					FALSE	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
					FALSE	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
					FALSE	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
					FALSE	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
					FALSE	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
					FALSE	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
					FALSE	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
					FALSE	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
					FALSE	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
	CCV		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.003	0.010
	CCB		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.003	0.010
					FALSE	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
					FALSE	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
					FALSE	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
					FALSE	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
					FALSE	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
					FALSE	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
					FALSE	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
					FALSE	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
					FALSE	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
					FALSE	-0.0019	100.0	2.5000	1	-0.075	mg/kg	0.117	0.400
	CCV		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.005	0.010
	CCB		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.005	0.010

revised 4/25/11

Comments:

7.7

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ACCUTEST.

Test: **Hexavalent Chromium** MDL = 0.117 mg/kg GNBatch ID: GN71343
Product: **XCr** RDL = 0.40 mg/kg Date: 8/30/12
Method: **SW846 3060A/7196A**

Digestion Batch QC Summary Units = mg/kg

Method Blank ID: MB1 Date: 8/29/12 Result: <MDL RDL: 0.010 <RDL: YES
Sol. Spike Blank ID: B1 Date: Result: 36.11 Spike: 40 %Rec.: 90.3
Insol. Spike Blank ID: B2 Date: Result: 759.34 Spike: 843.07 %Rec.: 90.1
Duplicate ID: JB14656-12 Samp. Result: <MDL Dup. Result: <MDL %RPD: 0
Sol. MS ID: S1 Samp. Result: <MDL MS Result: 35.48 Spike: 39.84 %Rec: 89.1
Insol. MS ID: S2 Samp. Result: <MDL MS Result: 853.87 Spike: 1049.56 %Rec: 81.4
Post Spike ID: PS1 Samp. Result: <MDL PS Result: 33.77 Spike: 40.09 %Rec: 84.2
Diluted Sample ID: ~~NA~~ JB14656-12 Samp. Result: ~~NA~~ <RDL Dil. Result: ~~NA~~ <RDL %RPD: ~~NA~~ 0%
pH adj. PS ID: NA Samp. Result: ~~NA~~ <RDL MS Result: ~~NA~~ Spike: ~~NA~~ %Rec: ~~NA~~
41.09. 40.73 100.9%

Analysis Batch QC Summary Units = mg/l

CCV: 8/30/12	Result: .4737	TV: 0.500	%Rec.: 94.7		
CCV:	Result: .4759	TV: 0.500	%Rec.: 95.2		
CCV:	Result: .4858	TV: 0.500	%Rec.: 97.2		
CCV:	Result: .4858	TV: 0.500	%Rec.: 97.2		
CCV:	Result: .4792	TV: 0.500	%Rec.: 95.8		
CCV:	Result: .4858	TV: 0.500	%Rec.: 97.2		
CCV:	Result: .4903	TV: 0.500	%Rec.: 98.1		
CCV:	Result: .5157	TV: 0.500	%Rec.: 103.1		
CCV:	Result:	TV: 0.500	%Rec.:		
CCB: 8/30/12	Result: <RDL	RDL: 0.010	<RDL: Y		
CCB:	Result: <RDL	RDL: 0.010	<RDL: Y		
CCB:	Result: <RDL	RDL: 0.010	<RDL: Y		
CCB:	Result: <RDL	RDL: 0.010	<RDL: Y		
CCB:	Result: <RDL	RDL: 0.010	<RDL: Y		
CCB:	Result: <RDL	RDL: 0.010	<RDL: Y		
CCB:	Result: <RDL	RDL: 0.010	<RDL: Y		
CCB:	Result: <RDL	RDL: 0.010	<RDL: Y		
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: Date: 8/30/12

Comments:

Form: GN066-01
Rev. Date: 4/25/11

ACCUTEST LABS
DAYTON, NJ

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

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?
JB14656-12	2.55	1.1475	0	0.459	yes	0	2	0.23	0.23	0.511	40.087	efault (40 mg/kg) spike
PHADJPS	2.51	1.1295	0	0.452	yes	0	2	0.226	0.23	0.511	40.726	efault (40 mg/kg) spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike

3060A/7196A INSOLUBLE SPIKE CALCULATION

Weight of PbCrO4	Weight of Sample	Amount Spiked
0.0131	2.5	843.069
0.0167	2.56	1049.563
		#VALUE!
		#VALUE!
		#VALUE!
		#VALUE!
		#VALUE!
		#VALUE!
		#VALUE!

(7- 8) (1.5 - 2.5)

GN71343

ACCUTEST

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

	③	①	②	①
pH adj. start time:	15:02	10:36	12:25	11:10
pH adj. end time:	15:57	10:59	13:00	11:30

pH Meter ID: PH-51
Digestion Date: 8/29/12
pH adj. Date: 8/30/12.
GN Batch ID:

SP 66863 Sample ID	Sample Weight in g	pH after HNO3	Final Volume (ml)	pH after H2SO4	bkg pH after H2SO4	Spike Amounts	Spike Solution	Digestate Description/Comments
CCV		7.1207	100	1.772	—	5.0ml	10 ppm	ul fm
CCV		7.072	100	2.004	—	↓	↓	
CCV		7.112	100	1.821	—			
CCV								
CCB								
CCB		7.204	100	~~2.00~~ 8/30/12	—			
CCB		7.1402	100	~~7.14~~ 1.516				
CCB		7.245		2.050	—			
MS (Sol) JB14656-12	2.51	7.207		1.668	1.762	1.0ml	100 ppm	AsSol
MS (Insol) (S2) -12	2.56	7.063		1.731	2.001	0.0167	PbCrO4	
DUP -12	2.54	7.237		1.521	1.991			
SB (Sol) (B1)	2.56	7.022		1.794	1.870	1.0ml	100 ppm	AsSol
SB (Insol) (B2)	↓	7.026		1.582	1.921	0.0131	PbCrO4	
MB		7.055		1.576	1.578			
1 JB14656-12	2.55	7.292		2.315	1.667			Clear
2 -1	2.48	7.065		2.202	1.822			light yellow
3 -2	2.50	7.860		2.002	1.992			↓
4 -3	2.46	7.274		2.014	1.721			
5 -4	2.54	7.113		2.073	2.001			Clear
6 -5	2.53	7.023		1.923	1.722			Clear
7 -6	2.52	7.181		1.844	1.691			yellow
8 -7	2.54	7.072		2.047	1.770			Clear
9 -8	2.53	7.175		2.004	1.800			Clear
10 -9	2.56	7.761		2.015	1.921			light Brown
11 -10	2.51	7.881		1.793	1.990			yellow
12 -11	2.53	7.716		1.890	1.681			light yellow
13 -13	2.52	7.635		2.191	1.892			light Brown
14 -14	2.56	7.408		1.731	1.622			Clear
15 -15	2.52	7.116		1.650	2.090			Brown
16 -16	2.56	7.581		2.009	1.944			↓
17 -17	2.56	7.379		1.936	1.762			light Brown
18 -18	2.53	7.015		1.939	1.808			↓
19 -19	2.57	7.433		1.740	1.648			
20 -21	2.45	7.492	↓	2.214	2.004			light yellow
SB (Insol) B2	2.50	7.026		1.990	1.577			dilution (1:50)
MS (Insol.) S2	2.56	7.063	↓	1.872	1.772			dilution (1:50)
PS JB14656-12	2.55	7.292	↓	1.807	1.588	0.23ml	100ppm	1:2 Dilution
pH adjusted PS	NA	NA	NA	NA	NA	NA	NA	NA
1:5 dil.	NA	NA	NA	NA	NA	NA	NA	NA
JB14656-12	2.51							

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: [signature] 8/30/12.

Anayst: Janedondo
Date: 8/29/12.

Form: GN-067

GN 71343

ACCUTEST

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

pH Meter ID: pH 51
Digestion Date: 8/29/12
pH adj. Date: 8/30/12
GN Batch ID:

pH adj. start time: 17:08
pH adj. end time: 17:15

Sample ID	Sample Weight in g	pH after HNO3	Final Volume (ml)	pH after H2SO4	bkg pH after H2SO4	Spike Amounts	Spike Solution	Digestate Description/Comments
CCV								
CCV								
CCV								
CCV								
CCB								
CCB								
CCB								
CCB								
MS (Sol)								
MS (Insol.)								
DUP								
SB (Sol)								
SB (Insol)								
MB								
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
SB (Insol)								dilution
MS (Insol.)								dilution
PS								
pH adjusted PS	2.51	7.301	100	1.723	2.010	0.23ml	100ppm	pH Adj to 8.250
1:5 dil. JB14656-12	2.51	7.301	↓	1.902	1.823			1:5 Dil

VGM

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: Jarceda

Anayst: Jarcedo
Date: 8/29/30

Form: GN-067

ACCUTEST.

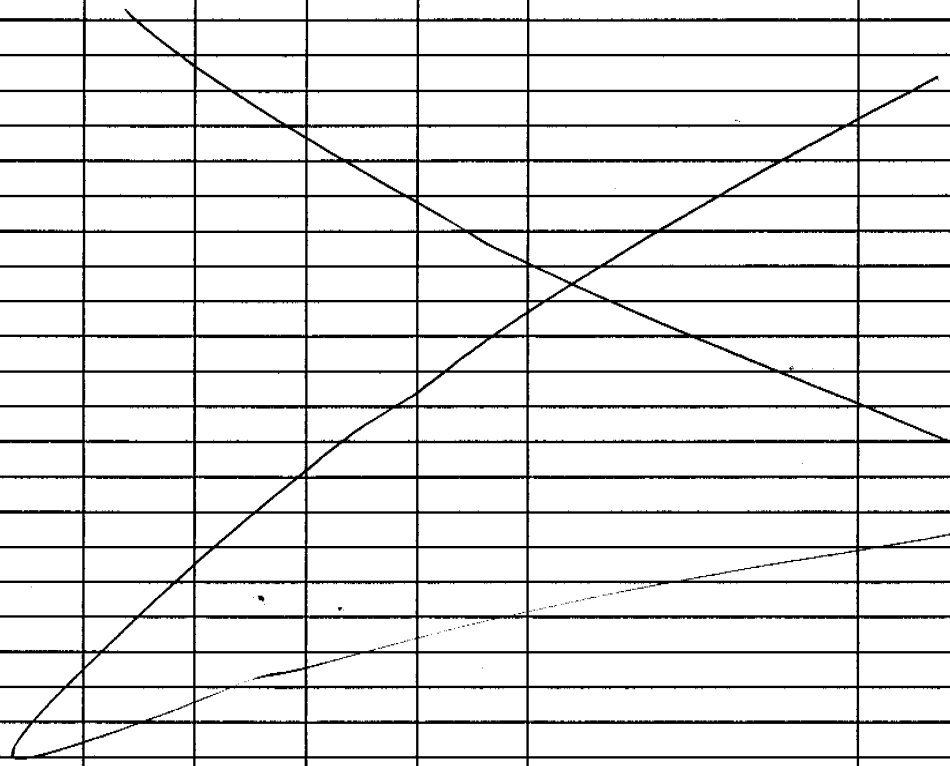
GN71343

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

pH adj. start time: 9:27 9:42
pH adj. end time: 9:35 9:47

pH adjustment Date: 8-30-2012
GN Batch ID:

Sample ID	Sample Weight in g	pH after HNO3	Final Volume (ml)	pH after H2SO4	Comments	Spike Info.
Calibration Blank	NA	7.91	100	1.98	0	
0.010 mg/l standard	NA	7.52		2.14	10 ppm Abs 0.470	0.10 ml of 10 mg/l
0.050 mg/l standard	NA	7.78		2.07		0.50 ml of 10 mg/l
0.100 mg/l standard	NA	7.48		2.08		1.00 ml of 10 mg/l
0.300 mg/l standard	NA	7.74		2.11		3.00 ml of 10 mg/l
0.500 mg/l standard	NA	7.81		1.92		5.00 ml of 10 mg/l
0.800 mg/l standard	NA	7.61		1.98		8.00 ml of 10 mg/l
1.00 mg/l standard	NA	7.42	↓	2.01	↓	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: RZ
Date: 8-30-2012

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

GN71343

ACCUTEST.

HEXAVALENT CHROMIUM STANDARD PREPARATION LOG

Product: XCR

GN or GP Number: _____

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 # 041215	1000 ppm	1.0 ml	DI	100 mls	10 mg/l	4/12/2015	RZ	3-30-12
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	3-31-12	RZ	3-30-12
.050 ppm			0.5 ppm	DI		0.05 mg/l			
.10 ppm			1.0 ppm	DI		0.10 mg/l			
.30 ppm			3.0 ppm	DI		0.30 mg/l			
.50 ppm			5.0 ppm	DI		0.50 mg/l			
.80 ppm			8.0 ppm	DI		0.80 mg/l			
1.00 ppm			10.0 ppm	DI		1.0 mg/l			

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

ACCUTEST.

GN/GP Batch ID: GN71343

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

Reagent	Exp. Date	Reagent # or Manufacturer/Lot
Calibration Source: Hexavalent Chromium, 1000 mg/L Stock	4/12/2015	Absolute Grade Lot # 041212
Calibration Checks: Hexavalent Chromium, 1000 mg/L Stock	5/31/2017	Ultra lot # L00439
Spiking Solution Source	4/12/2015	Absolute Grade Lot # 041212
Lead Chromate (Insoluble Hexavalent Chromium Spike)	7/26/2017	Sigma Aldrich Lot # BCBG0578V
Magnesium Chloride, Anhydrous	7/11/2016	Alfa Aesar Lot # B17X012
1N NaOH	~~NA~~ 9/11/12	~~NA~~ GNE8-33405-TCLP
Digestion Solution	9/24/12	GNE8-33383-XCR
Phosphate Buffer Solution	2/14/13	GNE8-33273-XCRA
5.0 M Nitric Acid	1/23/12	GNE8-33359-XCRA
Diphenylcarbazide Solution	9/28/12	GNE8-33407-XCR
Sulfuric Acid, 10%	1/17/13	GNE7-32927-XCR
Filter	NA	F2 EA198111
Teflon Chips	NA	919120

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

ACCUTEST

GN71343

HEXAVALENT CHROMIUM TEMPERATURE AND TIME DIGESTON LOG - METHOD 3060A

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

Thermometer ID: 381/397/182/175
Thermometer Correction factor: 01-2/2/10

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
	Starting Time	9:30	90/90	92/90	91/93	
	Time 1	10:00	90/90	92/90	91/93	
	Ending Time	10:30	90/90	92/90	91/93	
	Starting Time	10:40	90/90	92/90	91/93	96/90
	Time 1	11:10	90/90	92/90	91/93	90/90
	Ending Time	11:40	90/90	92/90	91/93	90/90
	Starting Time	11:50	90/90	92/90	91/93	
	Time 1	12:20	90/90	92/90	91/93	
	Ending Time	12:50	90/90	92/90	91/93	

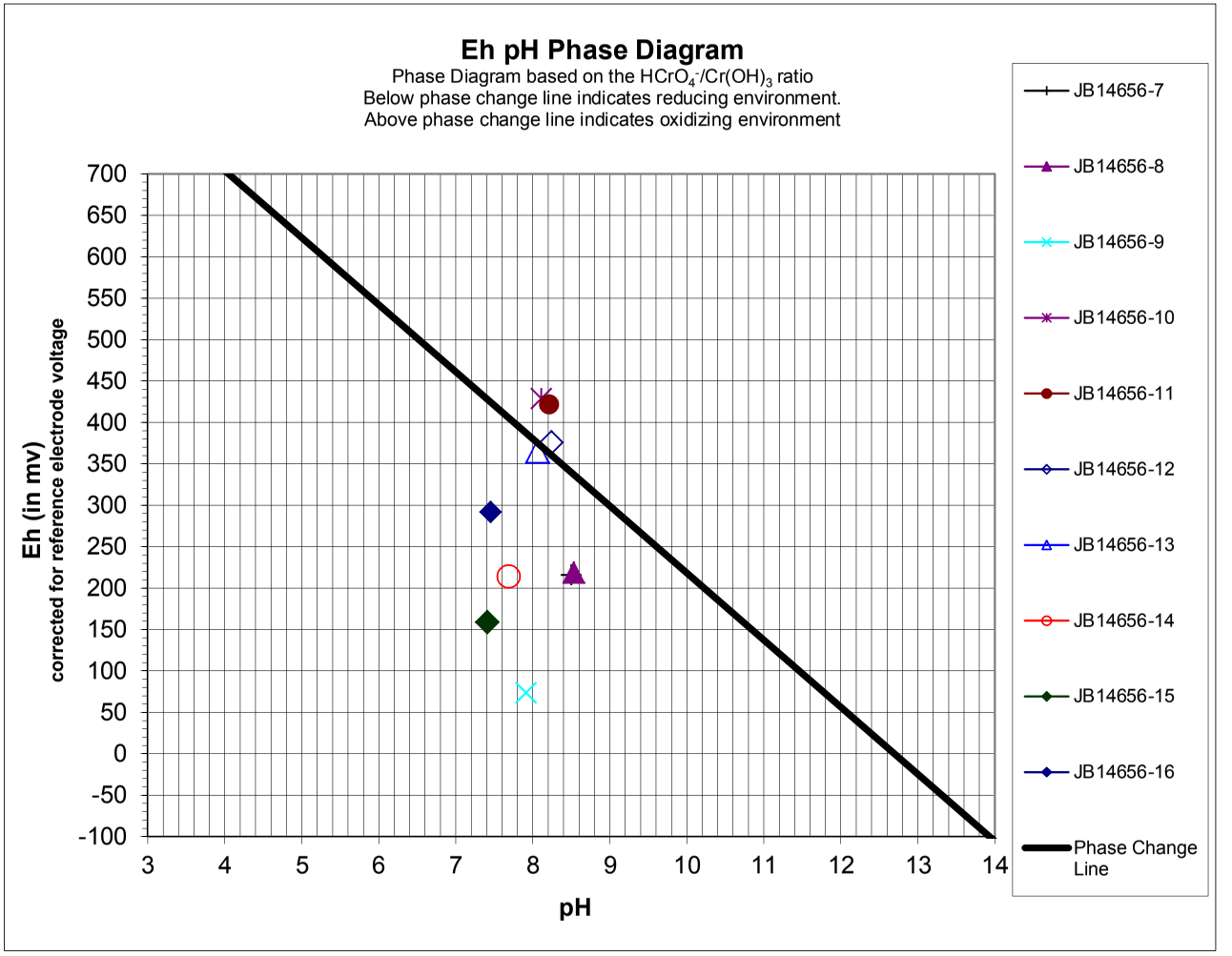
Analyst: MP
2nd Analyst Check: [illegible]
Date: 8/29/14

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

ACCUTEST

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

Sample Number	pH	eH (mv)
JB14656-7	8.5	216
JB14656-8	8.53	219
JB14656-9	7.91	73.5
JB14656-10	8.11	429
JB14656-11	8.21	422
JB14656-12	8.24	376
JB14656-13	8.06	365
JB14656-14	7.69	214
JB14656-15	7.41	159
JB14656-16	7.45	292



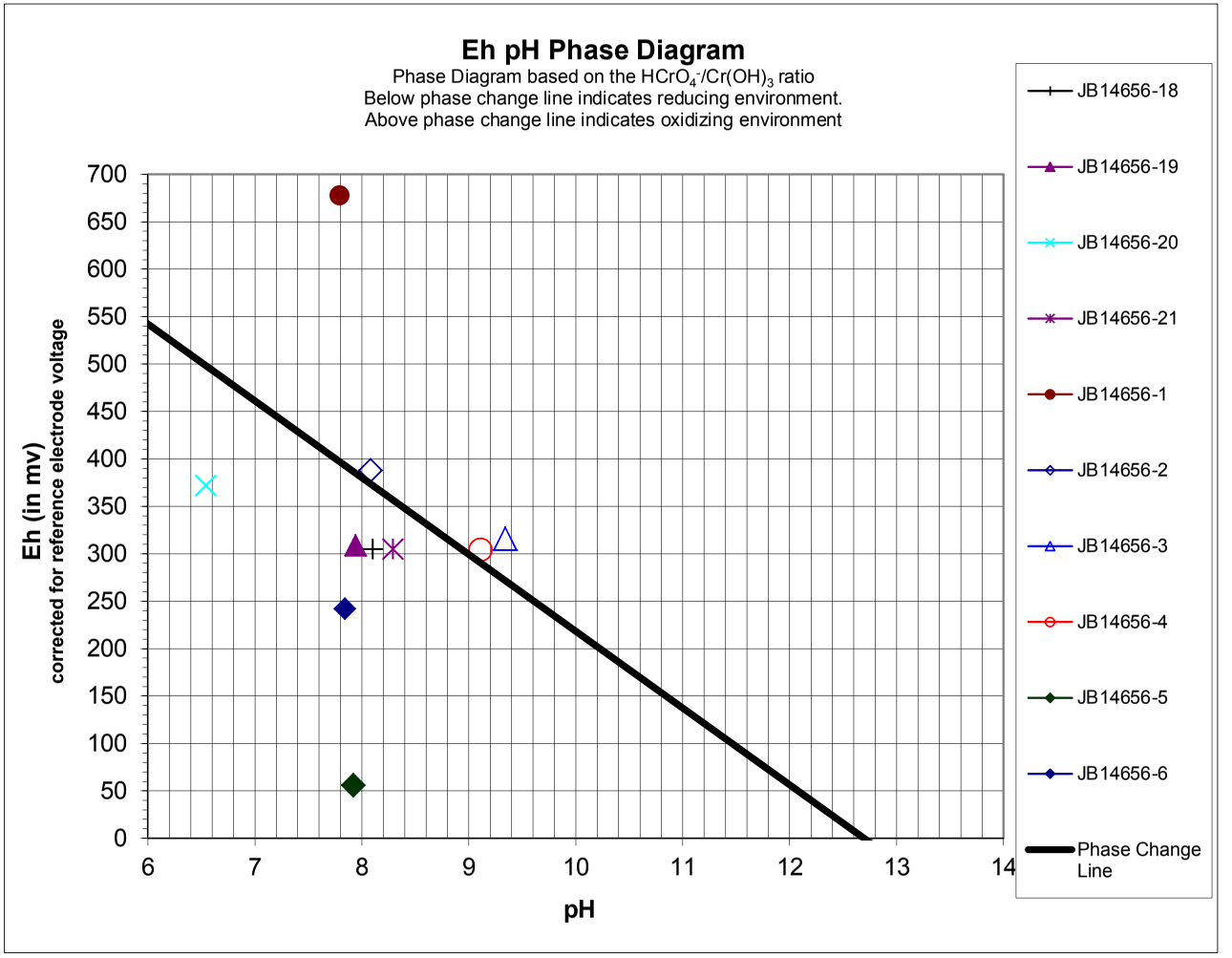
Note that the Eh values plotted on this diagram are corrected for the reference electrode voltage and the values shown are versus the standard hydrogen electrode

Reference for graph: SW846 method 3060A

ACCUTEST

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

Sample Number	pH	eH (mv)
JB14656-18	8.1	305
JB14656-19	7.94	309
JB14656-20	6.54	372
JB14656-21	8.29	305
JB14656-1	7.79	678
JB14656-2	8.08	388
JB14656-3	9.34	316
JB14656-4	9.11	304
JB14656-5	7.92	56
JB14656-6	7.84	242



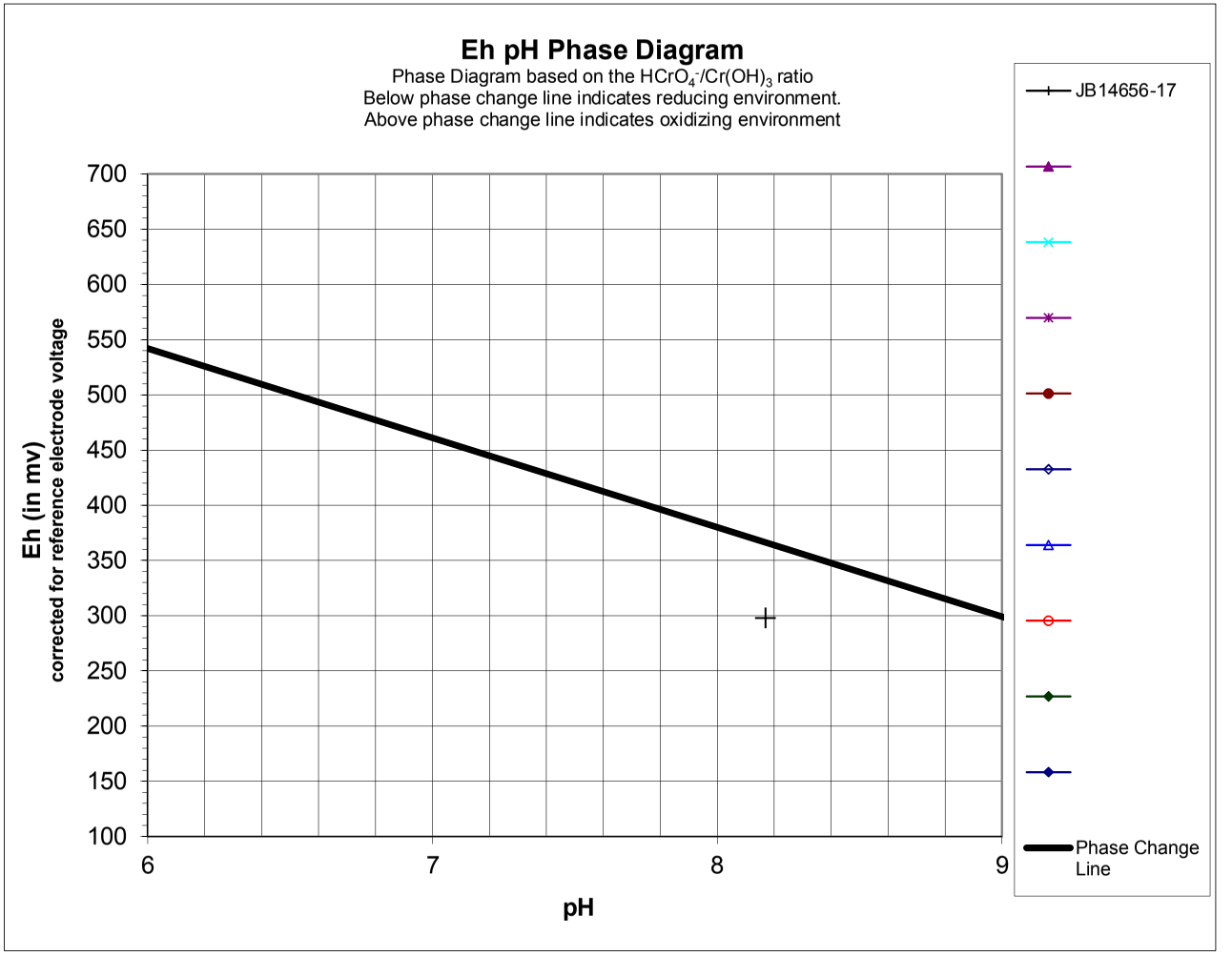
Note that the Eh values plotted on this diagram are corrected for the reference electrode voltage and the values shown are versus the standard hydrogen electrode

Reference for graph: SW846 method 3060A

ACCUTEST

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

Sample Number	pH	eH (mv)
JB14656-17	8.17	298



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

AECOM
250 Apollo Drive
Chelmsford, MA 01824

978-905-2100 tel
978-905-2101 fax

Data Validation Report

Project:	PPG – Garfield Avenue Supplemental Remedial Investigation (GARIS) Northern Canal Borings
Laboratory:	Accutest, Dayton, NJ
Laboratory Job No.:	JB14769
Analysis/Method:	Hexavalent Chromium SW846 3060A/7196A
Validation Level:	Full (Hexavalent Chromium)
Site Location/Address:	PPG Site 114 – Garfield Avenue, Jersey City, NJ
AECOM Project Number:	60213772.5.A
Prepared by: Kristin Rutherford/AECOM	Completed on: September 13, 2012
Reviewed by: Lisa Krowitz/AECOM	File Name: 2012-09-13 DV Report JB14769-F.docx

Introduction

The data were reviewed in accordance with the FSP-QAPP and the following NJDEP and/or Region 2 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.

Sample Information

The sample listed below was collected by AECOM on August 27, 2012 as part of the Garfield Avenue Supplemental Remedial Investigation (GARIS) Northern Canal Boring Sampling at the PPG Site - 114 Jersey City, New Jersey.

Field ID	Laboratory ID	Matrix	Fraction
NSB-F1-20.0-20.5	JB14769-1	Soil	Hexavalent Chromium
NSB-F1-16.0-16.5	JB14769-2	Soil	Hexavalent Chromium
NSB-F1-10.0-10.5	JB14769-3	Soil	Hexavalent Chromium
NSB-F1-4.0-4.5	JB14769-4	Soil	Hexavalent Chromium
NSB-F1-1.0-1.5	JB14769-5	Soil	Hexavalent Chromium
NSB-E4-21.0-21.5	JB14769-6	Soil	Hexavalent Chromium
NSB-E4-16.0-16.5X (field duplicate of NSB-E4-16.0-16.5)	JB14769-7	Soil	Hexavalent Chromium
NSB-E4-16.0-16.5	JB14769-8	Soil	Hexavalent Chromium
NSB-E4-12.0-12.5	JB14769-9	Soil	Hexavalent Chromium
NSB-EB20120827 (equipment blank)	JB14769-10	Aqueous	Hexavalent Chromium
NSB-E4-6.5-7.0	JB14769-11	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 Sites 114, 132, 133, 135, 137, 143, and 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

Matrix Spike Results

Sample NSB-E4-6.5-7.0 (JB14769-11) was selected for the matrix spike (MS) analysis associated with the samples in this SDG and was used for supporting data quality recommendations. The soluble and insoluble MS recoveries were 90.8% and 88.0%, respectively; both results met the quality control criteria of 75-125%. The post digestion spike (PDS) recovery was 90.7%, which met the PDS criteria of 85-115%. No data qualification was required on the basis of spike recoveries.

Sample Results

Reported results (flagged B by the laboratory) that were less than the reporting limit (RL), but greater than or equal to the method detection limit (MDL) are approximate values and have been qualified as estimated (J).

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 discussed in attachments A and B below.

Some sample results are usable as estimated values since they were detected between the RL and MDL.

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 PPG –GARIS Northern Canal Borings at PPG Site 114, Jersey City, NJ
Sampling Date August 27, 2012
Lab Name/ID Accutest Laboratories, Dayton, NJ
SDG No JB14769
Sample Matrix Soil
Trip Blank ID NA
Field Blank ID NSB-EB20120827

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
NSB-E4-12.0-12.5	JB14769-9	CHROMIUM (HEXAVALENT)	U	0.34	0.34	0.52	Qualify	31
NSB-E4-16.0-16.5	JB14769-8	CHROMIUM (HEXAVALENT)	U	0.21	0.21	0.48	Qualify	31
NSB-E4-16.0-16.5X	JB14769-7	CHROMIUM (HEXAVALENT)	U	0.39	0.39	0.50	Qualify	31
NSB-F1-1.0-1.5	JB14769-5	CHROMIUM (HEXAVALENT)	U	1.6	1.6	0.44		
NSB-F1-10.0-10.5	JB14769-3	CHROMIUM (HEXAVALENT)	U	1.2	1.2	0.55		
NSB-F1-16.0-16.5	JB14769-2	CHROMIUM (HEXAVALENT)	U	0.16	0.16	0.49	Qualify	31
NSB-F1-4.0-4.5	JB14769-4	CHROMIUM (HEXAVALENT)	U	3.4	3.4	0.55		

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 rejected because the laboratory exceeded the holding time for digestion and 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 90°C.
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 6ºC.
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.

Attachment B

Data Validation Report Form

Client Name: PPG Industries	**Project Number:** 60213772.5.A
Site Location: PPG- GARIS Northern Canal Borings	**Project Manager:** Robert Cataldo
Laboratory: Accutest, Dayton, New Jersey	**Limited or Full Validation (circle one)**
Laboratory Job No: JB14769	**Date Checked:** 09/13/2012
Validator: Kristin Rutherford	**Peer:** Lisa Krowitz

ITEM	YES	NO	N/A	COMMENTS
Sample results included?	x			10 soils and 1 EB
Reporting Limits met project requirements?	x			
Field I.D. included?	x			
Laboratory I.D. included?	x			
Sample matrix included?	x			
Sample receipt temperature 2-6ºC?	x			4.0°C
Signed COCs included?	x			
Date of sample collection included?	x			08/27/2012
Date of sample digestion included?	x			Soil: JB14769 HxCr prepped on 09/06/2012
Holding time to digestion met criteria? Soils -30 days from collection to digestion.	x			Yes
Date of analysis included?	x			Soil: JB14769: HxCr analyzed on 09/07/2012. AQ: 8/27/12
Holding time to analysis met criteria? Soils -168 hours from digestion to analysis. Aqueous – 24 hours from collection to analysis.	x			Yes
Method reference included?	x			3060A/7196A
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.

Comments

Field Duplicates: NSB-E4-16.0-16.5 and NSB-E4-16.0-16.5X. RPD criteria met (difference ±RL for results ≤4X RL). No qualifications required.

Percent Solids: all samples >50%, no qualifications

Sample Dilutions: None for this SDG

ITEM	YES	NO	N/A	COMMENTS
Initial Calibration Documentation Included in Lab Package?	x			Cal source (soil – Absolute lot # 041212); AQ Absolute Lot #011212
1. Blank plus 4 standards (7196A) or blank plus 3 standards (7199), 2. Correlation coefficient of ≥0.995 (7196A) or ≥0.999 (7199). 3. Calibrate daily or each time instrument is set up.	x x x			1. Each analysis 1 blank and 7 cal STDs 2. All analyses meet CC 3. Yes
Calibration Check Standard (CCS) for 7196A and Quality Control Sample (QCS) for 7199 Included in Lab Package?	x			Check source (soil and AQ – Ultra lot # L00439)
1. %R criteria met? (90 - 110%). 2. Correct frequency of once every 10 samples 3. CCS and QCS from independent source and at mid level of calibration curve.	x x x			1. All met %R 2. Analyzed every 10 samples 3. Yes
Calibration Blanks	x			
1. Analyzed prior to initial calibration standards and after each CCS/QCS? 2. Absolute value should not exceed MDL.	x x			1. Yes 2. Yes
Method Blank and Field Blanks Included in Lab Package?	x			Equipment Blank NSB-EB20120827
1. Method blank analyzed with each preparation batch? 2. Absolute value should not exceed MDL.	x x			1. Yes, Soil – JB14769 GP66995-MB1, AQ GN71131 2. Yes, all method and field blanks were less than MDL.
Eh and pH data.	x			
Eh and pH data was included and plotted for all samples?	x			
Soluble Matrix Spike Data Included in Lab Package?	x			JB14769-11 [NSB-E4-6.5-7.0]
1. %R criteria met? (75-125%R). 2. Was the spike concentration 40 mg/Kg or twice the sample concentration, whichever is greater? 3. Was a sample spiked at the frequency of 1/batch or 20 samples?	x x	 x 		1. JB14769 – Yes (90.8 %) 2. JB14769 No, 62.1 mg/kg. No impact to data. 3. Yes for all batches.
Insoluble Matrix Spike Data Included in Lab Package?	x			JB14769-11 [NSB-E4-6.5-7.0]
1. %R criteria met? (75-125%R). 2. Was the spike concentration around 400 to 800 mg/Kg? 3. Was a sample spiked at the frequency of 1/batch or 20 samples?	x x	 x 		1. JB14769: Yes (88.0%) 2. JB14769 No (1620 mg/kg). No impact to data. 3. Yes for all batches.
Post Digestion Spike	x			JB14769-11 [NSB-E4-6.5-7.0]
1. %R criteria met? (85-115%R). 2. Was the spike concentration 40 mg/Kg or twice the sample concentration? 3. Was a sample spiked at the frequency of 1/batch or 20 samples?	x x x			1. JB14769 Yes (90.7%) 2. a. JB14769 Yes, 41.55 mg/kg 3. Yes for all batches.
Sample Duplicate Data Included in Lab Package?	x			JB14769-11 [NSB-E4-6.5-7.0]
1. RPD criteria met? (RPD < 20%) of both results are ≥4x RL or control limit of ±RL if both results are <4x RL. 2. Was a sample spiked at the frequency of 1/batch or 20 samples?	x x			1. JB14769 - Yes, both results ND 2. Yes
Was a Laboratory Control Sample (LCS) Included in Lab Package?	x			
1. %R criteria met? (80-120%R). 2. Was an LCS analyzed at the frequency of 1/batch or 20 samples?	x x			1. Yes, all LCS recoveries were within quality control criteria. 2. Yes
Miscellaneous Items.				
1. For soils by 3060A, was the initial pH within a range of 7.0-8.0? 2. For soils by 7199, was the pH within a range of 9.0-9.5? 3. For aqueous by 7196A, was the pH with a range of 1.5-2,5? 4. For soils (3060A), was the digestion temperature 90-95°C for at least 60 minutes? 5. For 7199, was each sample injected twice and was the RPD ≤20?	x x x 	 	 x x	1. Yes 2. NA 3. Yes 4. Yes 5. NA

Holding Time

Sample ID	Method	Days from Sampling to Prep	Days from Prep to Analysis	Days from Sampling to Analysis	Sample to Prep Status	Prep to Analysis Status	Sample to Analysis Status
NSB-EB20120827	SW7196			0			OK @1 days
NSB-E4-12.0-12.5	SW7196	10	1	11	OK @30 days	OK @7 days	OK @37 days
NSB-E4-16.0-16.5	SW7196	10	1	11	OK @30 days	OK @7 days	OK @37 days
NSB-E4-16.0-16.5X	SW7196	10	1	11	OK @30 days	OK @7 days	OK @37 days
NSB-E4-21.0-21.5	SW7196	10	1	11	OK @30 days	OK @7 days	OK @37 days
NSB-E4-6.5-7.0	SW7196	10	1	11	OK @30 days	OK @7 days	OK @37 days
NSB-F1-1.0-1.5	SW7196	10	1	11	OK @30 days	OK @7 days	OK @37 days
NSB-F1-10.0-10.5	SW7196	10	1	11	OK @30 days	OK @7 days	OK @37 days
NSB-F1-16.0-16.5	SW7196	10	1	11	OK @30 days	OK @7 days	OK @37 days
NSB-F1-20.0-20.5	SW7196	10	1	11	OK @30 days	OK @7 days	OK @37 days
NSB-F1-4.0-4.5	SW7196	10	1	11	OK @30 days	OK @7 days	OK @37 days

Percent Solids

Sample ID	Percent Solids (%)	Status
NSB-E4-12.0-12.5	76.9	ok @50%
NSB-E4-16.0-16.5	82.9	ok @50%
NSB-E4-16.0-16.5X	79.6	ok @50%
NSB-E4-21.0-21.5	87.7	ok @50%
NSB-E4-6.5-7.0	63.4	ok @50%
NSB-F1-1.0-1.5	90.3	ok @50%
NSB-F1-10.0-10.5	72.7	ok @50%
NSB-F1-16.0-16.5	81.6	ok @50%
NSB-F1-20.0-20.5	84.1	ok @50%
NSB-F1-4.0-4.5	73.1	ok @50%

Field Duplicate

Sample ID	Duplicate ID	Compound	Sample Result	Duplicate Result	QL	Units	RPD
NSB-E4-16.0-16.5	NSB-E4-16.0-16.5X	CHROMIUM (HEXAVALENT)	0.21	0.39	0.48	mg/kg	60

PPG GARIS Soils by Method 7196	x - concentration	y - response
SDG#: JB14769		
Batch: GN71682	0	0
Cr+6 ICAL 09/07/12	0.01	0.009
(p. 50 of data pkg)	0.05	0.045
	0.1	0.091
	0.3	0.273
	0.5	0.459
	0.8	0.721
	1	0.903

(p. 50 of data pkg)

AECOM Calculated Intercept	0.0010	OK	Reported intercept	0.0010
AECOM Slope	0.9033	OK	Reported Slope	0.9033
AECOM Calculated r	0.99997	OK	Reported r	0.99997

LCS calculation	**GP66995-B1 pg. 50**			
Background Absorbance	0			
Total absorbance	0.826			
Total absorbance - background	0.826			
Instrument Concentration (mg/L)	0.9133			
Sample weight (Kg)	0.0025			
Final Volume (L)	0.1			
Dilution Factor	1			
AECOM Calculated LCS Result (mg/Kg)	36.5	OK	Reported Result (mg/Kg)	36.5

%R = Found/True*100	**pg. 31**			
True Value (mg/Kg)	40			
AECOM Calculated %R	91.3	OK	Reported %R	91.3

MS calculation	**GP66995-S2 NSB-E4-6.5-7.0 (JB14769-11) pgs. 50**			
Background absorbance reading	0			
Total absorbance	0.407			
Total absorbance - background	0.407			
Instrument Concentration (mg/L)	0.4495			
Sample weight (Kg)	0.00248			
Final Volume (L)	0.1			
Percent solids	0.634			
Dilution Factor	50			
AECOM Calculated MS Result (mg/Kg)	1429	OK rounding	Reported Result (mg/Kg)	1430

%R = Found/True*100	**NSB-E4-6.5-7.0 (JB14769-11) pgs. 33**			
True Value (mg/Kg)	1620			
Native concentration (mg/Kg)	0			
AECOM%R	88	OK	Reported %R	88

Percent Solids	**NSB-E4-6.5-7.0 (JB14769-11) pgs. 35**			
Empty dish weight (g)	28.72			
Wet weight (g)	36.34			
Dry weight (g)	33.55			
AECOM%solids =	63.4	OK	reported %solids=	63.4

Reporting Limit	**NSB-E4-6.5-7.0 (JB14769-11) pgs. 50, 19**			
Low Standard (mg/L)	0.01			
Initial weight (Kg)	0.00254			
Final volume (L)	0.1			
Percent solids	0.634			
Dilution Factor	1			
Reporting Limit (mg/Kg)	0.62	OK rounding	Reported RL (mg/Kg)=	0.63

Sample Calculations

	NSB-E4-6.5-7.0 (JB14769-11) pgs. 50, 19			
Background absorbance reading	0			
Total absorbance	0.002			
Total absorbance - background	0.002			
Instrument Response (mg/L)	0.001			
Sample weight (Kg)	0.00254			
Final Volume (L)	0.1			
Percent solids	0.634			
Dilution Factor	1			
AECOM Calculated Result (mg/Kg)	0.07	OK < 0.18 U	Reported Result (mg/Kg)	0.18 U

New Jersey ACCUTEST LABORATORIES

09/10/12

Technical Report for

AECOM, INC.

PPG Northern Canal Borings, Jersey City, NJ

60213772.5.A

Accutest Job Number: JB14769

Sampling Date: 08/27/12

Report to:

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

Total number of pages in report: **60**

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.

Paul Ioannidis
Lab 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

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Sample Summary

AECOM, INC.

Job No: JB14769

PPG Northern Canal Borings, Jersey City, NJ
Project No: 60213772.5.A

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JB14769-1	08/27/12	15:20	CM	08/27/12	SO	Soil	NSB-F1-20.0-20.5
JB14769-2	08/27/12	15:00	CM	08/27/12	SO	Soil	NSB-F1-16.0-16.5
JB14769-3	08/27/12	14:45	CM	08/27/12	SO	Soil	NSB-F1-10.0-10.5
JB14769-4	08/27/12	14:20	CM	08/27/12	SO	Soil	NSB-F1-4.0-4.5
JB14769-5	08/27/12	13:50	CM	08/27/12	SO	Soil	NSB-F1-1.0-1.5
JB14769-6	08/27/12	10:45	CM	08/27/12	SO	Soil	NSB-E4-21.0-21.5
JB14769-7	08/27/12	10:36	CM	08/27/12	SO	Soil	NSB-E4-16.0-16.5X
JB14769-8	08/27/12	10:30	CM	08/27/12	SO	Soil	NSB-E4-16.0-16.5
JB14769-9	08/27/12	10:15	CM	08/27/12	SO	Soil	NSB-E4-12.0-12.5
JB14769-10	08/27/12	15:30	CM	08/27/12	AQ	Equipment Blank	NSB-EB20120827
JB14769-11	08/27/12	10:00	CM	08/27/12	SO	Soil	NSB-E4-6.5-7.0
JB14769-11D	08/27/12	10:00	CM	08/27/12	SO	Soil Dup/MSD	NSB-E4-6.5-7.0
JB14769-11S	08/27/12	10:00	CM	08/27/12	SO	Soil Matrix Spike	NSB-E4-6.5-7.0

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

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	AECOM, INC.	**Job No**	JB14769
Site:	PPG Northern Canal Borings, Jersey City, NJ	**Report Date**	9/10/2012 7:37:13 PM

On 08/27/2012, 11 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at Accutest Laboratories at a temperature of 4 C. Samples were intact and chemically preserved, unless noted below. An Accutest Job Number of JB14769 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:** GN71666

- Sample(s) JB14769-10DUP were used as the QC samples for Redox Potential Vs H2.

Wet Chemistry By Method ASTM D1498-76M

Matrix: SO **Batch ID:** GN71548

- Sample(s) JB14769-11DUP were used as the QC samples for Redox Potential Vs H2.
- RPD(s) for Duplicate for Redox Potential Vs H2 are outside control limits for sample GN71548-D1. Outside of in house limits, but within reasonable method recovery limits.

Wet Chemistry By Method SM18 2540G

Matrix: SO **Batch ID:** GN71520

- The data for SM18 2540G meets quality control requirements.

Matrix: SO **Batch ID:** GN71533

- The data for SM18 2540G meets quality control requirements.

Wet Chemistry By Method SM20 4500H B

Matrix: AQ **Batch ID:** R115536

- The data for SM20 4500H B meets quality control requirements.
- JB14769-10 for pH: Sample received out of holding time for pH analysis.

Wet Chemistry By Method SW846 3060A/7196A

Matrix: SO **Batch ID:** GP66995

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB14769-11DUP, JB14769-11MS were used as the QC samples for Chromium, Hexavalent.
- GP66995-S1 for Chromium, Hexavalent: Good recovery on soluble XCR matrix spike. Good recovery (90.7%) on the post-spike.
- GP66995-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:	GN71131

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Wet Chemistry By Method SW846 9045C,D

Matrix:	SO	Batch ID:	GN71547

- Sample(s) JB14769-11DUP 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: JB14769
Account: AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Collected: 08/27/12

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JB14769-1	**NSB-F1-20.0-20.5**					
Redox Potential Vs H2		261			mv	ASTM D1498-76M
pH		8.30			su	SW846 9045C,D
JB14769-2	**NSB-F1-16.0-16.5**					
Chromium, Hexavalent		0.16 B	0.49	0.14	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		273			mv	ASTM D1498-76M
pH		7.94			su	SW846 9045C,D
JB14769-3	**NSB-F1-10.0-10.5**					
Chromium, Hexavalent		1.2	0.55	0.16	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		55.9			mv	ASTM D1498-76M
pH		7.62			su	SW846 9045C,D
JB14769-4	**NSB-F1-4.0-4.5**					
Chromium, Hexavalent		3.4	0.55	0.16	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		284			mv	ASTM D1498-76M
pH		7.88			su	SW846 9045C,D
JB14769-5	**NSB-F1-1.0-1.5**					
Chromium, Hexavalent		1.6	0.44	0.13	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		351			mv	ASTM D1498-76M
pH		8.41			su	SW846 9045C,D
JB14769-6	**NSB-E4-21.0-21.5**					
Redox Potential Vs H2		293			mv	ASTM D1498-76M
pH		8.90			su	SW846 9045C,D
JB14769-7	**NSB-E4-16.0-16.5X**					
Chromium, Hexavalent		0.39 B	0.50	0.15	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		234			mv	ASTM D1498-76M
pH		8.88			su	SW846 9045C,D
JB14769-8	**NSB-E4-16.0-16.5**					
Chromium, Hexavalent		0.21 B	0.48	0.14	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		241			mv	ASTM D1498-76M
pH		8.86			su	SW846 9045C,D

Summary of Hits

Job Number: JB14769
Account: AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Collected: 08/27/12

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JB14769-9	**NSB-E4-12.0-12.5**					
Chromium, Hexavalent		0.34 B	0.52	0.15	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		16.0			mv	ASTM D1498-76M
pH		8.53			su	SW846 9045C,D
JB14769-10	**NSB-EB20120827**					
Redox Potential Vs H2		382			mv	ASTM D1498-76
pH [a]		6.71			su	SM20 4500H B
JB14769-11	**NSB-E4-6.5-7.0**					
Redox Potential Vs H2		189			mv	ASTM D1498-76M
pH		9.94			su	SW846 9045C,D

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

New Jersey ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID: NSB-F1-20.0-20.5
Lab Sample ID: JB14769-1
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/27/12
Date Received: 08/27/12
Percent Solids: 84.1

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.14 U	0.48	0.14	mg/kg	1	09/07/12 16:26	MM	SW846 3060A/7196A
Redox Potential Vs H2	261			mv	1	09/05/12	MET	ASTM D1498-76M
Solids, Percent	84.1			%	1	09/05/12 11:30	KP	SM18 2540G
pH	8.30			su	1	09/05/12 16:11	SA	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: NSB-F1-16.0-16.5
Lab Sample ID: JB14769-2
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/27/12
Date Received: 08/27/12
Percent Solids: 81.6

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.16 B	0.49	0.14	mg/kg	1	09/07/12 16:26	MM	SW846 3060A/7196A
Redox Potential Vs H2	273			mv	1	09/05/12	MET	ASTM D1498-76M
Solids, Percent	81.6			%	1	09/05/12 11:30	KP	SM18 2540G
pH	7.94			su	1	09/05/12 16:11	SA	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: NSB-F1-10.0-10.5
Lab Sample ID: JB14769-3
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/27/12
Date Received: 08/27/12
Percent Solids: 72.7

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	1.2	0.55	0.16	mg/kg	1	09/07/12 16:26	MM	SW846 3060A/7196A
Redox Potential Vs H2	55.9			mv	1	09/05/12	MET	ASTM D1498-76M
Solids, Percent	72.7			%	1	09/05/12 11:30	KP	SM18 2540G
pH	7.62			su	1	09/05/12 16:11	SA	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: NSB-F1-4.0-4.5
Lab Sample ID: JB14769-4
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/27/12
Date Received: 08/27/12
Percent Solids: 73.1

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	3.4	0.55	0.16	mg/kg	1	09/07/12 16:26	MM	SW846 3060A/7196A
Redox Potential Vs H2	284			mv	1	09/05/12	MET	ASTM D1498-76M
Solids, Percent	73.1			%	1	09/05/12 11:30	KP	SM18 2540G
pH	7.88			su	1	09/05/12 16:11	SA	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: NSB-F1-1.0-1.5
Lab Sample ID: JB14769-5
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/27/12
Date Received: 08/27/12
Percent Solids: 90.3

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	1.6	0.44	0.13	mg/kg	1	09/07/12 16:26	MM	SW846 3060A/7196A
Redox Potential Vs H2	351			mv	1	09/05/12	MET	ASTM D1498-76M
Solids, Percent	90.3			%	1	09/05/12 12:50	RO	SM18 2540G
pH	8.41			su	1	09/05/12 16:11	SA	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: NSB-E4-21.0-21.5
Lab Sample ID: JB14769-6
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/27/12
Date Received: 08/27/12
Percent Solids: 87.7

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.13 U	0.46	0.13	mg/kg	1	09/07/12 16:26	MM	SW846 3060A/7196A
Redox Potential Vs H2	293			mv	1	09/05/12	MET	ASTM D1498-76M
Solids, Percent	87.7			%	1	09/05/12 11:30	KP	SM18 2540G
pH	8.90			su	1	09/05/12 16:11	SA	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: NSB-E4-16.0-16.5X
Lab Sample ID: JB14769-7
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/27/12
Date Received: 08/27/12
Percent Solids: 79.6

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.39 B	0.50	0.15	mg/kg	1	09/07/12 16:26	MM	SW846 3060A/7196A
Redox Potential Vs H2	234			mv	1	09/05/12	MET	ASTM D1498-76M
Solids, Percent	79.6			%	1	09/05/12 11:30	KP	SM18 2540G
pH	8.88			su	1	09/05/12 16:11	SA	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: NSB-E4-16.0-16.5
Lab Sample ID: JB14769-8
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/27/12
Date Received: 08/27/12
Percent Solids: 82.9

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.21 B	0.48	0.14	mg/kg	1	09/07/12 16:26	MM	SW846 3060A/7196A
Redox Potential Vs H2	241			mv	1	09/05/12	MET	ASTM D1498-76M
Solids, Percent	82.9			%	1	09/05/12 11:30	KP	SM18 2540G
pH	8.86			su	1	09/05/12 16:11	SA	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: NSB-E4-12.0-12.5
Lab Sample ID: JB14769-9
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/27/12
Date Received: 08/27/12
Percent Solids: 76.9

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.34 B	0.52	0.15	mg/kg	1	09/07/12 16:26	MM	SW846 3060A/7196A
Redox Potential Vs H2	16.0			mv	1	09/05/12	MET	ASTM D1498-76M
Solids, Percent	76.9			%	1	09/05/12 11:30	KP	SM18 2540G
pH	8.53			su	1	09/05/12 16:11	SA	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:	NSB-EB20120827		
Lab Sample ID:	JB14769-10	**Date Sampled:**	08/27/12
Matrix:	AQ - Equipment Blank	**Date Received:**	08/27/12
		Percent Solids:	n/a
Project:	PPG Northern Canal Borings, Jersey City, NJ		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.0014 U	0.010	0.0014	mg/l	1	08/27/12 19:45	MM	SW846 7196A
Redox Potential Vs H2	382			mv	1	09/07/12	SA	ASTM D1498-76
pH [a]	6.71			su	1	08/27/12 18:13	TH	SM20 4500H B

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

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID: NSB-E4-6.5-7.0
Lab Sample ID: JB14769-11
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/27/12
Date Received: 08/27/12
Percent Solids: 63.4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.18 U	0.63	0.18	mg/kg	1	09/07/12 15:53	MM	SW846 3060A/7196A
Redox Potential Vs H2	189			mv	1	09/05/12	MET	ASTM D1498-76M
Solids, Percent	63.4			%	1	09/05/12 11:30	KP	SM18 2540G
pH	9.94			su	1	09/05/12 16:11	SA	SW846 9045C,D

RL = Reporting Limit
MDL = Method Detection Limit

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

New Jersey ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

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

AECOM

CHAIN-OF-CUSTODY / Analytical Request Document

2012-08-27_RI_ACCUTEST_COC_NSB

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

Task: GARIS- Northern Canal Borings
Total # of Samples: 11 JB14769

TAT: see Spec. Instructions — Rush

Notes: F= Field Filtered , H= Hold

Lab Information:
Lab: ACCUTEST
Address: 2235 Route 130 , Dayton NJ 08810
Lab PM: Matt Cordova
Phone/Fax: 732-329-0200/
PM email:

Project Information:
Site ID #: PPG Garfield Ave
Project #: 60213772.5.A
Site Address: 70 Carteret Avenue
City: Jersey City State, Zip: NJ 07304
PM Name: Chris Martell
Phone/Fax: 732-564-3633
PM Email: Christopher.Martell@aecom.com

Other Information:
Send Invoice to: Lisa Krowitz
Address: 250 Apollo Drive
City/State: Chelmsford, MA 01824 Phone #: 978-905-2278
PO #: 40256ACM
Send EDD to: NJLABDATA@aecom.com
CC Hardcopy to: Erin Farrell, AECOM, Piscataway, NJ

ITEM #	Field Sample No. /Identification	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comment	GARA-HexChrom	GARA-pH-ORP
1	NSB-F1-20.0-20.5 -1	SO	G	08/27/2012 15:20	1		X	X
2	NSB-F1-16.0-16.5 -2	SO	G	08/27/2012 15:00	1		X	X
3	NSB-F1-10.0-10.5 -3	SO	G	08/27/2012 14:45	1	EY45	X	X
4	NSB-F1-4.0-4.5 -4	SO	G	08/27/2012 14:20	1	ME 41, WC47	X	X
5	NSB-F1-1.0-1.5 -5	SO	G	08/27/2012 13:50	1		X	X
6	NSB-E4-21.0-21.5 -6	SO	G	08/27/2012 10:45	1		X	X
7	NSB-E4-16.0-16.5X -7	SO	G	08/27/2012 10:36	1		X	X
8	NSB-E4-16.0-16.5 -8	SO	G	08/27/2012 10:30	1		X	X
9	NSB-E4-12.0-12.5 -9	SO	G	08/27/2012 10:15	1		X	X
10	NSB-EB20120827 -10 pH = 6.71 *	WQ	G	08/27/2012 15:30	2	Preserved:None	X	X
11	NSB-E4-6.5-7.0 -11	SO	G	08/27/2012 10:00	2	1 Jar for MS/MSD	X	X

Additional Comments/Special Instructions: 8/27/12
Standard TAT

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
[signature]	8/27/12	1610	[signature]	8/27/12	1610
[signature]	8/27/12	1730	[signature] Accutest	8/27/12	1730

Sample Receipt Conditions: Temp in 0C: 4.0°C; Samples on Ice? Y; Sample intact? Y; Trip Blank? N

Shipper: | DATE/TIME:
Tracking #: | Custody Seal(s):

* pH out of hold 8/27/12

1 Cooler

JB14769: Chain of Custody
Page 1 of 2

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: JB14769 **Client:** **Project:**

Date / Time Received: 8/27/2012 **Delivery Method:** **Airbill #'s:**

Cooler Temps (Initial/Adjusted): #1: (4/4); 0

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

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

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

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

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

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

Comments

Internal Sample Tracking Chronicle

AECOM, INC.

Job No: JB14769

PPG Northern Canal Borings, Jersey City, NJ
Project No: 60213772.5.A

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB14769-1 Collected: 27-AUG-12 15:20 By: CM Received: 27-AUG-12 By: MPC NSB-F1-20.0-20.5						
JB14769-1	ASTM D1498-76M	05-SEP-12	MET			EH
JB14769-1	SM18 2540G	05-SEP-12 11:30	KP			SOL104
JB14769-1	SW846 9045C,D	05-SEP-12 16:11	SA			PH
JB14769-1	SW846 3060A/7196A	07-SEP-12 16:26	MM	06-SEP-12	RI	XCRA
JB14769-2 Collected: 27-AUG-12 15:00 By: CM Received: 27-AUG-12 By: MPC NSB-F1-16.0-16.5						
JB14769-2	ASTM D1498-76M	05-SEP-12	MET			EH
JB14769-2	SM18 2540G	05-SEP-12 11:30	KP			SOL104
JB14769-2	SW846 9045C,D	05-SEP-12 16:11	SA			PH
JB14769-2	SW846 3060A/7196A	07-SEP-12 16:26	MM	06-SEP-12	RI	XCRA
JB14769-3 Collected: 27-AUG-12 14:45 By: CM Received: 27-AUG-12 By: MPC NSB-F1-10.0-10.5						
JB14769-3	ASTM D1498-76M	05-SEP-12	MET			EH
JB14769-3	SM18 2540G	05-SEP-12 11:30	KP			SOL104
JB14769-3	SW846 9045C,D	05-SEP-12 16:11	SA			PH
JB14769-3	SW846 3060A/7196A	07-SEP-12 16:26	MM	06-SEP-12	RI	XCRA
JB14769-4 Collected: 27-AUG-12 14:20 By: CM Received: 27-AUG-12 By: MPC NSB-F1-4.0-4.5						
JB14769-4	ASTM D1498-76M	05-SEP-12	MET			EH
JB14769-4	SM18 2540G	05-SEP-12 11:30	KP			SOL104
JB14769-4	SW846 9045C,D	05-SEP-12 16:11	SA			PH
JB14769-4	SW846 3060A/7196A	07-SEP-12 16:26	MM	06-SEP-12	RI	XCRA
JB14769-5 Collected: 27-AUG-12 13:50 By: CM Received: 27-AUG-12 By: MPC NSB-F1-1.0-1.5						
JB14769-5	ASTM D1498-76M	05-SEP-12	MET			EH
JB14769-5	SM18 2540G	05-SEP-12 12:50	RO			SOL104
JB14769-5	SW846 9045C,D	05-SEP-12 16:11	SA			PH
JB14769-5	SW846 3060A/7196A	07-SEP-12 16:26	MM	06-SEP-12	RI	XCRA

Internal Sample Tracking Chronicle

AECOM, INC.

Job No: JB14769

PPG Northern Canal Borings, Jersey City, NJ
Project No: 60213772.5.A

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB14769-6 Collected: 27-AUG-12 10:45 By: CM Received: 27-AUG-12 By: MPC NSB-E4-21.0-21.5						
JB14769-6	ASTM D1498-76M	05-SEP-12	MET			EH
JB14769-6	SM18 2540G	05-SEP-12 11:30	KP			SOL104
JB14769-6	SW846 9045C,D	05-SEP-12 16:11	SA			PH
JB14769-6	SW846 3060A/7196A	07-SEP-12 16:26	MM	06-SEP-12	RI	XCRA
JB14769-7 Collected: 27-AUG-12 10:36 By: CM Received: 27-AUG-12 By: MPC NSB-E4-16.0-16.5X						
JB14769-7	ASTM D1498-76M	05-SEP-12	MET			EH
JB14769-7	SM18 2540G	05-SEP-12 11:30	KP			SOL104
JB14769-7	SW846 9045C,D	05-SEP-12 16:11	SA			PH
JB14769-7	SW846 3060A/7196A	07-SEP-12 16:26	MM	06-SEP-12	RI	XCRA
JB14769-8 Collected: 27-AUG-12 10:30 By: CM Received: 27-AUG-12 By: MPC NSB-E4-16.0-16.5						
JB14769-8	ASTM D1498-76M	05-SEP-12	MET			EH
JB14769-8	SM18 2540G	05-SEP-12 11:30	KP			SOL104
JB14769-8	SW846 9045C,D	05-SEP-12 16:11	SA			PH
JB14769-8	SW846 3060A/7196A	07-SEP-12 16:26	MM	06-SEP-12	RI	XCRA
JB14769-9 Collected: 27-AUG-12 10:15 By: CM Received: 27-AUG-12 By: MPC NSB-E4-12.0-12.5						
JB14769-9	ASTM D1498-76M	05-SEP-12	MET			EH
JB14769-9	SM18 2540G	05-SEP-12 11:30	KP			SOL104
JB14769-9	SW846 9045C,D	05-SEP-12 16:11	SA			PH
JB14769-9	SW846 3060A/7196A	07-SEP-12 16:26	MM	06-SEP-12	RI	XCRA
JB14769-10 Collected: 27-AUG-12 15:30 By: CM Received: 27-AUG-12 By: MPC NSB-EB20120827						
JB14769-10	SM20 4500H B	27-AUG-12 18:13	TH			PH
JB14769-10	SW846 7196A	27-AUG-12 19:45	MM			XCR
JB14769-10	ASTM D1498-76	07-SEP-12	SA			EH

Internal Sample Tracking Chronicle

AECOM, INC.

Job No: JB14769

PPG Northern Canal Borings, Jersey City, NJ
Project No: 60213772.5.A

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB14769-11	Collected: 27-AUG-12 10:00 By: CM		Received: 27-AUG-12 By: MPC			
NSB-E4-6.5-7.0						
JB14769-11	ASTM D1498-76M	05-SEP-12	MET			EH
JB14769-11	SM18 2540G	05-SEP-12 11:30	KP			SOL104
JB14769-11	SW846 9045C,D	05-SEP-12 16:11	SA			PH
JB14769-11	SW846 3060A/7196A	07-SEP-12 15:53	MM	06-SEP-12	RI	XCRA

Accutest Internal Chain of Custody

Job Number: JB14769
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Received: 08/27/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB14769-1.1	Secured Storage	Dave Hunkele	09/05/12 08:00	Retrieve from Storage
JB14769-1.1	Dave Hunkele	Secured Staging Area	09/05/12 08:01	Return to Storage
JB14769-1.1	Secured Staging Area	Krimesh Patel	09/05/12 08:41	Retrieve from Storage
JB14769-1.1	Krimesh Patel	Secured Storage	09/05/12 12:00	Return to Storage
JB14769-1.1	Secured Storage	Dave Hunkele	09/05/12 12:22	Retrieve from Storage
JB14769-1.1	Dave Hunkele	Sanjay Advani	09/05/12 12:24	Custody Transfer
JB14769-1.1	Sanjay Advani	Secured Storage	09/05/12 16:29	Return to Storage
JB14769-1.1	Secured Storage	Dave Hunkele	09/06/12 06:43	Retrieve from Storage
JB14769-1.1	Dave Hunkele	Secured Staging Area	09/06/12 06:44	Return to Storage
JB14769-1.1	Secured Staging Area	Mayur Patel	09/06/12 08:11	Retrieve from Storage
JB14769-1.1	Mayur Patel	Secured Storage	09/06/12 16:02	Return to Storage
JB14769-2.1	Secured Storage	Dave Hunkele	09/05/12 08:00	Retrieve from Storage
JB14769-2.1	Dave Hunkele	Secured Staging Area	09/05/12 08:01	Return to Storage
JB14769-2.1	Secured Staging Area	Krimesh Patel	09/05/12 08:41	Retrieve from Storage
JB14769-2.1	Krimesh Patel	Secured Storage	09/05/12 12:00	Return to Storage
JB14769-2.1	Secured Storage	Dave Hunkele	09/05/12 12:22	Retrieve from Storage
JB14769-2.1	Dave Hunkele	Sanjay Advani	09/05/12 12:24	Custody Transfer
JB14769-2.1	Sanjay Advani	Secured Storage	09/05/12 16:29	Return to Storage
JB14769-2.1	Secured Storage	Dave Hunkele	09/06/12 06:43	Retrieve from Storage
JB14769-2.1	Dave Hunkele	Secured Staging Area	09/06/12 06:44	Return to Storage
JB14769-2.1	Secured Staging Area	Mayur Patel	09/06/12 08:11	Retrieve from Storage
JB14769-2.1	Mayur Patel	Secured Storage	09/06/12 16:02	Return to Storage
JB14769-3.1	Secured Storage	Dave Hunkele	09/05/12 08:00	Retrieve from Storage
JB14769-3.1	Dave Hunkele	Secured Staging Area	09/05/12 08:01	Return to Storage
JB14769-3.1	Secured Staging Area	Krimesh Patel	09/05/12 08:41	Retrieve from Storage
JB14769-3.1	Krimesh Patel	Secured Storage	09/05/12 12:00	Return to Storage
JB14769-3.1	Secured Storage	Dave Hunkele	09/05/12 12:22	Retrieve from Storage
JB14769-3.1	Dave Hunkele	Sanjay Advani	09/05/12 12:24	Custody Transfer
JB14769-3.1	Sanjay Advani	Secured Storage	09/05/12 16:29	Return to Storage
JB14769-3.1	Secured Storage	Dave Hunkele	09/06/12 06:43	Retrieve from Storage
JB14769-3.1	Dave Hunkele	Secured Staging Area	09/06/12 06:44	Return to Storage
JB14769-3.1	Secured Staging Area	Mayur Patel	09/06/12 08:11	Retrieve from Storage
JB14769-3.1	Mayur Patel	Secured Storage	09/06/12 16:02	Return to Storage
JB14769-4.1	Secured Storage	Dave Hunkele	09/05/12 08:00	Retrieve from Storage
JB14769-4.1	Dave Hunkele	Secured Staging Area	09/05/12 08:01	Return to Storage
JB14769-4.1	Secured Staging Area	Krimesh Patel	09/05/12 08:41	Retrieve from Storage
JB14769-4.1	Krimesh Patel	Secured Storage	09/05/12 12:00	Return to Storage
JB14769-4.1	Secured Storage	Dave Hunkele	09/05/12 12:22	Retrieve from Storage
JB14769-4.1	Dave Hunkele	Sanjay Advani	09/05/12 12:24	Custody Transfer
JB14769-4.1	Sanjay Advani	Secured Storage	09/05/12 16:29	Return to Storage
JB14769-4.1	Secured Storage	Dave Hunkele	09/06/12 06:43	Retrieve from Storage

Accutest Internal Chain of Custody

Job Number: JB14769
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Received: 08/27/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB14769-4.1	Dave Hunkele	Secured Staging Area	09/06/12 06:44	Return to Storage
JB14769-4.1	Secured Staging Area	Mayur Patel	09/06/12 08:11	Retrieve from Storage
JB14769-4.1	Mayur Patel	Secured Storage	09/06/12 16:02	Return to Storage
JB14769-5.1	Secured Storage	Dave Hunkele	09/05/12 10:47	Retrieve from Storage
JB14769-5.1	Dave Hunkele	Secured Staging Area	09/05/12 10:48	Return to Storage
JB14769-5.1	Secured Staging Area	Robert OConnor	09/05/12 11:11	Retrieve from Storage
JB14769-5.1	Robert OConnor	Secured Storage	09/05/12 16:21	Return to Storage
JB14769-5.1	Secured Storage	Mayur Patel	09/06/12 10:56	Retrieve from Storage
JB14769-5.1	Mayur Patel	Secured Storage	09/06/12 16:02	Return to Storage
JB14769-6.1	Secured Storage	Dave Hunkele	09/05/12 08:00	Retrieve from Storage
JB14769-6.1	Dave Hunkele	Secured Staging Area	09/05/12 08:01	Return to Storage
JB14769-6.1	Secured Staging Area	Krimesh Patel	09/05/12 08:41	Retrieve from Storage
JB14769-6.1	Krimesh Patel	Secured Storage	09/05/12 12:00	Return to Storage
JB14769-6.1	Secured Storage	Dave Hunkele	09/05/12 12:22	Retrieve from Storage
JB14769-6.1	Dave Hunkele	Sanjay Advani	09/05/12 12:24	Custody Transfer
JB14769-6.1	Sanjay Advani	Secured Storage	09/05/12 16:29	Return to Storage
JB14769-6.1	Secured Storage	Dave Hunkele	09/06/12 06:43	Retrieve from Storage
JB14769-6.1	Dave Hunkele	Secured Staging Area	09/06/12 06:44	Return to Storage
JB14769-6.1	Secured Staging Area	Mayur Patel	09/06/12 08:11	Retrieve from Storage
JB14769-6.1	Mayur Patel	Secured Storage	09/06/12 16:02	Return to Storage
JB14769-7.1	Secured Storage	Dave Hunkele	09/05/12 08:00	Retrieve from Storage
JB14769-7.1	Dave Hunkele	Secured Staging Area	09/05/12 08:01	Return to Storage
JB14769-7.1	Secured Staging Area	Krimesh Patel	09/05/12 08:41	Retrieve from Storage
JB14769-7.1	Krimesh Patel	Secured Storage	09/05/12 12:00	Return to Storage
JB14769-7.1	Secured Storage	Dave Hunkele	09/05/12 12:22	Retrieve from Storage
JB14769-7.1	Dave Hunkele	Sanjay Advani	09/05/12 12:24	Custody Transfer
JB14769-7.1	Sanjay Advani	Secured Storage	09/05/12 16:29	Return to Storage
JB14769-7.1	Secured Storage	Dave Hunkele	09/06/12 06:43	Retrieve from Storage
JB14769-7.1	Dave Hunkele	Secured Staging Area	09/06/12 06:44	Return to Storage
JB14769-7.1	Secured Staging Area	Mayur Patel	09/06/12 08:11	Retrieve from Storage
JB14769-7.1	Mayur Patel	Secured Storage	09/06/12 16:02	Return to Storage
JB14769-8.1	Secured Storage	Dave Hunkele	09/05/12 08:00	Retrieve from Storage
JB14769-8.1	Dave Hunkele	Secured Staging Area	09/05/12 08:01	Return to Storage
JB14769-8.1	Secured Staging Area	Krimesh Patel	09/05/12 08:41	Retrieve from Storage
JB14769-8.1	Krimesh Patel	Secured Storage	09/05/12 12:00	Return to Storage
JB14769-8.1	Secured Storage	Dave Hunkele	09/05/12 12:22	Retrieve from Storage
JB14769-8.1	Dave Hunkele	Sanjay Advani	09/05/12 12:24	Custody Transfer
JB14769-8.1	Sanjay Advani	Secured Storage	09/05/12 16:29	Return to Storage
JB14769-8.1	Secured Storage	Dave Hunkele	09/06/12 06:43	Retrieve from Storage
JB14769-8.1	Dave Hunkele	Secured Staging Area	09/06/12 06:44	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB14769
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Received: 08/27/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB14769-8.1	Secured Staging Area	Mayur Patel	09/06/12 08:11	Retrieve from Storage
JB14769-8.1	Mayur Patel	Secured Storage	09/06/12 16:02	Return to Storage
JB14769-9.1	Secured Storage	Dave Hunkele	09/05/12 08:00	Retrieve from Storage
JB14769-9.1	Dave Hunkele	Secured Staging Area	09/05/12 08:01	Return to Storage
JB14769-9.1	Secured Staging Area	Krimesh Patel	09/05/12 08:41	Retrieve from Storage
JB14769-9.1	Krimesh Patel	Secured Storage	09/05/12 12:00	Return to Storage
JB14769-9.1	Secured Storage	Dave Hunkele	09/05/12 12:22	Retrieve from Storage
JB14769-9.1	Dave Hunkele	Sanjay Advani	09/05/12 12:24	Custody Transfer
JB14769-9.1	Sanjay Advani	Secured Storage	09/05/12 16:29	Return to Storage
JB14769-9.1	Secured Storage	Dave Hunkele	09/06/12 06:43	Retrieve from Storage
JB14769-9.1	Dave Hunkele	Secured Staging Area	09/06/12 06:44	Return to Storage
JB14769-9.1	Secured Staging Area	Mayur Patel	09/06/12 08:11	Retrieve from Storage
JB14769-9.1	Mayur Patel	Secured Storage	09/06/12 16:02	Return to Storage
JB14769-10.1	Secured Storage	Mehmet Temizsu	08/27/12 19:03	Retrieve from Storage
JB14769-10.1	Mehmet Temizsu	Megan Melkowitz	08/27/12 19:05	Custody Transfer
JB14769-10.1	Megan Melkowitz	Secured Storage	08/27/12 23:22	Return to Storage
JB14769-10.2	Secured Storage	Todd Shoemaker	09/04/12 10:17	Retrieve from Storage
JB14769-10.2	Todd Shoemaker	Nirali Patel	09/04/12 10:19	Custody Transfer
JB14769-10.2	Nirali Patel	Secured Storage	09/04/12 16:33	Return to Storage
JB14769-10.2	Secured Storage	Dave Hunkele	09/07/12 09:47	Retrieve from Storage
JB14769-10.2	Dave Hunkele	Secured Staging Area	09/07/12 09:48	Return to Storage
JB14769-10.2	Secured Staging Area	Sanjay Advani	09/07/12 12:11	Retrieve from Storage
JB14769-10.2	Shirley Grzybowski	Secured Storage	09/08/12 07:02	Return to Storage
Analyst unavailable for custody transfer.				
JB14769-11.1	Secured Storage	Dave Hunkele	09/05/12 08:00	Retrieve from Storage
JB14769-11.1	Dave Hunkele	Secured Staging Area	09/05/12 08:01	Return to Storage
JB14769-11.1	Secured Staging Area	Krimesh Patel	09/05/12 08:41	Retrieve from Storage
JB14769-11.1	Krimesh Patel	Secured Storage	09/05/12 12:00	Return to Storage
JB14769-11.1	Secured Storage	Dave Hunkele	09/05/12 12:22	Retrieve from Storage
JB14769-11.1	Dave Hunkele	Sanjay Advani	09/05/12 12:24	Custody Transfer
JB14769-11.1	Sanjay Advani	Secured Storage	09/05/12 16:29	Return to Storage
JB14769-11.1	Secured Storage	Dave Hunkele	09/06/12 06:43	Retrieve from Storage
JB14769-11.1	Dave Hunkele	Secured Staging Area	09/06/12 06:44	Return to Storage
JB14769-11.1	Secured Staging Area	Mayur Patel	09/06/12 08:11	Retrieve from Storage
JB14769-11.1	Mayur Patel	Secured Storage	09/06/12 16:02	Return to Storage
JB14769-11.1	Secured Storage	Adam Scott	09/07/12 08:18	Retrieve from Storage
JB14769-11.1	Adam Scott	Secured Staging Area	09/07/12 08:18	Return to Storage
JB14769-11.1	Secured Staging Area	Sanjay Advani	09/07/12 08:35	Retrieve from Storage
JB14769-11.1	Shirley Grzybowski	Secured Storage	09/08/12 07:02	Return to Storage
Analyst unavailable for custody transfer.				

Accutest Internal Chain of Custody

Job Number: JB14769
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Received: 08/27/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB14769-11.2	Secured Storage	Dave Hunkele	09/05/12 08:00	Retrieve from Storage
JB14769-11.2	Dave Hunkele	Secured Staging Area	09/05/12 08:01	Return to Storage
JB14769-11.2	Secured Staging Area	Krimesh Patel	09/05/12 08:41	Retrieve from Storage
JB14769-11.2	Krimesh Patel	Secured Storage	09/05/12 12:00	Return to Storage

New Jersey ACCUTEST LABORATORIES

General Chemistry

QC Data Summaries

Includes the following where applicable:

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

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: JB14769
Account: ENSRNJ - AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GN71131	0.010	0.0	mg/l	.15	0.15	100.0	90-110%
Chromium, Hexavalent	GP66995/GN71682			mg/kg	40.00	36.5	91.3	80-120%
Chromium, Hexavalent	GP66995/GN71682	0.40	0.0	mg/kg	984.65	976	99.1	80-120%

Associated Samples:
Batch GN71131: JB14769-10
Batch GP66995: JB14769-1, JB14769-2, JB14769-3, JB14769-4, JB14769-5, JB14769-6, JB14769-7, JB14769-8, JB14769-9, JB14769-11
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: JB14769
Account: ENSRNJ - AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GP66995/GN71682	JB14769-11	mg/kg	0.18 U	0.0	0.0	0-20%
Redox Potential Vs H2	GN71548	JB14769-11	mv	189	165	13.6*(a)	0-13%
Redox Potential Vs H2	GN71666	JB14769-10	mv	382	378	1.1	0-10%
pH	GN71547	JB14769-11	su	9.94	9.70	2.7	0-5%

Associated Samples:
Batch GN71131: JB14769-10
Batch GN71547: JB14769-1, JB14769-2, JB14769-3, JB14769-4, JB14769-5, JB14769-6, JB14769-7, JB14769-8, JB14769-9, JB14769-11
Batch GN71548: JB14769-1, JB14769-2, JB14769-3, JB14769-4, JB14769-5, JB14769-6, JB14769-7, JB14769-8, JB14769-9, JB14769-11
Batch GN71666: JB14769-10
Batch GP66995: JB14769-1, JB14769-2, JB14769-3, JB14769-4, JB14769-5, JB14769-6, JB14769-7, JB14769-8, JB14769-9, JB14769-11
(*) Outside of QC limits
(a) Outside of in house limits, but within reasonable method recovery limits.

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: JB14769
Account: ENSRNJ - AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chromium, Hexavalent	GP66995/GN71682	JB14769-11	mg/kg	0.18 U	1620	1430	88.0(a)	75-125%
Chromium, Hexavalent	GP66995/GN71682	JB14769-11	mg/kg	0.18 U	62.1	56.4	90.8(b)	75-125%

Associated Samples:
Batch GN71131: JB14769-10
Batch GP66995: JB14769-1, JB14769-2, JB14769-3, JB14769-4, JB14769-5, JB14769-6, JB14769-7, JB14769-8, JB14769-9, JB14769-11
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(a) Good recovery on insoluble XCR matrix spike. See additional comments on soluble matrix spike recovery.
(b) Good recovery on soluble XCR matrix spike. Good recovery (90.7%) on the post-spike.

Percent Solids Raw Data Summary

Job Number: JB14769
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Sample: JB14769-1 **Analyzed:** 05-SEP-12 by KP **Method:** SM18 2540G
ClientID: NSB-F1-20.0-20.5

Wet Weight (Total)	32.26	g
Tare Weight	23.2	g
Dry Weight (Total)	30.82	g
Solids, Percent	84.1	%

Sample: JB14769-2 **Analyzed:** 05-SEP-12 by KP **Method:** SM18 2540G
ClientID: NSB-F1-16.0-16.5

Wet Weight (Total)	29.53	g
Tare Weight	23.59	g
Dry Weight (Total)	28.44	g
Solids, Percent	81.6	%

Sample: JB14769-3 **Analyzed:** 05-SEP-12 by KP **Method:** SM18 2540G
ClientID: NSB-F1-10.0-10.5

Wet Weight (Total)	25.7	g
Tare Weight	19.88	g
Dry Weight (Total)	24.11	g
Solids, Percent	72.7	%

Sample: JB14769-4 **Analyzed:** 05-SEP-12 by KP **Method:** SM18 2540G
ClientID: NSB-F1-4.0-4.5

Wet Weight (Total)	31.38	g
Tare Weight	23.6	g
Dry Weight (Total)	29.29	g
Solids, Percent	73.1	%

Sample: JB14769-5 **Analyzed:** 05-SEP-12 by RO **Method:** SM18 2540G
ClientID: NSB-F1-1.0-1.5

Wet Weight (Total)	28.6	g
Tare Weight	20.66	g
Dry Weight (Total)	27.83	g
Solids, Percent	90.3	%

Sample: JB14769-6 **Analyzed:** 05-SEP-12 by KP **Method:** SM18 2540G
ClientID: NSB-E4-21.0-21.5

Wet Weight (Total)	33.61	g
Tare Weight	26.06	g
Dry Weight (Total)	32.68	g
Solids, Percent	87.7	%

Percent Solids Raw Data Summary

Job Number: JB14769
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Sample: JB14769-7 **Analyzed:** 05-SEP-12 by KP **Method:** SM18 2540G
ClientID: NSB-E4-16.0-16.5X

Wet Weight (Total)	35.49	g
Tare Weight	26.46	g
Dry Weight (Total)	33.65	g
Solids, Percent	79.6	%

Sample: JB14769-8 **Analyzed:** 05-SEP-12 by KP **Method:** SM18 2540G
ClientID: NSB-E4-16.0-16.5

Wet Weight (Total)	31.48	g
Tare Weight	21.83	g
Dry Weight (Total)	29.83	g
Solids, Percent	82.9	%

Sample: JB14769-9 **Analyzed:** 05-SEP-12 by KP **Method:** SM18 2540G
ClientID: NSB-E4-12.0-12.5

Wet Weight (Total)	29.03	g
Tare Weight	22.58	g
Dry Weight (Total)	27.54	g
Solids, Percent	76.9	%

Sample: JB14769-11 **Analyzed:** 05-SEP-12 by KP **Method:** SM18 2540G
ClientID: NSB-E4-6.5-7.0

Wet Weight (Total)	36.34	g
Tare Weight	28.72	g
Dry Weight (Total)	33.55	g
Solids, Percent	63.4	%

New Jersey ACCUTEST LABORATORIES

General Chemistry

Raw Data

Hexavalent Chromium

*All sample filtered prior to analysis
Filter GN: GN71B6

Filter lot #: F2EA19811

Field	Value
Test Title:	XCr
GN Batch:	GN71131
Analyst:	MM
Prep Date:	NA
Analysis Date:	8/27/2012
Instrument ID:	H

1

Method: SW846 7196A

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

Corr. Coef: 0.99996

Slope: 0.8884

Y intercept: 0.0008

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	19:25	0.000	0.0000							
	STD1	0.009	NA	NA	0.009	0.0100							
	STD2	0.044	NA	NA	0.044	0.0500							
	STD3	0.089	NA	NA	0.089	0.1000							
	STD4	0.267	NA	NA	0.267	0.3000							
	STD5	0.452	NA	NA	0.452	0.5000							
	STD6	0.710	NA	NA	0.710	0.8000							
	STD7	0.887	NA	19:28	0.887	1.0000							
	CCV	0.438	NA	19:41	0.438	0.4922	NA	NA	NA	NA	mg/l	0.001	0.010
	CCB	0.000	NA	19:41	0.000	-0.0009	NA	NA	NA	NA	mg/l	0.0013	0.010
	GN71131-MB1	0.000	0.000	19:45	0.000	-0.0009	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
	GN71131-B1	0.133	0.000	19:45	0.133	0.1489	50.0	50.0	1	0.149	mg/l	0.0014	0.010
	GN71131-S1	0.078	0.000	19:45	0.078	0.0869	50.0	50.0	1	0.087	mg/l	0.0014	0.010
	GN71131-D1	0.001	0.000	19:45	0.001	0.0003	50.0	50.0	1	0.000	mg/l	0.0014	0.010
* 13	JB14757-1F	0.001	0.000	19:45	0.001	0.0003	50.0	50.0	1	0.000	mg/l	0.0014	0.010
1	JB14769-10	0.000	0.000	19:45	0.000	-0.0009	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
	JB14757-1FDILCONF	0.000	0.000	19:45	0.000	-0.0009	50.0	50.0	5	-0.004	mg/l	0.0070	0.050
	JB14757-1PHADJPSCC	0.073	0.004	19:45	0.069	0.0768	50.0	50.0	1	0.077	mg/l	0.0014	0.010
					FALSE	-0.0009	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0009	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
	CCV	0.433	NA	19:45	0.433	0.4865	NA	NA	NA	NA	mg/l	0.0013	0.010
	CCB	0.000	NA	19:45	0.000	-0.0009	NA	NA	NA	NA	mg/l	0.0013	0.010
					FALSE	-0.0009	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0009	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0009	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0009	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0009	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0009	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0009	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0009	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0009	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0009	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
	CCV		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.0013	0.010
	CCB		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.0013	0.010
					FALSE	-0.0009	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0009	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0009	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0009	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0009	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0009	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0009	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0009	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0009	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0009	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
	CCV		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.0013	0.010
	CCB		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.0013	0.010
					FALSE	-0.0009	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0009	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0009	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0009	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0009	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0009	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0009	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0009	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0009	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0009	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
	CCV		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.0013	0.010
	CCB		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.0013	0.010
					FALSE	-0.0009	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0009	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0009	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0009	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
					FALSE	-0.0009	50.0	50.0	1	-0.001	mg/l	0.0014	0.010

ACCUTEST.

Test: **Hexavalent Chromium** MDL = 0.0013 mg/l GNBatch ID: GN71131
Product: **XCr** RDL = 0.010 mg/l Date: 8/27/2012
Method: **SW846 7196A**

Digestion Batch QC Summary Units = mg/l

Method Blank ID: GN71131MB1 Date: 8/27/2012 Result: <MDL RDL: 0.010 <RDL: Yes
Spike Blank ID: GN71131-BS1 Date: " Result: .479 Spike: .5 %Rec.: 95.8%
Duplicate ID: GN71131-D1 Samp. Result: .0 Dup. Result: 0 %RPD: <MDL
MS ID: GN71131-S1 Samp. Result: 0 MS Result: .0871 Spike: .15 %Rec: 58%
Diluted Sample ID: JB14757-1F Samp. Result: 0 Dil. Result: 0 %RPD: <MDL
pH adj. PS ID: " Samp. Result: 0 MS Result: .077 Spike: .15 %Rec: 51.3%

Analysis Batch QC Summary Units = mg/l

CCV:	8/27/2012	Result:	.492	TV:	.5	%Rec.: 98.4%
CCV:	"	Result:	.487	TV:	"	%Rec.: 97.4%
CCV:		Result:		TV:		%Rec.:
CCV:		Result:		TV:		%Rec.:
CCV:		Result:		TV:		%Rec.:
CCV:		Result:		TV:		%Rec.:

CCB:	8/27/2012	Result:	<MDL	RDL: 0.010	<RDL: Yes
CCB:	"	Result:	"	RDL: "	<RDL: Yes
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: [signature] Date: 8/27/2012

Comments:

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

ACCUTEST.

Hexavalent Chromium pH Adjustment Log
Method: SW846 7196A

pH adj. start time: 19:31 _____ pH Adjust. Date: 8/27/20
pH adj. end time: 19:34 _____ GN Batch ID: GN71131

Sample ID	Initial Sample Volume (ml)	Final Volume (ml)	pH after H2SO4	bkg pH after H2SO4	Spike Info	Comments
CCV	45	50	1.81		5mL	5 ppm Cr VI
CCV						
CCV						
CCV						
CCB	45	50	1.73			
CCB						
CCB						
CCB						
MS JB14757-1F	45	50	1.96	1.84	1mL	75 ppm Cr VI solution.
DUP	"	"	1.93	1.89		
SB JB1			1.89	1.73	1mL	75 ppm Cr VI solution.
PB JB1			1.90	1.72		
1. JB14757-1F			1.81	1.79		
2. JB14769-10	"	"	1.92	1.87		
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						
13.						
14.						
15.						
16.						
17.						
18.						
19.						
20.						
PS JB14757-1F	45	50	1.88	1.71	pH 8.12	1N 1mL 75 ppm Cr VI solution
DIL	"	"	1.95	1.80		1:5 dilution
DIL						

Reagent Information:

Analyst: MW Date: 8/27/20 QC Reviewer: _____ Date: _____

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

Sample Filtration Request
(Wet Chem)

Sample numbers: JB14757 - JB14757-1F,

Date: 8/27/2012 **Time:** 5:14 PM

Locations: ME 32, ME 41,

Tests: , XCR,

Comments:

Requested By: MATTCA

Samples Received By:

Form: SM07
Rev. Date 2/2/99

ACCUTEST

Hexavalent Chromium pH Adjustment Log

Method: SW846 7196A

pH adj. start time: 19:15 _____ pH Adjust. Date: 8/27/202

pH adj. end time: 19:18 _____ GN Batch ID: GN71131

Sample ID	Initial Sample Volume (ml)	Final Volume (ml)	pH after H2SO4	Comments	Spike Info.
Calibration Blank	45	50	1.93		
0.010 mg/l standard	↓	↓	1.96	5ppm ABSOLUTE	0.10 ml of 5 mg/l to 50 ml FV
0.050 mg/l standard	↓	↓	1.94	↓	0.50 ml of 5 mg/l to 50 mL FV
0.100 mg/l standard	↓	↓	1.89	↓	1.00 ml of 5 mg/l to 50 mL FV
0.300 mg/l standard	↓	↓	1.87	↓	3.00 ml of 5 mg/l to 50 mL FV
0.500 mg/l standard	↓	↓	1.94	↓	5.00 ml of 5 mg/l to 50 mL FV
0.800 mg/l standard	↓	↓	1.96	↓	8.00 ml of 5 mg/l to 50 mL FV
1.00 mg/l standard	↓	↓	1.98	↓	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:

Analyst: _____ Date: 8/27/202

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

ACCUTEST

Reagent Information Log - XCR - water - 7196A

Reagent	Exp. Date	Reagent # or Manufacturer/Lot
Calibration Source: Hexavalent Chromium, 1000 mg/L Stock	1/12/2015	Absolute Grade Lot# 011212
Calibration Checks: Hexavalent Chromium, 1000 mg/L Stock	5/31/2017	Ultra Scientific Lot# L00439
External Check	NA	NA
Spiking Solution Source	1/12/2015	Absolute Grade Lot# 011212
Diphenyl carbazide Solution	9/21/2018	GN18-33339-XCR
~~Sulfuric Acid, 10%~~	1/7/2018	GN17-32927-XCR

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

ACCUTEST LABORATORIES

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

Product: PH, CORR
Analyst: SANJAYA
GN Batch ID: GN71547
Analysis Date: 9/5/2012
pH Meter ID: 50

Thermometer ID: 6539
Correction Factor: 0

QC Summary

Duplicate ID: GN71547-D1
Dup Result: 9.70
Sample ID: JB14769-11
% RPD: 2.72%

Sample ID	Wt./Vol. used for soilds	Uncorrected/ Corrected Temp in Deg C.	Result	Corrosivity	Read time
Buffer Check: 4		25	3.98		14:58
Buffer Check: 7		25	7		
Buffer Check: 10		25	10.03		
GN71547-D1		25	9.70		
JB13955-1R		25	10.07		
JB13955-3R		25	12.02		
JB13955-4R		25	10.75		
JB14089-1R		25	11.65		
JB14089-2R		25	11.15		
JB14089-3R		25	8.04		
JB14769-1		25	8.30		
JB14769-11		25	9.94		
JB14769-2		25	7.94		
Buffer Check: 4		25	4.05		
Buffer Check: 13		25	13.01		
JB14769-3		25	7.62		
JB14769-4		25	7.88		
JB14769-5		25	8.41		
JB14769-6		25	8.90		
JB14769-7		25	8.88		
JB14769-8		25	8.86		
JB14769-9		25	8.53		
JB15276-1		25	8.05		
JB15276-2		25	7.78		
JB15276-3		25	7.93		
Buffer Check: 7		25	7.01		
Buffer Check: 10		25	10.01		16:11
Buffer Check:					
Buffer Check:					

Comments:

Validated By: Nancy Cole
Validated Date: 8/7/2012
Document Control #: AGN-PH CORR-AQ-01

ACCUTEST.

Analyst K.P

Method EH.PH

Prep Date 9/5/12

Balance # B-38

GP # GN71547-pH

GN 71548-EH

Sample Prep Log

Sample ID	Sample Size	Final Volume
JB14769-1	50.8 gm	50 ml DI H2O
2	50.4 gm	
3	50.3 gm	
4	50.6 gm	
5	50.6 gm	
6	50.5 gm	
7	50.1 gm	
8	50.3 gm	
9	50.7 gm	
11	50.5 gm	
11-DUP	50.6 gm	
JB15276-1	50.9 gm	
2	50.3 gm	
3	50.2 gm	
JB13955-1	50.1 gm	
JB13955-3	50.7 gm	
4	50.3 gm	
JB14084-1	50.9 gm	
-2	50.8 gm	
3	50.4 gm	

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

QC Review

Reagent Information Log
Test Name:_____pH_____

GN 71548

Reagent

pH 2 Buffer Solution	FICHER LOT#115910 EXP 11/30/13
pH 4 Buffer Solution	BDH LOT#2110255 EXP 9/30/13
pH 7 Buffer Solution	RICCA LOT#2111388 EXP 10/30/13
pH 10 Buffer Solution	FISCHER LOT#105427 EXP 09/30/12
pH 13 Buffer Solution	AQUA SOL. LOT#1080516 EXP 08/30/

Form: GN087-01
Rev. Date:9/5/2012

ACCUTEST.

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

Matrix: Aqueous ○ | Method: ASTM D1498-76 | **Date:** 09/05/12

Matrix: Solid ◉ | Method: ASTM D1498-76 Mod. | **GN Batch ID:** GN71548

Temp (Deg C): 25

Quality Control Summary

Sample ID:	GN71548-1	Results:	**188.6**	Dup:	**165**
Ferrous-Ferric True: 675				Found	**639.5**
pH 4 Quinhydrone True: 462				Found	**477.8**
pH 4 Quinhydrone True: 462				Found	**449**
pH 4 Quinhydrone True: 462				Found	**471.3**
pH 7 Quinhydrone True: 285				Found	**260.9**
pH 7 Quinhydrone True: 285				Found	**260.1**
pH 7 Quinhydrone True: 285				Found	**274**

		% RPD:	**13.35%**
		% Rec	**94.74%**
		% Rec	**103.42%**
		% Rec	**97.19%**
		% Rec	**102.01%**
		% Rec	**91.54%**
		% Rec	**91.26%**
		% Rec	**96.14%**

Sample #:	mv vs. Ag/AgCl Electrode	Corrected results (mv vs. Hydrogen electrode) ***
Ferrous-Ferric Solution	455.8	639.5
pH 4 Quinhydrone	294	477.8
pH 7 Quinhydrone	77.1	260.9
Dup GN71548-D1	-18.7	165
1. JB13955-1R	38.5	222.9
2. JB13955-3R	-80.8	103
3. JB13955-4R	-54.8	128.8
4. JB14089-1R	-65.7	118
5. JB14089-2R	-140.6	43.1
6. JB14089-3R	6.9	190.6
7. JB14769-1	77.5	261.2
8. JB14769-11	5.1	188.6
9. JB14769-2	88.8	272.5
pH 4 Quinhydrone	265.4	449
pH 7 Quinhydrone	76.4	260.1
10. JB14769-3	-127.8	55.9
11. JB14769-4	100.2	283.9
12. JB14769-5	167.2	351
13. JB14769-6	109	292.7
14. JB14769-7	50.1	233.8
15. JB14769-8	57.5	241.2
16. JB14769-9	-167.8	16
17. JB15276-1	7.8	191.4
18. JB15276-2	85.5	269.2
19. JB15276-3	95	279.7
pH 4 Quinhydrone	287.6	471.3
pH 7 Quinhydrone	90.3	274

*** 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: Redox Standard: GNE-31456-ORP Exp:9/15/12

Comments:

Analyst: S.A. Date: 09/05/12 QC Reviewer: Date:

F/N GN141.DOC

Rev. Date: 3/27/2007

ACCUTEST.

Analyst K.P

Method EH. PH

Prep Date 9 15 12

Balance # B-36

GP # GN71547-pH
GN 71548-eH

Sample Prep Log

Sample ID	Sample Size	Final Volume
JB14769-1	50.8 gm	50 ml DI H2O
2	50.4 gm	
3	50.3 gm	
4	50.6 gm	
5	50.6 gm	
6	50.2 gm	
7	50.1 gm	
8	50.3 gm	
9	50.7 gm	
11	50.5 gm	
11-DUP	50.6 gm	
JB15276-1	50.9 gm	
2	50.3 gm	
3	50.2 gm	
JB13955-1	50.1 gm	
JB13955-3	50.7 gm	
4	50.3 gm	
JB14089-1	50.9 gm	
-2	50.8 gm	
3	50.4 gm	

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

QC Review_____

ACCUTEST.

Test: Redox Potential
Matrix: Aqueous ○
Matrix: Solid ◉

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

Analyst: SANJAYA
Date: 09/07/12
GN Batch ID: GN71666
Temp (Deg C): 25

Quality Control Summary

Sample ID:	GN71666-D1	Results:	**382.3**	Dup:	**377.8**
Ferrous-Ferric True: 675				Found	**637.5**
pH 4 Quinhydrone True: 462				Found	**491.6**
pH 4 Quinhydrone True: 462				Found	**460.9**
pH 4 Quinhydrone True: 462				Found	
pH 7 Quinhydrone True: 285				Found	**263.7**
pH 7 Quinhydrone True: 285				Found	**264.4**
pH 7 Quinhydrone True: 285				Found	

% RPD:	**1.18%**
% Rec	**94.44%**
% Rec	**106.41%**
% Rec	**99.76%**
% Rec	
% Rec	**92.53%**
% Rec	**92.77%**
% Rec	

Sample #:	mv vs. Ag/AgCl Electrode	Corrected results (mv vs. Hydrogen electrode) ***
Ferrous-Ferric Solution	453.9	637.5
pH 4 Quinhydrone	308	491.6
pH 7 Quinhydrone	80	263.7
Dup GN71666-D1	194.1	377.8
1. JB14769-10	198.5	382.3
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
pH 4 Quinhydrone	277.1	460.9
pH 7 Quinhydrone	80.7	264.4
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: Redox Standard: GNE-31456-ORP Exp:9/15/12

Comments:

Analyst: S.A. Date: 09/07/12 QC Reviewer: Date:

F/N GN141.DOC
Rev. Date: 3/27/2007

GN71666

ACCUTEST.

Analyst S.A

Method E-H

Prep Date 9/7/12

Balance # 38

GP # GN1666-eH

Sample Prep Log

Sample ID	Sample Size	Final Volume
JB14769-10	60mL	
-10RP	60mL	

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

QC Review_____

Hexavalent Chromium

Test Title: XCRA
GN Batch: GN71682
Analyst: MM
Prep Date: 9/6/2012
Analysis Date: 9/7/2012
Instrument ID: H

Method: SW846 3060A, 7196A

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

Corr. Coef: 0.99997
Slope: 0.9033
Y intercept: 0.001

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	9:00	0.000	0.0000							
	STD 1	0.009	NA	NA	0.009	0.0100							
	STD 2	0.045	NA	NA	0.045	0.0500							
	STD 3	0.091	NA	NA	0.091	0.1000							
	STD 4	0.273	NA	NA	0.273	0.3000							
	STD 5	0.459	NA	NA	0.459	0.5000							
	STD 6	0.721	NA	NA	0.721	0.8000							
	STD 7	0.903	NA	9:03	0.903	1.0000							
	CCV	0.440	NA	15:47	0.440	0.4860	NA	NA	NA	NA	mg/l	0.003	0.010
	CCB	0.000	NA	15:47	0.000	-0.0011	NA	NA	NA	NA	mg/l	0.003	0.010
	GNP66995-MB1	0.000	0.000	15:53	0.000	-0.0011	100.0	2.5000	1	-0.044	mg/kg	0.117	0.400
	GP66995-B1	0.826	0.000	15:53	0.826	0.9133	100.0	2.5000	1	36.533	mg/kg	0.117	0.400
	GP66995-S1	0.825	0.004	15:53	0.821	0.9078	100.0	2.5400	1	35.740	mg/kg	0.115	0.394
	GP66995-D1	0.001	0.000	15:53	0.001	0.0000	100.0	2.5400	1	0.001	mg/kg	0.115	0.394
	JB14769-11	0.002	0.000	15:53	0.002	0.0011	100.0	2.5400	1	0.044	mg/kg	0.115	0.394
	JB14769-11PSCONF	0.437	0.003	15:53	0.434	0.4794	100.0	2.5400	2	37.746	mg/kg	0.231	0.787
	GP66995-B2	>3	OVR		FALSE	-0.0011	100.0	2.5000	1	-0.044	mg/kg	0.117	0.400
	GP66995-S2	>3	OVR		FALSE	-0.0011	100.0	2.4800	1	-0.044	mg/kg	0.118	0.403
	GP66995-B2	0.442	0.000	15:53	0.442	0.4882	100.0	2.5000	50	976.449	mg/kg	5.860	20.000
	GP66995-S2	0.407	0.000	15:53	0.407	0.4495	100.0	2.4800	50	906.205	mg/kg	5.907	20.161
	CCV	0.439	NA	15:53	0.439	0.4849	NA	NA	NA	NA	mg/l	0.003	0.010
	CCB	0.000	NA	15:53	0.000	-0.0011	NA	NA	NA	NA	mg/l	0.003	0.010
					FALSE	-0.0011	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	-0.0011	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	-0.0011	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	-0.0011	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	-0.0011	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	-0.0011	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	-0.0011	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	-0.0011	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	-0.0011	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	-0.0011	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
	CCV	0.441	NA	16:21	0.441	0.4871	NA	NA	NA	NA	mg/l	0.003	0.010
	CCB	0.000	NA	16:21	0.000	-0.0011	NA	NA	NA	NA	mg/l	0.003	0.010
	JB14769-1	0.002	0.000	16:26	0.002	0.0011	100.0	2.5200	1	0.045	mg/kg	0.116	0.397
	JB14769-2	0.004	0.000	16:26	0.004	0.0033	100.0	2.5300	1	0.132	mg/kg	0.116	0.395
	JB14769-3	0.046	0.026	16:26	0.020	0.0210	100.0	2.4800	1	0.849	mg/kg	0.118	0.403
	JB14769-4	0.061	0.005	16:26	0.056	0.0609	100.0	2.4300	1	2.506	mg/kg	0.121	0.412
	JB14769-5	0.036	0.002	16:26	0.034	0.0365	100.0	2.4800	1	1.474	mg/kg	0.118	0.403
	JB14769-6	0.002	0.000	16:26	0.002	0.0011	100.0	2.5000	1	0.045	mg/kg	0.117	0.400
	JB14769-7	0.008	0.000	16:26	0.008	0.0078	100.0	2.4700	1	0.314	mg/kg	0.119	0.405
	JB14769-8	0.005	0.000	16:26	0.005	0.0044	100.0	2.5400	1	0.175	mg/kg	0.115	0.394
	JB14769-9	0.015	0.008	16:26	0.007	0.0067	100.0	2.5800	1	0.258	mg/kg	0.114	0.388
					FALSE	-0.0011	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
	CCV	0.438	NA	16:26	0.438	0.4838	NA	NA	NA	NA	mg/l	0.003	0.010
	CCB	0.000	NA	16:26	0.000	-0.0011	NA	NA	NA	NA	mg/l	0.003	0.010
					FALSE	-0.0011	100.0	2.5000	1	-0.044	mg/kg	0.117	0.400
					FALSE	-0.0011	100.0	2.5000	1	-0.044	mg/kg	0.117	0.400
					FALSE	-0.0011	100.0	2.5000	1	-0.044	mg/kg	0.117	0.400
					FALSE	-0.0011	100.0	2.5000	1	-0.044	mg/kg	0.117	0.400
					FALSE	-0.0011	100.0	2.5000	1	-0.044	mg/kg	0.117	0.400
					FALSE	-0.0011	100.0	2.5000	1	-0.044	mg/kg	0.117	0.400
					FALSE	-0.0011	100.0	2.5000	1	-0.044	mg/kg	0.117	0.400
					FALSE	-0.0011	100.0	2.5000	1	-0.044	mg/kg	0.117	0.400
					FALSE	-0.0011	100.0	2.5000	1	-0.044	mg/kg	0.117	0.400
					FALSE	-0.0011	100.0	2.5000	1	-0.044	mg/kg	0.117	0.400
	CCV		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.003	0.010
	CCB		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.003	0.010
					FALSE	-0.0011	100.0	2.5000	1	-0.044	mg/kg	0.117	0.400
					FALSE	-0.0011	100.0	2.5000	1	-0.044	mg/kg	0.117	0.400
					FALSE	-0.0011	100.0	2.5000	1	-0.044	mg/kg	0.117	0.400
					FALSE	-0.0011	100.0	2.5000	1	-0.044	mg/kg	0.117	0.400
					FALSE	-0.0011	100.0	2.5000	1	-0.044	mg/kg	0.117	0.400

9/10/12

ACCUTEST.

Test: **Hexavalent Chromium** MDL = 0.117 mg/kg GNBatch ID: GN71682
Product: **XCr** RDL = 0.40 mg/kg Date: 9/7/202
Method: **SW846 3060A/7196A**

Digestion Batch QC Summary Units = mg/kg

Method Blank ID: GN71682-MB Date: 9/7/202 Result: <MDL RDL: 0.40 <RDL: Yes
Sol. Spike Blank ID: GN71682-BS1 Date: " Result: 36.53 Spike: 40.0 %Rec.: 91.3%
Insol. Spike Blank ID: GN71682-BS2 Date: " Result: 976.45 Spike: 984.05 %Rec.: 99.2%
Duplicate ID: GN71682-D1 Samp. Result: <MDL Dup. Result: <MDL %RPD: <MDL
Sol. MS ID: GN71682-S1 Samp. Result: " MS Result: 35.74 Spike: 39.31 %Rec: 90.9%
Insol. MS ID: GN71682-S2 Samp. Result: " MS Result: 906.21 Spike: 1025.03 %Rec: 88.4%
Post Spike ID: JB14769-11 Samp. Result: " PS Result: 37.75 Spike: 41.55 %Rec: 91.0%
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:	9/7/202	Result:	4.86	TV: 0.500	%Rec.:	97.2%
CCV:	"	Result:	4.85	TV: 0.500	%Rec.:	97.0%
CCV:	"	Result:	4.87	TV: 0.500	%Rec.:	97.4%
CCV:	"	Result:	4.84	TV: 0.500	%Rec.:	96.8%
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:	9/7/202	Result:	<MDL	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: MM Date: 9/7/202

Comments: _____

Form: GN066-01
Rev. Date: 4/25/11

ACCUTEST.

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

pH Meter ID: 51
Digestion Date: #4 9/6/12 9/6/12
pH adj. Date: 9/7/12
GN Batch ID: GN71682

adj. start time:	15:24	15:56	15:35	16:10
adj. end time:	15:30	16:03	15:37	16:13

mple ID	Sample Weight in g	pH after HNO3	Final Volume (ml)	pH after H2SO4	bkg pH after H2SO4	Spike Amounts	Spike Solution	Digestate Description/Comments
p66995								
V		7.36	100	1.76		5.0ml	10 ppm	ultra
V		7.45	↓			↓		
V								
V								
B		7.89	100	2.01				
B		7.51	↓					
B								
B								
(Sol) JB14769-11	2.54	7.16	100	1.90	1.82	1.0ml	100 ppm	ASol
(Insol.) ↓ -11	2.46	7.82		1.73	OR	0.0158	PbCrO4	
P ↓ -11	2.54	7.93		1.82	1.79			
(Sol)	2.50	7.84		1.97	1.80	1.0ml	100 ppm	ASol
(Insol)		7.72		1.81	OR	0.0153	PbCrO4	
	↓	7.16		1.94	1.87			
B14769-11	2.46	7.91		1.89	1.71			clear
-1	2.52	7.56		1.96	1.84			↓
-2	2.53	7.69		1.98	1.83			light brown
-3	2.45	7.98		1.90	1.90			light yellow
-4	2.43	7.34		1.86	1.74			
-5	2.48	7.23		2.02	1.91			clear
-6	2.50	7.19		1.96	1.86			clear
-7	2.47	7.26		1.97	1.80			clear
-8	2.54	7.94		1.82	1.72			light brown
-9	2.58	7.82	↓	1.79	1.69			
(Insol)	2.50	7.72	100	1.89	1.74			dilution 1:5
(Insol.)	2.48	7.82	↓	2.10	1.91			dilution 1:5
	2.46	7.91		1.96	1.86	.23mL	100ppm	insoluble + 1:2 dilution
adjusted PS								
dil.								
m JB14769-11	2.46							

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

)00000 ug/g x Insoluble spike wt(g) x 52/323.2}/ms sample wt(g) = Insoluble spike amount of PbCrO4

d analyst check: _____

Anayst: MM 9.7.12
Date: 9/7/2012

Form: GN-067

ACCUTEST LABS
DAYTON, NJ
GN71682

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

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?
JB14769-11	2.46	1.107		0.443	no	0	2	0.222	0.23	0.511	41.554	efault (40 mg/kg) spike
		0		0.000	no	0		#DIV/0!		#DIV/0!	#DIV/0!	efault (40 mg/kg) spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike

3060A/7196A INSOLUBLE SPIKE CALCULATION

Weight of PbCrO4	Weight of Sample	Amount Spiked
0.0153	2.5	984.653
0.0158	2.48	1025.032
		#VALUE!
		#VALUE!
		#VALUE!
		#VALUE!
		#VALUE!
		#VALUE!
		#VALUE!

ACCUTEST.

Hexavalent Chromium pH Adjustment Log

Method: SW846 3060A/7196A

pH adj. start time: f:33 f:44

pH adj. end time: f:35 f:49

pH adjustment Date: 9-7-2012

GN Batch ID: GN71682

Sample ID	Sample Weight in g	pH after HNO3	Final Volume (ml)	pH after H2SO4	Comments	Spike Info.
Calibration Blank	NA	7.75	100	2.11	0	
0.010 mg/l standard	NA	7.80		2.01	10 ppm Absorbtion	0.10 ml of 10 mg/l
0.050 mg/l standard	NA	7.85		2.04		0.50 ml of 10 mg/l
0.100 mg/l standard	NA	7.79		1.98		1.00 ml of 10 mg/l
0.300 mg/l standard	NA	7.77		2.10		3.00 ml of 10 mg/l
0.500 mg/l standard	NA	7.60		1.99		5.00 ml of 10 mg/l
0.800 mg/l standard	NA	7.74		1.94		8.00 ml of 10 mg/l
1.00 mg/l standard	NA	7.29	↓	2.12	↓	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: RZ

Date: 9-7-2012

Form: GN068-01

Rev. Date:5/22/06

ACCUTEST.

HEXAVALENT CHROMIUM STANDARD PREPARATION LOG

Product: XCR

GN or GP Number: GN71682

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 # 041215	1000 ppm	1.0 ml	DI	100 mls	10 mg/l	4/12/2015	RZ	9-7-12
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	9-8-12	RZ	9-7-12
.050 ppm			0.5 ppm	DI		0.05 mg/l			
.10 ppm			1.0 ppm	DI		0.10 mg/l			
.30 ppm			3.0 ppm	DI		0.30 mg/l			
.50 ppm			5.0 ppm	DI		0.50 mg/l			
.80 ppm			8.0 ppm	DI		0.80 mg/l			
1.00 ppm			10.0 ppm	DI		1.0 mg/l			

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

ACCUTEST.

HEXAVALENT CHROMIUM TEMPERATURE AND TIME DIGESTON LOG - METHOD 3060A

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

Thermometer ID: 38/397/182/175
Thermometer Correction factor: 01-2/210

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
Sp 66994	Starting Time	8:55	90/90	92/90	90/92	90/90
	Time 1	9:25	90/90	92/90	90/92	90/90
	Ending Time	9:55	90/90	92/90	90/92	90/90
	Starting Time	10:45	90/90	92/90	90/92	90/90
	Time 1	11:15	90/90	92/90	90/92	90/90
	Ending Time	11:45	90/90	92/90	90/92	90/90
	Starting Time	11:55	90/90	92/90	90/92	90/90
	Time 1	12:25	90/90	92/90	90/92	90/90
	Ending Time	12:55	90/90	92/90	90/92	90/90

Analyst: MP RR Date: 9/6/12

2nd Analyst Check: _____

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

ACCUTEST.

GN/GP Batch ID: GP 66995

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

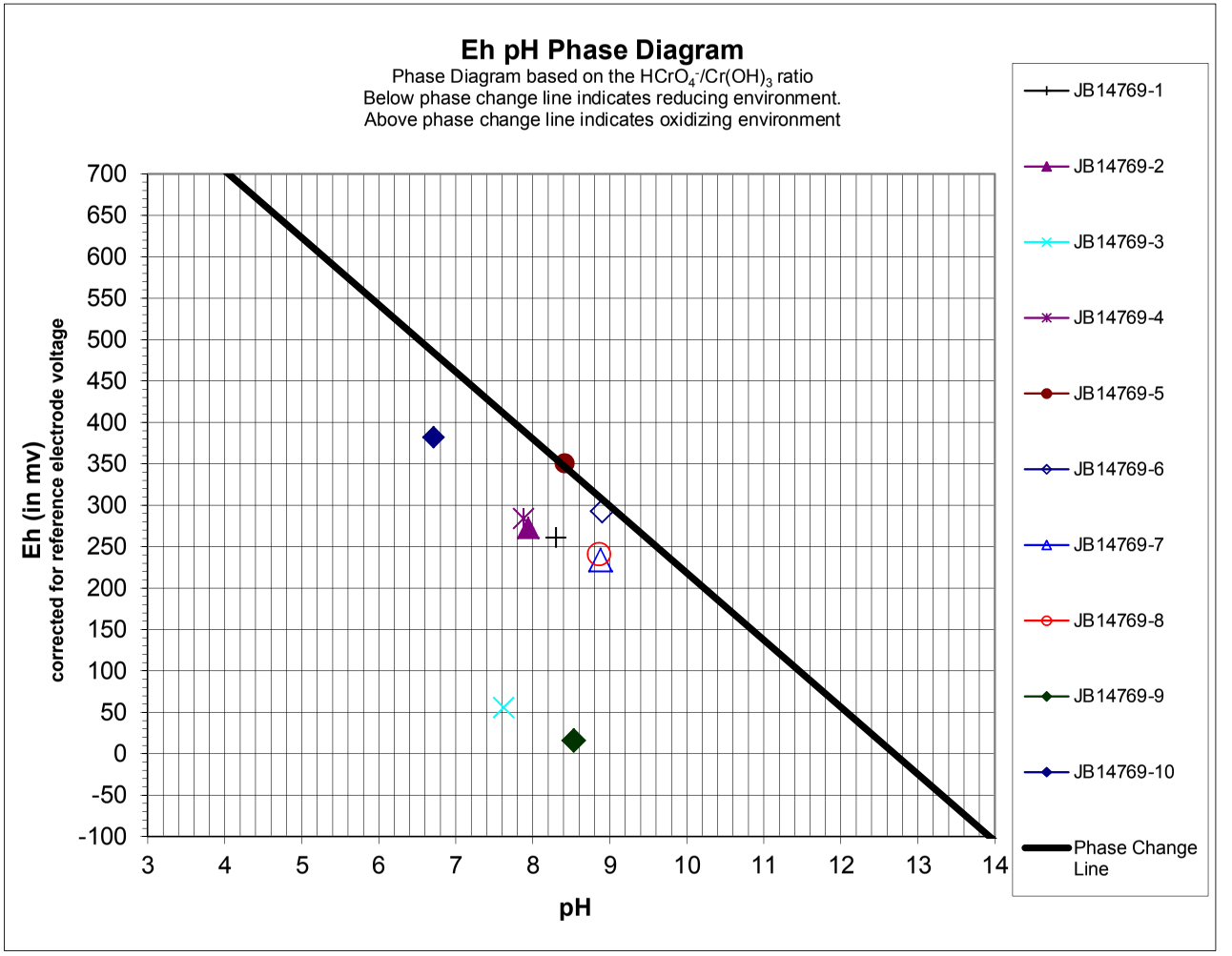
Reagent	Exp. Date	Reagent # or Manufacturer/Lot
Calibration Source: Hexavalent Chromium, 1000 mg/L Stock	4/12/2015	Absolute Grade Lot # 041212
Calibration Checks: Hexavalent Chromium, 1000 mg/L Stock	5/31/2017	Ultra lot # L00439
Spiking Solution Source	4/12/2015	Absolute Grade Lot # 041212
Lead Chromate (Insoluble Hexavalent Chromium Spike)	7/26/2017	Sigma Aldrich Lot # BCBG0578V
Magnesium Chloride, Anhydrous	7/11/2016	Alfa Aesar Lot # B17X012
1N NaOH		
Digestion Solution	9-30-12	GNE8-33421 XCRA
Phosphate Buffer Solution	2-14-13	GNF-33273 XCRA
5.0 M Nitric Acid	3/4/2013	GNE9-33456-XCRA
Diphenylcarbazide Solution	10/5/2012	GNE9-33408-XCR
Sulfuric Acid, 10%	3/10/2013	GNE9-33402-XCR
Filter	NA	P2EA19F11
Teflon Chips	NA	919120

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

ACCUTEST

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

Sample Number	pH	eH (mv)
JB14769-1	8.3	261
JB14769-2	7.94	273
JB14769-3	7.62	55.9
JB14769-4	7.88	284
JB14769-5	8.41	351
JB14769-6	8.9	293
JB14769-7	8.88	234
JB14769-8	8.86	241
JB14769-9	8.53	16
JB14769-10	6.71	382



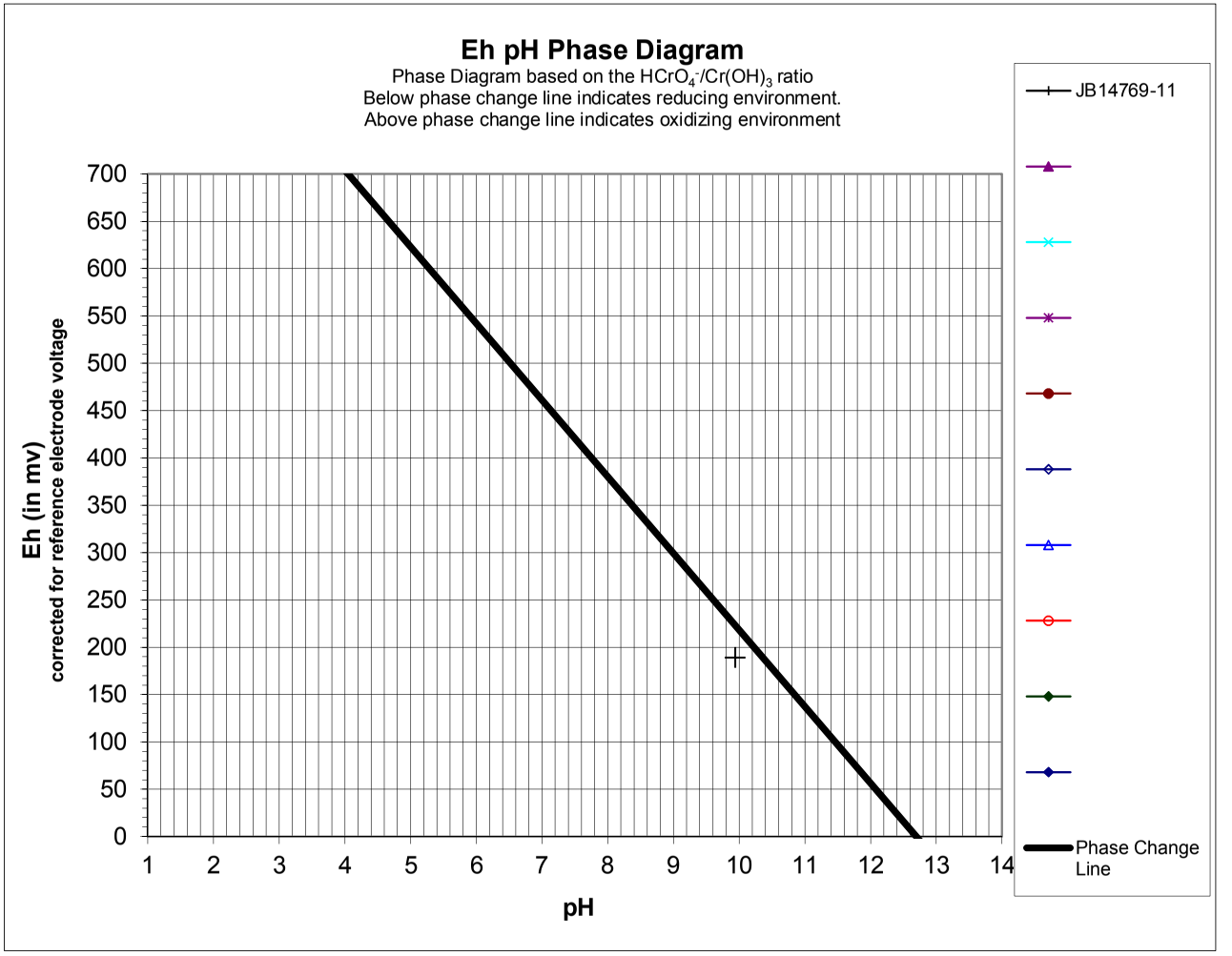
Note that the Eh values plotted on this diagram are corrected for the reference electrode voltage and the values shown are versus the standard hydrogen electrode

Reference for graph: SW846 method 3060A

ACCUTEST

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

Sample Number	pH	eH (mv)
JB14769-11	9.94	189



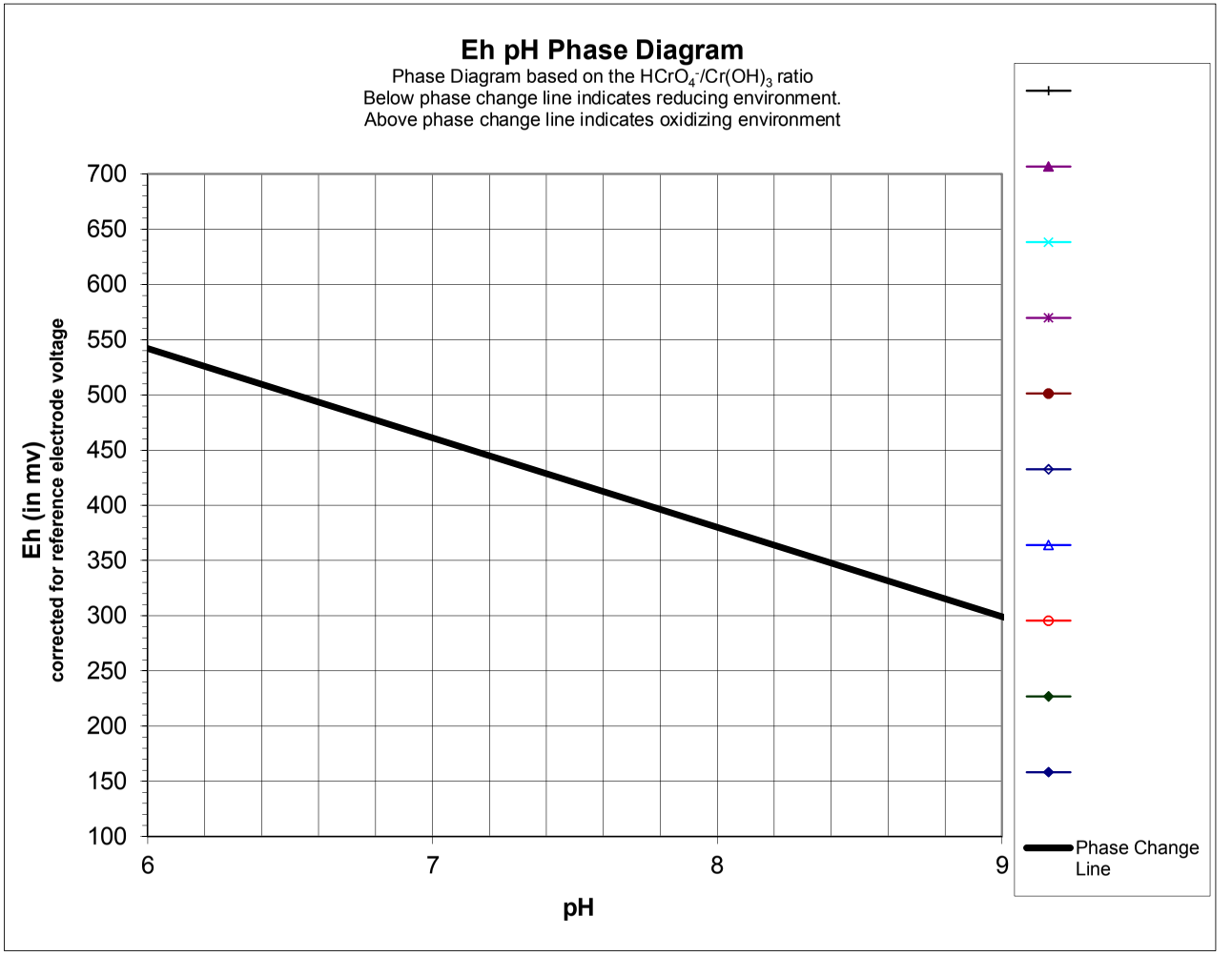
Note that the Eh values plotted on this diagram are corrected for the reference electrode voltage and the values shown are versus the standard hydrogen electrode

Reference for graph: SW846 method 3060A

ACCUTEST

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

Sample Number	pH	eH (mv)



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

AECOM
250 Apollo Drive
Chelmsford, MA 01824

978-905-2100 tel
978-905-2101 fax

Data Validation Report

Project:	PPG – Garfield Avenue Supplemental Remedial Investigation (GARIS) Northern Canal Borings
Laboratory:	Accutest, Dayton, NJ
Laboratory Job No.:	JB14858 and JB14858R
Analysis/Method:	Hexavalent Chromium SW846 3060A/7196A
Validation Level:	Full (Hexavalent Chromium)
Site Location/Address:	PPG Site 114 – Garfield Avenue, Jersey City, NJ
AECOM Project Number:	60213772.5.A
Prepared by: Kristin Rutherford/AECOM	Completed on: September 20, 2012
Reviewed by: Lisa Krowitz/AECOM	File Name: 2012-09-20 DV Report JB14858_R-F.docx

Introduction

The data were reviewed in accordance with the FSP-QAPP and the following NJDEP and/or Region 2 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.

Sample Information

The samples listed below were collected by AECOM on August 28, 2012 as part of the Garfield Avenue Supplemental Remedial Investigation (GARIS) Northern Canal Boring Sampling at the PPG Site - 114 Jersey City, New Jersey.

Field ID	Laboratory ID	Matrix	Fraction
NSB-F2-21.5-22.0	JB14858-1, -1R	Soil	Hexavalent Chromium
NSB-F2-17.8-18.3	JB14858-2, -2R	Soil	Hexavalent Chromium
NSB-F2-15.0-15.5	JB14858-3, -3R	Soil	Hexavalent Chromium
NSB-F2-10.5-11.0X (field duplicate of NSB-F2-10.5-11.0)	JB14858-4, -4R	Soil	Hexavalent Chromium
NSB-F2-10.5-11.0	JB14858-5, -5R	Soil	Hexavalent Chromium
NSB-F2-4.0-4.5	JB14858-6, -6R	Soil	Hexavalent Chromium
NSB-F2-1.0-1.5	JB14858-7, -7R	Soil	Hexavalent Chromium
NSB-F3-20.0-20.5	JB14858-8, -8R	Soil	Hexavalent Chromium
NSB-F3-15.0-15.5	JB14858-9, -9R	Soil	Hexavalent Chromium
NSB-F3-10.0-10.5	JB14858-10, -10R	Soil	Hexavalent Chromium
NSB-F4-20.0-20.5	JB14858-11, -11R	Soil	Hexavalent Chromium
NSB-F4-16.0-16.5	JB14858-12, -12R	Soil	Hexavalent Chromium
NSB-F3-4.0-4.5	JB14858-13, -13R	Soil	Hexavalent Chromium
NSB-F3-1.0-1.5	JB14858-14, -14R	Soil	Hexavalent Chromium
NSB-F4-10.0-10.5	JB14858-15, -15R	Soil	Hexavalent Chromium
NSB-F4-6.0-6.5	JB14858-16, -16R	Soil	Hexavalent Chromium
NSB-EB20120828 (equipment blank)	JB14858-17	Aqueous	Hexavalent Chromium
NSB-F4-0.0-0.5	JB14858-18, -18R	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 Sites 114, 132, 133, 135, 137, 143, and 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

Matrix Spike Results

Sample NSB-F4-0.0-0.5 (JB14858-18) 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 (GN71774) were 37.6% and 82.1%, respectively; the soluble MS recovery did not meet quality control criteria of 75-125%R, and was <50%R. The post digestion spike (PDS) recovery was 84% and the pH-adjusted PDS recovery was 61%, which did not meet the PDS criteria of 85-115%.

Based on poor soluble MS recovery of less than 75%R, the samples were reanalyzed using Method 7196.

The soluble and insoluble matrix spike recoveries from the re-analysis (batch GN71967) were 61.6% and 87.4%, respectively; again the soluble MS recovery did not meet the quality control criteria of

75-125%R. The post spike result for the re-analysis batch was recovered at 86.3%, which met the PDS criteria of 85-115%.

Due to low MS recoveries, additional parameters were analyzed to determine if possible matrix interferences could be the cause for the poor matrix spike recoveries. The sample was 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 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 result was (0.62%) and the TOC (118,000 mg/Kg) were positive, indicating potential reducing agents within the sample matrix.

The soil hexavalent chromium results were reported from the re-analysis since the MS and PDS recoveries showed improvement from the initial analysis. However, the highest result for hexavalent chromium was reported for each sample so some results were reported from the initial analysis. Since the soluble MS recoveries from the initial and reanalysis were below 75%R, the reported positive and nondetect hexavalent chromium results for all soil samples in this SDG were qualified as estimated (J and UJ, respectively).

Field Duplicate Precision

Samples NSB-F2-10.5-11.0 and NSB-F2-10.5-11.0X were collected as the field duplicate pair in this SDG. The relative percent difference (RPD) criteria were met for results in the initial analysis (JB14858), but the RPD was not calculated in the re-analysis (JB14858R) since one result was nondetect and the other was >4X the reporting limit. Since the results for hexavalent chromium were reported from the re-analysis based on matrix spike recoveries, the results for hexavalent chromium in all soil samples were qualified as estimated (J/UJ) with the potential for bias in an unknown direction.

Laboratory Duplicate Precision

Sample NSB-F2-10.5-11.0 was analyzed as the laboratory duplicate pair in this SDG. The relative percent difference (RPD) criteria were met for results in the initial analysis (JB14858), but the RPD (36.8%) did not meet criteria of <20% for results >4X the reporting limit in the re-analysis (JB14858R). Since the results for hexavalent chromium were reported from the re-analysis based on matrix spike recoveries, the results for hexavalent chromium in all soil samples were qualified as estimated (J/UJ) with the potential for bias in an unknown direction.

Sample Results

Reported results (flagged B by the laboratory) that were less than the reporting limit (RL), but greater than or equal to the method detection limit (MDL) are approximate values and have been qualified as estimated (J).

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 discussed in attachments A and B below.

The reported hexavalent chromium results in all soil samples are usable as estimated values with the potential for bias low due to poor MS recoveries.

The reported hexavalent chromium results in all soil samples are usable as estimated values with the potential for bias in an unknown direction due to poor laboratory and field duplicate precision.

Sample results detected between the RL and MDL are usable as estimated values with the potential for bias in an unknown direction.

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 PPG –GARIS Northern Canal Borings at PPG Site 114, Jersey City, NJ
Sampling Date August 28, 2012
Lab Name/ID Accutest Laboratories, Dayton, NJ
SDG No JB14858 and JB14858R
Sample Matrix Soil
Trip Blank ID NA
Field Blank ID NSB-EB20120828

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
NSB-F2-1.0-1.5	JB14858-7	CHROMIUM (HEXAVALENT)	U	2.8	2.8	0.48	Qualify	8,18,29
NSB-F2-10.5-11.0	JB14858-5	CHROMIUM (HEXAVALENT)	U	0.60	0.60	0.52	Qualify	8,18,29
NSB-F2-15.0-15.5	JB14858-3	CHROMIUM (HEXAVALENT)	U	1.8	1.8	0.52	Qualify	8,18,29
NSB-F2-21.5-22.0	JB14858-1	CHROMIUM (HEXAVALENT)	U	0.74	0.74	0.47	Qualify	8,18,29
NSB-F2-4.0-4.5	JB14858-6	CHROMIUM (HEXAVALENT)	U	2.6	2.6	0.46	Qualify	8,18,29
NSB-F4-20.0-20.5	JB14858-11	CHROMIUM (HEXAVALENT)	U	0.60	0.60	0.47	Qualify	8,18,29
NSB-F4-6.0-6.5	JB14858-16	CHROMIUM (HEXAVALENT)	U	0.53	0.53	0.63	Qualify	8,18,29,31
NSB-F2-10.5-11.0X	JB14858-4R	CHROMIUM (HEXAVALENT)	U	3.3	3.3	0.53	Qualify	8,18,29
NSB-F2-17.8-18.3	JB14858-2R	CHROMIUM (HEXAVALENT)	U	U	U	0.45	Qualify	8,18,29
NSB-F3-1.0-1.5	JB14858-14R	CHROMIUM (HEXAVALENT)	U	1.3	1.3	0.46	Qualify	8,18,29
NSB-F3-10.0-10.5	JB14858-10R	CHROMIUM (HEXAVALENT)	U	1.3	1.3	0.69	Qualify	8,18,29
NSB-F3-15.0-15.5	JB14858-9R	CHROMIUM (HEXAVALENT)	U	1.8	1.8	0.46	Qualify	8,18,29
NSB-F3-20.0-20.5	JB14858-8R	CHROMIUM (HEXAVALENT)	U	3.8	3.8	0.46	Qualify	8,18,29
NSB-F3-4.0-4.5	JB14858-13R	CHROMIUM (HEXAVALENT)	U	7.7	7.7	0.49	Qualify	8,18,29
NSB-F4-0.0-0.5	JB14858-18R	CHROMIUM (HEXAVALENT)	U	3.1	3.1	0.49	Qualify	8,18,29
NSB-F4-10.0-10.5	JB14858-15R	CHROMIUM (HEXAVALENT)	U	2.0	2.0	0.65	Qualify	8,18,29
NSB-F4-16.0-16.5	JB14858-12R	CHROMIUM (HEXAVALENT)	U	0.72	0.72	0.52	Qualify	8,18,29

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 $\pm$ 20 percent for sample results > 4xRL or $\pm$ 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 rejected because the laboratory exceeded the holding time for digestion and 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 90°C.

29. In the Field Duplicate Sample Analysis, Hexavalent Chromium fell outside the control limits of ≤ 20% for sample results > 4xRL or $\pm$ 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 6ºC.
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.

Attachment B

Data Validation Report Form

Client Name: PPG Industries	**Project Number:** 60213772.5.A
Site Location: PPG- GARIS Northern Canal Borings	**Project Manager:** Robert Cataldo
Laboratory: Accutest, Dayton, New Jersey	**Limited or Full Validation (circle one)**
Laboratory Job No: JB14858 and JB14858R	**Date Checked:** 09/20/2012
Validator: Kristin Rutherford	**Peer:** Lisa Krowitz

ITEM	YES	NO	N/A	COMMENTS
Sample results included?	x			17 soils and 1 EB
Reporting Limits met project requirements?	x			
Field I.D. included?	x			
Laboratory I.D. included?	x			
Sample matrix included?	x			
Sample receipt temperature 2-6ºC?	x			6.0°C
Signed COCs included?	x			
Date of sample collection included?	x			08/28/2012
Date of sample digestion included?	x			Soil: JB14858 HxCr prepped on 09/08/2012 Soil: JB14858R HxCr prepped on 09/12/2012
Holding time to digestion met criteria? Soils -30 days from collection to digestion.	x			Yes
Date of analysis included?	x			Soil: JB14858: HxCr analyzed on 09/10/2012. Soil: JB14858R: HxCr analyzed on 09/13/2012. AQ: 8/28/12
Holding time to analysis met criteria? Soils -168 hours from digestion to analysis. Aqueous – 24 hours from collection to analysis.	x			Yes
Method reference included?	x			3060A/7196A
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.

Comments

Field Duplicates: NSB-F2-10.5-11.0 and NSB-F2-10.5-11.0X. RPD criteria met in JB14858 (difference ±RL for results ≤4X RL). RPD criteria not met in JB14858R; one result was ND and the other was >4XRL. Results in all soil samples qualified (J/J).

Percent Solids: all samples >50%, no qualifications

Sample Dilutions: None for this SDG

ITEM	YES	NO	N/A	COMMENTS
Initial Calibration Documentation Included in Lab Package?	x			Cal source JB14858 soil – Absolute lot # 041212; AQ Absolute Lot #011212; soil JB14858R Absolute lot #072512
1. Blank plus 4 standards (7196A) or blank plus 3 standards (7199), 2. Correlation coefficient of ≥0.995 (7196A) or ≥0.999 (7199). 3. Calibrate daily or each time instrument is set up.	x x x			1. Each analysis 1 blank and 7 cal STDs 2. All analyses meet CC 3. Yes
Calibration Check Standard (CCS) for 7196A and Quality Control Sample (QCS) for 7199 Included in Lab Package?	x			Check source (soil and AQ – Ultra lot # L00439)
1. %R criteria met? (90 - 110%). 2. Correct frequency of once every 10 samples 3. CCS and QCS from independent source and at mid level of calibration curve.	x x x			1. All met %R 2. Analyzed every 10 samples 3. Yes
Calibration Blanks	x			
1. Analyzed prior to initial calibration standards and after each CCS/QCS? 2. Absolute value should not exceed MDL.	x x			1. Yes 2. Yes
Method Blank and Field Blanks Included in Lab Package?	x			Equipment Blank NSB-EB20120828
1. Method blank analyzed with each preparation batch? 2. Absolute value should not exceed MDL.	x x			1. Yes, Soil – JB14858 GP67051-MB1, AQ GN71209; JB14858R GP67127-MB1 2. Yes, all method and field blanks were less than MDL.
Eh and pH data.	x			
Eh and pH data was included and plotted for all samples?	x			
Soluble Matrix Spike Data Included in Lab Package?	x			JB14858-18 [NSB-F4-0.0-0.5]; JB14858-18R [NSB-F4-0.0-0.5]
1. %R criteria met? (75-125%R). 2. Was the spike concentration 40 mg/Kg or twice the sample concentration, whichever is greater? 3. Was a sample spiked at the frequency of 1/batch or 20 samples?	 x	x x x x		1. a. JB14858 – No (37.6 %) b. JB14858R – No (61.6%) 2. a. JB14858 No, 48.6 mg/kg. No impact to data. b. JB14858R No (49.4 mg/kg) No impact to data. 3. Yes for all batches.
Insoluble Matrix Spike Data Included in Lab Package?	x			JB14858-18 [NSB-F4-0.0-0.5]; JB14858-18R [NSB-F4-0.0-0.5]
1. %R criteria met? (75-125%R). 2. Was the spike concentration around 400 to 800 mg/Kg? 3. Was a sample spiked at the frequency of 1/batch or 20 samples?	x x x	 x x		1. a. JB14858: Yes (82.1%) b. JB14858R Yes (87.4%) 2. a. JB14858 No (989 mg/kg). No impact to data. b. JB14858R No (1320 mg/kg). No impact to data. 3. Yes for all batches.
Post Digestion Spike	x			JB14858-18 [NSB-F4-0.0-0.5]; JB14858-18R [NSB-F4-0.0-0.5]
1. %R criteria met? (85-115%R). 2. Was the spike concentration 40 mg/Kg or twice the sample concentration? 3. Was a sample spiked at the frequency of 1/batch or 20 samples?	 x x x x	x		1. a. JB14858 No (84.0%); low pH-adjusted PDS (61.0%R) b. JB14858R Yes (86.3%R) 2. a. JB14858 Yes, 40.89 mg/kg b. JB14858R Yes 42.07 mg/kg 3. Yes for all batches.
Sample Duplicate Data Included in Lab Package?	x			JB14858-18 [NSB-F4-0.0-0.5]; JB14858-18R [NSB-F4-0.0-0.5]
1. RPD criteria met? (RPD < 20%) of both results are ≥4x RL or control limit of ±RL if both results are <4x RL. 2. Was a sample spiked at the frequency of 1/batch or 20 samples?	x x	 x 		1. A. JB14858 – Yes (RPD 6.2%) b. JB14858R – No (RPD 36.8%); qualify results in all soil samples (J/UJ) 2. Yes
Was a Laboratory Control Sample (LCS) Included in Lab Package?	x			
1. %R criteria met? (80-120%R). 2. Was an LCS analyzed at the frequency of 1/batch or 20 samples?	x x			1. Yes, all LCS recoveries were within quality control criteria. 2. Yes
Miscellaneous Items.				
1. For soils by 3060A, was the initial pH within a range of 7.0-8.0? 2. For soils by 7199, was the pH within a range of 9.0-9.5? 3. For aqueous by 7196A, was the pH with a range of 1.5-2,5? 4. For soils (3060A), was the digestion temperature 90-95°C for at least 60 minutes? 5. For 7199, was each sample injected twice and was the RPD ≤20?	x x x 	 	 x x	1. Yes 2. NA 3. Yes 4. Yes 5. NA

Holding Time

Sample ID	Method	Days from Sampling to Prep	Days from Prep to Analysis	Days from Sampling to Analysis	Sample to Prep Status	Prep to Analysis Status	Sample to Analysis Status
NSB-EB20120828	SW7196			0			OK @1 days
NSB-F2-1.0-1.5	SW7196	11	2	13	OK @30 days	OK @7 days	OK @37 days
NSB-F2-1.0-1.5	SW7196	15	1	16	OK @30 days	OK @7 days	OK @37 days
NSB-F2-10.5-11.0	SW7196	11	2	13	OK @30 days	OK @7 days	OK @37 days
NSB-F2-10.5-11.0	SW7196	15	1	16	OK @30 days	OK @7 days	OK @37 days
NSB-F2-10.5-11.0X	SW7196	11	2	13	OK @30 days	OK @7 days	OK @37 days
NSB-F2-10.5-11.0X	SW7196	15	1	16	OK @30 days	OK @7 days	OK @37 days
NSB-F2-15.0-15.5	SW7196	11	2	13	OK @30 days	OK @7 days	OK @37 days
NSB-F2-15.0-15.5	SW7196	15	1	16	OK @30 days	OK @7 days	OK @37 days
NSB-F2-17.8-18.3	SW7196	11	2	13	OK @30 days	OK @7 days	OK @37 days
NSB-F2-17.8-18.3	SW7196	15	1	16	OK @30 days	OK @7 days	OK @37 days
NSB-F2-21.5-22.0	SW7196	11	2	13	OK @30 days	OK @7 days	OK @37 days
NSB-F2-21.5-22.0	SW7196	15	1	16	OK @30 days	OK @7 days	OK @37 days
NSB-F2-4.0-4.5	SW7196	11	2	13	OK @30 days	OK @7 days	OK @37 days
NSB-F2-4.0-4.5	SW7196	15	1	16	OK @30 days	OK @7 days	OK @37 days
NSB-F3-1.0-1.5	SW7196	11	2	13	OK @30 days	OK @7 days	OK @37 days
NSB-F3-1.0-1.5	SW7196	15	1	16	OK @30 days	OK @7 days	OK @37 days
NSB-F3-10.0-10.5	SW7196	11	2	13	OK @30 days	OK @7 days	OK @37 days
NSB-F3-10.0-10.5	SW7196	15	1	16	OK @30 days	OK @7 days	OK @37 days
NSB-F3-15.0-15.5	SW7196	11	2	13	OK @30 days	OK @7 days	OK @37 days
NSB-F3-15.0-15.5	SW7196	15	1	16	OK @30 days	OK @7 days	OK @37 days
NSB-F3-20.0-20.5	SW7196	11	2	13	OK @30 days	OK @7 days	OK @37 days
NSB-F3-20.0-20.5	SW7196	15	1	16	OK @30 days	OK @7 days	OK @37 days
NSB-F3-4.0-4.5	SW7196	11	2	13	OK @30 days	OK @7 days	OK @37 days
NSB-F3-4.0-4.5	SW7196	15	1	16	OK @30 days	OK @7 days	OK @37 days
NSB-F4-0.0-0.5	SW7196	11	2	13	OK @30 days	OK @7 days	OK @37 days
NSB-F4-0.0-0.5	SW7196	15	1	16	OK @30 days	OK @7 days	OK @37 days
NSB-F4-10.0-10.5	SW7196	11	2	13	OK @30 days	OK @7 days	OK @37 days
NSB-F4-10.0-10.5	SW7196	15	1	16	OK @30 days	OK @7 days	OK @37 days
NSB-F4-16.0-16.5	SW7196	11	2	13	OK @30 days	OK @7 days	OK @37 days
NSB-F4-16.0-16.5	SW7196	15	1	16	OK @30 days	OK @7 days	OK @37 days
NSB-F4-20.0-20.5	SW7196	11	2	13	OK @30 days	OK @7 days	OK @37 days
NSB-F4-20.0-20.5	SW7196	15	1	16	OK @30 days	OK @7 days	OK @37 days
NSB-F4-6.0-6.5	SW7196	11	2	13	OK @30 days	OK @7 days	OK @37 days
NSB-F4-6.0-6.5	SW7196	15	1	16	OK @30 days	OK @7 days	OK @37 days

Matrix Spike

Sample ID	Compound	Soluble MS % Recovery	Insoluble MS % Recovery	Lower Limit	Upper Limit	PDS % Recovery	pH Adjusted PDS %Recovery	PDS Lower Limit	PDS Upper Limit
NSB-F4-0.0-0.5	CHROMIUM (HEXAVALENT)	37.6	82.1	75	125	84.0	61.0	85	115
NSB-F4-0.0-0.5R	CHROMIUM (HEXAVALENT)	61.6	87.4	75	125	86.3	NA	85	115

Percent Solids

Sample ID	Percent Solids (%)	Status
NSB-F2-1.0-1.5	83.1	ok @50%
NSB-F2-10.5-11.0	77.6	ok @50%
NSB-F2-10.5-11.0X	75.3	ok @50%
NSB-F2-15.0-15.5	76.6	ok @50%
NSB-F2-17.8-18.3	88.4	ok @50%
NSB-F2-21.5-22.0	85.1	ok @50%
NSB-F2-4.0-4.5	87.6	ok @50%
NSB-F3-1.0-1.5	86.9	ok @50%
NSB-F3-10.0-10.5	58.3	ok @50%
NSB-F3-15.0-15.5	86.7	ok @50%
NSB-F3-20.0-20.5	86.5	ok @50%
NSB-F3-4.0-4.5	81.8	ok @50%
NSB-F4-0.0-0.5	81.7	ok @50%
NSB-F4-10.0-10.5	61.3	ok @50%
NSB-F4-16.0-16.5	76.4	ok @50%
NSB-F4-20.0-20.5	85.6	ok @50%
NSB-F4-6.0-6.5	62.2	ok @50%

Field Duplicate

Sample ID	Duplicate ID	Compound	Sample Result	Duplicate Result	QL	Units	RPD
NSB-F2-10.5-11.0R	NSB-F2-10.5-11.0XR	CHROMIUM (HEXAVALENT)	ND	3.3	0.52	mg/kg	not calculated since one result was ND and the other was >4XRL

Lab Duplicate

Sample ID	Sample Result	Duplicate Sample Result	Units	QL	%RPD	%RPD Limits
NSB-F4-0.0-0.5R	3.1	4.5	mg/kg	0.49	36.8	≤20

SDG#: JB14858	x - concentration	y - response
Batch: GN71774		
Cr+6 ICAL 09/10/2012	0	0
Soil	0.01	0.009
(p. 66 of data pkg)	0.05	0.047
	0.1	0.092
	0.3	0.273
	0.5	0.46
	0.8	0.723
	1	0.929

(p. 66 of data pkg)

AECOM Calculated Intercept	-0.0007	OK	Reported intercept	-0.0007
AECOM Slope	0.9199	OK	Reported Slope	0.9199
AECOM Calculated r	0.99986	OK	Reported r	0.99986

LCS calculation	**GP67051-B1 pgs. 66, 43**			
Background Absorbance	0			
Total absorbance	0.856			
Total absorbance - background	0.856			
Instrument Concentration	0.931			
Sample weight (mg/kg)	0.0025			
Final Volume (L)	0.1			
Dilution Factor	1			
AECOM Calculated LCS Result (mg/Kg)	37.3	OK	Reported Result (mg/Kg)	37.3

%R = Found/True*100	**pg. 43**			
True Value (mg/kg)	40			
AECOM Calculated %R	93.1	OK rounding	Reported %R	93.3

MS calculation	**JB14858-18 [NSB-F4-0.0-0.5] pg. 66**			
Background reading	0			
Total absorbance	0.306			
Total absorbance - background	0.306			
Instrument Concentration	0.3334			
Sample weight (mg/kg)	0.00251			
Final Volume (L)	0.1			
Percent solids	0.817			
Dilution Factor	50			
AECOM Calculated MS Result (mg/Kg)	813	OK	Reported Result (mg/Kg)	813

%R = Found/True*100	**JB14858-18 [NSB-F4-0.0-0.5] pg. 66**			
True Value (mg/kg)	989			
Native concentration (mg/Kg)	0.94			
AECOM%R	82.1	OK	Reported %R	82.1

Percent Solids	**JB14858-18 [NSB-F4-0.0-0.5] pg. 48**			
Empty dish weight=	21.25			
Wet weight=	27.82			
Dry weight=	26.62			
AECOM%solids =	81.7	OK	reported %solids=	81.7

Reporting Limit	**JB14858-18 [NSB-F4-0.0-0.5] pg. 66, 28**			
Low Standard	0.01			
Initial weight (mg/kg)	0.0025			
Final volume (L)	0.1			
Percent solids	0.817			
Dilution Factor	1			
Reporting Limit	0.49	OK	Reported RL (mg/Kg)=	0.49

Sample Calculations

[NSB-F4-0.0-0.5]	**JB14858-18 [NSB-F4-0.0-0.5] pg. 66, 28**			
Background reading	0.026			
Total absorbance	0.043			
Total absorbance - background	0.017			
Instrument Response	0.019			
Sample weight (mg/kg)	0.0025			
Final Volume (L)	0.1			
Percent solids	0.817			
Dilution Factor	1			
AECOM Calculated Result (mg/Kg)	0.94	OK	Reported Result (mg/Kg)	0.94

SDG#: JB14858R	x - concentration	y - response
Batch: GN71967		
Cr+6 ICAL 09/13/2012	0	0
Soil	0.01	0.011
(p. 94 of data pkg)	0.05	0.045
	0.1	0.089
	0.3	0.28
	0.5	0.443
	0.8	0.7
	1	0.867

(p. 94 of data pkg)

AECOM Calculated Intercept	0.0047	OK	Reported intercept	0.0047
AECOM Slope	0.8686	OK	Reported Slope	0.8686
AECOM Calculated r	0.99980	OK	Reported r	0.99980

LCS calculation	**GP67127-B1 pgs. 94, 41**			
Background Absorbance	0			
Total absorbance	0.848			
Total absorbance - background	0.848			
Instrument Concentration	0.971			
Sample weight (mg/kg)	0.0025			
Final Volume (L)	0.1			
Dilution Factor	1			
AECOM Calculated LCS Result (mg/Kg)	38.8	OK	Reported Result (mg/Kg)	38.8

%R = Found/True*100	**pg. 41**			
True Value (mg/kg)	40			
AECOM Calculated %R	97.1	OK rounding	Reported %R	97.0

MS calculation	**JB14858-18R [NSB-F4-0.0-0.5] pg. 94**			
Background reading	0			
Total absorbance	0.417			
Total absorbance - background	0.417			
Instrument Concentration	0.4747			
Sample weight (mg/kg)	0.0025			
Final Volume (L)	0.1			
Percent solids	0.817			
Dilution Factor	50			
AECOM Calculated MS Result (mg/Kg)	1162	OK rounding	Reported Result (mg/Kg)	1160

%R = Found/True*100	**JB14858-18R [NSB-F4-0.0-0.5] pg. 43**			
True Value (mg/kg)	1320			
Native concentration (mg/Kg)	3.1			
AECOM%R	87.8	OK rounding	Reported %R	87.4

Percent Solids	**JB14858-18R [NSB-F4-0.0-0.5] pg. 50**			
Empty dish weight=	21.25			
Wet weight=	27.82			
Dry weight=	26.62			
AECOM%solids =	81.7	OK	reported %solids=	81.7

Reporting Limit	**JB14858-18R [NSB-F4-0.0-0.5] pg. 94, 26**			
Low Standard	0.01			
Initial weight (mg/kg)	0.00243			
Final volume (L)	0.1			
Percent solids	0.817			
Dilution Factor	1			
Reporting Limit	0.50	OK rounding	Reported RL (mg/Kg)=	0.49

Sample Calculations

NSB-F4-0.0-0.5	**JB14858-18R [NSB-F4-0.0-0.5] pg. 94**			
Background reading	0.091			
Total absorbance	0.15			
Total absorbance - background	0.059			
Instrument Response	0.063			
Sample weight (mg/kg)	0.00243			
Final Volume (L)	0.1			
Percent solids	0.817			
Dilution Factor	1			
AECOM Calculated Result (mg/Kg)	3.1	OK	Reported Result (mg/Kg)	3.1

New Jersey ACCUTEST LABORATORIES

09/12/12

Technical Report for

AECOM, INC.

PPG Northern Canal Borings, Jersey City, NJ

60213772.5.A

Accutest Job Number: JB14858

Sampling Date: 08/28/12

Report to:

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

Total number of pages in report: **78**

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.

Paul Ioannidis
Lab 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

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Sample Summary

AECOM, INC.

Job No: JB14858

PPG Northern Canal Borings, Jersey City, NJ
Project No: 60213772.5.A

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JB14858-1	08/28/12	14:15	CM	08/28/12	SO	Soil	NSB-F2-21.5-22.0
JB14858-2	08/28/12	14:10	CM	08/28/12	SO	Soil	NSB-F2-17.8-18.3
JB14858-3	08/28/12	14:00	CM	08/28/12	SO	Soil	NSB-F2-15.0-15.5
JB14858-4	08/28/12	13:55	CM	08/28/12	SO	Soil	NSB-F2-10.5-11.0X
JB14858-5	08/28/12	13:50	CM	08/28/12	SO	Soil	NSB-F2-10.5-11.0
JB14858-6	08/28/12	13:30	CM	08/28/12	SO	Soil	NSB-F2-4.0-4.5
JB14858-7	08/28/12	13:10	CM	08/28/12	SO	Soil	NSB-F2-1.0-1.5
JB14858-8	08/28/12	12:05	CM	08/28/12	SO	Soil	NSB-F3-20.0-20.5
JB14858-9	08/28/12	12:00	CM	08/28/12	SO	Soil	NSB-F3-15.0-15.5
JB14858-10	08/28/12	11:50	CM	08/28/12	SO	Soil	NSB-F3-10.0-10.5
JB14858-11	08/28/12	11:25	CM	08/28/12	SO	Soil	NSB-F4-20.0-20.5
JB14858-12	08/28/12	11:00	CM	08/28/12	SO	Soil	NSB-F4-16.0-16.5
JB14858-13	08/28/12	10:40	CM	08/28/12	SO	Soil	NSB-F3-4.0-4.5

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

Sample Summary
(continued)

AECOM, INC.

Job No: JB14858

PPG Northern Canal Borings, Jersey City, NJ
Project No: 60213772.5.A

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JB14858-14	08/28/12	10:35	CM	08/28/12	SO	Soil	NSB-F3-1.0-1.5
JB14858-15	08/28/12	10:20	CM	08/28/12	SO	Soil	NSB-F4-10.0-10.5
JB14858-16	08/28/12	10:10	CM	08/28/12	SO	Soil	NSB-F4-6.0-6.5
JB14858-17	08/28/12	14:45	CM	08/28/12	AQ	Field Blank Soil	NSB-EB20120828
JB14858-18	08/28/12	09:15	CM	08/28/12	SO	Soil	NSB-F4-0.0-0.5
JB14858-18D	08/28/12	09:15	CM	08/28/12	SO	Soil Dup/MSD	NSB-F4-0.0-0.5
JB14858-18S	08/28/12	09:15	CM	08/28/12	SO	Soil Matrix Spike	NSB-F4-0.0-0.5

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

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: AECOM, INC. **Job No** JB14858

Site: PPG Northern Canal Borings, Jersey City, NJ **Report Date** 9/12/2012 12:53:35 P

On 08/28/2012, 17 Sample(s), 0 Trip Blank(s) and 1 Field Blank(s) were received at Accutest Laboratories at a temperature of 6 C. Samples were intact and chemically preserved, unless noted below. An Accutest Job Number of JB14858 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:** GN71842

- The data for ASTM D1498-76 meets quality control requirements.

Wet Chemistry By Method ASTM D1498-76M

Matrix: SO **Batch ID:** GN71686

- Sample(s) JB14858-18DUP were used as the QC samples for Redox Potential Vs H2.

Matrix: SO **Batch ID:** GN71734

- Sample(s) JB14858-1DUP were used as the QC samples for Redox Potential Vs H2.
- RPD(s) for Duplicate for Redox Potential Vs H2 are outside control limits for sample GN71734-D1. Probable cause due to sample homogeneity.
- GN71734-D1 for Redox Potential Vs H2: Outside of in house limits, but within reasonable method recovery limits.

Wet Chemistry By Method SM18 2540G

Matrix: SO **Batch ID:** GN71696

- The data for SM18 2540G meets quality control requirements.

Wet Chemistry By Method SM20 4500H B

Matrix: AQ **Batch ID:** R115745

- The data for SM20 4500H B meets quality control requirements.
- JB14858-17 for pH: Sample received out of holding time for pH analysis.

Wet Chemistry By Method SW846 3060A/7196A

Matrix: SO **Batch ID:** GP67051

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB14858-18DUP, JB14858-18MS 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. Low post spike recovery (84_%) on this sample.Low pH adjusted post spike (61%). Good agreement between the sample and 1:5 dilution.
- GP67051-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:	GN71209

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB14205-78DUP, JB14205-78MS were used as the QC samples for Chromium, Hexavalent.
- GN71209-S1 for Chromium, Hexavalent: Spike recovery indicates possible matrix interference.Good recovery on pH adjsuted post spike (98%)

Wet Chemistry By Method SW846 9045C,D

Matrix:	SO	Batch ID:	GN71685

- Sample(s) JB14858-18DUP were used as the QC samples for pH.

Matrix:	SO	Batch ID:	GN71733

- Sample(s) JB14858-1DUP 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: JB14858
Account: AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Collected: 08/28/12

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JB14858-1	**NSB-F2-21.5-22.0**					
Chromium, Hexavalent		0.74	0.47	0.14	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		336			mv	ASTM D1498-76M
pH		8.63			su	SW846 9045C,D
JB14858-2	**NSB-F2-17.8-18.3**					
Redox Potential Vs H2		268			mv	ASTM D1498-76M
pH		8.52			su	SW846 9045C,D
JB14858-3	**NSB-F2-15.0-15.5**					
Chromium, Hexavalent		1.8	0.52	0.15	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		271			mv	ASTM D1498-76M
pH		7.93			su	SW846 9045C,D
JB14858-4	**NSB-F2-10.5-11.0X**					
Chromium, Hexavalent		0.94	0.53	0.16	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		239			mv	ASTM D1498-76M
pH		7.46			su	SW846 9045C,D
JB14858-5	**NSB-F2-10.5-11.0**					
Chromium, Hexavalent		0.60	0.52	0.15	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		217			mv	ASTM D1498-76M
pH		7.36			su	SW846 9045C,D
JB14858-6	**NSB-F2-4.0-4.5**					
Chromium, Hexavalent		2.6	0.46	0.13	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		331			mv	ASTM D1498-76M
pH		8.04			su	SW846 9045C,D
JB14858-7	**NSB-F2-1.0-1.5**					
Chromium, Hexavalent		2.8	0.48	0.14	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		346			mv	ASTM D1498-76M
pH		8.15			su	SW846 9045C,D
JB14858-8	**NSB-F3-20.0-20.5**					
Chromium, Hexavalent		1.3	0.46	0.14	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		267			mv	ASTM D1498-76M

Summary of Hits

Job Number: JB14858
Account: AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Collected: 08/28/12

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
pH		9.20			su	SW846 9045C,D
JB14858-9	**NSB-F3-15.0-15.5**					
Chromium, Hexavalent		0.92	0.46	0.13	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		245			mv	ASTM D1498-76M
pH		9.51			su	SW846 9045C,D
JB14858-10	**NSB-F3-10.0-10.5**					
Redox Potential Vs H2		249			mv	ASTM D1498-76M
pH		7.84			su	SW846 9045C,D
JB14858-11	**NSB-F4-20.0-20.5**					
Chromium, Hexavalent		0.60	0.47	0.14	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		282			mv	ASTM D1498-76M
pH		7.91			su	SW846 9045C,D
JB14858-12	**NSB-F4-16.0-16.5**					
Chromium, Hexavalent		0.37 B	0.52	0.15	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		158			mv	ASTM D1498-76M
pH		7.89			su	SW846 9045C,D
JB14858-13	**NSB-F3-4.0-4.5**					
Chromium, Hexavalent		3.5	0.49	0.14	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		345			mv	ASTM D1498-76M
pH		8.17			su	SW846 9045C,D
JB14858-14	**NSB-F3-1.0-1.5**					
Chromium, Hexavalent		1.2	0.46	0.13	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		334			mv	ASTM D1498-76M
pH		8.25			su	SW846 9045C,D
JB14858-15	**NSB-F4-10.0-10.5**					
Chromium, Hexavalent		1.0	0.65	0.19	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		234			mv	ASTM D1498-76M
pH		9.69			su	SW846 9045C,D

Summary of Hits

Job Number: JB14858
Account: AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Collected: 08/28/12

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JB14858-16	**NSB-F4-6.0-6.5**					
Chromium, Hexavalent		0.53 B	0.63	0.19	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		231			mv	ASTM D1498-76M
pH		9.21			su	SW846 9045C,D
JB14858-17	**NSB-EB20120828**					
Redox Potential Vs H2		400			mv	ASTM D1498-76
pH [a]		5.89			su	SM20 4500H B
JB14858-18	**NSB-F4-0.0-0.5**					
Chromium, Hexavalent		0.94	0.49	0.14	mg/kg	SW846 3060A/7196A
Redox Potential Vs H2		390			mv	ASTM D1498-76M
pH		6.45			su	SW846 9045C,D

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

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Sample Results

Report of Analysis

Report of Analysis

Client Sample ID: NSB-F2-21.5-22.0
Lab Sample ID: JB14858-1
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/28/12
Date Received: 08/28/12
Percent Solids: 85.1

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.74	0.47	0.14	mg/kg	1	09/10/12 16:44	MM	SW846 3060A/7196A
Redox Potential Vs H2	336			mv	1	09/08/12	SA	ASTM D1498-76M
Solids, Percent	85.1			%	1	09/07/12 17:30	RO	SM18 2540G
pH	8.63			su	1	09/08/12 13:11	SA	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: NSB-F2-17.8-18.3
Lab Sample ID: JB14858-2
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/28/12
Date Received: 08/28/12
Percent Solids: 88.4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.13 U	0.45	0.13	mg/kg	1	09/10/12 16:44	MM	SW846 3060A/7196A
Redox Potential Vs H2	268			mv	1	09/08/12	SA	ASTM D1498-76M
Solids, Percent	88.4			%	1	09/07/12 17:30	RO	SM18 2540G
pH	8.52			su	1	09/08/12 13:11	SA	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: NSB-F2-15.0-15.5
Lab Sample ID: JB14858-3
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/28/12
Date Received: 08/28/12
Percent Solids: 76.6

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	1.8	0.52	0.15	mg/kg	1	09/10/12 16:44	MM	SW846 3060A/7196A
Redox Potential Vs H2	271			mv	1	09/08/12	SA	ASTM D1498-76M
Solids, Percent	76.6			%	1	09/07/12 17:30	RO	SM18 2540G
pH	7.93			su	1	09/08/12 13:11	SA	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: NSB-F2-10.5-11.0X
Lab Sample ID: JB14858-4
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/28/12
Date Received: 08/28/12
Percent Solids: 75.3

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.94	0.53	0.16	mg/kg	1	09/10/12 16:44	MM	SW846 3060A/7196A
Redox Potential Vs H2	239			mv	1	09/08/12	SA	ASTM D1498-76M
Solids, Percent	75.3			%	1	09/07/12 17:30	RO	SM18 2540G
pH	7.46			su	1	09/08/12 13:11	SA	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: NSB-F2-10.5-11.0
Lab Sample ID: JB14858-5
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/28/12
Date Received: 08/28/12
Percent Solids: 77.6

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.60	0.52	0.15	mg/kg	1	09/10/12 16:44	MM	SW846 3060A/7196A
Redox Potential Vs H2	217			mv	1	09/08/12	SA	ASTM D1498-76M
Solids, Percent	77.6			%	1	09/07/12 17:30	RO	SM18 2540G
pH	7.36			su	1	09/08/12 13:11	SA	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: NSB-F2-4.0-4.5
Lab Sample ID: JB14858-6
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/28/12
Date Received: 08/28/12
Percent Solids: 87.6

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	2.6	0.46	0.13	mg/kg	1	09/10/12 16:44	MM	SW846 3060A/7196A
Redox Potential Vs H2	331			mv	1	09/08/12	SA	ASTM D1498-76M
Solids, Percent	87.6			%	1	09/07/12 17:30	RO	SM18 2540G
pH	8.04			su	1	09/08/12 13:11	SA	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: NSB-F2-1.0-1.5
Lab Sample ID: JB14858-7
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/28/12
Date Received: 08/28/12
Percent Solids: 83.1

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	2.8	0.48	0.14	mg/kg	1	09/10/12 16:44	MM	SW846 3060A/7196A
Redox Potential Vs H2	346			mv	1	09/08/12	SA	ASTM D1498-76M
Solids, Percent	83.1			%	1	09/07/12 17:30	RO	SM18 2540G
pH	8.15			su	1	09/08/12 13:11	SA	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: NSB-F3-20.0-20.5
Lab Sample ID: JB14858-8
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/28/12
Date Received: 08/28/12
Percent Solids: 86.5

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	1.3	0.46	0.14	mg/kg	1	09/10/12 16:44	MM	SW846 3060A/7196A
Redox Potential Vs H2	267			mv	1	09/08/12	SA	ASTM D1498-76M
Solids, Percent	86.5			%	1	09/07/12 17:30	RO	SM18 2540G
pH	9.20			su	1	09/08/12 13:11	SA	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: NSB-F3-15.0-15.5
Lab Sample ID: JB14858-9
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/28/12
Date Received: 08/28/12
Percent Solids: 86.7

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.92	0.46	0.13	mg/kg	1	09/10/12 16:44	MM	SW846 3060A/7196A
Redox Potential Vs H2	245			mv	1	09/08/12	SA	ASTM D1498-76M
Solids, Percent	86.7			%	1	09/07/12 17:30	RO	SM18 2540G
pH	9.51			su	1	09/08/12 13:11	SA	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: NSB-F3-10.0-10.5
Lab Sample ID: JB14858-10
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/28/12
Date Received: 08/28/12
Percent Solids: 58.3

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.20 U	0.69	0.20	mg/kg	1	09/10/12 16:44	MM	SW846 3060A/7196A
Redox Potential Vs H2	249			mv	1	09/08/12	SA	ASTM D1498-76M
Solids, Percent	58.3			%	1	09/07/12 17:30	RO	SM18 2540G
pH	7.84			su	1	09/08/12 13:11	SA	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:	NSB-F4-20.0-20.5		
Lab Sample ID:	JB14858-11	**Date Sampled:**	08/28/12
Matrix:	SO - Soil	**Date Received:**	08/28/12
		Percent Solids:	85.6
Project:	PPG Northern Canal Borings, Jersey City, NJ		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.60	0.47	0.14	mg/kg	1	09/10/12 17:10	MM	SW846 3060A/7196A
Redox Potential Vs H2	282			mv	1	09/08/12	SA	ASTM D1498-76M
Solids, Percent	85.6			%	1	09/07/12 17:30	RO	SM18 2540G
pH	7.91			su	1	09/08/12 13:11	SA	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: NSB-F4-16.0-16.5
Lab Sample ID: JB14858-12
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/28/12
Date Received: 08/28/12
Percent Solids: 76.4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.37 B	0.52	0.15	mg/kg	1	09/10/12 17:10	MM	SW846 3060A/7196A
Redox Potential Vs H2	158			mv	1	09/08/12	SA	ASTM D1498-76M
Solids, Percent	76.4			%	1	09/07/12 17:30	RO	SM18 2540G
pH	7.89			su	1	09/08/12 13:11	SA	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: NSB-F3-4.0-4.5
Lab Sample ID: JB14858-13
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/28/12
Date Received: 08/28/12
Percent Solids: 81.8

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	3.5	0.49	0.14	mg/kg	1	09/10/12 17:10	MM	SW846 3060A/7196A
Redox Potential Vs H2	345			mv	1	09/08/12	SA	ASTM D1498-76M
Solids, Percent	81.8			%	1	09/07/12 17:30	RO	SM18 2540G
pH	8.17			su	1	09/08/12 13:11	SA	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: NSB-F3-1.0-1.5
Lab Sample ID: JB14858-14
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/28/12
Date Received: 08/28/12
Percent Solids: 86.9

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	1.2	0.46	0.13	mg/kg	1	09/10/12 17:10	MM	SW846 3060A/7196A
Redox Potential Vs H2	334			mv	1	09/08/12	SA	ASTM D1498-76M
Solids, Percent	86.9			%	1	09/07/12 17:30	RO	SM18 2540G
pH	8.25			su	1	09/08/12 13:11	SA	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:	NSB-F4-10.0-10.5		
Lab Sample ID:	JB14858-15	**Date Sampled:**	08/28/12
Matrix:	SO - Soil	**Date Received:**	08/28/12
		Percent Solids:	61.3
Project:	PPG Northern Canal Borings, Jersey City, NJ		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	1.0	0.65	0.19	mg/kg	1	09/10/12 17:10	MM	SW846 3060A/7196A
Redox Potential Vs H2	234			mv	1	09/08/12	SA	ASTM D1498-76M
Solids, Percent	61.3			%	1	09/07/12 17:30	RO	SM18 2540G
pH	9.69			su	1	09/08/12 13:11	SA	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: NSB-F4-6.0-6.5
Lab Sample ID: JB14858-16
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/28/12
Date Received: 08/28/12
Percent Solids: 62.2

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.53 B	0.63	0.19	mg/kg	1	09/10/12 17:10	MM	SW846 3060A/7196A
Redox Potential Vs H2	231			mv	1	09/07/12	SA	ASTM D1498-76M
Solids, Percent	62.2			%	1	09/07/12 17:30	RO	SM18 2540G
pH	9.21			su	1	09/07/12 16:13	SA	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:	NSB-EB20120828		
Lab Sample ID:	JB14858-17	**Date Sampled:**	08/28/12
Matrix:	AQ - Field Blank Soil	**Date Received:**	08/28/12
		Percent Solids:	n/a
Project:	PPG Northern Canal Borings, Jersey City, NJ		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.0014 U	0.010	0.0014	mg/l	1	08/28/12	MM	SW846 7196A
Redox Potential Vs H2	400			mv	1	09/11/12	JOO	ASTM D1498-76
pH [a]	5.89			su	1	08/28/12 20:00	AS	SM20 4500H B

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

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID: NSB-F4-0.0-0.5
Lab Sample ID: JB14858-18
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/28/12
Date Received: 08/28/12
Percent Solids: 81.7

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.94	0.49	0.14	mg/kg	1	09/10/12 16:00	MM	SW846 3060A/7196A
Redox Potential Vs H2	390			mv	1	09/07/12	SA	ASTM D1498-76M
Solids, Percent	81.7			%	1	09/07/12 17:30	RO	SM18 2540G
pH	6.45			su	1	09/07/12 16:13	SA	SW846 9045C,D

RL = Reporting Limit
MDL = Method Detection Limit

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

New Jersey ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

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

AECOM

SO
FB

CHAIN-OF-CUSTODY / Analytical Request Document

2012-08-28_RI_ACCUTEST_COC_NSB

Page: 1 of 2

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

Lab Information:		Project Information:		Other Information:			
Lab:	ACCUTEST	Site ID #:	PPG Garfield Ave	Send Invoice to:	Lisa Krowitz		
Address:	2235 Route 130 , Dayton NJ 08810	Project #:	60213772.5.A	Address:	250 Apollo Drive		
		Site Address:	70 Carteret Avenue	City/State.	Chelmsford, MA 01824	Phone #:	978-905-2278
Lab PM:	Matt Cordova	City	Jersey City	State, Zip	NJ	07304	PO #: 40256ACM
Phone/Fax:	732-329-0200/	PM Name:	Chris Martell	Send EDD to:	NJLABDATA@aecom.com		
PM email:		Phone/Fax:	732-564-3633	CC Hardcopy to	Erin Farrell, AECOM, Piscataway, NJ		
		PM Email:	Christopher.Martell@aecom.com				

Task: GARIS- Northern Canal Borings
Total # of Samples: 18

TAT: see Spec. Instructions | Rush

Notes: F= Field Filtered , H= Hold

Lab Notes: JB14858

ITEM #	Field Sample No. /Identification	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comment	Preservative	Analysis: GARA-HexChrom	GARA-pH-ORP						
1	NSB-F2-21.5-22.0 -1	SO	G	08/28/2012 14:15	1			X	X						
2	NSB-F2-17.8-18.3 -2	SO	G	08/28/2012 14:10	1			X	X					ME	39
3	NSB-F2-15.0-15.5 -3	SO	G	08/28/2012 14:00	1			X	X					ME	41
4	NSB-F2-10.5-11.0X -4	SO	G	08/28/2012 13:55	1			X	X					WC	47
5	NSB-F2-10.5-11.0 -5	SO	G	08/28/2012 13:50	1			X	X						
6	NSB-F2-4.0-4.5 -6	SO	G	08/28/2012 13:30	1			X	X						
7	NSB-F2-1.0-1.5 -7	SO	G	08/28/2012 13:10	1			X	X						
8	NSB-F3-20.0-20.5 -8	SO	G	08/28/2012 12:05	1			X	X						
9	NSB-F3-15.0-15.5 -9	SO	G	08/28/2012 12:00	1			X	X						
10	NSB-F3-10.0-10.5 -10	SO	G	08/28/2012 11:50	1			X	X						
11	NSB-F4-20.0-20.5 -11	SO	G	08/28/2012 11:25	1			X	X						

Additional Comments/Special Instructions:
Standard TAT

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
8-28-12	8/28/12	1600	8-28-12	8/28/12	1650
	8/28/12	1920		8/28/12	1920

Sample Receipt Conditions

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

Shipper:		DATE/TIME:	
Tracking #:		Custody Seal(s):	

ZA

6.0 -

E

5.1 5

JB14858: Chain of Custody
Page 1 of 4

AECOM

CHAIN-OF-CUSTODY / Analytical Request Document

2012-08-28_RI_ACCUTEST_COC_NSB

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

Lab Information:		Project Information:		Other Information:			
Lab:	ACCUTEST	Site ID #:	PPG Garfield Ave	Send Invoice to:	Lisa Krowitz		
Address:	2235 Route 130 , Dayton NJ 08810	Project #:	60213772.5.A	Address:	250 Apollo Drive		
		Site Address:	70 Carteret Avenue	City/State.	Chelmsford, MA 01824	Phone #:	978-905-2278
Lab PM:	Matt Cordova	City	Jersey City	State, Zip	NJ 07304	PO #:	40256ACM
Phone/Fax:	732-329-0200/	PM Name:	Chris Martell	Send EDD to:	NJLABDATA@aecom.com		
PM email:		Phone/Fax:	732-564-3633	CC Hardcopy to	Erin Farrell, AECOM, Piscataway, NJ		
		PM Email:	Christopher.Martell@aecom.com				

Task:	GARIS- Northern Canal Borings
Total # of Samples:	18
TAT	see Spec. Instructions
Rush	
Notes:	F= Field Filtered , H= Hold

Lab Notes: JB14858

Preservative

ITEM #	Field Sample No. /Identification		MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comment	Analysis	GARA-HexChrom	GARA-pH-ORP
12	NSB-F4-16.0-16.5	-12	SO	G	08/28/2012 11:00	1			X	X
13	NSB-F3- 4.0-4.5	-13	SO	G	08/28/2012 10:40	1			X	X
14	NSB-F3-1.0-1.5	-14	SO	G	08/28/2012 10:35	1			X	X
15	NSB-F4-10.0-10.5	-15	SO	G	08/28/2012 10:20	1			X	X
16	NSB-F4-6.0-6.5	-16	SO	G	08/28/2012 10:10	1			X	X
17	NSB-EB20120828	☆ -17	WQ	G	08/28/2012 14:45	2	Preserved: None		X	X
18	NSB-F4-0.0-0.5	-18	SO	G	08/28/2012 09:15	2	1 Jar for MS/MSD		X	X

Additional Comments/Special Instructions:
Standard TAT

☆ pH = 5.89 @ 8/28/12

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
[signature]	8/28/12	1600	[signature]	8-28-12	1630
[signature] AECOM	8-28-12	1920			

Sample Receipt Conditions

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

Shipper:		DATE/TIME:	
Tracking #:		Custody Seal(s):	

6.0 C

JB14858: Chain of Custody
Page 2 of 4

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: JB14858 **Client:** **Project:**

Date / Time Received: 8/28/2012 **Delivery Method:** **Airbill #'s:**

Cooler Temps (Initial/Adjusted): #1: (6/6); 0

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

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

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

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

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

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

Comments

Job Change Order: JB14858_9/11/2012

Requested Date:	9/11/2012	**Received Date:**	8/28/2012
Account Name:	AECOM, INC.	**Due Date:**	9/11/2012
Project	PPG Northern Canal Borings, Jersey City, NJ	**Deliverable:**	FULT1
CSR:	KB	**TAT (Days):**	2

Sample #: JB14858-1 thru -16, -18 **Change:** Please relog for XXCRAR

Sample #: JB14858-18 **Change:** Please relog MS/MSD for XXCRAR; please relog sample for FE2/7, SULFS, TOCLK

NSB-F4-0.0-0.5

Sample #: JB14858- **Change:**

Above Changes Per: Client **Date:** 9/11/2012

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

JB14858: Chain of Custody
Page 4 of 4

Internal Sample Tracking Chronicle

AECOM, INC.

Job No: JB14858

PPG Northern Canal Borings, Jersey City, NJ
Project No: 60213772.5.A

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB14858-1 Collected: 28-AUG-12 14:15 By: CM Received: 28-AUG-12 By: SC NSB-F2-21.5-22.0						
JB14858-1	SM18 2540G	07-SEP-12 17:30	RO			SOL104
JB14858-1	ASTM D1498-76M	08-SEP-12	SA			EH
JB14858-1	SW846 9045C,D	08-SEP-12 13:11	SA			PH
JB14858-1	SW846 3060A/7196A	10-SEP-12 16:44	MM	08-SEP-12	CW	XCRA
JB14858-2 Collected: 28-AUG-12 14:10 By: CM Received: 28-AUG-12 By: SC NSB-F2-17.8-18.3						
JB14858-2	SM18 2540G	07-SEP-12 17:30	RO			SOL104
JB14858-2	ASTM D1498-76M	08-SEP-12	SA			EH
JB14858-2	SW846 9045C,D	08-SEP-12 13:11	SA			PH
JB14858-2	SW846 3060A/7196A	10-SEP-12 16:44	MM	08-SEP-12	CW	XCRA
JB14858-3 Collected: 28-AUG-12 14:00 By: CM Received: 28-AUG-12 By: SC NSB-F2-15.0-15.5						
JB14858-3	SM18 2540G	07-SEP-12 17:30	RO			SOL104
JB14858-3	ASTM D1498-76M	08-SEP-12	SA			EH
JB14858-3	SW846 9045C,D	08-SEP-12 13:11	SA			PH
JB14858-3	SW846 3060A/7196A	10-SEP-12 16:44	MM	08-SEP-12	CW	XCRA
JB14858-4 Collected: 28-AUG-12 13:55 By: CM Received: 28-AUG-12 By: SC NSB-F2-10.5-11.0X						
JB14858-4	SM18 2540G	07-SEP-12 17:30	RO			SOL104
JB14858-4	ASTM D1498-76M	08-SEP-12	SA			EH
JB14858-4	SW846 9045C,D	08-SEP-12 13:11	SA			PH
JB14858-4	SW846 3060A/7196A	10-SEP-12 16:44	MM	08-SEP-12	CW	XCRA
JB14858-5 Collected: 28-AUG-12 13:50 By: CM Received: 28-AUG-12 By: SC NSB-F2-10.5-11.0						
JB14858-5	SM18 2540G	07-SEP-12 17:30	RO			SOL104
JB14858-5	ASTM D1498-76M	08-SEP-12	SA			EH
JB14858-5	SW846 9045C,D	08-SEP-12 13:11	SA			PH
JB14858-5	SW846 3060A/7196A	10-SEP-12 16:44	MM	08-SEP-12	CW	XCRA

Internal Sample Tracking Chronicle

AECOM, INC.

Job No: JB14858

PPG Northern Canal Borings, Jersey City, NJ
Project No: 60213772.5.A

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB14858-6	Collected: 28-AUG-12 13:30 By: CM		Received: 28-AUG-12 By: SC			
NSB-F2-4.0-4.5						
JB14858-6	SM18 2540G	07-SEP-12 17:30	RO			SOL104
JB14858-6	ASTM D1498-76M	08-SEP-12	SA			EH
JB14858-6	SW846 9045C,D	08-SEP-12 13:11	SA			PH
JB14858-6	SW846 3060A/7196A	10-SEP-12 16:44	MM	08-SEP-12	CW	XCRA
JB14858-7	Collected: 28-AUG-12 13:10 By: CM		Received: 28-AUG-12 By: SC			
NSB-F2-1.0-1.5						
JB14858-7	SM18 2540G	07-SEP-12 17:30	RO			SOL104
JB14858-7	ASTM D1498-76M	08-SEP-12	SA			EH
JB14858-7	SW846 9045C,D	08-SEP-12 13:11	SA			PH
JB14858-7	SW846 3060A/7196A	10-SEP-12 16:44	MM	08-SEP-12	CW	XCRA
JB14858-8	Collected: 28-AUG-12 12:05 By: CM		Received: 28-AUG-12 By: SC			
NSB-F3-20.0-20.5						
JB14858-8	SM18 2540G	07-SEP-12 17:30	RO			SOL104
JB14858-8	ASTM D1498-76M	08-SEP-12	SA			EH
JB14858-8	SW846 9045C,D	08-SEP-12 13:11	SA			PH
JB14858-8	SW846 3060A/7196A	10-SEP-12 16:44	MM	08-SEP-12	CW	XCRA
JB14858-9	Collected: 28-AUG-12 12:00 By: CM		Received: 28-AUG-12 By: SC			
NSB-F3-15.0-15.5						
JB14858-9	SM18 2540G	07-SEP-12 17:30	RO			SOL104
JB14858-9	ASTM D1498-76M	08-SEP-12	SA			EH
JB14858-9	SW846 9045C,D	08-SEP-12 13:11	SA			PH
JB14858-9	SW846 3060A/7196A	10-SEP-12 16:44	MM	08-SEP-12	CW	XCRA
JB14858-10	Collected: 28-AUG-12 11:50 By: CM		Received: 28-AUG-12 By: SC			
NSB-F3-10.0-10.5						
JB14858-10	SM18 2540G	07-SEP-12 17:30	RO			SOL104
JB14858-10	ASTM D1498-76M	08-SEP-12	SA			EH
JB14858-10	SW846 9045C,D	08-SEP-12 13:11	SA			PH
JB14858-10	SW846 3060A/7196A	10-SEP-12 16:44	MM	08-SEP-12	CW	XCRA

Internal Sample Tracking Chronicle

AECOM, INC.

Job No: JB14858

PPG Northern Canal Borings, Jersey City, NJ
Project No: 60213772.5.A

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB14858-11 Collected: 28-AUG-12 11:25 By: CM Received: 28-AUG-12 By: SC NSB-F4-20.0-20.5						
JB14858-11	SM18 2540G	07-SEP-12 17:30	RO			SOL104
JB14858-11	ASTM D1498-76M	08-SEP-12	SA			EH
JB14858-11	SW846 9045C,D	08-SEP-12 13:11	SA			PH
JB14858-11	SW846 3060A/7196A	10-SEP-12 17:10	MM	08-SEP-12	CW	XCRA
JB14858-12 Collected: 28-AUG-12 11:00 By: CM Received: 28-AUG-12 By: SC NSB-F4-16.0-16.5						
JB14858-12	SM18 2540G	07-SEP-12 17:30	RO			SOL104
JB14858-12	ASTM D1498-76M	08-SEP-12	SA			EH
JB14858-12	SW846 9045C,D	08-SEP-12 13:11	SA			PH
JB14858-12	SW846 3060A/7196A	10-SEP-12 17:10	MM	08-SEP-12	CW	XCRA
JB14858-13 Collected: 28-AUG-12 10:40 By: CM Received: 28-AUG-12 By: SC NSB-F3-4.0-4.5						
JB14858-13	SM18 2540G	07-SEP-12 17:30	RO			SOL104
JB14858-13	ASTM D1498-76M	08-SEP-12	SA			EH
JB14858-13	SW846 9045C,D	08-SEP-12 13:11	SA			PH
JB14858-13	SW846 3060A/7196A	10-SEP-12 17:10	MM	08-SEP-12	CW	XCRA
JB14858-14 Collected: 28-AUG-12 10:35 By: CM Received: 28-AUG-12 By: SC NSB-F3-1.0-1.5						
JB14858-14	SM18 2540G	07-SEP-12 17:30	RO			SOL104
JB14858-14	ASTM D1498-76M	08-SEP-12	SA			EH
JB14858-14	SW846 9045C,D	08-SEP-12 13:11	SA			PH
JB14858-14	SW846 3060A/7196A	10-SEP-12 17:10	MM	08-SEP-12	CW	XCRA
JB14858-15 Collected: 28-AUG-12 10:20 By: CM Received: 28-AUG-12 By: SC NSB-F4-10.0-10.5						
JB14858-15	SM18 2540G	07-SEP-12 17:30	RO			SOL104
JB14858-15	ASTM D1498-76M	08-SEP-12	SA			EH
JB14858-15	SW846 9045C,D	08-SEP-12 13:11	SA			PH
JB14858-15	SW846 3060A/7196A	10-SEP-12 17:10	MM	08-SEP-12	CW	XCRA

Internal Sample Tracking Chronicle

AECOM, INC.

Job No: JB14858

PPG Northern Canal Borings, Jersey City, NJ
Project No: 60213772.5.A

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB14858-16	Collected: 28-AUG-12 10:10 By: CM NSB-F4-6.0-6.5		Received: 28-AUG-12 By: SC			
JB14858-16	ASTM D1498-76M	07-SEP-12	SA			EH
JB14858-16	SW846 9045C,D	07-SEP-12 16:13	SA			PH
JB14858-16	SM18 2540G	07-SEP-12 17:30	RO			SOL104
JB14858-16	SW846 3060A/7196A	10-SEP-12 17:10	MM	08-SEP-12	CW	XCRA
JB14858-17	Collected: 28-AUG-12 14:45 By: CM NSB-EB20120828		Received: 28-AUG-12 By: SC			
JB14858-17	SW846 7196A	28-AUG-12	MM			XCR
JB14858-17	SM20 4500H B	28-AUG-12 20:00	AS			PH
JB14858-17	ASTM D1498-76	11-SEP-12	JOO			EH
JB14858-18	Collected: 28-AUG-12 09:15 By: CM NSB-F4-0.0-0.5		Received: 28-AUG-12 By: SC			
JB14858-18	ASTM D1498-76M	07-SEP-12	SA			EH
JB14858-18	SW846 9045C,D	07-SEP-12 16:13	SA			PH
JB14858-18	SM18 2540G	07-SEP-12 17:30	RO			SOL104
JB14858-18	SW846 3060A/7196A	10-SEP-12 16:00	MM	08-SEP-12	CW	XCRA

Accutest Internal Chain of Custody

Job Number: JB14858
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Received: 08/28/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB14858-1.1	Secured Storage	Adam Scott	09/07/12 08:18	Retrieve from Storage
JB14858-1.1	Adam Scott	Secured Staging Area	09/07/12 08:18	Return to Storage
JB14858-1.1	Secured Staging Area	Sanjay Advani	09/07/12 08:35	Retrieve from Storage
JB14858-1.1	Secured Storage	Adam Scott	09/08/12 06:41	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JB14858-1.1	Adam Scott	Secured Staging Area	09/08/12 06:42	Return to Storage
JB14858-1.1	Secured Staging Area	Ching Wong	09/08/12 12:21	Retrieve from Storage
JB14858-1.1	Ching Wong	Secured Storage	09/08/12 17:18	Return to Storage
JB14858-2.1	Secured Storage	Adam Scott	09/07/12 08:18	Retrieve from Storage
JB14858-2.1	Adam Scott	Secured Staging Area	09/07/12 08:18	Return to Storage
JB14858-2.1	Secured Staging Area	Sanjay Advani	09/07/12 08:35	Retrieve from Storage
JB14858-2.1	Secured Storage	Adam Scott	09/08/12 06:41	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JB14858-2.1	Adam Scott	Secured Staging Area	09/08/12 06:42	Return to Storage
JB14858-2.1	Secured Staging Area	Ching Wong	09/08/12 12:21	Retrieve from Storage
JB14858-2.1	Ching Wong	Secured Storage	09/08/12 17:18	Return to Storage
JB14858-3.1	Secured Storage	Adam Scott	09/07/12 08:18	Retrieve from Storage
JB14858-3.1	Adam Scott	Secured Staging Area	09/07/12 08:18	Return to Storage
JB14858-3.1	Secured Staging Area	Sanjay Advani	09/07/12 08:35	Retrieve from Storage
JB14858-3.1	Secured Storage	Adam Scott	09/08/12 06:41	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JB14858-3.1	Adam Scott	Secured Staging Area	09/08/12 06:42	Return to Storage
JB14858-3.1	Secured Staging Area	Ching Wong	09/08/12 12:21	Retrieve from Storage
JB14858-3.1	Ching Wong	Secured Storage	09/08/12 17:18	Return to Storage
JB14858-4.1	Secured Storage	Adam Scott	09/07/12 08:18	Retrieve from Storage
JB14858-4.1	Adam Scott	Secured Staging Area	09/07/12 08:18	Return to Storage
JB14858-4.1	Secured Staging Area	Sanjay Advani	09/07/12 08:35	Retrieve from Storage
JB14858-4.1	Secured Storage	Adam Scott	09/08/12 06:41	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JB14858-4.1	Adam Scott	Secured Staging Area	09/08/12 06:42	Return to Storage
JB14858-4.1	Secured Staging Area	Ching Wong	09/08/12 12:21	Retrieve from Storage
JB14858-4.1	Ching Wong	Secured Storage	09/08/12 17:18	Return to Storage
JB14858-5.1	Secured Storage	Adam Scott	09/07/12 08:18	Retrieve from Storage
JB14858-5.1	Adam Scott	Secured Staging Area	09/07/12 08:18	Return to Storage
JB14858-5.1	Secured Staging Area	Sanjay Advani	09/07/12 08:35	Retrieve from Storage
JB14858-5.1	Secured Storage	Adam Scott	09/08/12 06:41	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JB14858-5.1	Adam Scott	Secured Staging Area	09/08/12 06:42	Return to Storage
JB14858-5.1	Secured Staging Area	Ching Wong	09/08/12 12:21	Retrieve from Storage
JB14858-5.1	Ching Wong	Secured Storage	09/08/12 17:18	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB14858
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Received: 08/28/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB14858-6.1	Secured Storage	Adam Scott	09/07/12 08:18	Retrieve from Storage
JB14858-6.1	Adam Scott	Secured Staging Area	09/07/12 08:18	Return to Storage
JB14858-6.1	Secured Staging Area	Sanjay Advani	09/07/12 08:35	Retrieve from Storage
JB14858-6.1	Secured Storage	Adam Scott	09/08/12 06:41	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JB14858-6.1	Adam Scott	Secured Staging Area	09/08/12 06:42	Return to Storage
JB14858-6.1	Secured Staging Area	Ching Wong	09/08/12 12:21	Retrieve from Storage
JB14858-6.1	Ching Wong	Secured Storage	09/08/12 17:18	Return to Storage
JB14858-7.1	Secured Storage	Adam Scott	09/07/12 08:18	Retrieve from Storage
JB14858-7.1	Adam Scott	Secured Staging Area	09/07/12 08:18	Return to Storage
JB14858-7.1	Secured Staging Area	Sanjay Advani	09/07/12 08:35	Retrieve from Storage
JB14858-7.1	Secured Storage	Adam Scott	09/08/12 06:41	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JB14858-7.1	Adam Scott	Secured Staging Area	09/08/12 06:42	Return to Storage
JB14858-7.1	Secured Staging Area	Ching Wong	09/08/12 12:21	Retrieve from Storage
JB14858-7.1	Ching Wong	Secured Storage	09/08/12 17:18	Return to Storage
JB14858-8.1	Secured Storage	Adam Scott	09/07/12 08:18	Retrieve from Storage
JB14858-8.1	Adam Scott	Secured Staging Area	09/07/12 08:18	Return to Storage
JB14858-8.1	Secured Staging Area	Sanjay Advani	09/07/12 08:35	Retrieve from Storage
JB14858-8.1	Secured Storage	Adam Scott	09/08/12 06:41	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JB14858-8.1	Adam Scott	Secured Staging Area	09/08/12 06:42	Return to Storage
JB14858-8.1	Secured Staging Area	Ching Wong	09/08/12 12:21	Retrieve from Storage
JB14858-8.1	Ching Wong	Secured Storage	09/08/12 17:18	Return to Storage
JB14858-9.1	Secured Storage	Adam Scott	09/07/12 08:18	Retrieve from Storage
JB14858-9.1	Adam Scott	Secured Staging Area	09/07/12 08:18	Return to Storage
JB14858-9.1	Secured Staging Area	Sanjay Advani	09/07/12 08:35	Retrieve from Storage
JB14858-9.1	Secured Storage	Adam Scott	09/08/12 06:41	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JB14858-9.1	Adam Scott	Secured Staging Area	09/08/12 06:42	Return to Storage
JB14858-9.1	Secured Staging Area	Ching Wong	09/08/12 12:21	Retrieve from Storage
JB14858-9.1	Ching Wong	Secured Storage	09/08/12 17:18	Return to Storage
JB14858-10.1	Secured Storage	Adam Scott	09/07/12 08:18	Retrieve from Storage
JB14858-10.1	Adam Scott	Secured Staging Area	09/07/12 08:18	Return to Storage
JB14858-10.1	Secured Staging Area	Sanjay Advani	09/07/12 08:35	Retrieve from Storage
JB14858-10.1	Secured Storage	Adam Scott	09/08/12 06:41	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JB14858-10.1	Adam Scott	Secured Staging Area	09/08/12 06:42	Return to Storage
JB14858-10.1	Secured Staging Area	Ching Wong	09/08/12 12:21	Retrieve from Storage

Accutest Internal Chain of Custody

Job Number: JB14858
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Received: 08/28/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB14858-10.1	Ching Wong	Secured Storage	09/08/12 17:18	Return to Storage
JB14858-11.1	Secured Storage	Adam Scott	09/07/12 08:18	Retrieve from Storage
JB14858-11.1	Adam Scott	Secured Staging Area	09/07/12 08:18	Return to Storage
JB14858-11.1	Secured Staging Area	Sanjay Advani	09/07/12 08:35	Retrieve from Storage
JB14858-11.1	Secured Storage	Adam Scott	09/08/12 06:41	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JB14858-11.1	Adam Scott	Secured Staging Area	09/08/12 06:42	Return to Storage
JB14858-11.1	Secured Staging Area	Ching Wong	09/08/12 12:21	Retrieve from Storage
JB14858-11.1	Ching Wong	Secured Storage	09/08/12 17:18	Return to Storage
JB14858-12.1	Secured Storage	Adam Scott	09/07/12 08:18	Retrieve from Storage
JB14858-12.1	Adam Scott	Secured Staging Area	09/07/12 08:18	Return to Storage
JB14858-12.1	Secured Staging Area	Sanjay Advani	09/07/12 08:35	Retrieve from Storage
JB14858-12.1	Secured Storage	Adam Scott	09/08/12 06:41	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JB14858-12.1	Adam Scott	Secured Staging Area	09/08/12 06:42	Return to Storage
JB14858-12.1	Secured Staging Area	Ching Wong	09/08/12 12:21	Retrieve from Storage
JB14858-12.1	Ching Wong	Secured Storage	09/08/12 17:18	Return to Storage
JB14858-13.1	Secured Storage	Adam Scott	09/07/12 08:18	Retrieve from Storage
JB14858-13.1	Adam Scott	Secured Staging Area	09/07/12 08:18	Return to Storage
JB14858-13.1	Secured Staging Area	Sanjay Advani	09/07/12 08:35	Retrieve from Storage
JB14858-13.1	Secured Storage	Adam Scott	09/08/12 06:41	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JB14858-13.1	Adam Scott	Secured Staging Area	09/08/12 06:42	Return to Storage
JB14858-13.1	Secured Staging Area	Ching Wong	09/08/12 12:21	Retrieve from Storage
JB14858-13.1	Ching Wong	Secured Storage	09/08/12 17:18	Return to Storage
JB14858-14.1	Secured Storage	Adam Scott	09/07/12 08:18	Retrieve from Storage
JB14858-14.1	Adam Scott	Secured Staging Area	09/07/12 08:18	Return to Storage
JB14858-14.1	Secured Staging Area	Sanjay Advani	09/07/12 08:35	Retrieve from Storage
JB14858-14.1	Secured Storage	Adam Scott	09/08/12 06:41	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JB14858-14.1	Adam Scott	Secured Staging Area	09/08/12 06:42	Return to Storage
JB14858-14.1	Secured Staging Area	Ching Wong	09/08/12 12:21	Retrieve from Storage
JB14858-14.1	Ching Wong	Secured Storage	09/08/12 17:18	Return to Storage
JB14858-15.1	Secured Storage	Adam Scott	09/07/12 08:18	Retrieve from Storage
JB14858-15.1	Adam Scott	Secured Staging Area	09/07/12 08:18	Return to Storage
JB14858-15.1	Secured Staging Area	Sanjay Advani	09/07/12 08:35	Retrieve from Storage
JB14858-15.1	Secured Storage	Adam Scott	09/08/12 06:41	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JB14858-15.1	Adam Scott	Secured Staging Area	09/08/12 06:42	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB14858
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Received: 08/28/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB14858-15.1	Secured Staging Area	Ching Wong	09/08/12 12:21	Retrieve from Storage
JB14858-15.1	Ching Wong	Secured Storage	09/08/12 17:18	Return to Storage
JB14858-16.1	Secured Storage	Adam Scott	09/07/12 08:18	Retrieve from Storage
JB14858-16.1	Adam Scott	Secured Staging Area	09/07/12 08:18	Return to Storage
JB14858-16.1	Secured Staging Area	Sanjay Advani	09/07/12 08:35	Retrieve from Storage
JB14858-16.1	Secured Storage	Adam Scott	09/08/12 06:41	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JB14858-16.1	Adam Scott	Secured Staging Area	09/08/12 06:42	Return to Storage
JB14858-16.1	Secured Staging Area	Ching Wong	09/08/12 12:21	Retrieve from Storage
JB14858-16.1	Ching Wong	Secured Storage	09/08/12 17:18	Return to Storage
JB14858-17.1	Secured Storage	Mehmet Temizsu	08/28/12 21:18	Retrieve from Storage
JB14858-17.1	Mehmet Temizsu	Secured Storage	08/28/12 22:25	Return to Storage
JB14858-17.2	Secured Storage	Jared O. Onindo	09/11/12 10:35	Retrieve from Storage
JB14858-17.2	Jared O. Onindo	Secured Storage	09/11/12 20:05	Return to Storage
JB14858-18.1	Secured Storage	Adam Scott	09/07/12 08:18	Retrieve from Storage
JB14858-18.1	Adam Scott	Secured Staging Area	09/07/12 08:18	Return to Storage
JB14858-18.1	Secured Staging Area	Sanjay Advani	09/07/12 08:35	Retrieve from Storage
JB14858-18.1	Secured Storage	Adam Scott	09/08/12 06:41	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JB14858-18.1	Adam Scott	Secured Staging Area	09/08/12 06:42	Return to Storage
JB14858-18.1	Secured Staging Area	Ching Wong	09/08/12 12:21	Retrieve from Storage
JB14858-18.1	Ching Wong	Secured Storage	09/08/12 17:18	Return to Storage
JB14858-18.2	Secured Storage	Adam Scott	09/07/12 08:18	Retrieve from Storage
JB14858-18.2	Adam Scott	Secured Staging Area	09/07/12 08:18	Return to Storage
JB14858-18.2	Secured Staging Area	Sanjay Advani	09/07/12 08:35	Retrieve from Storage
JB14858-18.2	Shirley Grzybowski	Secured Storage	09/08/12 07:02	Return to Storage
Analyst unavailable for custody transfer.				
JB14858-18.2	Secured Storage	Adam Scott	09/12/12 08:20	Retrieve from Storage
JB14858-18.2	Adam Scott	Secured Staging Area	09/12/12 08:20	Return to Storage
JB14858-18.2	Secured Staging Area	Sarvadaman Tripathi	09/12/12 09:47	Retrieve from Storage
JB14858-18.2.1	Sarvadaman Tripathi	Vaidehi Amin	09/12/12 10:12	Aliquot from JB14858-18.2

New Jersey ACCUTEST LABORATORIES

General Chemistry

QC Data Summaries

Includes the following where applicable:

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

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: JB14858
Account: ENSRNJ - AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GN71209	0.010	0.0	mg/l	.15	0.15	100.0	90-110%
Chromium, Hexavalent	GP67051/GN71774			mg/kg	40	37.3	93.3	80-120%
Chromium, Hexavalent	GP67051/GN71774	0.40	0.0	mg/kg	985	950	96.4	80-120%

Associated Samples:
Batch GN71209: JB14858-17
Batch GP67051: JB14858-1, JB14858-2, JB14858-3, JB14858-4, JB14858-5, JB14858-6, JB14858-7, JB14858-8, JB14858-9, JB14858-10, JB14858-11, JB14858-12, JB14858-13, JB14858-14, JB14858-15, JB14858-16, JB14858-18
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: JB14858
Account: ENSRNJ - AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GN71209	JB14205-78	mg/l	0.0	0.0	0.0	0-20%
Chromium, Hexavalent	GP67051/GN71774	JB14858-18	mg/kg	0.94	1.0	6.2	0-20%
Redox Potential Vs H2	GN71686	JB14858-18	mv	390	444	12.9	0-13%
Redox Potential Vs H2	GN71734	JB14858-1	mv	336	284	16.8*(a)	0-13%
pH	GN71685	JB14858-18	su	6.45	6.46	0.1	0-5%
pH	GN71733	JB14858-1	su	8.63	8.33	3.5	0-5%

Associated Samples:
Batch GN71209: JB14858-17
Batch GN71685: JB14858-16, JB14858-18
Batch GN71686: JB14858-16, JB14858-18
Batch GN71733: JB14858-1, JB14858-2, JB14858-3, JB14858-4, JB14858-5, JB14858-6, JB14858-7, JB14858-8, JB14858-9, JB14858-10, JB14858-11, JB14858-12, JB14858-13, JB14858-14, JB14858-15
Batch GN71734: JB14858-1, JB14858-2, JB14858-3, JB14858-4, JB14858-5, JB14858-6, JB14858-7, JB14858-8, JB14858-9, JB14858-10, JB14858-11, JB14858-12, JB14858-13, JB14858-14, JB14858-15
Batch GP67051: JB14858-1, JB14858-2, JB14858-3, JB14858-4, JB14858-5, JB14858-6, JB14858-7, JB14858-8, JB14858-9, JB14858-10, JB14858-11, JB14858-12, JB14858-13, JB14858-14, JB14858-15, JB14858-16, JB14858-18
(*) Outside of QC limits
(a) Outside of in house limits, but within reasonable method recovery limits.

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: JB14858
Account: ENSRNJ - AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chromium, Hexavalent	GN71209	JB14205-78	mg/l	0.0	.15	0.093	62.0N(a)	85-115%
Chromium, Hexavalent	GP67051/GN71774	JB14858-18	mg/kg	0.94	989	813	82.1(b)	75-125%
Chromium, Hexavalent	GP67051/GN71774	JB14858-18	mg/kg	0.94	48.6	19.2	37.6N(c)	75-125%

Associated Samples:
Batch GN71209: JB14858-17
Batch GP67051: JB14858-1, JB14858-2, JB14858-3, JB14858-4, JB14858-5, JB14858-6, JB14858-7, JB14858-8, JB14858-9, JB14858-10, JB14858-11, JB14858-12, JB14858-13, JB14858-14, JB14858-15, JB14858-16, JB14858-18
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(a) Spike recovery indicates possible matrix interference.Good recovery on pH adjsuted post spike (98%)
(b) Good recovery on insoluble XCR matrix spike. See additional comments on soluble matrix spike recovery.
(c) Soluble XCR matrix spike recovery indicates possible matrix interference. Low post spike recovery (84_%) on this sample.Low pH adjusted post spike (61%). Good agreement between the sample and 1:5 dilution.

Percent Solids Raw Data Summary

Job Number: JB14858
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Sample: JB14858-1 **Analyzed:** 07-SEP-12 by RO **Method:** SM18 2540G
ClientID: NSB-F2-21.5-22.0

Wet Weight (Total)	36.74	g
Tare Weight	29.03	g
Dry Weight (Total)	35.59	g
Solids, Percent	85.1	%

Sample: JB14858-2 **Analyzed:** 07-SEP-12 by RO **Method:** SM18 2540G
ClientID: NSB-F2-17.8-18.3

Wet Weight (Total)	36.65	g
Tare Weight	27.51	g
Dry Weight (Total)	35.59	g
Solids, Percent	88.4	%

Sample: JB14858-3 **Analyzed:** 07-SEP-12 by RO **Method:** SM18 2540G
ClientID: NSB-F2-15.0-15.5

Wet Weight (Total)	31.3	g
Tare Weight	22.68	g
Dry Weight (Total)	29.28	g
Solids, Percent	76.6	%

Sample: JB14858-4 **Analyzed:** 07-SEP-12 by RO **Method:** SM18 2540G
ClientID: NSB-F2-10.5-11.0X

Wet Weight (Total)	35.22	g
Tare Weight	26.71	g
Dry Weight (Total)	33.12	g
Solids, Percent	75.3	%

Sample: JB14858-5 **Analyzed:** 07-SEP-12 by RO **Method:** SM18 2540G
ClientID: NSB-F2-10.5-11.0

Wet Weight (Total)	29.95	g
Tare Weight	21.56	g
Dry Weight (Total)	28.07	g
Solids, Percent	77.6	%

Sample: JB14858-6 **Analyzed:** 07-SEP-12 by RO **Method:** SM18 2540G
ClientID: NSB-F2-4.0-4.5

Wet Weight (Total)	34.25	g
Tare Weight	25.14	g
Dry Weight (Total)	33.12	g
Solids, Percent	87.6	%

Percent Solids Raw Data Summary

Job Number: JB14858
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Sample: JB14858-7 **Analyzed:** 07-SEP-12 by RO **Method:** SM18 2540G
ClientID: NSB-F2-1.0-1.5

Wet Weight (Total)	31.55	g
Tare Weight	25.98	g
Dry Weight (Total)	30.61	g
Solids, Percent	83.1	%

Sample: JB14858-8 **Analyzed:** 07-SEP-12 by RO **Method:** SM18 2540G
ClientID: NSB-F3-20.0-20.5

Wet Weight (Total)	35.38	g
Tare Weight	26.17	g
Dry Weight (Total)	34.14	g
Solids, Percent	86.5	%

Sample: JB14858-9 **Analyzed:** 07-SEP-12 by RO **Method:** SM18 2540G
ClientID: NSB-F3-15.0-15.5

Wet Weight (Total)	32.97	g
Tare Weight	25.14	g
Dry Weight (Total)	31.93	g
Solids, Percent	86.7	%

Sample: JB14858-10 **Analyzed:** 07-SEP-12 by RO **Method:** SM18 2540G
ClientID: NSB-F3-10.0-10.5

Wet Weight (Total)	28.2	g
Tare Weight	23.07	g
Dry Weight (Total)	26.06	g
Solids, Percent	58.3	%

Sample: JB14858-11 **Analyzed:** 07-SEP-12 by RO **Method:** SM18 2540G
ClientID: NSB-F4-20.0-20.5

Wet Weight (Total)	27.78	g
Tare Weight	19.28	g
Dry Weight (Total)	26.56	g
Solids, Percent	85.6	%

Sample: JB14858-12 **Analyzed:** 07-SEP-12 by RO **Method:** SM18 2540G
ClientID: NSB-F4-16.0-16.5

Wet Weight (Total)	27.92	g
Tare Weight	22.32	g
Dry Weight (Total)	26.6	g
Solids, Percent	76.4	%

Percent Solids Raw Data Summary

Job Number: JB14858
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Sample: JB14858-13 **Analyzed:** 07-SEP-12 by RO **Method:** SM18 2540G
ClientID: NSB-F3-4.0-4.5

Wet Weight (Total)	30.55	g
Tare Weight	20.88	g
Dry Weight (Total)	28.79	g
Solids, Percent	81.8	%

Sample: JB14858-14 **Analyzed:** 07-SEP-12 by RO **Method:** SM18 2540G
ClientID: NSB-F3-1.0-1.5

Wet Weight (Total)	28.91	g
Tare Weight	22.02	g
Dry Weight (Total)	28.01	g
Solids, Percent	86.9	%

Sample: JB14858-15 **Analyzed:** 07-SEP-12 by RO **Method:** SM18 2540G
ClientID: NSB-F4-10.0-10.5

Wet Weight (Total)	25.88	g
Tare Weight	17.66	g
Dry Weight (Total)	22.7	g
Solids, Percent	61.3	%

Sample: JB14858-16 **Analyzed:** 07-SEP-12 by RO **Method:** SM18 2540G
ClientID: NSB-F4-6.0-6.5

Wet Weight (Total)	28.86	g
Tare Weight	22.35	g
Dry Weight (Total)	26.4	g
Solids, Percent	62.2	%

Sample: JB14858-18 **Analyzed:** 07-SEP-12 by RO **Method:** SM18 2540G
ClientID: NSB-F4-0.0-0.5

Wet Weight (Total)	27.82	g
Tare Weight	21.25	g
Dry Weight (Total)	26.62	g
Solids, Percent	81.7	%

New Jersey ACCUTEST LABORATORIES

General Chemistry

Raw Data

Hexavalent Chromium

Test Title:	XCr
GN Batch:	GN71209
Analyst:	MM
Prep Date:	NA
Analysis Date:	8/28/2012
Instrument ID:	H

1 **Method:** SW846 7196A

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

Corr. Coef: 0.99998

Slope: 0.8831

Y intercept: 0.002

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	19:02	0.000	0.0000							
	STD1	0.010	NA	NA	0.010	0.0100							
	STD2	0.045	NA	NA	0.045	0.0500							
	STD3	0.091	NA	NA	0.091	0.1000							
	STD4	0.271	NA	NA	0.271	0.3000							
	STD5	0.443	NA	NA	0.443	0.5000							
	STD6	0.711	NA	NA	0.711	0.8000							
	STD7	0.882	NA	19:05	0.882	1.0000							
	CCV	0.441	NA	19:47	0.441	0.4972	NA	NA	NA	NA	mg/l	0.001	0.010
	CCB	0.000	NA	19:47	0.000	-0.0022	NA	NA	NA	NA	mg/l	0.0013	0.010
	GN71209-MB1	0.000	0.000	19:54	0.000	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
	GN71209-B1	0.134	0.000	19:54	0.134	0.1495	50.0	50.0	1	0.150	mg/l	0.0014	0.010
	GN71209-S1	0.087	0.003	19:54	0.084	0.0929	50.0	50.0	1	0.093	mg/l	0.0014	0.010
	GN71209-D1	0.005	0.003	19:54	0.002	0.0000	50.0	50.0	1	0.000	mg/l	0.0014	0.010
5	JB14205-68	0.029	0.018	19:54	0.011	0.0102	50.0	50.0	1	0.010	mg/l	0.0014	0.010
5	JB14205-69	0.003	0.001	19:54	0.002	0.0000	50.0	50.0	1	0.000	mg/l	0.0014	0.010
5	JB14205-70	0.002	0.002	19:54	0.000	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
5	JB14205-71	0.002	0.001	19:54	0.001	-0.0011	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
5	JB14205-73	0.004	0.000	19:54	0.004	0.0023	50.0	50.0	1	0.002	mg/l	0.0014	0.010
5	JB14205-74	0.023	0.016	19:54	0.007	0.0057	50.0	50.0	1	0.006	mg/l	0.0014	0.010
	CCV	0.436	NA	19:54	0.436	0.4915	NA	NA	NA	NA	mg/l	0.0013	0.010
	CCB	0.000	NA	19:54	0.000	-0.0022	NA	NA	NA	NA	mg/l	0.0013	0.010
5	JB14205-75	0.020	0.012	19:57	0.008	0.0068	50.0	50.0	1	0.007	mg/l	0.0014	0.010
5	JB14205-76	0.004	0.002	19:57	0.002	0.0000	50.0	50.0	1	0.000	mg/l	0.0014	0.010
5	JB14205-77	0.002	0.001	19:57	0.001	-0.0011	50.0	50.0	1	-0.001	mg/l	0.0014	0.010
13	JB14205-78	0.005	0.003	19:57	0.002	0.0000	50.0	50.0	1	0.000	mg/l	0.0014	0.010
	JB14205-78DILCONF	0.000	0.000	19:57	0.000	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
	JB14205-78PHADJPSCC	0.138	0.006	19:57	0.132	0.1473	50.0	50.0	1	0.147	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
	CCV	0.430	NA	19:57	0.430	0.4847	NA	NA	NA	NA	mg/l	0.0013	0.010
	CCB	0.000	NA	19:57	0.000	-0.0022	NA	NA	NA	NA	mg/l	0.0013	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
	CCV	0.427	NA	20:18	0.427	0.4813	NA	NA	NA	NA	mg/l	0.0013	0.010
	CCB	0.000	NA	20:18	0.000	-0.0022	NA	NA	NA	NA	mg/l	0.0013	0.010
3	JB14856-10	0.000	0.000	20:20	0.000	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
	CCV	0.425	NA	20:20	0.425	0.4790	NA	NA	NA	NA	mg/l	0.0013	0.010
	CCB	0.000	NA	20:20	0.000	-0.0022	NA	NA	NA	NA	mg/l	0.0013	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010

7.1

7

					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
	CCV	0.437	NA	22:42	0.437	0.4926	NA	NA	NA	NA	mg/l	0.0013	0.010
	CCB	0.000	NA	22:42	0.000	-0.0022	NA	NA	NA	NA	mg/l	0.0013	0.010
1	JB14858-17	0.000	0.000		0.000	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
	CCV	0.436	NA	22:44	0.436	0.4915	NA	NA	NA	NA	mg/l	0.0013	0.010
	CCB	0.000	NA	22:44	0.000	-0.0022	NA	NA	NA	NA	mg/l	0.0013	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
	CCV		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.0013	0.010
	CCB		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.0013	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
	CCV		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.0013	0.010
	CCB		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.0013	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
	CCV		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.0013	0.010
	CCB		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.0013	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
					FALSE	-0.0022	50.0	50.0	1	-0.002	mg/l	0.0014	0.010
	CCV		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.0013	0.010
	CCB		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.0013	0.010

Comments:

ACCUTEST.

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

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

GNBatch ID: GN71209
Date: 8/28/202

Digestion Batch QC Summary Units = mg/l

Method Blank ID: GN71209-MB1 Date: 8/28/202 Result: <MDL RDL: 0.010 <RDL: Yes

Spike Blank ID: GN71209-BS1 Date: " Result: .15 Spike: .15 %Rec.: 100%

Duplicate ID: GN71209-SD1 Samp. Result: 0 Dup. Result: 0 %RPD: <MDL

MS ID: GN71209-S1 Samp. Result: 0 MS Result: .093 Spike: .15 %Rec: 62.0%

Diluted Sample ID: JBA205-78 Samp. Result: 0 Dil. Result: 0 %RPD: 0

pH adj. PS ID: " Samp. Result: 0 MS Result: .147 Spike: .15 %Rec: 98.0%

Analysis Batch QC Summary Units = mg/l

CCV: 8/28/202	Result: .497	TV: .50	%Rec.: 99.4%	
CCV: "	Result: .492	TV: "	%Rec.: 98.4%	
CCV: "	Result: .495	TV: "	%Rec.: 99.0%	
CCV: "	Result: .481	TV: "	%Rec.: 96.2%	
CCV: "	Result: .479	TV: "	%Rec.: 95.8%	
CCV: 8/28/202	Result: .496	TV: .50	%Rec.: 99.2%	
	.492	"	98.4%	
CCB: 8/28/202	Result: <MDL	RDL: 0.010	<RDL: Yes	
CCB: "	Result: "	RDL: "	<RDL: "	
CCB: "	Result: "	RDL: "	<RDL: "	
CCB: "	Result: "	RDL: "	<RDL: "	
CCB: "	Result: "	RDL: "	<RDL: "	
CCB: 8/28/202	Result: <MDL	RDL: 0.010	<RDL: Yes	

Reagent Reference Numbers:

Sel attached

Initial Calibration Source:

Continuing Calibration Source:

Analyst: NLM Date: 8/28/202

Comments:

Form GN076-01

ACCUTEST.

Hexavalent Chromium pH Adjustment Log
Method: SW846 7196A

pH adj. start time: 19:32 _____ _____ pH Adjust. Date: 8/28/202

pH adj. end time: 19:39 _____ _____ GN Batch ID: GN71209

Sample ID	Initial Sample Volume (ml)	Final Volume (ml)	pH after H2SO4	bkg pH after H2SO4	Spike Info	Comments
CCV	45	50	1.81		5mL	5 ppm Ultra
CCV						
CCV						
CCV						
CCB	45	50	1.94			
CCB						
CCB						
CCB						
MS JB14205-78	45	50	1.93	1.83	1mL	75 ppm Absolute
DUP			1.99	1.82		
SB B1			1.97	1.86	1mL	75 ppm Absolute
PB MB1			1.85	1.72		
1. JB14205-68			1.81	1.79		
2. -69			1.89	1.71		
3. -70			1.87	1.76		
4. -71			1.92	1.79		
5. -73			1.90	1.85		
6. -74			1.98	1.81		
7. -75			1.86	1.74		
8. -76			1.95	1.89		
9. -77			1.84	1.75		
10. -78			1.88	1.70		
11. JB14056-10	45	50	1.93	1.84		
12. JB14058-17	45	50	1.84	1.71		
13.						
14.						
15.						
16.						
17.						
18.						
19.						
20.						
PS JB14205-48	45	50	1.86	1.73	pH7021	W/IN 1mL 75 ppm Absolute.
DIL			1.97	1.91		1.5 dilution
DIL						

Reagent Information: _____

Analyst: _____ Date: 8/28/202 QC Reviewer: _____ Date: _____

Form: GN077-01

ACCUTEST.

Hexavalent Chromium pH Adjustment Log

Method: SW846 7196A

pH adj. start time: 18:52 _____ pH Adjust. Date: 8/28/20R

pH adj. end time: 18:55 _____ GN Batch ID: GN7120M

Sample ID	Initial Sample Volume (ml)	Final Volume (ml)	pH after H2SO4	Comments	Spike Info.
Calibration Blank	45	50	1.96		
0.010 mg/l standard	↓	↓	1.93	5 ppm Mixture	0.10 ml of 5 mg/l to 50 ml FV
0.050 mg/l standard			1.94	↓	0.50 ml of 5 mg/l to 50 mL FV
0.100 mg/l standard			1.75		1.00 ml of 5 mg/l to 50 mL FV
0.300 mg/l standard			1.93		3.00 ml of 5 mg/l to 50 mL FV
0.500 mg/l standard			1.91		5.00 ml of 5 mg/l to 50 mL FV
0.800 mg/l standard			1.89		8.00 ml of 5 mg/l to 50 mL FV
1.00 mg/l standard	↓	↓	1.78	↓	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:

Analyst: NM Date: 8/28/20R

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

ACCUTEST

Reagent Information Log - XCR - water - 7196A

Reagent	Exp. Date	Reagent # or Manufacturer/Lot
Calibration Source: Hexavalent Chromium, 1000 mg/L Stock	1/12/2015	Absolute Grade Lot# 011212
Calibration Checks: Hexavalent Chromium, 1000 mg/L Stock	5/31/2017	Ultra Scientific Lot# L00439
External Check	NA	NA
Spiking Solution Source	1/12/2015	Absolute Grade Lot# 011212
Diphenyl carbazide Solution	9/21/2015	GN13-33389-XCR
Sulfuric Acid, 10%	2/27/2015	GN13-33386-XCR

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

ACCUTEST LABORATORIES

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

Product: PH, CORR
Analyst: SANJAYA
GN Batch ID: GN71685
Analysis Date: 9/7/2012
pH Meter ID: 50

Thermometer ID: 6539
Correction Factor: 0

QC Summary

Duplicate ID: GN71685-D1
Dup Result: 6.46

Sample ID: JB14858-18
% RPD: 0.15%

✓ 9 only 09/10

Sample ID	Wt./Vol. used for soilds	Uncorrected/ Corrected Temp in Deg C.	Result	Corrosivity	Read time
Buffer Check: 4		25	4.01		15:25
Buffer Check: 7		25	7		
Buffer Check: 10		25	9.96		
GN71685-D1		25	6.46		
JB14858-16		25	9.21		
JB14858-18		25	6.45		
JB15520-1		25	8.20		
JB15520-2		25	7.69		
JB15520-3		25	7.73		
JB15520-8		25	9.47		
JB15520-9		25	9.15		
JB15644-1		25	8.28		
JB15644-2		25	8.40		
Buffer Check: 4		25	4.01		
Buffer Check: 10		25	10.03		16:13
Buffer Check:					
Buffer Check:					
Buffer Check:					
Buffer Check:					

Comments: _____

9/10

Validated By: Nancy Cole
Validated Date: 8/7/2012

Document Control #: AGN-PH CORR-AQ-01

ACCUTEST.

Analyst S.A

Method EH | PH

Prep Date 9/7/12

GP # GN71685-pH
GN71686-EH

Balance # 38

Sample Prep Log

Sample ID	Sample Size	Final Volume
JB15520-1	50.25g	added 50mL DI H2O
-2	50.66g	↓
-3	50.23g	
-8	50.39g	
-9	50.24g	
JB14858-1C	50.91g	added 30mL DI H2O
-1D	30.86g	↓
-1DRE	30.03g	
JB15644-1	50.16g	added 50mL DI H2O
-2	50.05g	↓

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

QC Review_____

Reagent Information Log
Test Name:_____pH_____

GN 71685

Reagent

pH 2 Buffer Solution	FICHER LOT#115910 EXP 11/30/13
pH 4 Buffer Solution	BDH LOT#2110255 EXP 9/30/13
pH 7 Buffer Solution	RICCA LOT#2111388 EXP 10/30/13
pH 10 Buffer Solution	FISCHER LOT#105427 EXP 09/30/12
pH 13 Buffer Solution	AQUA SOL. LOT#1080516 EXP 08/30/

Form: GN087-01
Rev. Date:9/5/2012

ACCUTEST.

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

Matrix: Aqueous ○ | Method: ASTM D1498-76 | **Date:** 09/07/12

Matrix: Solid ◉ | Method: ASTM D1498-76 Mod. | **GN Batch ID:** GN71686

Temp (Deg C): 25

Quality Control Summary

Sample ID:	GN71686-D1	Results: **390.1**	Dup: **444.2**	% RPD:	**12.97%**
Ferrous-Ferric True: 675			Found **654.3**	% Rec	**96.93%**
pH 4 Quinhydrone True: 462			Found **496.5**	% Rec	**107.47%**
pH 4 Quinhydrone True: 462			Found **460.9**	% Rec	**99.76%**
pH 4 Quinhydrone True: 462			Found	% Rec	
pH 7 Quinhydrone True: 285			Found **272.8**	% Rec	**95.72%**
pH 7 Quinhydrone True: 285			Found **266.1**	% Rec	**93.37%**
pH 7 Quinhydrone True: 285			Found	% Rec	

Sample #:	mv vs. Ag/AgCl Electrode	Corrected results (mv vs. Hydrogen electrode) ***
Ferrous-Ferric Solution	470.6	654.3
pH 4 Quinhydrone	312.8	496.5
pH 7 Quinhydrone	89	272.8
Dup GN71686-D1	260.1	444.2
1. JB14858-16	47.4	231.1
2. JB14858-18	205.7	390.1
3. JB15520-1	68.8	252.6
4. JB15520-2	64.9	248.7
5. JB15520-3	-51.8	131.9
6. JB15520-8	-48	134.7
7. JB15520-9	-25.7	158
8. JB15644-1	127	310.7
9. JB15644-2	172.6	356.4
pH 4 Quinhydrone	277.2	460.9
pH 7 Quinhydrone	82.4	266.1
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: Redox Standard: GNE-31456-ORP Exp:9/15/12

Comments:

Analyst: S.A. Date: 09/07/12 QC Reviewer: Date:

F/N GN141.DOC

Rev. Date: 3/27/2007

ACCUTEST.

Analyst S.A

Method EH | PH

Prep Date 9/7/12

GP # GN71685-pH
GN71686-EH

Balance # 38

Sample Prep Log

Sample ID	Sample Size	Final Volume
SB15520-1	50.25g	added 50mL DI H2O
-2	50.66g	↓
-3	50.33g	↓
-8	50.39g	↓
-9	50.24g	↓
SB14858-16	30.91g	added 30mL DI H2O
-18	30.86g	↓
-18Rx	30.03g	↓
SB15644-1	50.16g	added 50mL DI H2O
-2	50.05g	↓

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

QC Review_____

ACCUTEST LABORATORIES

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

Product: PH, CORR
Analyst: SANJAYA
GN Batch ID: GN71733
Analysis Date: 9/8/2012
pH Meter ID: 50

Thermometer ID: 6539
Correction Factor: 0

QC Summary

Duplicate ID: GN71733-D1
Dup Result: 8.33

Sample ID: JB14858-1
% RPD: 3.54%

✓ QC only 09/10

Sample ID	Wt./Vol. used for soilds	Uncorrected/ Corrected Temp in Deg C.	Result	Corrosivity	Read time
Buffer Check: 4		25	4.02		12:33
Buffer Check: 7		25	6.99		
Buffer Check: 10		25	9.99		
GN71733-D1		25	8.33		
JB14805-4		25	6.55		
JB14844-6		25	8.32		
JB14850-12		25	8.21		
JB14850-6		25	8.01		
JB14858-1		25	8.63		
JB14858-10		25	7.84		
JB14858-11		25	7.91		
JB14858-12		25	7.89		
JB14858-13		25	8.17		
Buffer Check: 4		25	4.04		
Buffer Check: 10		25	10.00		
JB14858-14		25	8.25		
JB14858-15		25	9.69		
JB14858-2		25	8.52		
JB14858-3		25	7.93		
JB14858-4		25	7.46		
JB14858-5		25	7.36		
JB14858-6		25	8.04		
JB14858-7		25	8.15		
JB14858-8		25	9.20		
JB14858-9		25	9.51		
Buffer Check: 7		25	7.03		
Buffer Check: 10		25	10.02		13:11
Buffer Check:					
Buffer Check:					

Comments:

Validated By: Nancy Cole
Validated Date: 8/7/2012
Document Control #: AGN-PH CORR-AQ-01

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ACCUTEST

Analyst S.A.

Method E-HP/T

Prep Date 9/7/12

GP # GN71733-pH
GN71734eH

Balance # 35

Sample Prep Log

	Sample ID	Sample Size	Final Volume
1	JB14844-6	50.68g	added 50mL DI H2O
3	JB14850-6	50.93g	
3	-12	50.25g	
1	JB14858-1	50.32g	
1	-DUP	50.79g	
1	-2	50.55g	
1	-3	50.66g	
1	-4	50.53g	
1	-5	50.94g	
1	-6	50.13g	
1	-7	50.37g	
1	-8	50.31g	
1	-9	50.08g	
1	-10	50.25g	
1	-11	50.25g	
1	-12	50.50g	
1	-13	50.08g	
1	-14	50.94g	
1	-15	50.01g	
1	JB14805-4	50.81g	

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

QC Review_____

Reagent Information Log
Test Name:_____pH_____

GN 71733

Reagent	
pH 2 Buffer Solution	FICHER LOT#115910 EXP 11/30/13
pH 4 Buffer Solution	BDH LOT#2110255 EXP 9/30/13
pH 7 Buffer Solution	RICCA LOT#2111388 EXP 10/30/13
pH 10 Buffer Solution	FISCHER LOT#105427 EXP 09/30/12
pH 13 Buffer Solution	AQUA SOL. LOT#1080516 EXP 08/30/

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Form: GN087-01
Rev. Date:9/5/2012

ACCUTEST.

Test: Redox Potential
Matrix: Aqueous ○
Matrix: Solid ◉

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

Analyst: SANJAYA
Date: 09/08/12
GN Batch ID: GN71734
Temp (Deg C): 25

Quality Control Summary

Sample ID:	GN71734-D1	Results:	**335.7**	Dup:	**284.4**
Ferrous-Ferric True: 675				Found	**648.7**
pH 4 Quinhydrone True: 462				Found	**499.2**
pH 4 Quinhydrone True: 462				Found	**468.8**
pH 4 Quinhydrone True: 462				Found	**469.3**
pH 7 Quinhydrone True: 285				Found	**297.9**
pH 7 Quinhydrone True: 285				Found	**275**
pH 7 Quinhydrone True: 285				Found	**275**

	% RPD:	**16.55%**
	% Rec	**96.10%**
	% Rec	**108.05%**
	% Rec	**101.47%**
	% Rec	**101.58%**
	% Rec	**104.53%**
	% Rec	**96.49%**
	% Rec	**96.49%**

Sample #:	mv vs. Ag/AgCl Electrode	Corrected results (mv vs. Hydrogen electrode) ***
Ferrous-Ferric Solution	452.1	648.7
pH 4 Quinhydrone	302.6	499.2
pH 7 Quinhydrone	101.3	297.9
Dup GN71734-D1	87.7	284.4
1. JB14844-6	146.4	343
2. JB14850-12	161.7	358.2
3. JB14850-6	167.7	364.3
4. JB14858-1	139	335.7
5. JB14858-10	52	248.6
6. JB14858-11	85	281.6
7. JB14858-12	-38.2	158.4
8. JB14858-13	137.9	344.5
9. JB14858-14	137	333.6
pH 4 Quinhydrone	272.3	468.8
pH 7 Quinhydrone	78.4	275
10. JB14858-15	37	233.6
11. JB14858-2	71.7	268.2
12. JB14858-3	74.4	271
13. JB14858-4	42	238.6
14. JB14858-5	20.4	217
15. JB14858-6	134.7	331.2
16. JB14858-7	194.4	346
17. JB14858-8	70	266.6
18. JB14858-9	48.5	245.1
19.		
pH 4 Quinhydrone	272.8	469.3
pH 7 Quinhydrone	78.4	275

*** 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: Redox Standard: GNE-31456-ORP Exp:9/15/12

Comments:

Analyst: S.A. Date: 09/08/12 QC Reviewer: Date:

F/N GN141.DOC
Rev. Date: 3/27/2007

ACCUTEST

Analyst S.A

Method E-1H/P1t

Prep Date 9/7/12

GP # GN71733-pH
GN71734-pH

Balance # 35

Sample Prep Log

	Sample ID	Sample Size	Final Volume
1	3B14844-6	50.68g	added 50mL DI H2O
3	3B14850-6	50.93g	
3	-12	50.25g	
1	3B14858-1	50.32g	
1	-1Dup	50.79g	
1	-2	50.55g	
1	-3	50.66g	
1	-4	50.53g	
1	-5	50.94g	
1	-6	50.13g	
1	-7	50.37g	
1	-8	50.31g	
1	-9	50.08g	
1	-10	50.25g	
1	-11	50.25g	
1	-12	50.13g	
1	-13	50.08g	
1	-14	50.94g	
1	-15	50.01g	
1	3B14805-4	50.81g	

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

QC Review

Hexavalent Chromium

Test Title: XCRA
GN Batch: GN71774
Analyst: MM
Prep Date: 9/8/2012
Analysis Date: 9/10/2012
Instrument ID: H

Method: SW846 3060A, 7196A

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

Corr. Coef: 0.99986

Slope: 0.9199

Y Intercept: -0.0007

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	10:00	0.000	0.0000							
	STD 1	0.009	NA	NA	0.009	0.0100							
	STD 2	0.047	NA	NA	0.047	0.0500							
	STD 3	0.092	NA	NA	0.092	0.1000							
	STD 4	0.273	NA	NA	0.273	0.3000							
	STD 5	0.460	NA	NA	0.460	0.5000							
	STD 6	0.723	NA	NA	0.723	0.8000							
	STD 7	0.929	NA	10:03	0.929	1.0000							
	CCV	0.433	NA	15:54	0.433	0.4715	NA	NA	NA	NA	mg/l	0.003	0.010
	CCB	0.000	NA	15:54	0.000	0.0008	NA	NA	NA	NA	mg/l	0.003	0.010
	GP67051-MB1	0.000	0.000	16:00	0.000	0.0008	100.0	2.0000	1	0.040	mg/kg	0.147	0.500
	GP67051-B1	0.856	0.000	16:00	0.856	0.9313	100.0	2.5000	1	37.254	mg/kg	0.117	0.400
	GP67051-S1	0.384	0.022	16:00	0.362	0.3943	100.0	2.5200	1	15.648	mg/kg	0.116	0.397
	GP67051-D1	0.035	0.016	16:00	0.019	0.0215	100.0	2.5700	1	0.835	mg/kg	0.114	0.389
	JB14858-18	0.043	0.026	16:00	0.017	0.0193	100.0	2.5000	1	0.771	mg/kg	0.117	0.400
	JB14858-18PSCONF	0.414	0.011	16:00	0.403	0.4389	100.0	2.5000	2	35.112	mg/kg	0.234	0.800
	GP67051-B2	>3	OVR		FALSE	0.0008	100.0	2.5000	1	0.032	mg/kg	0.117	0.400
	GP67051-S2	>3	OVR		FALSE	0.0008	100.0	2.5100	1	0.032	mg/kg	0.117	0.398
	GP67051-B2	0.436	0.000	16:00	0.436	0.4748	100.0	2.5000	50	949.542	mg/kg	5.860	20.000
	GP67051-S2	0.306	0.000	16:00	0.306	0.3334	100.0	2.5100	50	664.242	mg/kg	5.837	19.920
	CCV	0.431	NA	16:00	0.431	0.4693	NA	NA	NA	NA	mg/l	0.003	0.010
	CCB	0.000	NA	16:00	0.000	0.0008	NA	NA	NA	NA	mg/l	0.003	0.010
	JB14858-18DILCONF	0.013	0.010	16:13	0.003	0.0041	100.0	2.5000	5	0.813	mg/kg	0.586	2.000
	4858-18PHADJPSC	0.313	0.018	16:13	0.295	0.3215	100.0	2.5000	2	25.719	mg/kg	0.234	0.800
					FALSE	0.0008	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	0.0008	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	0.0008	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	0.0008	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	0.0008	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	0.0008	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	0.0008	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	0.0008	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
	CCV	0.429	NA	16:13	0.429	0.4672	NA	NA	NA	NA	mg/l	0.003	0.010
	CCB	0.000	NA	16:13	0.000	0.0008	NA	NA	NA	NA	mg/l	0.003	0.010
					FALSE	0.0008	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	0.0008	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	0.0008	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	0.0008	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	0.0008	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	0.0008	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	0.0008	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	0.0008	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	0.0008	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	0.0008	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
	CCV	0.435	NA	16:37	0.435	0.4737	NA	NA	NA	NA	mg/l	0.003	0.010
	CCB	0.000	NA	16:37	0.000	0.0008	NA	NA	NA	NA	mg/l	0.003	0.010
	JB14848-1	0.020	0.006	16:44	0.014	0.0160	100.0	2.5300	1	0.633	mg/kg	0.116	0.395
	JB14848-2	0.006	0.006	16:44	0.000	0.0008	100.0	2.5600	1	0.031	mg/kg	0.114	0.391
	JB14848-3	0.089	0.059	16:44	0.030	0.0334	100.0	2.4900	1	1.342	mg/kg	0.118	0.402
	JB14848-4	0.042	0.026	16:44	0.016	0.0182	100.0	2.5700	1	0.708	mg/kg	0.114	0.389
	JB14848-5	0.034	0.024	16:44	0.010	0.0117	100.0	2.5200	1	0.463	mg/kg	0.116	0.397
	JB14848-6	0.062	0.009	16:44	0.053	0.0584	100.0	2.5500	1	2.291	mg/kg	0.115	0.392
	JB14848-7	0.067	0.014	16:44	0.053	0.0584	100.0	2.5300	1	2.309	mg/kg	0.116	0.395
	JB14848-8	0.026	0.000	16:44	0.026	0.0291	100.0	2.5000	1	1.163	mg/kg	0.117	0.400
	JB14848-9	0.018	0.000	16:44	0.018	0.0204	100.0	2.5600	1	0.796	mg/kg	0.114	0.391
	JB14848-10	0.006	0.006	16:44	0.000	0.0008	100.0	2.4800	1	0.032	mg/kg	0.118	0.403
	CCV	0.432	NA	16:44	0.432	0.4704	NA	NA	NA	NA	mg/l	0.003	0.010
	CCB	0.000	NA	16:45	0.000	0.0008	NA	NA	NA	NA	mg/l	0.003	0.010
					FALSE	0.0008	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	0.0008	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	0.0008	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	0.0008	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	0.0008	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!

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					FALSE	0.0008	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	0.0008	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	0.0008	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	0.0008	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	0.0008	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
	CCV	0.434	NA	17:06	0.434	0.4726	NA	NA	NA	NA	mg/l	0.003	0.010
	CCB	0.000	NA	17:06	0.000	0.0008	NA	NA	NA	NA	mg/l	0.003	0.010
	JB14848-11	0.015	0.004	17:10	0.011	0.0128	100.0	2.5000	1	0.510	mg/kg	0.117	0.400
	JB14848-12	0.019	0.013	17:10	0.006	0.0073	100.0	2.5600	1	0.286	mg/kg	0.114	0.391
	JB14848-13	0.079	0.014	17:10	0.065	0.0715	100.0	2.5000	1	2.858	mg/kg	0.117	0.400
	JB14848-14	0.030	0.007	17:10	0.023	0.0258	100.0	2.5200	1	1.024	mg/kg	0.116	0.397
	JB14848-15	0.015	0.001	17:10	0.014	0.0160	100.0	2.5500	1	0.628	mg/kg	0.115	0.392
	JB14848-16	0.008	0.001	17:10	0.007	0.0084	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	0.0008	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	0.0008	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	0.0008	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	0.0008	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
	CCV	0.433	NA	17:10	0.433	0.4715	NA	NA	NA	NA	mg/l	0.003	0.010
	CCB	0.000	NA	17:10	0.000	0.0008	NA	NA	NA	NA	mg/l	0.003	0.010
					FALSE	0.0008	100.0	2.5000	1	0.032	mg/kg	0.117	0.400
					FALSE	0.0008	100.0	2.5000	1	0.032	mg/kg	0.117	0.400
					FALSE	0.0008	100.0	2.5000	1	0.032	mg/kg	0.117	0.400
					FALSE	0.0008	100.0	2.5000	1	0.032	mg/kg	0.117	0.400
					FALSE	0.0008	100.0	2.5000	1	0.032	mg/kg	0.117	0.400
					FALSE	0.0008	100.0	2.5000	1	0.032	mg/kg	0.117	0.400
					FALSE	0.0008	100.0	2.5000	1	0.032	mg/kg	0.117	0.400
					FALSE	0.0008	100.0	2.5000	1	0.032	mg/kg	0.117	0.400
					FALSE	0.0008	100.0	2.5000	1	0.032	mg/kg	0.117	0.400
					FALSE	0.0008	100.0	2.5000	1	0.032	mg/kg	0.117	0.400
	CCV		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.003	0.010
	CCB		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.003	0.010
					FALSE	0.0008	100.0	2.5000	1	0.032	mg/kg	0.117	0.400
					FALSE	0.0008	100.0	2.5000	1	0.032	mg/kg	0.117	0.400
					FALSE	0.0008	100.0	2.5000	1	0.032	mg/kg	0.117	0.400
					FALSE	0.0008	100.0	2.5000	1	0.032	mg/kg	0.117	0.400
					FALSE	0.0008	100.0	2.5000	1	0.032	mg/kg	0.117	0.400
					FALSE	0.0008	100.0	2.5000	1	0.032	mg/kg	0.117	0.400
					FALSE	0.0008	100.0	2.5000	1	0.032	mg/kg	0.117	0.400
					FALSE	0.0008	100.0	2.5000	1	0.032	mg/kg	0.117	0.400
					FALSE	0.0008	100.0	2.5000	1	0.032	mg/kg	0.117	0.400
					FALSE	0.0008	100.0	2.5000	1	0.032	mg/kg	0.117	0.400
	CCV		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.003	0.010
	CCB		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.003	0.010
					FALSE	0.0008	100.0	2.5000	1	0.032	mg/kg	0.117	0.400
					FALSE	0.0008	100.0	2.5000	1	0.032	mg/kg	0.117	0.400
					FALSE	0.0008	100.0	2.5000	1	0.032	mg/kg	0.117	0.400
					FALSE	0.0008	100.0	2.5000	1	0.032	mg/kg	0.117	0.400
					FALSE	0.0008	100.0	2.5000	1	0.032	mg/kg	0.117	0.400
					FALSE	0.0008	100.0	2.5000	1	0.032	mg/kg	0.117	0.400
					FALSE	0.0008	100.0	2.5000	1	0.032	mg/kg	0.117	0.400
					FALSE	0.0008	100.0	2.5000	1	0.032	mg/kg	0.117	0.400
					FALSE	0.0008	100.0	2.5000	1	0.032	mg/kg	0.117	0.400
					FALSE	0.0008	100.0	2.5000	1	0.032	mg/kg	0.117	0.400
	CCV		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.003	0.010
	CCB		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.003	0.010
					FALSE	0.0008	100.0	2.5000	1	0.032	mg/kg	0.117	0.400
					FALSE	0.0008	100.0	2.5000	1	0.032	mg/kg	0.117	0.400
					FALSE	0.0008	100.0	2.5000	1	0.032	mg/kg	0.117	0.400
					FALSE	0.0008	100.0	2.5000	1	0.032	mg/kg	0.117	0.400
					FALSE	0.0008	100.0	2.5000	1	0.032	mg/kg	0.117	0.400
					FALSE	0.0008	100.0	2.5000	1	0.032	mg/kg	0.117	0.400
					FALSE	0.0008	100.0	2.5000	1	0.032	mg/kg	0.117	0.400
					FALSE	0.0008	100.0	2.5000	1	0.032	mg/kg	0.117	0.400
					FALSE	0.0008	100.0	2.5000	1	0.032	mg/kg	0.117	0.400
					FALSE	0.0008	100.0	2.5000	1	0.032	mg/kg	0.117	0.400
	CCV		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.005	0.010
	CCB		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.005	0.010

revised 4/25/11

Comments:

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ACCUTEST.

Test: **Hexavalent Chromium** MDL = 0.117 mg/kg GNBatch ID: GN71774
Product: **XCr** RDL = 0.40 mg/kg Date: 9/10/2012
Method: **SW846 3060A/7196A**

Digestion Batch QC Summary Units = mg/kg

Method Blank ID: GP67051-MB1 Date: 9/10/2012 Result: <MDL RDL: 0.40 <RDL: Yes
Sol. Spike Blank ID: GP67051-BS1 Date: " Result: 37.25 Spike: 40.00 %Rec.: 93.1%
Insol. Spike Blank ID: GP67051-BS2 Date: " Result: 949.54 Spike: 984.05 %Rec.: 96.4%
Duplicate ID: GP67051-D1 Samp. Result: .771 Dup. Result: .835 %RPD: 8.0%
Sol. MS ID: GP67051-S1 Samp. Result: " MS Result: 15.65 Spike: 39.68 %Rec: 37.5%
Insol. MS ID: GP67051-S2 Samp. Result: " MS Result: 1004.24 Spike: 807.1 %Rec: 82.1%
Post Spike ID: JB48580-18 Samp. Result: " PS Result: 35.11 Spike: 40.89 %Rec: 84.0%
Diluted Sample ID: " Samp. Result: " Dil. Result: .813 %RPD: 5.3%
pH adj. PS ID: " Samp. Result: " MS Result: 25.72 Spike: 40.89 %Rec: 101.0%

Analysis Batch QC Summary Units = mg/l

CCV: 9/10/2012 Result: .472 TV: 0.500 %Rec.: 94.4%
CCV: " Result: .469 TV: 0.500 %Rec.: 93.8%
CCV: " Result: .467 TV: 0.500 %Rec.: 93.4%
CCV: " Result: .474 TV: 0.500 %Rec.: 94.8%
CCV: " Result: .470 TV: 0.500 %Rec.: 94.0%
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: 9/10/2012 Result: <MDL 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: MM Date: 9/10/2012

Comments: _____

Form: GN066-01
Rev. Date: 4/25/11

16:47 16:52 16:57 16:59

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

pH Meter ID: 51
Digestion Date: 9/8/12
pH adj. Date: 9/8-9/10/2012
GN Batch ID: GN71774

pH adj. start time: 15:31 16:15 15:43 16:20
pH adj. end time: 15:37 16:20 15:46 16:29

GP6705 Sample ID	Sample Weight in g	pH after HNO3	Final Volume (ml)	pH after H2SO4	bkg pH after H2SO4	Spike Amounts	Spike Solution	Digestate Description/Comments
CCV		7.36	100	1.96		5.0mL	10ppm Ultra	
CCV		7.46	↓	2.02		↓	↓	
CCV		7.92		1.86				
CCV								
CCB		7.91	100	1.99				
CCB		7.89	↓	1.74				
CCB		7.73		1.97				
CCB								
MS (Sol) JB14858-18	2.52	7.98	100	2.13	1.96	1.0mL	100ppm abs	
MS (Insol.)	2.51	7.86		1.96	a/r	0.0126g	PbCrO4	
DUP	2.57	7.73		1.93	1.82			
SB (Sol)	2.50	7.14		1.85	1.72	1.0mL	100ppm abs	
SB (Insol)	↓	7.21		1.81	a/r	0.0153g	PbCrO4	
MB		7.93		1.94	1.85			
1 JB14858-1	2.53	7.63		1.77	1.68			Clear
2 -2	2.56	7.91		1.86	1.72			Clear
3 -3	2.49	7.84		2.01	1.91			very dark brown
4 -4	2.57	7.73		1.97	1.85			Dark golden
5 -5	2.52	7.69		1.94	1.82			Dark golden
6 -6	2.55	7.87		1.85	1.73			golden
7 -7	2.53	7.43		1.82	1.79			golden
8 -8	2.56	7.26		1.93	1.84			Clear
9 -9	2.56	7.88		1.96	1.85			Clear
10 -10	2.48	7.90		1.84	1.78			golden
11 -11	2.50	7.94		1.99	1.86			Clear
12 -12	2.56	7.87		1.96	1.82			golden
13 -13	2.50	7.73		1.85	1.73			dark golden
14 -14	2.52	7.61		1.89	1.74			golden
15 -15	2.55	7.94		1.87	1.76			Clear
16 -16	2.56	7.28		1.82	1.79			Clear
17 -18	2.50	7.41	↓	1.97	1.84			Brown
18								
19 *sample filtered w/ .45m filter after color was developed								
20								
SB (Insol)	2.50	7.21	100	1.89	1.76			dilution 1:5
MS (Insol.)	2.51	7.86	↓	1.92	1.89			dilution 1:5
PS	2.50	7.41	↓	2.01	1.93	2.3mL	100ppm Absolute	@1:2 dilution
pH adjusted PS	2.50	7.82	100	1.87	1.73	@1:832 w/ IN	2.3mL 100ppm Absolute	@1:2 dilution
1:5 dil.	2.50	7.82	↓	1.92	1.85			1:5 dilution
EATa	2.50	7.82						

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: CRW

Anayst: MM
Date: 9/10/2012

Form: GN-067

ACCUTEST LABS
DAYTON, NJ
GN71774

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

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?
JB14858-1	2.5	1.125		0.450	yes	0	2	0.225	0.23	0.511	40.889	efault (40 mg/kg) spike
JB14858-1	2.5	1.125		0.450	yes	0	2	0.225	0.23	0.511	40.889	efault (40 mg/kg) spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike

3060A/7196A INSOLUBLE SPIKE CALCULATION

Weight of PbCrO4	Weight of Sample	Amount Spiked
0.0153	2.5	984.653
0.0126	2.51	807.660
		#VALUE!
		#VALUE!
		#VALUE!
		#VALUE!
		#VALUE!
		#VALUE!
		#VALUE!

ACCUTEST.

Hexavalent Chromium pH Adjustment Log

Method: SW846 3060A/7196A

pH adj. start time: 9:31 9:43

pH adj. end time: 9:37 9:47

pH adjustment Date: 9-10-2012

GN Batch ID: GN71774

Sample ID	Sample Weight in g	pH after HNO3	Final Volume (ml)	pH after H2SO4	Comments	Spike Info.
Calibration Blank	NA	7.69	100	1.98	0	
0.010 mg/l standard	NA	7.77		1.95	10ppm Absorbtn	0.10 ml of 10 mg/l
0.050 mg/l standard	NA	7.82		2.04		0.50 ml of 10 mg/l
0.100 mg/l standard	NA	7.74		1.99		1.00 ml of 10 mg/l
0.300 mg/l standard	NA	7.49		2.01		3.00 ml of 10 mg/l
0.500 mg/l standard	NA	7.88		1.98		5.00 ml of 10 mg/l
0.800 mg/l standard	NA	7.81		2.14		8.00 ml of 10 mg/l
1.00 mg/l standard	NA	7.63		1.88		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: KZ

Date: 9-10-2012

Form: GN068-01

Rev. Date:5/22/06

7.6

7

ACCUTEST.

HEXAVALENT CHROMIUM STANDARD PREPARATION LOG

Product: XCR

GN or GP Number: GN71774

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 # 041215	1000 ppm	1.0 ml	DI	100 mls	10 mg/l	4/12/2015	[illegible]	9-10-12
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	9-11-12	[illegible]	9-10-12
.050 ppm	↓	↓	0.5 ppm	DI	↓	0.05 mg/l	↓	↓	↓
.10 ppm			1.0 ppm	DI		0.10 mg/l			
.30 ppm			3.0 ppm	DI		0.30 mg/l			
.50 ppm			5.0 ppm	DI		0.50 mg/l			
.80 ppm			8.0 ppm	DI		0.80 mg/l			
1.00 ppm	↓	↓	10.0 ppm	DI	↓	1.0 mg/l	↓	↓	↓

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

ACCUTEST.

HEXAVALENT CHROMIUM TEMPERATURE AND TIME DIGESTON LOG - METHOD 3060A

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

Thermometer ID: 381, 397, 182, 175

Thermometer Correction factor: 0 -2 2 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
	Starting Time	13:05	91° / 91°	94° / 92°	90° / 92°	91° / 91°
	Time 1	13:35	90° / 90°	94° / 92°	90° / 92°	91° / 91°
	Ending Time	14:05	90° / 90°	94 / 92°	90° / 92°	91° / 91°
	Starting Time	14:20	90° / 90°	94° / 92°	90° / 92°	
	Time 1	14:50	90° / 90°	95° / 93°	90° / 92°	
	Ending Time	15:20	90° / 90°	95° / 93°	90° / 92°	
	Starting Time					
	Time 1					
	Ending Time					

Analyst: CKW Date: 9/8/12

2nd Analyst Check: 9/8/12

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

ACCUTEST.

GN/GP Batch ID: GP107051

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

Reagent	Exp. Date	Reagent # or Manufacturer/Lot
Calibration Source: Hexavalent Chromium, 1000 mg/L Stock	4/12/2015	Absolute Grade Lot # 041212
Calibration Checks: Hexavalent Chromium, 1000 mg/L Stock	5/31/2017	Ultra lot # L00439
Spiking Solution Source	4/12/2015	Absolute Grade Lot # 041212
Lead Chromate (Insoluble Hexavalent Chromium Spike)	7/26/2017	Sigma Aldrich Lot # BCBG0578V
Magnesium Chloride, Anhydrous	7/11/2016	Alfa Aesar Lot # B17X012
1N NaOH	9/16/2015	GNE3-31600-MMN
Digestion Solution	10/1/12	GNE9-33463-XCR
Phosphate Buffer Solution	2/14/13	GNE8-33573-XCRA
5.0 M Nitric Acid	3/4/2013	GNE9-33456-XCRA
Diphenylcarbazide Solution	10/5/2012	GNE9-33409-XCR
Sulfuric Acid, 10%	3/6/2013	GNE9-33402-XCR
Filter		F2AA50593
Teflon Chips	NA	919120

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

ACCUTEST LABORATORIES

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

Matrix: Aqueous (◉) | Method: ASTM D1498-76 | **Date:** 09/11/12

Matrix: Solid (○) | Method: ASTM D1498-76 Mod. | **GN Batch ID:** GN71842

Temp (Deg C): 25

Quality Control Summary

Sample ID: NA Results: NA Dup: **NA** % RPD:

Ferrous-Ferric True: 675	Found	**675.4**	% Rec	**100.06%**
pH 4 Quinhydrone True: 462	Found	**458.1**	% Rec	**99.16%**
pH 4 Quinhydrone True: 462	Found	**471.2**	% Rec	**101.99%**
pH 4 Quinhydrone True: 462	Found		% Rec	
pH 7 Quinhydrone True: 285	Found	**268.8**	% Rec	**94.32%**
pH 7 Quinhydrone True: 285	Found	**296.1**	% Rec	**103.89%**
pH 7 Quinhydrone True: 285	Found		% Rec	

Sample #:	mv vs. Ag/AgCl Electrode	Corrected results (mv vs. Hydrogen electrode) ***
Ferrous-Ferric Solution	487.9	675.4
pH 4 Quinhydrone	270.5	458.1
pH 7 Quinhydrone	81.3	268.8
Dup JB14858-17	212.5	399.9
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
pH 4 Quinhydrone	274.3	471.2
pH 7 Quinhydrone	96.7	296.1
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.

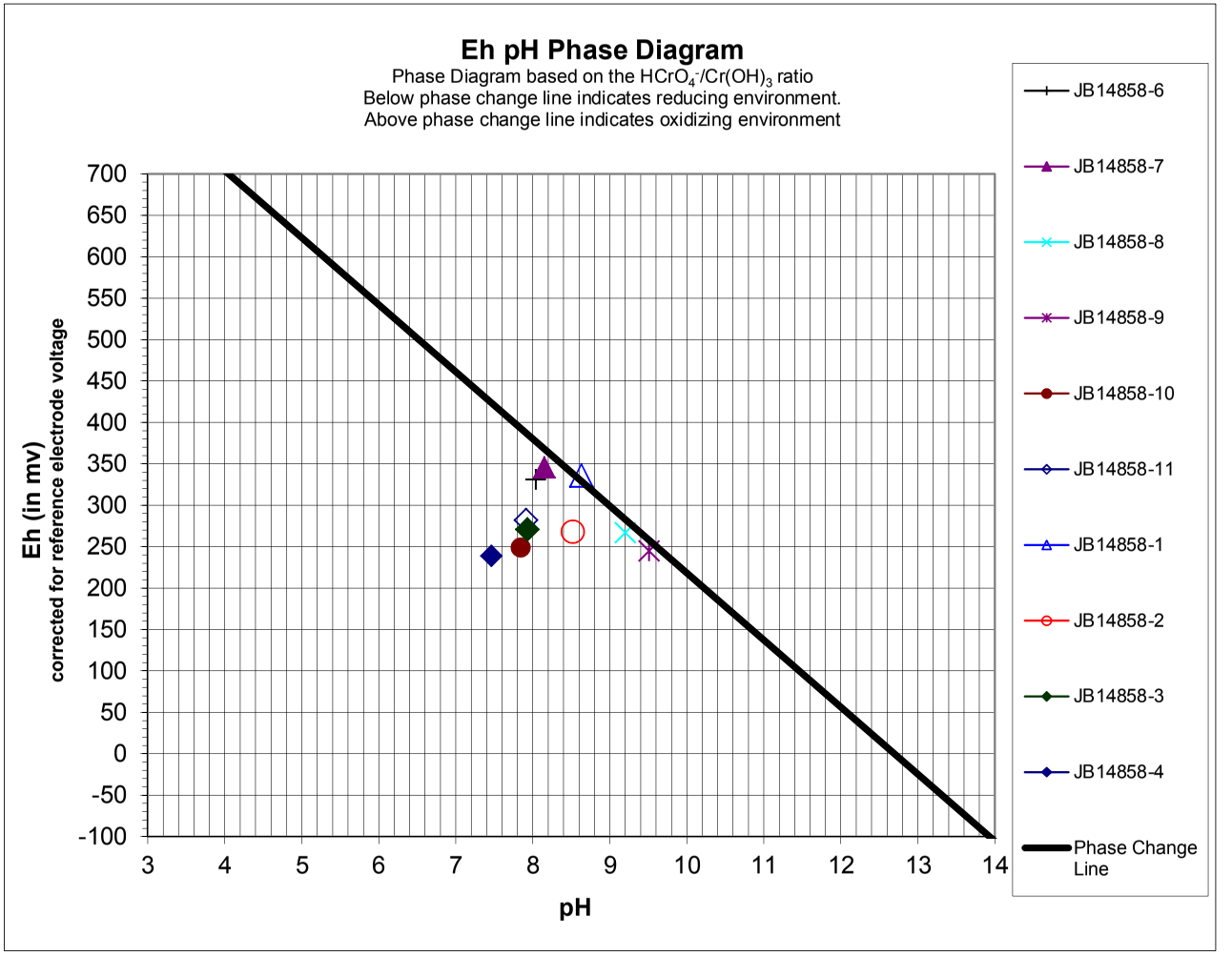
Reagent Numbers: REDOX STD GNE3-31456-ORP XP 9/15/12, QUINHYDRONE ACROS A0282816 XP 11/1/16, PH 4 BUFFER VWR 2110255 XP 9/13, PH BUFFER 7 RICCA 2111388 XP OCT 13

Comments:

ACCUTEST

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

Sample Number	pH	eH (mv)
JB14858-6	8.04	331
JB14858-7	8.15	346
JB14858-8	9.2	267
JB14858-9	9.51	245
JB14858-10	7.84	249
JB14858-11	7.91	282
JB14858-1	8.63	336
JB14858-2	8.52	268
JB14858-3	7.93	271
JB14858-4	7.46	239



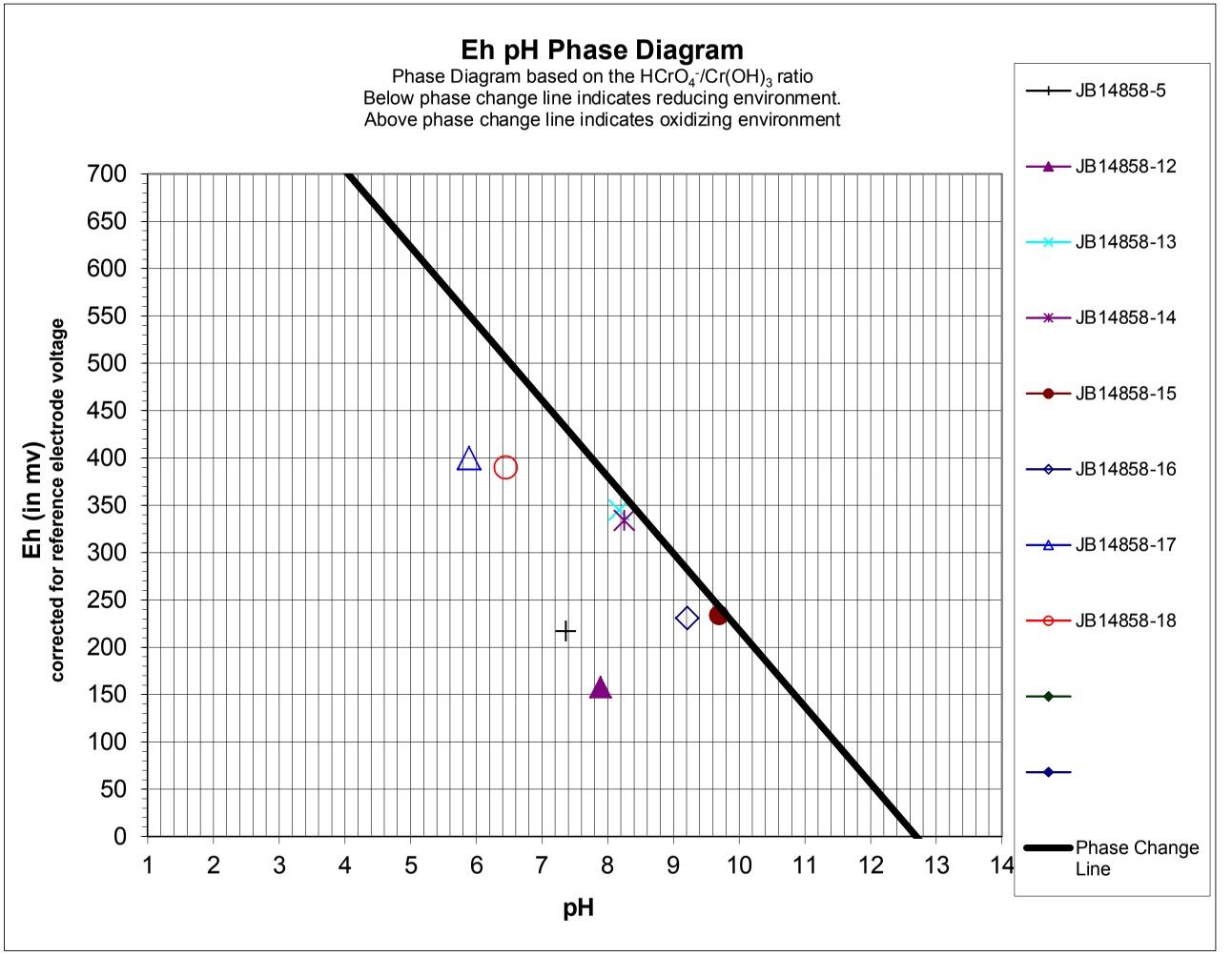
Note that the Eh values plotted on this diagram are corrected for the reference electrode voltage and the values shown are versus the standard hydrogen electrode

Reference for graph: SW846 method 3060A

ACCUTEST

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

Sample Number	pH	eH (mv)
JB14858-5	7.36	217
JB14858-12	7.89	158
JB14858-13	8.17	345
JB14858-14	8.25	334
JB14858-15	9.69	234
JB14858-16	9.21	231
JB14858-17	5.89	400
JB14858-18	6.45	390



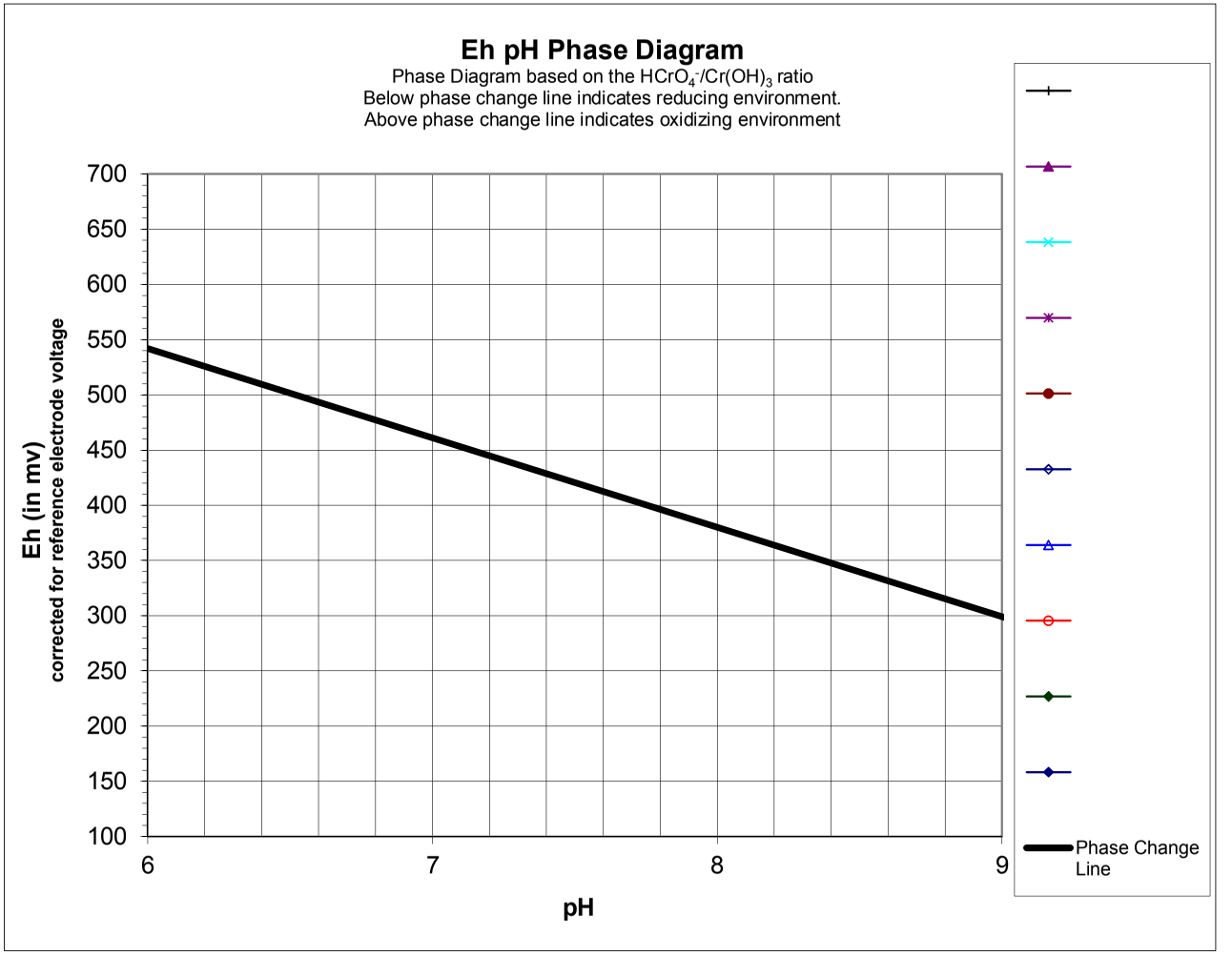
Note that the Eh values plotted on this diagram are corrected for the reference electrode voltage and the values shown are versus the standard hydrogen electrode

Reference for graph: SW846 method 3060A

ACCUTEST

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

Sample Number	pH	eH (mv)



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

Reference for graph: SW846 method 3060A

New Jersey ACCUTEST LABORATORIES

09/19/12

Technical Report for

AECOM, INC.

PPG Northern Canal Borings, Jersey City, NJ

60213772.5.A

Accutest Job Number: JB14858R

Sampling Date: 08/28/12

Report to:

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

Total number of pages in report: **102**

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.

Paul Ioannidis
Lab Director

Client Service contact: Matt Cordova 732-329-0200

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

Sections: 1 2 3 4 5 6 7

Table of Contents

Sample Summary

AECOM, INC.

Job No: JB14858R

PPG Northern Canal Borings, Jersey City, NJ
Project No: 60213772.5.A

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JB14858-1R	08/28/12	14:15	CM	08/28/12	SO	Soil	NSB-F2-21.5-22.0
JB14858-2R	08/28/12	14:10	CM	08/28/12	SO	Soil	NSB-F2-17.8-18.3
JB14858-3R	08/28/12	14:00	CM	08/28/12	SO	Soil	NSB-F2-15.0-15.5
JB14858-4R	08/28/12	13:55	CM	08/28/12	SO	Soil	NSB-F2-10.5-11.0X
JB14858-5R	08/28/12	13:50	CM	08/28/12	SO	Soil	NSB-F2-10.5-11.0
JB14858-6R	08/28/12	13:30	CM	08/28/12	SO	Soil	NSB-F2-4.0-4.5
JB14858-7R	08/28/12	13:10	CM	08/28/12	SO	Soil	NSB-F2-1.0-1.5
JB14858-8R	08/28/12	12:05	CM	08/28/12	SO	Soil	NSB-F3-20.0-20.5
JB14858-9R	08/28/12	12:00	CM	08/28/12	SO	Soil	NSB-F3-15.0-15.5
JB14858-10R	08/28/12	11:50	CM	08/28/12	SO	Soil	NSB-F3-10.0-10.5
JB14858-11R	08/28/12	11:25	CM	08/28/12	SO	Soil	NSB-F4-20.0-20.5
JB14858-12R	08/28/12	11:00	CM	08/28/12	SO	Soil	NSB-F4-16.0-16.5
JB14858-13R	08/28/12	10:40	CM	08/28/12	SO	Soil	NSB-F3-4.0-4.5

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

Sample Summary
(continued)

AECOM, INC.

Job No: JB14858R

PPG Northern Canal Borings, Jersey City, NJ
Project No: 60213772.5.A

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JB14858-14R	08/28/12	10:35	CM	08/28/12	SO	Soil	NSB-F3-1.0-1.5
JB14858-15R	08/28/12	10:20	CM	08/28/12	SO	Soil	NSB-F4-10.0-10.5
JB14858-16R	08/28/12	10:10	CM	08/28/12	SO	Soil	NSB-F4-6.0-6.5
JB14858-18DR	08/28/12	09:15	CM	08/28/12	SO	Soil Dup/MSD	NSB-F4-0.0-0.5
JB14858-18R	08/28/12	09:15	CM	08/28/12	SO	Soil	NSB-F4-0.0-0.5
JB14858-18SR	08/28/12	09:15	CM	08/28/12	SO	Soil Matrix Spike	NSB-F4-0.0-0.5

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

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	AECOM, INC.	**Job No**	JB14858R
Site:	PPG Northern Canal Borings, Jersey City, NJ	**Report Date**	9/19/2012 11:37:15 A

On 08/28/2012, 18 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at Accutest Laboratories at a temperature of 6 C. Samples were intact and chemically preserved, unless noted below. An Accutest Job Number of JB14858R 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. 17 Samples were active for this report.

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:** GN71909

- All method blanks for this batch meet method specific criteria.
- Sample(s) JB15353-1RDUP, JB15353-1RMS were used as the QC samples for Iron, Ferrous.
- The following samples were run outside of holding time for method ASTM D3872-86: JB14858-18R 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:** GP67107

- All method blanks for this batch meet method specific criteria.
- Sample(s) JB15129-18MS, JB15129-18DUP were used as the QC samples for Total Organic Carbon.
- The following samples were prepared outside of holding time for method LLOYD KAHN 1988 MOD: JB14858-18R Received and analyzed out of holding time.

Wet Chemistry By Method SM18 4500S2-A

Matrix: SO **Batch ID:** GN71910

- All method blanks for this batch meet method specific criteria.
- The following samples were run outside of holding time for method SM18 4500S2-A: JB14858-18R 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:** GP67127

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB14858-18RMS, JB14858-18RDUP 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 (86.3%) on this sample.
- RPD(s) for Duplicate for Chromium, Hexavalent are outside control limits. High RPD due to possible sample nonhomogeneity.
- GP67127-S2 for Chromium, Hexavalent: Good recovery on insoluble XCR matrix spike. See additional comments on soluble matrix spike recovery.

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: JB14858R
Account: AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Collected: 08/28/12

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JB14858-1R	**NSB-F2-21.5-22.0**					
No hits reported in this sample.						
JB14858-2R	**NSB-F2-17.8-18.3**					
No hits reported in this sample.						
JB14858-3R	**NSB-F2-15.0-15.5**					
Chromium, Hexavalent		0.55	0.52	0.15	mg/kg	SW846 3060A/7196A
JB14858-4R	**NSB-F2-10.5-11.0X**					
Chromium, Hexavalent		3.3	0.53	0.16	mg/kg	SW846 3060A/7196A
JB14858-5R	**NSB-F2-10.5-11.0**					
No hits reported in this sample.						
JB14858-6R	**NSB-F2-4.0-4.5**					
Chromium, Hexavalent		0.74	0.46	0.13	mg/kg	SW846 3060A/7196A
JB14858-7R	**NSB-F2-1.0-1.5**					
Chromium, Hexavalent		2.3	0.48	0.14	mg/kg	SW846 3060A/7196A
JB14858-8R	**NSB-F3-20.0-20.5**					
Chromium, Hexavalent		3.8	0.46	0.14	mg/kg	SW846 3060A/7196A
JB14858-9R	**NSB-F3-15.0-15.5**					
Chromium, Hexavalent		1.8	0.46	0.13	mg/kg	SW846 3060A/7196A
JB14858-10R	**NSB-F3-10.0-10.5**					
Chromium, Hexavalent		1.3	0.69	0.20	mg/kg	SW846 3060A/7196A
JB14858-11R	**NSB-F4-20.0-20.5**					
Chromium, Hexavalent		0.55	0.47	0.14	mg/kg	SW846 3060A/7196A

Summary of Hits

Job Number: JB14858R
Account: AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Collected: 08/28/12

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JB14858-12R	**NSB-F4-16.0-16.5**					
Chromium, Hexavalent		0.72	0.52	0.15	mg/kg	SW846 3060A/7196A
JB14858-13R	**NSB-F3-4.0-4.5**					
Chromium, Hexavalent		7.7	0.49	0.14	mg/kg	SW846 3060A/7196A
JB14858-14R	**NSB-F3-1.0-1.5**					
Chromium, Hexavalent		1.3	0.46	0.13	mg/kg	SW846 3060A/7196A
JB14858-15R	**NSB-F4-10.0-10.5**					
Chromium, Hexavalent		2.0	0.65	0.19	mg/kg	SW846 3060A/7196A
JB14858-16R	**NSB-F4-6.0-6.5**					
No hits reported in this sample.						
JB14858-18R	**NSB-F4-0.0-0.5**					
Chromium, Hexavalent		3.1	0.49	0.14	mg/kg	SW846 3060A/7196A
Iron, Ferrous [a]		0.62	0.20		%	ASTM D3872-86
Total Organic Carbon [b]		118000	120	59	mg/kg	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) Received and analyzed out of holding time.

New Jersey ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	NSB-F2-21.5-22.0		
Lab Sample ID:	JB14858-1R	**Date Sampled:**	08/28/12
Matrix:	SO - Soil	**Date Received:**	08/28/12
		Percent Solids:	85.1
Project:	PPG Northern Canal Borings, Jersey City, NJ		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.14 U	0.47	0.14	mg/kg	1	09/13/12 12:47	MP	SW846 3060A/7196A

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID: NSB-F2-17.8-18.3
Lab Sample ID: JB14858-2R
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/28/12
Date Received: 08/28/12
Percent Solids: 88.4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.13 U	0.45	0.13	mg/kg	1	09/13/12 12:47	MP	SW846 3060A/7196A

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID: NSB-F2-15.0-15.5
Lab Sample ID: JB14858-3R
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/28/12
Date Received: 08/28/12
Percent Solids: 76.6

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.55	0.52	0.15	mg/kg	1	09/13/12 12:47	MP	SW846 3060A/7196A

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID: NSB-F2-10.5-11.0X
Lab Sample ID: JB14858-4R
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/28/12
Date Received: 08/28/12
Percent Solids: 75.3

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	3.3	0.53	0.16	mg/kg	1	09/13/12 12:47	MP	SW846 3060A/7196A

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID: NSB-F2-10.5-11.0
Lab Sample ID: JB14858-5R
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/28/12
Date Received: 08/28/12
Percent Solids: 77.6

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.15 U	0.52	0.15	mg/kg	1	09/13/12 12:47	MP	SW846 3060A/7196A

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID:	NSB-F2-4.0-4.5		
Lab Sample ID:	JB14858-6R	**Date Sampled:**	08/28/12
Matrix:	SO - Soil	**Date Received:**	08/28/12
		Percent Solids:	87.6
Project:	PPG Northern Canal Borings, Jersey City, NJ		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.74	0.46	0.13	mg/kg	1	09/13/12 12:47	MP	SW846 3060A/7196A

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID:	NSB-F2-1.0-1.5		
Lab Sample ID:	JB14858-7R	**Date Sampled:**	08/28/12
Matrix:	SO - Soil	**Date Received:**	08/28/12
		Percent Solids:	83.1
Project:	PPG Northern Canal Borings, Jersey City, NJ		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	2.3	0.48	0.14	mg/kg	1	09/13/12 12:47	MP	SW846 3060A/7196A

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID:	NSB-F3-20.0-20.5		
Lab Sample ID:	JB14858-8R	**Date Sampled:**	08/28/12
Matrix:	SO - Soil	**Date Received:**	08/28/12
		Percent Solids:	86.5
Project:	PPG Northern Canal Borings, Jersey City, NJ		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	3.8	0.46	0.14	mg/kg	1	09/13/12 12:47	MP	SW846 3060A/7196A

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID:	NSB-F3-15.0-15.5		
Lab Sample ID:	JB14858-9R	**Date Sampled:**	08/28/12
Matrix:	SO - Soil	**Date Received:**	08/28/12
		Percent Solids:	86.7
Project:	PPG Northern Canal Borings, Jersey City, NJ		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	1.8	0.46	0.13	mg/kg	1	09/13/12 12:47	MP	SW846 3060A/7196A

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID:	NSB-F3-10.0-10.5		
Lab Sample ID:	JB14858-10R	**Date Sampled:**	08/28/12
Matrix:	SO - Soil	**Date Received:**	08/28/12
		Percent Solids:	58.3
Project:	PPG Northern Canal Borings, Jersey City, NJ		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	1.3	0.69	0.20	mg/kg	1	09/13/12 12:47	MP	SW846 3060A/7196A

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID: NSB-F4-20.0-20.5
Lab Sample ID: JB14858-11R
Matrix: SO - Soil
Project: PPG Northern Canal Borings, Jersey City, NJ

Date Sampled: 08/28/12
Date Received: 08/28/12
Percent Solids: 85.6

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.55	0.47	0.14	mg/kg	1	09/13/12 13:35	MP	SW846 3060A/7196A

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID:	NSB-F4-16.0-16.5		
Lab Sample ID:	JB14858-12R	**Date Sampled:**	08/28/12
Matrix:	SO - Soil	**Date Received:**	08/28/12
		Percent Solids:	76.4
Project:	PPG Northern Canal Borings, Jersey City, NJ		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.72	0.52	0.15	mg/kg	1	09/13/12 13:35	MP	SW846 3060A/7196A

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID:	NSB-F3-4.0-4.5		
Lab Sample ID:	JB14858-13R	**Date Sampled:**	08/28/12
Matrix:	SO - Soil	**Date Received:**	08/28/12
		Percent Solids:	81.8
Project:	PPG Northern Canal Borings, Jersey City, NJ		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	7.7	0.49	0.14	mg/kg	1	09/13/12 13:35	MP	SW846 3060A/7196A

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID:	NSB-F3-1.0-1.5		
Lab Sample ID:	JB14858-14R	**Date Sampled:**	08/28/12
Matrix:	SO - Soil	**Date Received:**	08/28/12
		Percent Solids:	86.9
Project:	PPG Northern Canal Borings, Jersey City, NJ		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	1.3	0.46	0.13	mg/kg	1	09/13/12 13:35	MP	SW846 3060A/7196A

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID:	NSB-F4-10.0-10.5		
Lab Sample ID:	JB14858-15R	**Date Sampled:**	08/28/12
Matrix:	SO - Soil	**Date Received:**	08/28/12
		Percent Solids:	61.3
Project:	PPG Northern Canal Borings, Jersey City, NJ		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	2.0	0.65	0.19	mg/kg	1	09/13/12 13:35	MP	SW846 3060A/7196A

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID:	NSB-F4-6.0-6.5		
Lab Sample ID:	JB14858-16R	**Date Sampled:**	08/28/12
Matrix:	SO - Soil	**Date Received:**	08/28/12
		Percent Solids:	62.2
Project:	PPG Northern Canal Borings, Jersey City, NJ		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.19 U	0.64	0.19	mg/kg	1	09/13/12 13:35	MP	SW846 3060A/7196A

RL = Reporting Limit
MDL = Method Detection Limit

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

Report of Analysis

Client Sample ID:	NSB-F4-0.0-0.5		
Lab Sample ID:	JB14858-18R	**Date Sampled:**	08/28/12
Matrix:	SO - Soil	**Date Received:**	08/28/12
		Percent Solids:	81.7
Project:	PPG Northern Canal Borings, Jersey City, NJ		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	3.1	0.49	0.14	mg/kg	1	09/13/12 11:37	MP	SW846 3060A/7196A
Iron, Ferrous [a]	0.62	0.20		%	1	09/12/12	ST	ASTM D3872-86
Sulfide Screen [b]	NEGATIVE				1	09/12/12	ST	SM18 4500S2-A
Total Organic Carbon [c]	118000	120	59	mg/kg	1	09/12/12 15:55	SJG	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.
(c) Received and analyzed out of holding time.

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

New Jersey ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

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

AECOM

SO
FB

CHAIN-OF-CUSTODY / Analytical Request Document

2012-08-28_RI_ACCUTEST_COC_NSB

Page: 1 of 2

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

Lab Information:		Project Information:		Other Information:			
Lab:	ACCUTEST	Site ID #:	PPG Garfield Ave	Send Invoice to:	Lisa Krowitz		
Address:	2235 Route 130 , Dayton NJ 08810	Project #:	60213772.5.A	Address:	250 Apollo Drive		
		Site Address:	70 Carteret Avenue	City/State.	Chelmsford, MA 01824	Phone #:	978-905-2278
Lab PM:	Matt Cordova	City	Jersey City	State, Zip	NJ	07304	PO #: 40256ACM
Phone/Fax:	732-329-0200/	PM Name:	Chris Martell	Send EDD to:	NJLABDATA@aecom.com		
PM email:		Phone/Fax:	732-564-3633	CC Hardcopy to	Erin Farrell, AECOM, Piscataway, NJ		
		PM Email:	Christopher.Martell@aecom.com				

Task: GARIS- Northern Canal Borings
Total # of Samples: 18

TAT: see Spec. Instructions | Rush

Notes: F= Field Filtered , H= Hold

Lab Notes: JB14858

ITEM #	Field Sample No. /Identification	MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comment	Preservative	Analysis: GARA-HexChrom	GARA-pH-ORP						
1	NSB-F2-21.5-22.0 -1	SO	G	08/28/2012 14:15	1			X	X						
2	NSB-F2-17.8-18.3 -2	SO	G	08/28/2012 14:10	1			X	X					ME	39
3	NSB-F2-15.0-15.5 -3	SO	G	08/28/2012 14:00	1			X	X					ME	41
4	NSB-F2-10.5-11.0X -4	SO	G	08/28/2012 13:55	1			X	X					WC	47
5	NSB-F2-10.5-11.0 -5	SO	G	08/28/2012 13:50	1			X	X						
6	NSB-F2-4.0-4.5 -6	SO	G	08/28/2012 13:30	1			X	X						
7	NSB-F2-1.0-1.5 -7	SO	G	08/28/2012 13:10	1			X	X						
8	NSB-F3-20.0-20.5 -8	SO	G	08/28/2012 12:05	1			X	X						
9	NSB-F3-15.0-15.5 -9	SO	G	08/28/2012 12:00	1			X	X						
10	NSB-F3-10.0-10.5 -10	SO	G	08/28/2012 11:50	1			X	X						
11	NSB-F4-20.0-20.5 -11	SO	G	08/28/2012 11:25	1			X	X						

Additional Comments/Special Instructions:
Standard TAT

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
8-28-12	8/28/12	1600	8-28-12	8/28/12	1650
	8/28/12	1920		8/28/12	1920

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

Shipper:		DATE/TIME:	
Tracking #:		Custody Seal(s):	

ZA

6.0 -

E

5.1 5

JB14858R: Chain of Custody
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AECOM

CHAIN-OF-CUSTODY / Analytical Request Document

2012-08-28_RI_ACCUTEST_COC_NSB

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

Lab Information:		Project Information:		Other Information:			
Lab:	ACCUTEST	Site ID #:	PPG Garfield Ave	Send Invoice to:	Lisa Krowitz		
Address:	2235 Route 130 , Dayton NJ 08810	Project #:	60213772.5.A	Address:	250 Apollo Drive		
		Site Address:	70 Carteret Avenue	City/State.	Chelmsford, MA 01824	Phone #:	978-905-2278
Lab PM:	Matt Cordova	City	Jersey City	State, Zip	NJ 07304	PO #:	40256ACM
Phone/Fax:	732-329-0200/	PM Name:	Chris Martell	Send EDD to:	NJLABDATA@aecom.com		
PM email:		Phone/Fax:	732-564-3633	CC Hardcopy to	Erin Farrell, AECOM, Piscataway, NJ		
		PM Email:	Christopher.Martell@aecom.com				

Task:	GARIS- Northern Canal Borings
Total # of Samples:	18
TAT	see Spec. Instructions
Rush	
Notes:	F= Field Filtered , H= Hold

Lab Notes: JB14858

Preservative

ITEM #	Field Sample No. /Identification		MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	#OF CONTAINERS	Comment	Analysis	GARA-HexChrom	GARA-pH-ORP
12	NSB-F4-16.0-16.5	-12	SO	G	08/28/2012 11:00	1			X	X
13	NSB-F3- 4.0-4.5	-13	SO	G	08/28/2012 10:40	1			X	X
14	NSB-F3-1.0-1.5	-14	SO	G	08/28/2012 10:35	1			X	X
15	NSB-F4-10.0-10.5	-15	SO	G	08/28/2012 10:20	1			X	X
16	NSB-F4-6.0-6.5	-16	SO	G	08/28/2012 10:10	1			X	X
17	NSB-EB20120828	☆ -17	WQ	G	08/28/2012 14:45	2	Preserved: None		X	X
18	NSB-F4-0.0-0.5	-18	SO	G	08/28/2012 09:15	2	1 Jar for MS/MSD		X	X

Additional Comments/Special Instructions:
Standard TAT

☆ pH = 5.89 @ 8/28/12

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
[illegible]	8/28/12	1600	MMG 8-28-12		1630
MMG 8-28-12		1920			

Sample Receipt Conditions

	Y / N	Y / N	Y / N
	Y / N	Y / N	Y / N
	Y / N	Y / N	Y / N

Shipper:		DATE/TIME:	
Tracking #:		Custody Seal(s):	

Temp in ºC | Samples on Ice? | Sample Intact? | Trip Blank?

6.0 C

5.1 5

JB14858R: Chain of Custody
Page 2 of 4

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: JB14858 **Client:** **Project:**

Date / Time Received: 8/28/2012 **Delivery Method:** **Airbill #'s:**

Cooler Temps (Initial/Adjusted): #1: (6/6); 0

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

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

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

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

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

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

Comments

Job Change Order: JB14858_9/11/2012

Requested Date:	9/11/2012	**Received Date:**	8/28/2012
Account Name:	AECOM, INC.	**Due Date:**	9/11/2012
Project	PPG Northern Canal Borings, Jersey City, NJ	**Deliverable:**	FULT1
CSR:	KB	**TAT (Days):**	2

Sample #: JB14858-1 thru -16, -18 **Change:** Please relog for XXCRAR

Sample #: JB14858-18 **Change:** Please relog MS/MSD for XXCRAR; please relog sample for FE2/7, SULFS, TOCLK

NSB-F4-0.0-0.5

Sample #: JB14858- **Change:**

Above Changes Per: Client **Date:** 9/11/2012

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

Page 1 of 1

JB14858R: Chain of Custody
Page 4 of 4

Internal Sample Tracking Chronicle

AECOM, INC.

Job No: JB14858R

PPG Northern Canal Borings, Jersey City, NJ
Project No: 60213772.5.A

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB14858-1R	Collected: 28-AUG-12 14:15 By: CM NSB-F2-21.5-22.0			Received: 28-AUG-12	By: SC	
JB14858-1R	SW846 3060A/7196A	13-SEP-12 12:47	MP	12-SEP-12	MD	XCRA
JB14858-2R	Collected: 28-AUG-12 14:10 By: CM NSB-F2-17.8-18.3			Received: 28-AUG-12	By: SC	
JB14858-2R	SW846 3060A/7196A	13-SEP-12 12:47	MP	12-SEP-12	MD	XCRA
JB14858-3R	Collected: 28-AUG-12 14:00 By: CM NSB-F2-15.0-15.5			Received: 28-AUG-12	By: SC	
JB14858-3R	SW846 3060A/7196A	13-SEP-12 12:47	MP	12-SEP-12	MD	XCRA
JB14858-4R	Collected: 28-AUG-12 13:55 By: CM NSB-F2-10.5-11.0X			Received: 28-AUG-12	By: SC	
JB14858-4R	SW846 3060A/7196A	13-SEP-12 12:47	MP	12-SEP-12	MD	XCRA
JB14858-5R	Collected: 28-AUG-12 13:50 By: CM NSB-F2-10.5-11.0			Received: 28-AUG-12	By: SC	
JB14858-5R	SW846 3060A/7196A	13-SEP-12 12:47	MP	12-SEP-12	MD	XCRA
JB14858-6R	Collected: 28-AUG-12 13:30 By: CM NSB-F2-4.0-4.5			Received: 28-AUG-12	By: SC	
JB14858-6R	SW846 3060A/7196A	13-SEP-12 12:47	MP	12-SEP-12	MD	XCRA
JB14858-7R	Collected: 28-AUG-12 13:10 By: CM NSB-F2-1.0-1.5			Received: 28-AUG-12	By: SC	
JB14858-7R	SW846 3060A/7196A	13-SEP-12 12:47	MP	12-SEP-12	MD	XCRA
JB14858-8R	Collected: 28-AUG-12 12:05 By: CM NSB-F3-20.0-20.5			Received: 28-AUG-12	By: SC	
JB14858-8R	SW846 3060A/7196A	13-SEP-12 12:47	MP	12-SEP-12	MD	XCRA

Internal Sample Tracking Chronicle

AECOM, INC.

Job No: JB14858R

PPG Northern Canal Borings, Jersey City, NJ
Project No: 60213772.5.A

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB14858-9R	Collected: 28-AUG-12 12:00 By: CM NSB-F3-15.0-15.5			Received: 28-AUG-12	By: SC	
JB14858-9RS	SW846 3060A/7196A	13-SEP-12 12:47	MP	12-SEP-12	MD	XCRA
JB14858-10R	Collected: 28-AUG-12 11:50 By: CM NSB-F3-10.0-10.5			Received: 28-AUG-12	By: SC	
JB14858-10RS	SW846 3060A/7196A	13-SEP-12 12:47	MP	12-SEP-12	MD	XCRA
JB14858-11R	Collected: 28-AUG-12 11:25 By: CM NSB-F4-20.0-20.5			Received: 28-AUG-12	By: SC	
JB14858-11RS	SW846 3060A/7196A	13-SEP-12 13:35	MP	12-SEP-12	MD	XCRA
JB14858-12R	Collected: 28-AUG-12 11:00 By: CM NSB-F4-16.0-16.5			Received: 28-AUG-12	By: SC	
JB14858-12RS	SW846 3060A/7196A	13-SEP-12 13:35	MP	12-SEP-12	MD	XCRA
JB14858-13R	Collected: 28-AUG-12 10:40 By: CM NSB-F3-4.0-4.5			Received: 28-AUG-12	By: SC	
JB14858-13RS	SW846 3060A/7196A	13-SEP-12 13:35	MP	12-SEP-12	MD	XCRA
JB14858-14R	Collected: 28-AUG-12 10:35 By: CM NSB-F3-1.0-1.5			Received: 28-AUG-12	By: SC	
JB14858-14RS	SW846 3060A/7196A	13-SEP-12 13:35	MP	12-SEP-12	MD	XCRA
JB14858-15R	Collected: 28-AUG-12 10:20 By: CM NSB-F4-10.0-10.5			Received: 28-AUG-12	By: SC	
JB14858-15RS	SW846 3060A/7196A	13-SEP-12 13:35	MP	12-SEP-12	MD	XCRA
JB14858-16R	Collected: 28-AUG-12 10:10 By: CM NSB-F4-6.0-6.5			Received: 28-AUG-12	By: SC	
JB14858-16RS	SW846 3060A/7196A	13-SEP-12 13:35	MP	12-SEP-12	MD	XCRA

Internal Sample Tracking Chronicle

AECOM, INC.

Job No: JB14858R

PPG Northern Canal Borings, Jersey City, NJ
Project No: 60213772.5.A

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB14858-18R	Collected: 28-AUG-12 09:15 By: CM		Received: 28-AUG-12 By: SC			
NSB-F4-0.0-0.5						
JB14858-18R	ASTM D3872-86	12-SEP-12	ST			FE2/7
JB14858-18R	SM18 4500S2-A	12-SEP-12	ST			SULFS
JB14858-18R	LLOYD KAHN 1988 MOD	12-SEP-12 15:55	SJG	12-SEP-12	SJG	TOCLK
JB14858-18R	SW846 3060A/7196A	13-SEP-12 11:37	MP	12-SEP-12	MD	XCRA

Accutest Internal Chain of Custody

Job Number: JB14858R
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Received: 08/28/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB14858-1.1	Secured Storage	Adam Scott	09/07/12 08:18	Retrieve from Storage
JB14858-1.1	Adam Scott	Secured Staging Area	09/07/12 08:18	Return to Storage
JB14858-1.1	Secured Staging Area	Sanjay Advani	09/07/12 08:35	Retrieve from Storage
JB14858-1.1	Secured Storage	Adam Scott	09/08/12 06:41	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JB14858-1.1	Adam Scott	Secured Staging Area	09/08/12 06:42	Return to Storage
JB14858-1.1	Secured Staging Area	Ching Wong	09/08/12 12:21	Retrieve from Storage
JB14858-1.1	Ching Wong	Secured Storage	09/08/12 17:18	Return to Storage
JB14858-1.1	Secured Storage	Brian Racin	09/12/12 16:28	Retrieve from Storage
JB14858-1.1	Brian Racin	Matt Del Ciello	09/12/12 16:29	Custody Transfer
JB14858-1.1	Matt Del Ciello	Secured Storage	09/12/12 18:26	Return to Storage
JB14858-2.1	Secured Storage	Adam Scott	09/07/12 08:18	Retrieve from Storage
JB14858-2.1	Adam Scott	Secured Staging Area	09/07/12 08:18	Return to Storage
JB14858-2.1	Secured Staging Area	Sanjay Advani	09/07/12 08:35	Retrieve from Storage
JB14858-2.1	Secured Storage	Adam Scott	09/08/12 06:41	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JB14858-2.1	Adam Scott	Secured Staging Area	09/08/12 06:42	Return to Storage
JB14858-2.1	Secured Staging Area	Ching Wong	09/08/12 12:21	Retrieve from Storage
JB14858-2.1	Ching Wong	Secured Storage	09/08/12 17:18	Return to Storage
JB14858-2.1	Secured Storage	Brian Racin	09/12/12 16:28	Retrieve from Storage
JB14858-2.1	Brian Racin	Matt Del Ciello	09/12/12 16:29	Custody Transfer
JB14858-2.1	Matt Del Ciello	Secured Storage	09/12/12 18:26	Return to Storage
JB14858-3.1	Secured Storage	Adam Scott	09/07/12 08:18	Retrieve from Storage
JB14858-3.1	Adam Scott	Secured Staging Area	09/07/12 08:18	Return to Storage
JB14858-3.1	Secured Staging Area	Sanjay Advani	09/07/12 08:35	Retrieve from Storage
JB14858-3.1	Secured Storage	Adam Scott	09/08/12 06:41	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JB14858-3.1	Adam Scott	Secured Staging Area	09/08/12 06:42	Return to Storage
JB14858-3.1	Secured Staging Area	Ching Wong	09/08/12 12:21	Retrieve from Storage
JB14858-3.1	Ching Wong	Secured Storage	09/08/12 17:18	Return to Storage
JB14858-3.1	Secured Storage	Brian Racin	09/12/12 16:28	Retrieve from Storage
JB14858-3.1	Brian Racin	Matt Del Ciello	09/12/12 16:29	Custody Transfer
JB14858-3.1	Matt Del Ciello	Secured Storage	09/12/12 18:26	Return to Storage
JB14858-4.1	Secured Storage	Adam Scott	09/07/12 08:18	Retrieve from Storage
JB14858-4.1	Adam Scott	Secured Staging Area	09/07/12 08:18	Return to Storage
JB14858-4.1	Secured Staging Area	Sanjay Advani	09/07/12 08:35	Retrieve from Storage
JB14858-4.1	Secured Storage	Adam Scott	09/08/12 06:41	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JB14858-4.1	Adam Scott	Secured Staging Area	09/08/12 06:42	Return to Storage
JB14858-4.1	Secured Staging Area	Ching Wong	09/08/12 12:21	Retrieve from Storage
JB14858-4.1	Ching Wong	Secured Storage	09/08/12 17:18	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB14858R
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Received: 08/28/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB14858-4.1	Secured Storage	Brian Racin	09/12/12 16:28	Retrieve from Storage
JB14858-4.1	Brian Racin	Matt Del Ciello	09/12/12 16:29	Custody Transfer
JB14858-4.1	Matt Del Ciello	Secured Storage	09/12/12 18:26	Return to Storage
JB14858-5.1	Secured Storage	Adam Scott	09/07/12 08:18	Retrieve from Storage
JB14858-5.1	Adam Scott	Secured Staging Area	09/07/12 08:18	Return to Storage
JB14858-5.1	Secured Staging Area	Sanjay Advani	09/07/12 08:35	Retrieve from Storage
JB14858-5.1	Secured Storage	Adam Scott	09/08/12 06:41	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JB14858-5.1	Adam Scott	Secured Staging Area	09/08/12 06:42	Return to Storage
JB14858-5.1	Secured Staging Area	Ching Wong	09/08/12 12:21	Retrieve from Storage
JB14858-5.1	Ching Wong	Secured Storage	09/08/12 17:18	Return to Storage
JB14858-5.1	Secured Storage	Brian Racin	09/12/12 16:28	Retrieve from Storage
JB14858-5.1	Brian Racin	Matt Del Ciello	09/12/12 16:29	Custody Transfer
JB14858-5.1	Matt Del Ciello	Secured Storage	09/12/12 18:26	Return to Storage
JB14858-6.1	Secured Storage	Adam Scott	09/07/12 08:18	Retrieve from Storage
JB14858-6.1	Adam Scott	Secured Staging Area	09/07/12 08:18	Return to Storage
JB14858-6.1	Secured Staging Area	Sanjay Advani	09/07/12 08:35	Retrieve from Storage
JB14858-6.1	Secured Storage	Adam Scott	09/08/12 06:41	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JB14858-6.1	Adam Scott	Secured Staging Area	09/08/12 06:42	Return to Storage
JB14858-6.1	Secured Staging Area	Ching Wong	09/08/12 12:21	Retrieve from Storage
JB14858-6.1	Ching Wong	Secured Storage	09/08/12 17:18	Return to Storage
JB14858-6.1	Secured Storage	Brian Racin	09/12/12 16:28	Retrieve from Storage
JB14858-6.1	Brian Racin	Matt Del Ciello	09/12/12 16:29	Custody Transfer
JB14858-6.1	Matt Del Ciello	Secured Storage	09/12/12 18:26	Return to Storage
JB14858-7.1	Secured Storage	Adam Scott	09/07/12 08:18	Retrieve from Storage
JB14858-7.1	Adam Scott	Secured Staging Area	09/07/12 08:18	Return to Storage
JB14858-7.1	Secured Staging Area	Sanjay Advani	09/07/12 08:35	Retrieve from Storage
JB14858-7.1	Secured Storage	Adam Scott	09/08/12 06:41	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JB14858-7.1	Adam Scott	Secured Staging Area	09/08/12 06:42	Return to Storage
JB14858-7.1	Secured Staging Area	Ching Wong	09/08/12 12:21	Retrieve from Storage
JB14858-7.1	Ching Wong	Secured Storage	09/08/12 17:18	Return to Storage
JB14858-7.1	Secured Storage	Brian Racin	09/12/12 16:28	Retrieve from Storage
JB14858-7.1	Brian Racin	Matt Del Ciello	09/12/12 16:29	Custody Transfer
JB14858-7.1	Matt Del Ciello	Secured Storage	09/12/12 18:26	Return to Storage
JB14858-8.1	Secured Storage	Adam Scott	09/07/12 08:18	Retrieve from Storage
JB14858-8.1	Adam Scott	Secured Staging Area	09/07/12 08:18	Return to Storage
JB14858-8.1	Secured Staging Area	Sanjay Advani	09/07/12 08:35	Retrieve from Storage
JB14858-8.1	Secured Storage	Adam Scott	09/08/12 06:41	Retrieve from Storage

Accutest Internal Chain of Custody

Job Number: JB14858R
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Received: 08/28/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
Bottle was returned to secure storage, but inadvertently not scanned.				
JB14858-8.1	Adam Scott	Secured Staging Area	09/08/12 06:42	Return to Storage
JB14858-8.1	Secured Staging Area	Ching Wong	09/08/12 12:21	Retrieve from Storage
JB14858-8.1	Ching Wong	Secured Storage	09/08/12 17:18	Return to Storage
JB14858-8.1	Secured Storage	Brian Racin	09/12/12 16:28	Retrieve from Storage
JB14858-8.1	Brian Racin	Matt Del Ciello	09/12/12 16:29	Custody Transfer
JB14858-8.1	Matt Del Ciello	Secured Storage	09/12/12 18:26	Return to Storage
JB14858-9.1	Secured Storage	Adam Scott	09/07/12 08:18	Retrieve from Storage
JB14858-9.1	Adam Scott	Secured Staging Area	09/07/12 08:18	Return to Storage
JB14858-9.1	Secured Staging Area	Sanjay Advani	09/07/12 08:35	Retrieve from Storage
JB14858-9.1	Secured Storage	Adam Scott	09/08/12 06:41	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JB14858-9.1	Adam Scott	Secured Staging Area	09/08/12 06:42	Return to Storage
JB14858-9.1	Secured Staging Area	Ching Wong	09/08/12 12:21	Retrieve from Storage
JB14858-9.1	Ching Wong	Secured Storage	09/08/12 17:18	Return to Storage
JB14858-9.1	Secured Storage	Brian Racin	09/12/12 16:28	Retrieve from Storage
JB14858-9.1	Brian Racin	Matt Del Ciello	09/12/12 16:29	Custody Transfer
JB14858-9.1	Matt Del Ciello	Secured Storage	09/12/12 18:26	Return to Storage
JB14858-10.1	Secured Storage	Adam Scott	09/07/12 08:18	Retrieve from Storage
JB14858-10.1	Adam Scott	Secured Staging Area	09/07/12 08:18	Return to Storage
JB14858-10.1	Secured Staging Area	Sanjay Advani	09/07/12 08:35	Retrieve from Storage
JB14858-10.1	Secured Storage	Adam Scott	09/08/12 06:41	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JB14858-10.1	Adam Scott	Secured Staging Area	09/08/12 06:42	Return to Storage
JB14858-10.1	Secured Staging Area	Ching Wong	09/08/12 12:21	Retrieve from Storage
JB14858-10.1	Ching Wong	Secured Storage	09/08/12 17:18	Return to Storage
JB14858-10.1	Secured Storage	Brian Racin	09/12/12 16:28	Retrieve from Storage
JB14858-10.1	Brian Racin	Matt Del Ciello	09/12/12 16:29	Custody Transfer
JB14858-10.1	Matt Del Ciello	Secured Storage	09/12/12 18:26	Return to Storage
JB14858-11.1	Secured Storage	Adam Scott	09/07/12 08:18	Retrieve from Storage
JB14858-11.1	Adam Scott	Secured Staging Area	09/07/12 08:18	Return to Storage
JB14858-11.1	Secured Staging Area	Sanjay Advani	09/07/12 08:35	Retrieve from Storage
JB14858-11.1	Secured Storage	Adam Scott	09/08/12 06:41	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JB14858-11.1	Adam Scott	Secured Staging Area	09/08/12 06:42	Return to Storage
JB14858-11.1	Secured Staging Area	Ching Wong	09/08/12 12:21	Retrieve from Storage
JB14858-11.1	Ching Wong	Secured Storage	09/08/12 17:18	Return to Storage
JB14858-11.1	Secured Storage	Brian Racin	09/12/12 16:28	Retrieve from Storage
JB14858-11.1	Brian Racin	Matt Del Ciello	09/12/12 16:29	Custody Transfer
JB14858-11.1	Matt Del Ciello	Secured Storage	09/12/12 18:26	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB14858R
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Received: 08/28/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB14858-12.1	Secured Storage	Adam Scott	09/07/12 08:18	Retrieve from Storage
JB14858-12.1	Adam Scott	Secured Staging Area	09/07/12 08:18	Return to Storage
JB14858-12.1	Secured Staging Area	Sanjay Advani	09/07/12 08:35	Retrieve from Storage
JB14858-12.1	Secured Storage	Adam Scott	09/08/12 06:41	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JB14858-12.1	Adam Scott	Secured Staging Area	09/08/12 06:42	Return to Storage
JB14858-12.1	Secured Staging Area	Ching Wong	09/08/12 12:21	Retrieve from Storage
JB14858-12.1	Ching Wong	Secured Storage	09/08/12 17:18	Return to Storage
JB14858-12.1	Secured Storage	Brian Racin	09/12/12 16:28	Retrieve from Storage
JB14858-12.1	Brian Racin	Matt Del Ciello	09/12/12 16:29	Custody Transfer
JB14858-12.1	Matt Del Ciello	Secured Storage	09/12/12 18:26	Return to Storage
JB14858-13.1	Secured Storage	Adam Scott	09/07/12 08:18	Retrieve from Storage
JB14858-13.1	Adam Scott	Secured Staging Area	09/07/12 08:18	Return to Storage
JB14858-13.1	Secured Staging Area	Sanjay Advani	09/07/12 08:35	Retrieve from Storage
JB14858-13.1	Secured Storage	Adam Scott	09/08/12 06:41	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JB14858-13.1	Adam Scott	Secured Staging Area	09/08/12 06:42	Return to Storage
JB14858-13.1	Secured Staging Area	Ching Wong	09/08/12 12:21	Retrieve from Storage
JB14858-13.1	Ching Wong	Secured Storage	09/08/12 17:18	Return to Storage
JB14858-13.1	Secured Storage	Brian Racin	09/12/12 16:28	Retrieve from Storage
JB14858-13.1	Brian Racin	Matt Del Ciello	09/12/12 16:29	Custody Transfer
JB14858-13.1	Matt Del Ciello	Secured Storage	09/12/12 18:26	Return to Storage
JB14858-14.1	Secured Storage	Adam Scott	09/07/12 08:18	Retrieve from Storage
JB14858-14.1	Adam Scott	Secured Staging Area	09/07/12 08:18	Return to Storage
JB14858-14.1	Secured Staging Area	Sanjay Advani	09/07/12 08:35	Retrieve from Storage
JB14858-14.1	Secured Storage	Adam Scott	09/08/12 06:41	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JB14858-14.1	Adam Scott	Secured Staging Area	09/08/12 06:42	Return to Storage
JB14858-14.1	Secured Staging Area	Ching Wong	09/08/12 12:21	Retrieve from Storage
JB14858-14.1	Ching Wong	Secured Storage	09/08/12 17:18	Return to Storage
JB14858-14.1	Secured Storage	Brian Racin	09/12/12 16:28	Retrieve from Storage
JB14858-14.1	Brian Racin	Matt Del Ciello	09/12/12 16:29	Custody Transfer
JB14858-14.1	Matt Del Ciello	Secured Storage	09/12/12 18:26	Return to Storage
JB14858-15.1	Secured Storage	Adam Scott	09/07/12 08:18	Retrieve from Storage
JB14858-15.1	Adam Scott	Secured Staging Area	09/07/12 08:18	Return to Storage
JB14858-15.1	Secured Staging Area	Sanjay Advani	09/07/12 08:35	Retrieve from Storage
JB14858-15.1	Secured Storage	Adam Scott	09/08/12 06:41	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JB14858-15.1	Adam Scott	Secured Staging Area	09/08/12 06:42	Return to Storage
JB14858-15.1	Secured Staging Area	Ching Wong	09/08/12 12:21	Retrieve from Storage
JB14858-15.1	Ching Wong	Secured Storage	09/08/12 17:18	Return to Storage

Accutest Internal Chain of Custody

Job Number: JB14858R
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ
Received: 08/28/12

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB14858-15.1	Secured Storage	Brian Racin	09/12/12 16:28	Retrieve from Storage
JB14858-15.1	Brian Racin	Matt Del Ciello	09/12/12 16:29	Custody Transfer
JB14858-15.1	Matt Del Ciello	Secured Storage	09/12/12 18:26	Return to Storage
JB14858-16.1	Secured Storage	Adam Scott	09/07/12 08:18	Retrieve from Storage
JB14858-16.1	Adam Scott	Secured Staging Area	09/07/12 08:18	Return to Storage
JB14858-16.1	Secured Staging Area	Sanjay Advani	09/07/12 08:35	Retrieve from Storage
JB14858-16.1	Secured Storage	Adam Scott	09/08/12 06:41	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JB14858-16.1	Adam Scott	Secured Staging Area	09/08/12 06:42	Return to Storage
JB14858-16.1	Secured Staging Area	Ching Wong	09/08/12 12:21	Retrieve from Storage
JB14858-16.1	Ching Wong	Secured Storage	09/08/12 17:18	Return to Storage
JB14858-16.1	Secured Storage	Brian Racin	09/12/12 16:28	Retrieve from Storage
JB14858-16.1	Brian Racin	Matt Del Ciello	09/12/12 16:29	Custody Transfer
JB14858-16.1	Matt Del Ciello	Secured Storage	09/12/12 18:26	Return to Storage
JB14858-18.1	Secured Storage	Adam Scott	09/07/12 08:18	Retrieve from Storage
JB14858-18.1	Adam Scott	Secured Staging Area	09/07/12 08:18	Return to Storage
JB14858-18.1	Secured Staging Area	Sanjay Advani	09/07/12 08:35	Retrieve from Storage
JB14858-18.1	Secured Storage	Adam Scott	09/08/12 06:41	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JB14858-18.1	Adam Scott	Secured Staging Area	09/08/12 06:42	Return to Storage
JB14858-18.1	Secured Staging Area	Ching Wong	09/08/12 12:21	Retrieve from Storage
JB14858-18.1	Ching Wong	Secured Storage	09/08/12 17:18	Return to Storage
JB14858-18.1	Secured Storage	Brian Racin	09/12/12 16:28	Retrieve from Storage
JB14858-18.1	Brian Racin	Matt Del Ciello	09/12/12 16:29	Custody Transfer
JB14858-18.1	Matt Del Ciello	Secured Storage	09/12/12 18:26	Return to Storage
JB14858-18.2	Secured Storage	Adam Scott	09/07/12 08:18	Retrieve from Storage
JB14858-18.2	Adam Scott	Secured Staging Area	09/07/12 08:18	Return to Storage
JB14858-18.2	Secured Staging Area	Sanjay Advani	09/07/12 08:35	Retrieve from Storage
JB14858-18.2	Shirley Grzybowski	Secured Storage	09/08/12 07:02	Return to Storage
Analyst unavailable for custody transfer.				
JB14858-18.2	Secured Storage	Adam Scott	09/12/12 08:20	Retrieve from Storage
JB14858-18.2	Adam Scott	Secured Staging Area	09/12/12 08:20	Return to Storage
JB14858-18.2	Secured Staging Area	Sarvadaman Tripathi	09/12/12 09:47	Retrieve from Storage
JB14858-18.2	Sarvadaman Tripathi	Secured Storage	09/12/12 16:15	Return to Storage
JB14858-18.2.1	Sarvadaman Tripathi	Vaidehi Amin	09/12/12 10:12	Aliquot from JB14858-18.2
JB14858-18.2.1	Vaidehi Amin		09/12/12 16:12	Depleted

New Jersey ACCUTEST LABORATORIES

General Chemistry

QC Data Summaries

Includes the following where applicable:

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

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: JB14858R
Account: ENSRNJ - AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GP67127/GN71967	0.40	0.0	mg/kg	720.79	668	92.7	80-120%
Chromium, Hexavalent	GP67127/GN71967			mg/kg	40.0	38.8	97.0	80-120%
Iron, Ferrous	GN71909	0.20	<0.20	%				
Sulfide Screen	GN71910		NEGATIVE					
Total Organic Carbon	GP67107/GN71899	100	0.0	mg/kg	2000	1950	97.5	80-120%

Associated Samples:
Batch GN71909: JB14858-18R
Batch GN71910: JB14858-18R
Batch GP67107: JB14858-18R
Batch GP67127: JB14858-1R, JB14858-2R, JB14858-3R, JB14858-4R, JB14858-5R, JB14858-6R, JB14858-7R, JB14858-8R, JB14858-9R, JB14858-10R, JB14858-11R, JB14858-12R, JB14858-13R, JB14858-14R, JB14858-15R, JB14858-16R, JB14858-18R
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: JB14858R
Account: ENSRNJ - AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GP67127/GN71967	JB14858-18R	mg/kg	3.1	4.5	36.8*(a)	0-20%
Iron, Ferrous	GN71909	JB15353-1R	%	0.87	0.88	1.1	0-26%
Sulfide Screen	GN71910	JB15353-1R		NEGATIVE	NEGATIVE		0-%
Total Organic Carbon	GP67107/GN71899	JB15129-18	mg/kg	31700	30900	2.6	0-37%

Associated Samples:
Batch GN71909: JB14858-18R
Batch GN71910: JB14858-18R
Batch GP67107: JB14858-18R
Batch GP67127: JB14858-1R, JB14858-2R, JB14858-3R, JB14858-4R, JB14858-5R, JB14858-6R, JB14858-7R, JB14858-8R, JB14858-9R, JB14858-10R, JB14858-11R, JB14858-12R, JB14858-13R, JB14858-14R, JB14858-15R, JB14858-16R, JB14858-18R
(*) Outside of QC limits
(a) High RPD due to possible sample nonhomogeneity.

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: JB14858R
Account: ENSRNJ - AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chromium, Hexavalent	GP67127/GN71967	JB14858-18R	mg/kg	3.1	1320	1160	87.4(a)	75-125%
Chromium, Hexavalent	GP67127/GN71967	JB14858-18R	mg/kg	3.1	49.4	33.5	61.6N(b)	75-125%
Iron, Ferrous	GN71909	JB15353-1R	%	0.87	55.6	56.0	99.1	62-130%
Total Organic Carbon	GP67107/GN71899	JB15129-18	mg/kg	31700	44000	75700	99.9	46-113%

Associated Samples:
Batch GN71909: JB14858-18R
Batch GP67107: JB14858-18R
Batch GP67127: JB14858-1R, JB14858-2R, JB14858-3R, JB14858-4R, JB14858-5R, JB14858-6R, JB14858-7R, JB14858-8R, JB14858-9R, JB14858-10R, JB14858-11R, JB14858-12R, JB14858-13R, JB14858-14R, JB14858-15R, JB14858-16R, JB14858-18R
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(a) Good recovery on insoluble XCR matrix spike. See additional comments on soluble matrix spike recovery.
(b) Soluble XCR matrix spike recovery indicates possible matrix interference. Good post spike recovery (86.3%) on this sample.

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB14858R
Account: ENSRNJ - AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

File ID: B20912S1.TXT Date Analyzed: 09/12/12 Methods: LLOYD KAHN 1988 MOD
Analyst: SJG Run ID: GN71899
Parameters: Total Organic Carbon

Time	Sample Description	Dilution Factor	PS Recov	Comments
12:28	GN71899-STD1	1		STDA
12:53	GN71899-STD2	1		STDB
13:02	GN71899-STD3	1		STDC
13:22	GN71899-STD4	1		STDD
13:38	GN71899-STD5	1		STDE
13:51	GN71899-STD6	1		STDF
14:00	GN71899-STD7	1		STDG
08:52	GN71899-CRI1	1		
09:06	GN71899-HSTD1	1		
09:21	GN71899-ICV1	1		
09:38	GN71899-ICB1	1		
09:52	GN71899-CCV1	1		
10:06	GN71899-CCB1	1		
10:30	GP67057-MB2	1		
10:30	GP67107-MB1	1		Sample shown for QC tracking purposes only.
10:42	GP67057-B2	1		
10:42	GP67107-B1	1		Sample shown for QC tracking purposes only.
10:47	ZZZZZZ	1		
11:00	JB15129-18	1		(sample used for QC only; not part of login JB14858R)
11:06	ZZZZZZ	1		
11:22	ZZZZZZ	1		
11:33	JB14858-18R	1		Overrange. See rerun at 0.025g
11:53	GP67107-D1	1		Results averaged with two boats at the end of the run.
12:15	ZZZZZZ	1		
12:32	GP67107-S1	1		
12:43	GN71899-CCV2	1		
13:03	GN71899-CCB2	1		
13:15	ZZZZZZ	1		
13:28	ZZZZZZ	1		
13:53	ZZZZZZ	1		
14:15	ZZZZZZ	1		
14:29	ZZZZZZ	1		
14:46	ZZZZZZ	1		

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB14858R
Account: ENSRNJ - AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

File ID: B20912S1.TXT Date Analyzed: 09/12/12 Methods: LLOYD KAHN 1988 MOD
Analyst: SJG Run ID: GN71899
Parameters: Total Organic Carbon

Time	Sample Description	Dilution Factor	PS Recov	Comments
14:58	ZZZZZZ	1		
15:24	ZZZZZZ	1		
15:55	JB14858-18R	1		
16:07	GP67107-D1	1		Results averaged with prior two boats.
16:19	GN71899-CCV3	1		
17:08	GN71899-CCB3	1		

Refer to raw data for calibration curve and standards.

Instrument QC Summary
Inorganics Analyses

Login Number: JB14858R
Account: ENSRNJ - AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

File ID: B20912S1.TXT Date Analyzed: 09/12/12 Methods: LLOYD KAHN 1988 MOD
Run ID: GN71899 Units: mg/l

Sample Number	Parameter	Result	RL	IDL/MDL	True Value	% Recov.	QC Limits
GN71899-CRI1	Total Organic Carbon	106	100	49	100	106.0	70-130
GN71899-HSTD1	Total Organic Carbon	5150	100	49	5000	103.0	90-110
GN71899-ICV1	Total Organic Carbon	1850	100	49	2000	92.5	90-110
GN71899-ICB1	Total Organic Carbon	49 U	100	49			
GN71899-CCV1	Total Organic Carbon	2660	100	49	2500	106.4	90-110
GN71899-CCB1	Total Organic Carbon	49 U	100	49			
GN71899-CCV2	Total Organic Carbon	2720	100	49	2500	108.8	90-110
GN71899-CCB2	Total Organic Carbon	49 U	100	49			
GN71899-CCV3	Total Organic Carbon	2700	100	49	2500	108.0	90-110
GN71899-CCB3	Total Organic Carbon	49 U	100	49			

(!) Outside of QC limits

Report of Analysis

Client Sample ID:	NSB-F4-0.0-0.5		
Lab Sample ID:	JB14858-18R	**Date Sampled:**	08/28/12
Matrix:	SO - Soil	**Date Received:**	08/28/12
		Percent Solids:	81.7
Project:	PPG Northern Canal Borings, Jersey City, NJ		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	3.1	0.49	0.14	mg/kg	1	09/13/12 11:37	MP	SW846 3060A/7196A
Iron, Ferrous [a]	0.62	0.20		%	1	09/12/12	ST	ASTM D3872-86
Sulfide Screen [b]	NEGATIVE				1	09/12/12	ST	SM18 4500S2-A
Total Organic Carbon [c]	118000	120	59	mg/kg	1	09/12/12 15:55	SJG	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.
(c) Received and analyzed out of holding time.

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: JB14858R
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Sample: JB14858-1 **Analyzed:** 07-SEP-12 by RO **Method:** SM18 2540G
ClientID: NSB-F2-21.5-22.0

Wet Weight (Total)	36.74	g
Tare Weight	29.03	g
Dry Weight (Total)	35.59	g
Solids, Percent	85.1	%

Sample: JB14858-2 **Analyzed:** 07-SEP-12 by RO **Method:** SM18 2540G
ClientID: NSB-F2-17.8-18.3

Wet Weight (Total)	36.65	g
Tare Weight	27.51	g
Dry Weight (Total)	35.59	g
Solids, Percent	88.4	%

Sample: JB14858-3 **Analyzed:** 07-SEP-12 by RO **Method:** SM18 2540G
ClientID: NSB-F2-15.0-15.5

Wet Weight (Total)	31.3	g
Tare Weight	22.68	g
Dry Weight (Total)	29.28	g
Solids, Percent	76.6	%

Sample: JB14858-4 **Analyzed:** 07-SEP-12 by RO **Method:** SM18 2540G
ClientID: NSB-F2-10.5-11.0X

Wet Weight (Total)	35.22	g
Tare Weight	26.71	g
Dry Weight (Total)	33.12	g
Solids, Percent	75.3	%

Sample: JB14858-5 **Analyzed:** 07-SEP-12 by RO **Method:** SM18 2540G
ClientID: NSB-F2-10.5-11.0

Wet Weight (Total)	29.95	g
Tare Weight	21.56	g
Dry Weight (Total)	28.07	g
Solids, Percent	77.6	%

Sample: JB14858-6 **Analyzed:** 07-SEP-12 by RO **Method:** SM18 2540G
ClientID: NSB-F2-4.0-4.5

Wet Weight (Total)	34.25	g
Tare Weight	25.14	g
Dry Weight (Total)	33.12	g
Solids, Percent	87.6	%

Percent Solids Raw Data Summary

Job Number: JB14858R
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Sample: JB14858-7 **Analyzed:** 07-SEP-12 by RO **Method:** SM18 2540G
ClientID: NSB-F2-1.0-1.5

Wet Weight (Total)	31.55	g
Tare Weight	25.98	g
Dry Weight (Total)	30.61	g
Solids, Percent	83.1	%

Sample: JB14858-8 **Analyzed:** 07-SEP-12 by RO **Method:** SM18 2540G
ClientID: NSB-F3-20.0-20.5

Wet Weight (Total)	35.38	g
Tare Weight	26.17	g
Dry Weight (Total)	34.14	g
Solids, Percent	86.5	%

Sample: JB14858-9 **Analyzed:** 07-SEP-12 by RO **Method:** SM18 2540G
ClientID: NSB-F3-15.0-15.5

Wet Weight (Total)	32.97	g
Tare Weight	25.14	g
Dry Weight (Total)	31.93	g
Solids, Percent	86.7	%

Sample: JB14858-10 **Analyzed:** 07-SEP-12 by RO **Method:** SM18 2540G
ClientID: NSB-F3-10.0-10.5

Wet Weight (Total)	28.2	g
Tare Weight	23.07	g
Dry Weight (Total)	26.06	g
Solids, Percent	58.3	%

Sample: JB14858-11 **Analyzed:** 07-SEP-12 by RO **Method:** SM18 2540G
ClientID: NSB-F4-20.0-20.5

Wet Weight (Total)	27.78	g
Tare Weight	19.28	g
Dry Weight (Total)	26.56	g
Solids, Percent	85.6	%

Sample: JB14858-12 **Analyzed:** 07-SEP-12 by RO **Method:** SM18 2540G
ClientID: NSB-F4-16.0-16.5

Wet Weight (Total)	27.92	g
Tare Weight	22.32	g
Dry Weight (Total)	26.6	g
Solids, Percent	76.4	%

Percent Solids Raw Data Summary

Job Number: JB14858R
Account: ENSRNJ AECOM, INC.
Project: PPG Northern Canal Borings, Jersey City, NJ

Sample: JB14858-13 **Analyzed:** 07-SEP-12 by RO **Method:** SM18 2540G
ClientID: NSB-F3-4.0-4.5

Wet Weight (Total)	30.55	g
Tare Weight	20.88	g
Dry Weight (Total)	28.79	g
Solids, Percent	81.8	%

Sample: JB14858-14 **Analyzed:** 07-SEP-12 by RO **Method:** SM18 2540G
ClientID: NSB-F3-1.0-1.5

Wet Weight (Total)	28.91	g
Tare Weight	22.02	g
Dry Weight (Total)	28.01	g
Solids, Percent	86.9	%

Sample: JB14858-15 **Analyzed:** 07-SEP-12 by RO **Method:** SM18 2540G
ClientID: NSB-F4-10.0-10.5

Wet Weight (Total)	25.88	g
Tare Weight	17.66	g
Dry Weight (Total)	22.7	g
Solids, Percent	61.3	%

Sample: JB14858-16 **Analyzed:** 07-SEP-12 by RO **Method:** SM18 2540G
ClientID: NSB-F4-6.0-6.5

Wet Weight (Total)	28.86	g
Tare Weight	22.35	g
Dry Weight (Total)	26.4	g
Solids, Percent	62.2	%

Sample: JB14858-18 **Analyzed:** 07-SEP-12 by RO **Method:** SM18 2540G
ClientID: NSB-F4-0.0-0.5

Wet Weight (Total)	27.82	g
Tare Weight	21.25	g
Dry Weight (Total)	26.62	g
Solids, Percent	81.7	%

New Jersey ACCUTEST LABORATORIES

General Chemistry

Raw Data

	Sample Name	Sample ID	Method	Type	Date / Time	Conc.	Mean Area	CV Area	
1	CRI		tocsscal.met	Unknown	09/12/12 08:5	0.1061 %	441	7.21%	
2	CRI		tocsscal.met	Unknown	09/12/12 08:5	0.1061 %	441	7.21%	
3	HSTD		tocsscal.met	Unknown	09/12/12 09:0	5.148 %	19496	0.417%	
4	HSTD		tocsscal.met	Unknown	09/12/12 09:0	5.148 %	19496	0.417%	
5	ICV	KHP	tocsscal.met	Unknown	09/12/12 09:2	1.848 %	6883	2.25%	
6	ICV	KHP	tocsscal.met	Unknown	09/12/12 09:2	1.848 %	6883	2.25%	
7	ICB		tocsscal.met	Unknown	09/12/12 09:3	0.000 %	0	0.00%	
8	ICB		tocsscal.met	Unknown	09/12/12 09:3	0.000 %	0	0.00%	
9	CCV		tocsscal.met	Unknown	09/12/12 09:5	2.656 %	9709	2.72%	
10	CCV		tocsscal.met	Unknown	09/12/12 09:5	2.656 %	9709	2.72%	
11	CCB		tocsscal.met	Unknown	09/12/12 10:0	0.000 %	0	0.00%	
12	CCB		tocsscal.met	Unknown	09/12/12 10:0	0.000 %	0	0.00%	
13	GP67057-MB	GP67107-MB	tocss.met	Unknown	09/12/12 10:3	0.000 %	0	0.00%	
14	GP67057-MB	GP67107-MB	tocss.met	Unknown	09/12/12 10:3	0.000 %	0	0.00%	
15	GP67057-B2	GP67107-B1	tocss.met	Unknown	09/12/12 10:4	0.1948 %	7231	1.43%	
16	GP67057-B2	GP67107-B1	tocss.met	Unknown	09/12/12 10:4	0.1948 %	7231	1.43%	
17	JB15129-17	(2)	tocss.met	Unknown	09/12/12 10:4	5.332 %	22973	0.00%	overrange. Rerun at 0.05g
18	JB15129-18	(A)	tocss.met	Unknown	09/12/12 11:0	2.856 %	15999	1.84%	
19	JB15129-18	↓	tocss.met	Unknown	09/12/12 11:0	2.856 %	15999	1.84%	
20	JB15129-19	(2)	tocss.met	Unknown	09/12/12 11:0	9.851 %	43311	0.00%	overrange. Rerun at 0.02g
21	JB15500-2R	(A)	tocss.met	Unknown	09/12/12 11:2	1.583 %	6145	13.0%	
22	JB15500-2R	↓	tocss.met	Unknown	09/12/12 11:2	1.583 %	6145	13.0%	
23	JB14848-18R	(2)	tocss.met	Unknown	09/12/12 11:3	10.82 %	20878	0.00%	Overrange. Rerun at 0.025g
24	GP67107-D1	JB15129-18	tocss.met	Unknown	09/12/12 11:5	2.584 %	14074	7.00%	RESULTS averaged w/ 2 boats at end of run
25	GP67107-D1	JB15129-18	tocss.met	Unknown	09/12/12 11:5	2.584 %	14074	7.00%	
26	JB15129-16	(A)	tocss.met	Unknown	09/12/12 12:1	9.146 %	6833	0.970%	
27	JB15129-16	↓	tocss.met	Unknown	09/12/12 12:1	9.146 %	6833	0.970%	
28	GP67107-S1	JB15129-18	tocss.met	Unknown	09/12/12 12:3	6.825 %	12465	3.90%	
29	GP67107-S1	JB15129-18	tocss.met	Unknown	09/12/12 12:3	6.825 %	12465	3.90%	Excluded
30	GP67107-S1	JB15129-18	tocss.met	Unknown	09/12/12 12:3	6.825 %	12465	3.90%	
31	CCV	(A)	tocsscal.met	Unknown	09/12/12 12:4	2.720 %	9937	1.42%	
32	CCV		tocsscal.met	Unknown	09/12/12 12:4	2.720 %	9937	1.42%	
33	CCB		tocsscal.met	Unknown	09/12/12 13:0	0.000 %	0	0.00%	
34	CCB		tocsscal.met	Unknown	09/12/12 13:0	0.000 %	0	0.00%	
35	JB15129-2		tocss.met	Unknown	09/12/12 13:1	0.1534 %	5929	3.94%	
36	JB15129-2		tocss.met	Unknown	09/12/12 13:1	0.1534 %	5929	3.94%	
37	JB15129-5		tocss.met	Unknown	09/12/12 13:2	4.998 %	12926	1.73%	
38	JB15129-5		tocss.met	Unknown	09/12/12 13:2	4.998 %	12926	1.73%	
39	JB15129-10		tocss.met	Unknown	09/12/12 13:5	6.665 %	5146	4.30%	
40	JB15129-10		tocss.met	Unknown	09/12/12 13:5	6.665 %	5146	4.30%	
41	JB15129-10		tocss.met	Unknown	09/12/12 13:5	6.665 %	5146	4.30%	
42	JB15129-10		tocss.met	Unknown	09/12/12 13:5	6.665 %	5146	4.30%	
43	JB15129-11		tocss.met	Unknown	09/12/12 14:1	5.269 %	4161	28.7%	
44	JB15129-11		tocss.met	Unknown	09/12/12 14:1	5.269 %	4161	28.7%	
45	JB15129-11		tocss.met	Unknown	09/12/12 14:1	5.269 %	4161	28.7%	
46	JB15129-11		tocss.met	Unknown	09/12/12 14:1	5.269 %	4161	28.7%	
47	JB15129-12		tocss.met	Unknown	09/12/12 14:2	5.631 %	10364	1.79%	
48	JB15129-12		tocss.met	Unknown	09/12/12 14:2	5.631 %	10364	1.79%	
49	JB15129-15		tocss.met	Unknown	09/12/12 14:4	8.711 %	16185	1.13%	Excluded

b2091251.TOC
TOCLK

GN71899
VA 9/12/12

	Sample Name	Sample ID	Method	Type	Date / Time	Conc.	Mean Area	CV Area
50	JB15129-15		tocss.met	Unknown	09/12/12 14:4	8.711 %	16185	1.13%
51	JB15129-15		tocss.met	Unknown	09/12/12 14:4	8.711 %	16185	1.13%
52	JB15129-17		tocss.met	Unknown	09/12/12 14:5	5.941 %	11186	3.91%
53	JB15129-17		tocss.met	Unknown	09/12/12 14:5	5.941 %	11186	3.91%
54	JB15129-19		tocss.met	Unknown	09/12/12 15:2	10.73 %	8028	2.31%
55	JB15129-19		tocss.met	Unknown	09/12/12 15:2	10.73 %	8028	2.31%
56	JB15129-19		tocss.met	Unknown	09/12/12 15:2	10.73 %	8028	2.31%
57	JB15129-19		tocss.met	Unknown	09/12/12 15:2	10.73 %	8028	2.31%
58	JB14858-18R		tocss.met	Unknown	09/12/12 15:5	9.641 %	8934	27.9%
59	JB14858-18R		tocss.met	Unknown	09/12/12 15:5	9.641 %	8934	27.9%
60	JB14858-18R		tocss.met	Unknown	09/12/12 15:5	9.641 %	8934	27.9%
61	JB14858-18R		tocss.met	Unknown	09/12/12 15:5	9.641 %	8934	27.9%
62	GP67107-D1		tocss.met	Unknown	09/12/12 16:0	2.990 %	16586	0.775%
63	GP67107-D1		tocss.met	Unknown	09/12/12 16:0	2.990 %	16586	0.775%
64	CCV		tocsscal.met	Unknown	09/12/12 16:1	2.696 %	9850	2.02%
65	CCV		tocsscal.met	Unknown	09/12/12 16:1	2.696 %	9850	2.02%
66	CCB		tocsscal.met	Unknown	09/12/12 17:0	0.000 %	0	0.00%
67	CCB		tocsscal.met	Unknown	09/12/12 17:0	0.000 %	0	0.00%

Results Ave. w/ prior 2 boats

7.1

7

b2091251.TOC
TOCLK

GN71899
VA 9/12/12

TOC-Control

General Information

Organization: Accutest Laboratories
User:
Title:
Instrument ID: TOC2
Filename: C:\TOCCNTR\DATA\B20912S1.TOC
Comment:

Instrument Conditions

Instrument Attachments: TOC-5000 + SSM 5000

Calibration Curves

Filename: b20829s1.cal
Title: b20829s1.cal
Calculation method: Point to point without zero shift

Analysis	Unit	Range	Density
SSM-TC	%	5	1.000

Sample Name	Sample ID	Conc.	No. of Inj.	Mean Area	Volume	CNV	Abs C [µg	SD	CV
STDA	0.0	0.000	2	0	0.00000	0	0.000	0	0.00%
STDB	0.1	0.1000	2	417	0.00000	417	100.0	73	17.6%
STDC	0.5	0.5000	2	2013	0.00000	2012	500.0	111	5.52%
STDD	1.0	1.000	2	3920	0.1833	3920	1000	202	5.16%
STDE	2.5	2.500	2	9161	100.0	9160	2500	557	6.09%
STDF	4.0	4.000	2	14454	0.00000	14454	4000	328	2.27%
STDG	5.0	5.000	2	18847	66639420	18846	5000	146	0.777%

Slope: 4.1700
Intercept: 0.0000
R^2: 0.00000

TOC-Control

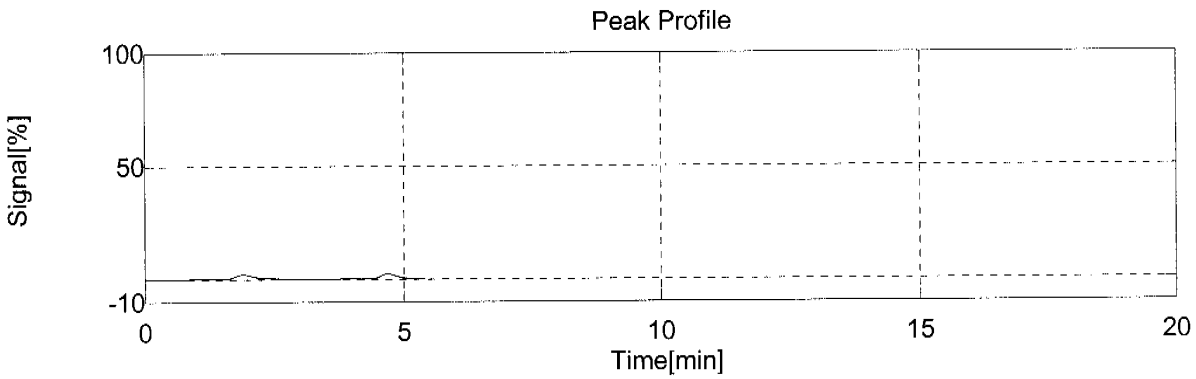
Samples

Sample Name: CRI
Sample ID:
Remark:
Comment:
Method: tocsscal.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/12/2012 08:52:38

Mean Area	Conc	Result	SD	CV	Modified
441	0.1061%		0.00798	7.52%	

No.	Range	Area	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	464	0.11178		******	09/12/2012 08:47:29	b20829s1.cal
2	5	419	0.10050		******	09/12/2012 08:52:38	b20829s1.cal



Samples

Sample Name: HSTD
Sample ID:
Remark:
Comment:
Method: tocsscal.met

TOC-Control

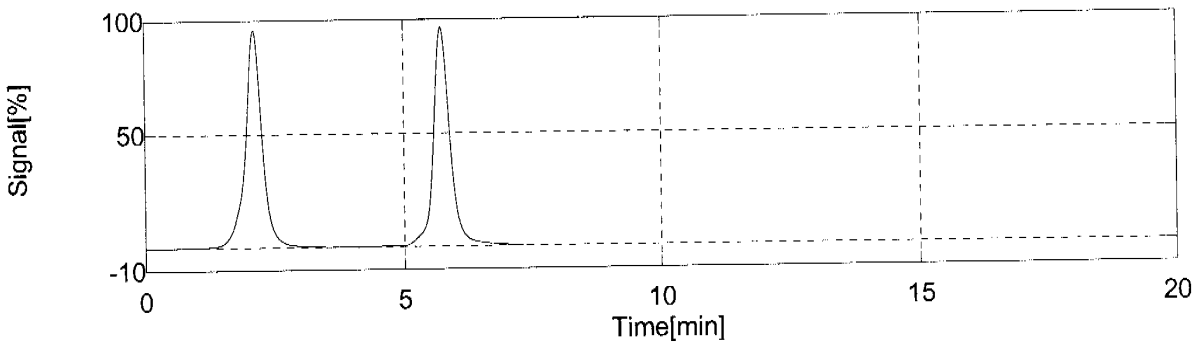
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/12/2012 09:06:03

Mean Area	Conc	Result	SD	CV	Modified
19496	5.148%		0.01851	0.360%	

No.	Range	Area	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	19554	5.1611		******	09/12/2012 08:59:14	b20829s1.cal
2	5	19439	5.1349		******	09/12/2012 09:06:03	b20829s1.cal

Peak Profile



Samples

Sample Name: ICV
Sample ID: KHP
Remark:
Comment:
Method: tocsscal.met
Cal Curve: 1: b20829s1.cal

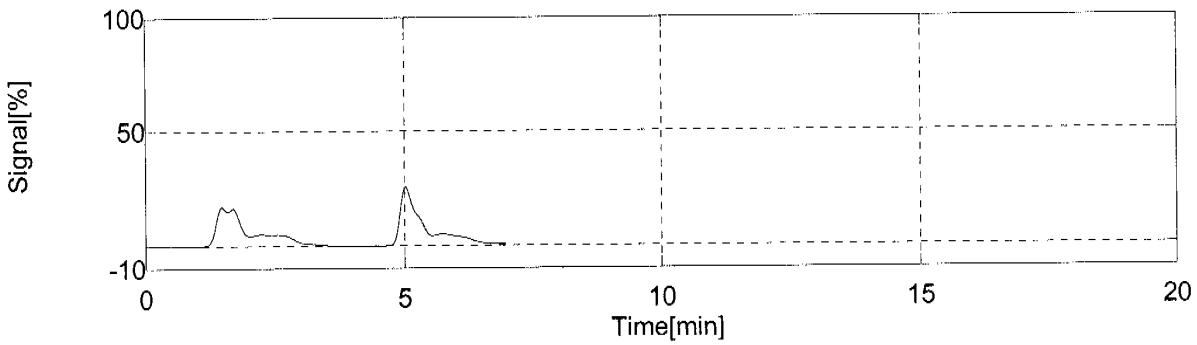
Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/12/2012 09:21:10

TOC-Control

Mean Area	Conc	Result	SD	CV	Modified
6883	1.848%		0.04432	2.40%	

No.	Range	Area	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	6774	1.8169		******	09/12/2012 09:12:51	b20829s1.cal
2	5	6993	1.8796		******	09/12/2012 09:21:10	b20829s1.cal

Peak Profile



Samples

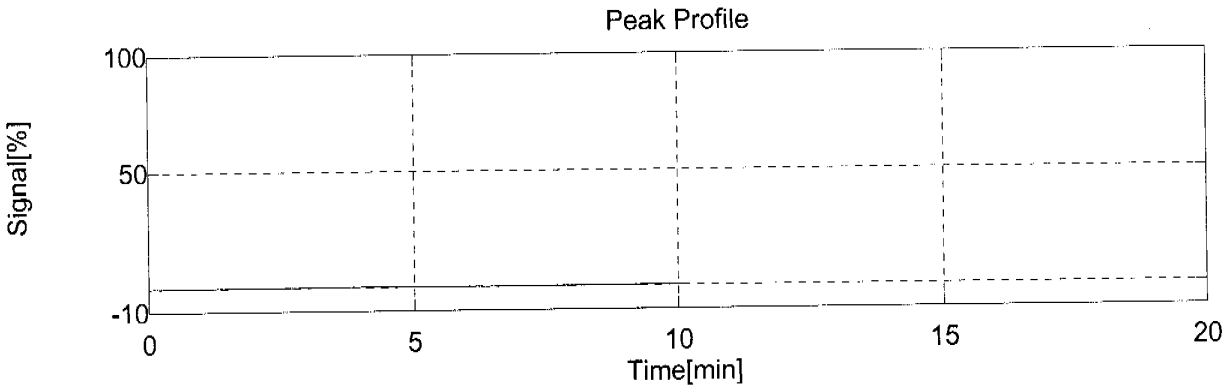
Sample Name: ICB
Sample ID:
Remark:
Comment:
Method: tocsscal.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/12/2012 09:38:04

Mean Area	Conc	Result	SD	CV	Modified
0	0.000%		0.000	0.00%	

TOC-Control

No.	Range	Area	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	0	0.0000		******	09/12/2012 09:29:39	b20829s1.cal
2	5	0	0.0000		******	09/12/2012 09:38:04	b20829s1.cal



Samples

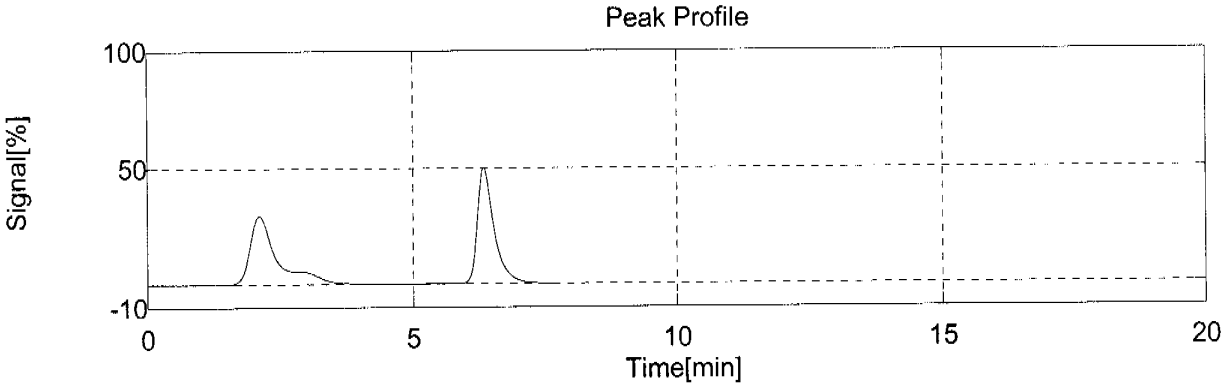
Sample Name: CCV
Sample ID:
Remark:
Comment:
Method: tocsscal.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/12/2012 09:52:47

Mean Area	Conc	Result	SD	CV	Modified
9709	2.656%		0.07474	2.81%	

No.	Range	Area	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	9523	2.6027		******	09/12/2012 09:46:11	b20829s1.cal
2	5	9896	2.7084		******	09/12/2012 09:52:47	b20829s1.cal

TOC-Control



Samples

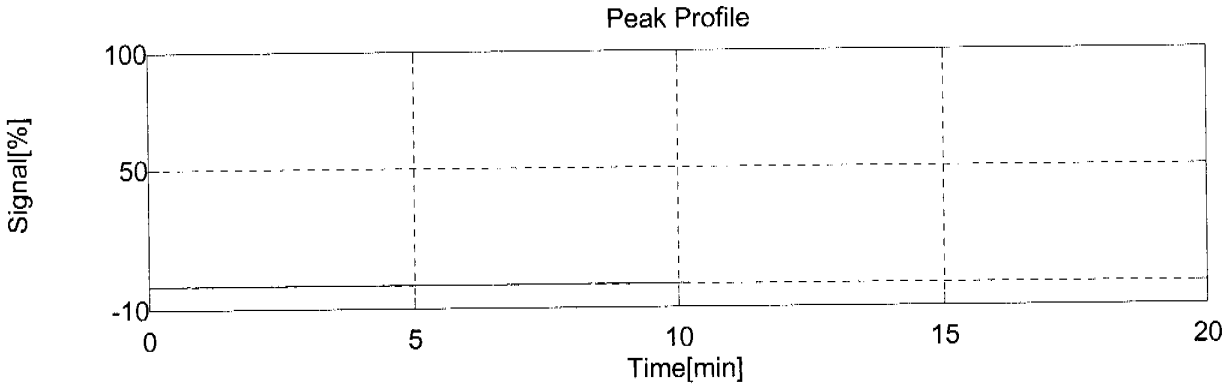
Sample Name: CCB
Sample ID:
Remark:
Comment:
Method: tocsscal.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/12/2012 10:06:59

Mean Area	Conc	Result	SD	CV	Modified
0	0.000%		0.000	0.00%	

No.	Range	Area	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	0	0.0000		******	09/12/2012 10:00:10	b20829s1.cal
2	5	0	0.0000		******	09/12/2012 10:06:59	b20829s1.cal

TOC-Control



Samples

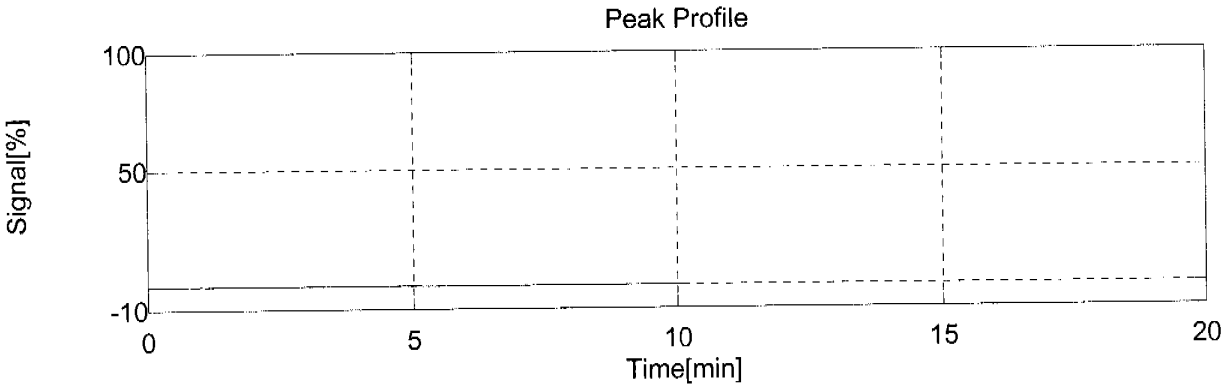
Sample Name: GP67057-MB2
Sample ID: GP67107-MB1
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/12/2012 10:30:57

Mean Area	Conc	Result	SD	CV	Weight	Modified
0	0.000%		0.000	0.00%	1000	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	0	1000	0.0000		******	09/12/2012 10:23:56	b20829s1.cal
2	5	0	1000	0.0000		******	09/12/2012 10:30:57	b20829s1.cal

TOC-Control



Samples

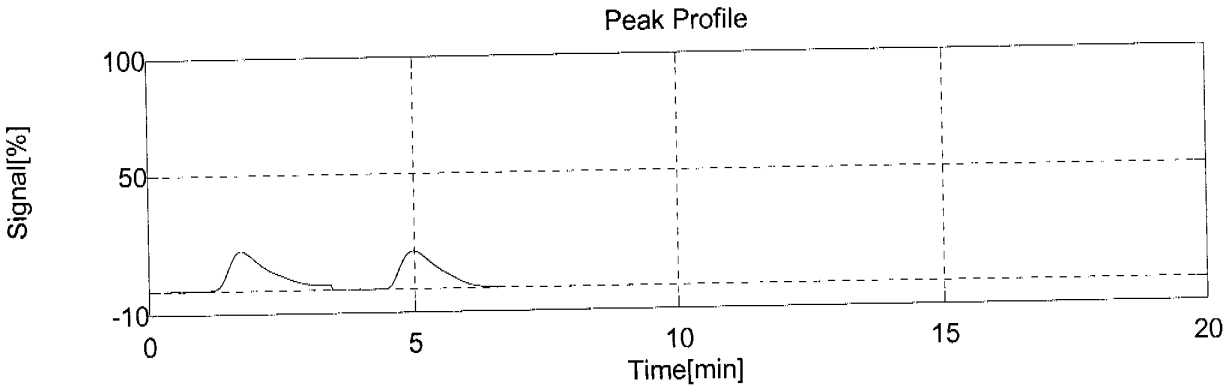
Sample Name: GP67057-B2
Sample ID: GP67107-B1
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/12/2012 10:42:17

Mean Area	Conc	Result	SD	CV	Weight	Modified
7231	0.1948%		0.00295	1.52%	1000	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	7158	1000	0.19268		******	09/12/2012 10:36:11	b20829s1.cal
2	5	7304	1000	0.19686		******	09/12/2012 10:42:17	b20829s1.cal

TOC-Control



Samples

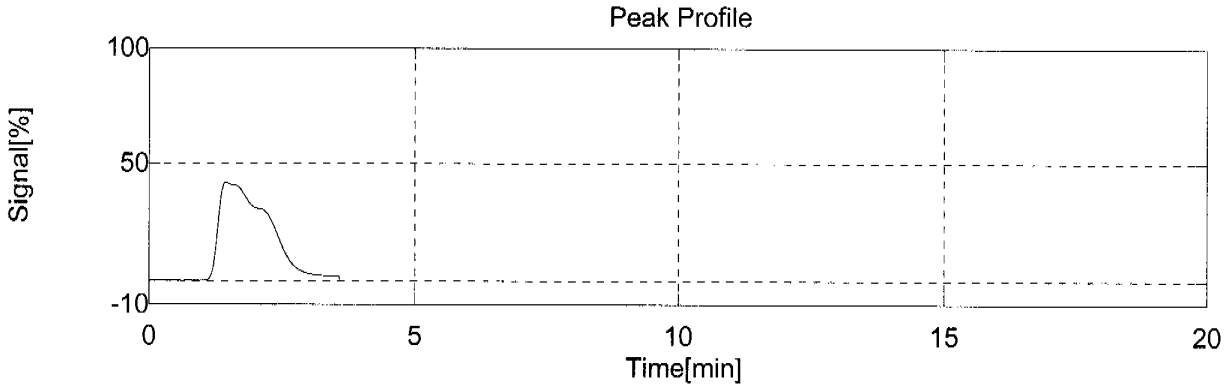
Sample Name: JB15129-17
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/12/2012 10:47:56

Mean Area	Conc	Result	SD	CV	Weight	Modified
22973	5.332%		0.000	0.00%	111.4	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	22973	111.4	5.3316		******	09/12/2012 10:47:56	b20829s1.cal

TOC-Control



Samples

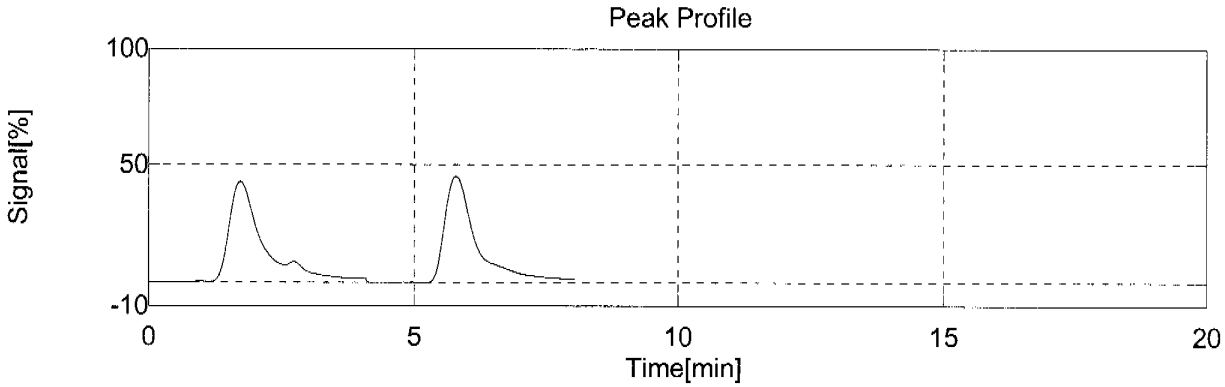
Sample Name: JB15129-18
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/12/2012 11:00:19

Mean Area	Conc	Result	SD	CV	Weight	Modified
15999	2.856%		0.05940	2.08%	152.5	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	16163	156.0	2.8135		******	09/12/2012 10:54:32	b20829s1.cal
2	5	15835	148.9	2.8975		******	09/12/2012 11:00:19	b20829s1.cal

TOC-Control



Samples

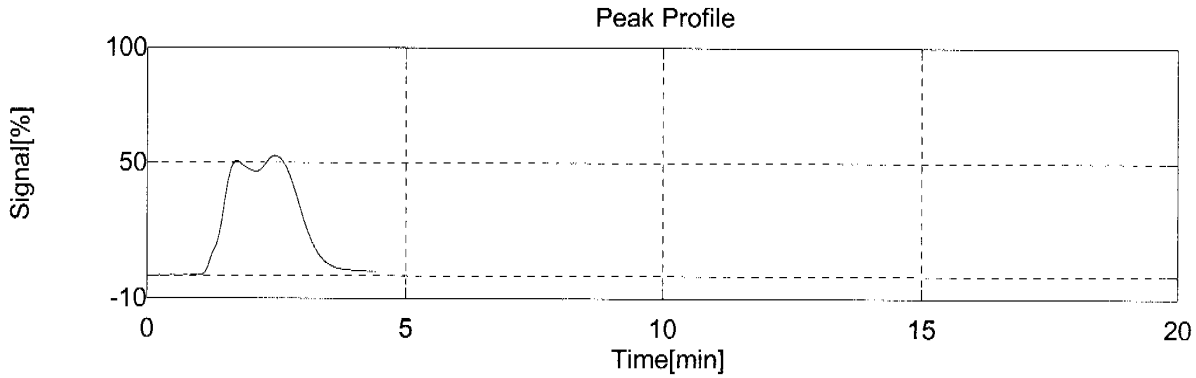
Sample Name: JB15129-19
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/12/2012 11:06:58

Mean Area	Conc	Result	SD	CV	Weight	Modified
43311	9.851%		0.000	0.00%	107.3	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	43311	107.3	9.8505		******	09/12/2012 11:06:58	b20829s1.cal

TOC-Control



Samples

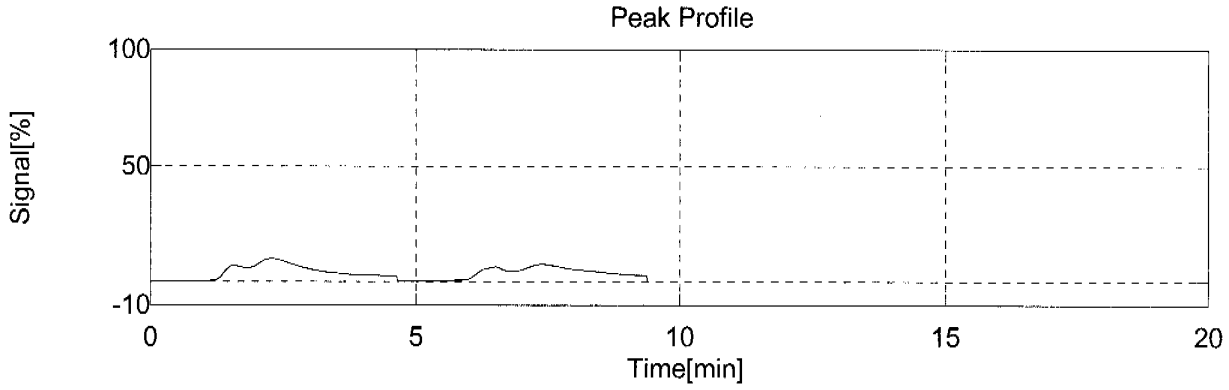
Sample Name: JB15500-2R
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/12/2012 11:22:36

Mean Area	Conc	Result	SD	CV	Weight	Modified
6145	1.583%		0.2217	14.0%	103.4	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	6742	103.9	1.7399		******	09/12/2012 11:15:08	b20829s1.cal
2	5	5549	102.8	1.4263		******	09/12/2012 11:22:36	b20829s1.cal

TOC-Control



Samples

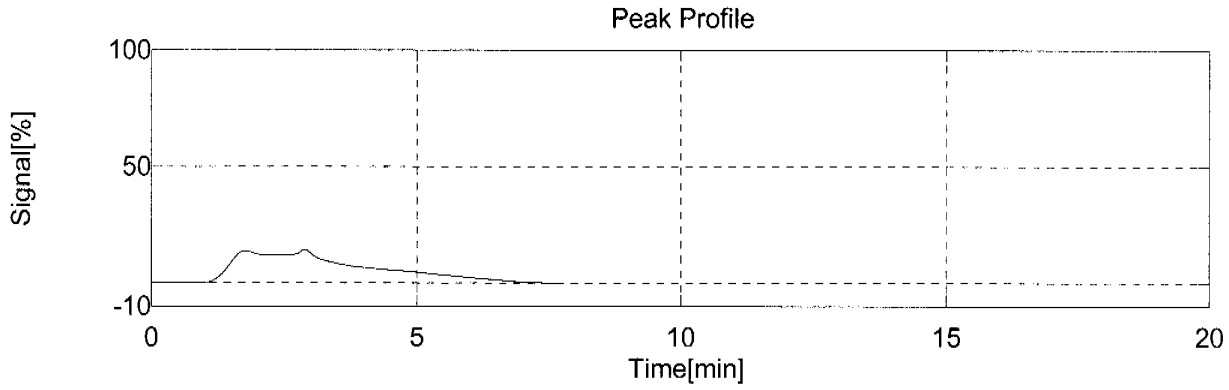
Sample Name: JB14848-18R
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/12/2012 11:33:20

Mean Area	Conc	Result	SD	CV	Weight	Modified
20878	10.82%		0.000	0.00%	50.50	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	20878	50.50	10.817		******	09/12/2012 11:33:20	b20829s1.cal

TOC-Control



Samples

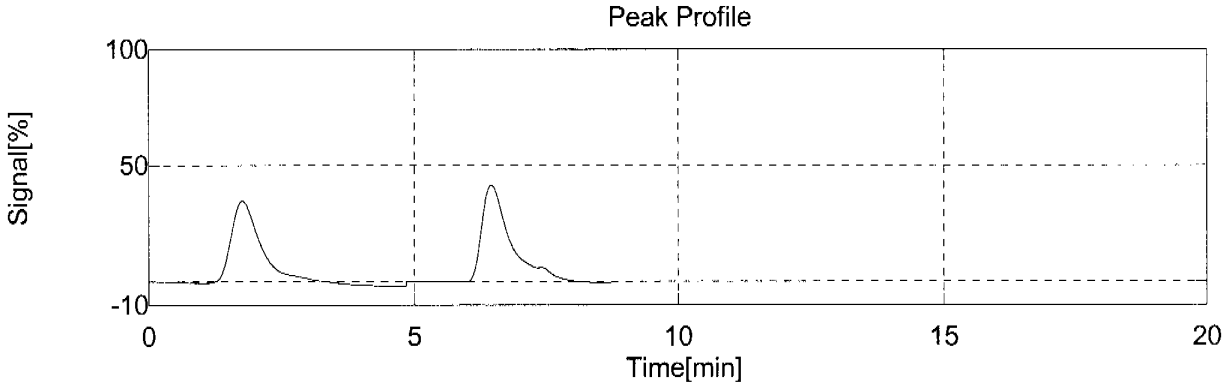
Sample Name: GP67107-D1
Sample ID: JB15129-18
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/12/2012 11:53:54

Mean Area	Conc	Result	SD	CV	Weight	Modified
14074	2.787 ~~2.584%~~		0.1807	6.99%	150.6	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	13550	152.4	2.4566		******	09/12/2012 11:47:00	b20829s1.cal
2	5	14599	148.7	2.7122		******	09/12/2012 11:53:54	b20829s1.cal

TOC-Control



Samples

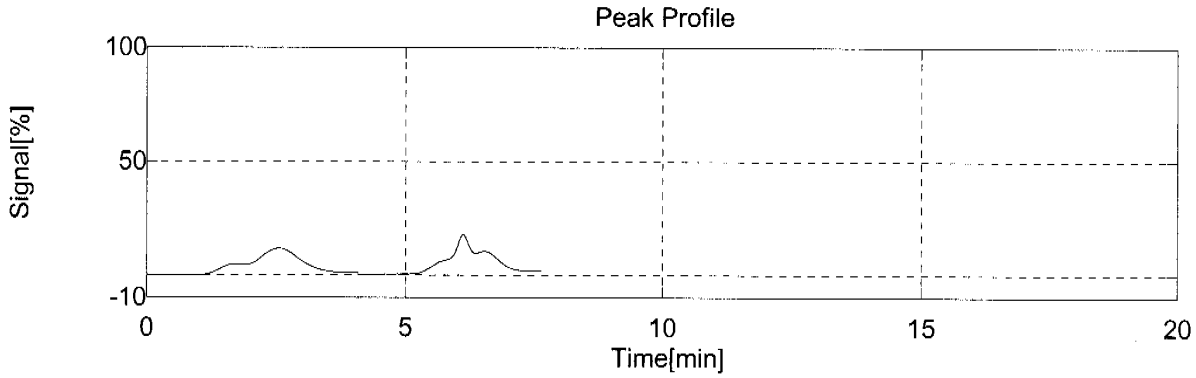
Sample Name: JB15129-16
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/12/2012 12:15:25

Mean Area	Conc	Result	SD	CV	Weight	Modified
6833	9.146%		0.09696	1.06%	20.05	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	6897	20.10	9.2145		******	09/12/2012 12:10:16	b20829s1.cal
2	5	6769	20.00	9.0774		******	09/12/2012 12:15:25	b20829s1.cal

TOC-Control



Samples

Sample Name: GP67107-S1
Sample ID: JB15129-18
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20829s1.cal

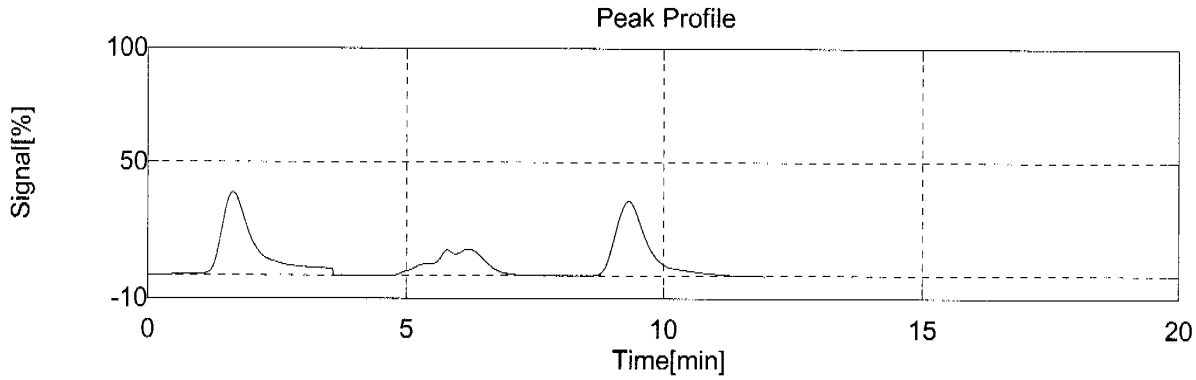
Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/12/2012 12:32:38

Mean Area	Conc	Result	SD	CV	Weight	Modified
12465	6.825%		0.2749	4.03%	50.35	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	12084	50.20	6.6303		******	09/12/2012 12:22:01	b20829s1.cal
2	5	6938	50.50	3.6908	E	******	09/12/2012 12:27:10	b20829s1.cal
3	5	12847	50.50	7.0191		******	09/12/2012 12:32:38	b20829s1.cal

EXCLUDED
wrong boat put in
9/13/12

TOC-Control



Samples

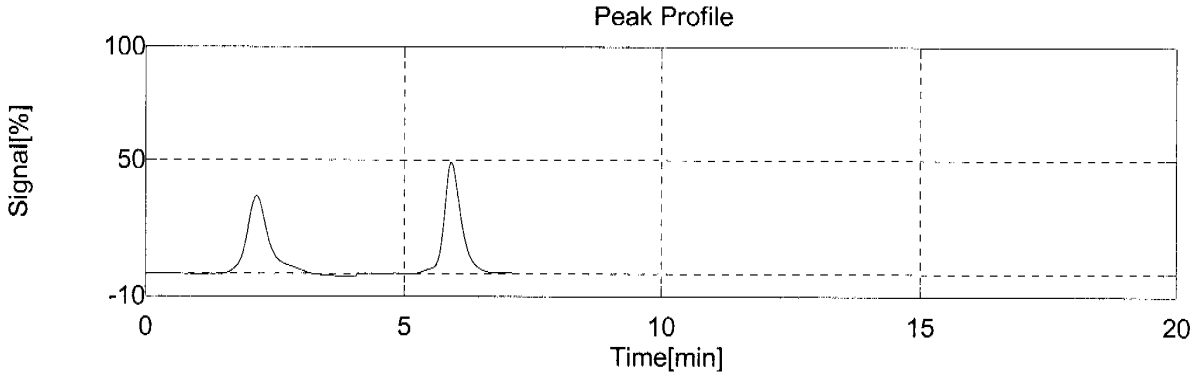
Sample Name: CCV
Sample ID:
Remark:
Comment:
Method: tocsscal.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/12/2012 12:43:14

Mean Area	Conc	Result	SD	CV	Modified
9937	2.720%		0.04007	1.47%	

No.	Range	Area	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	9837	2.6917		******	09/12/2012 12:39:05	b20829s1.cal
2	5	10037	2.7484		******	09/12/2012 12:43:14	b20829s1.cal

TOC-Control



Samples

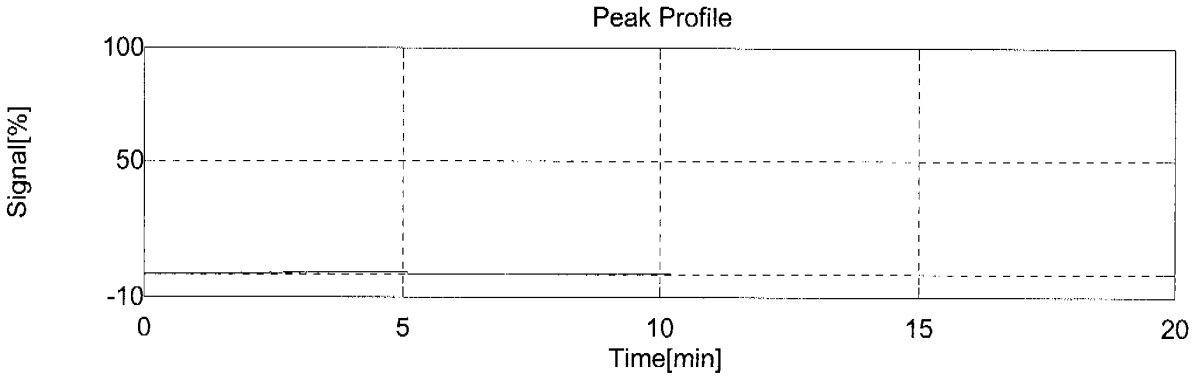
Sample Name: CCB
Sample ID:
Remark:
Comment:
Method: tocsscal.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/12/2012 13:03:17

Mean Area	Conc	Result	SD	CV	Modified
0	0.000%		0.000	0.00%	

No.	Range	Area	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	0	0.0000		******	09/12/2012 12:56:32	b20829s1.cal
2	5	0	0.0000		******	09/12/2012 13:03:17	b20829s1.cal

TOC-Control



Samples

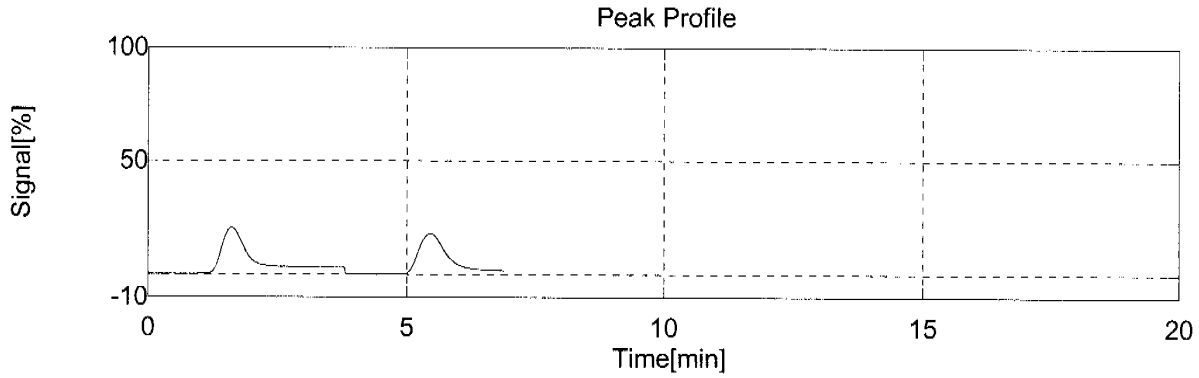
Sample Name: JB15129-2
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/12/2012 13:15:57

Mean Area	Conc	Result	SD	CV	Weight	Modified
5929	0.1534%		0.00670	4.36%	1026	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	6158	1037	0.15817		******	09/12/2012 13:10:04	b20829s1.cal
2	5	5700	1015	0.14870		******	09/12/2012 13:15:57	b20829s1.cal

TOC-Control



Samples

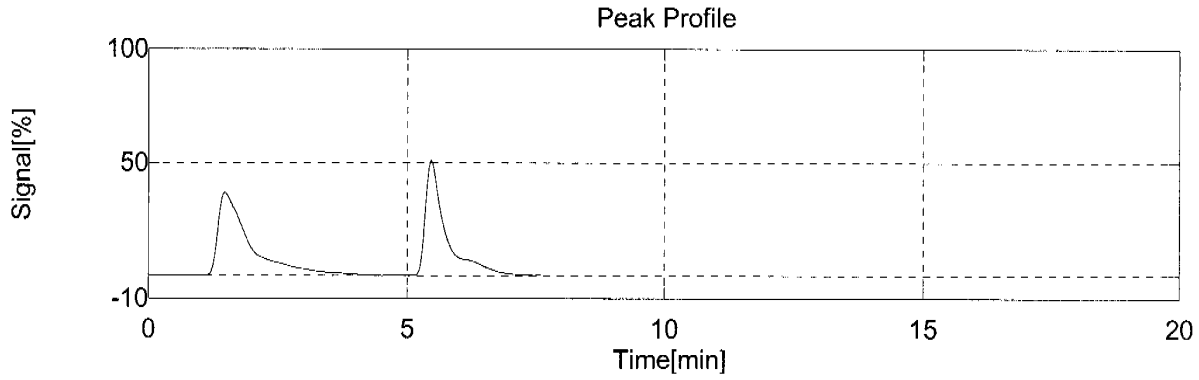
Sample Name: JB15129-5
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/12/2012 13:28:08

Mean Area	Conc	Result	SD	CV	Weight	Modified
12926	4.998%		0.09184	1.84%	71.35	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	13310	72.60	5.0631		******	09/12/2012 13:22:35	b20829s1.cal
2	5	12542	70.10	4.9332		******	09/12/2012 13:28:08	b20829s1.cal

TOC-Control



Samples

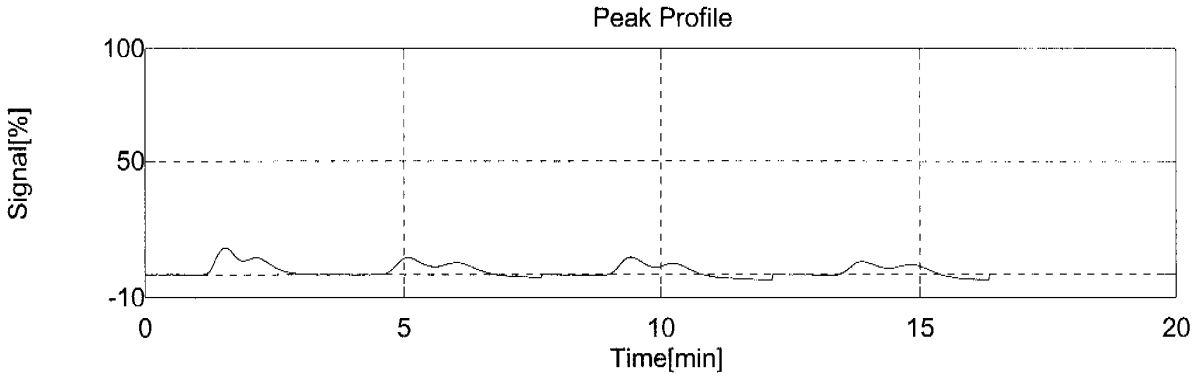
Sample Name: JB15129-10
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/12/2012 13:53:04

Mean Area	Conc	Result	SD	CV	Weight	Modified
5146	6.665%		0.3079	4.62%	20.28	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	5280	20.10	6.9118		******	09/12/2012 13:33:40	b20829s1.cal
2	5	5240	20.10	6.8549		******	09/12/2012 13:39:55	b20829s1.cal
3	5	5196	20.50	6.6597		******	09/12/2012 13:46:52	b20829s1.cal
4	5	4868	20.40	6.2321		******	09/12/2012 13:53:04	b20829s1.cal

TOC-Control



Samples

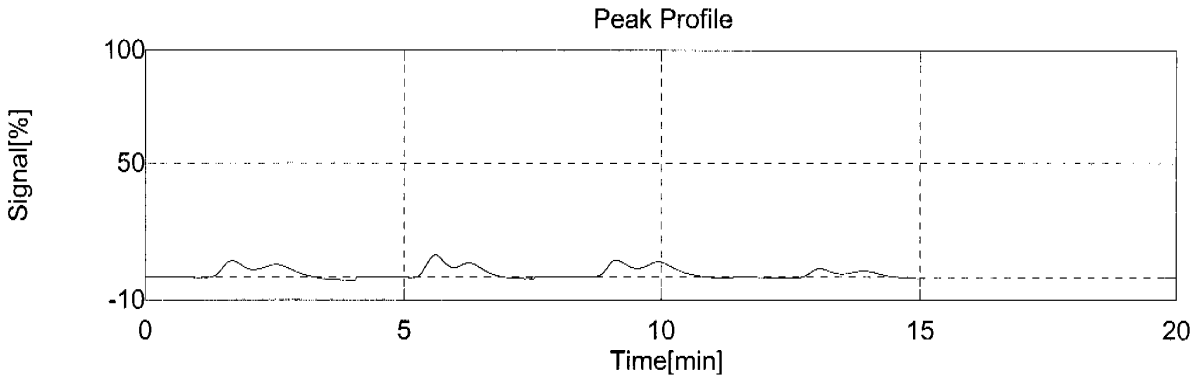
Sample Name: JB15129-11
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/12/2012 14:15:45

Mean Area	Conc	Result	SD	CV	Weight	Modified
4161	5.269%		1.583	30.0%	20.43	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	4863	20.80	6.1054		******	09/12/2012 13:59:59	b20829s1.cal
2	5	4565	20.50	5.7786		******	09/12/2012 14:04:54	b20829s1.cal
3	5	4878	20.30	6.2769		******	09/12/2012 14:10:14	b20829s1.cal
4	5	2340	20.10	2.9147		******	09/12/2012 14:15:45	b20829s1.cal

TOC-Control



Samples

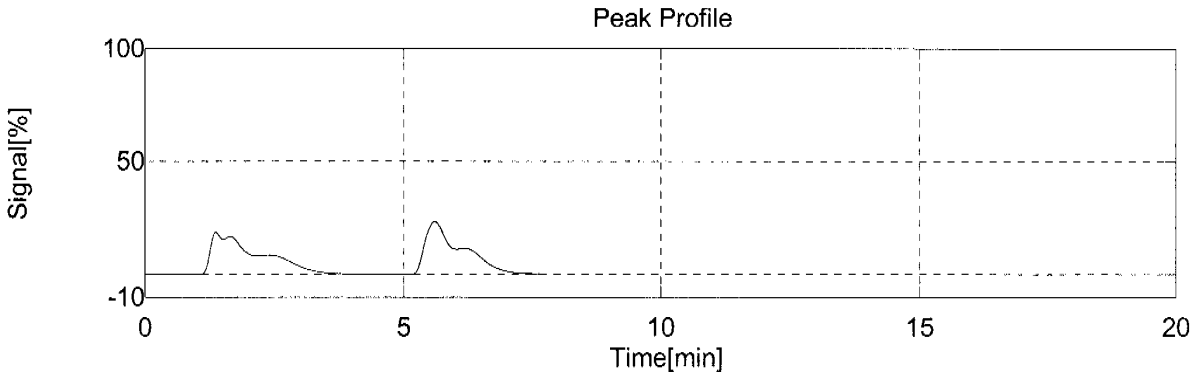
Sample Name: JB15129-12
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/12/2012 14:29:01

Mean Area	Conc	Result	SD	CV	Weight	Modified
10364	5.631%		0.1069	1.90%	50.45	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	10588	50.90	5.7063		******	09/12/2012 14:21:55	b20829s1.cal
2	5	10140	50.00	5.5551		******	09/12/2012 14:29:01	b20829s1.cal

TOC-Control



Samples

Sample Name: JB15129-15
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20829s1.cal

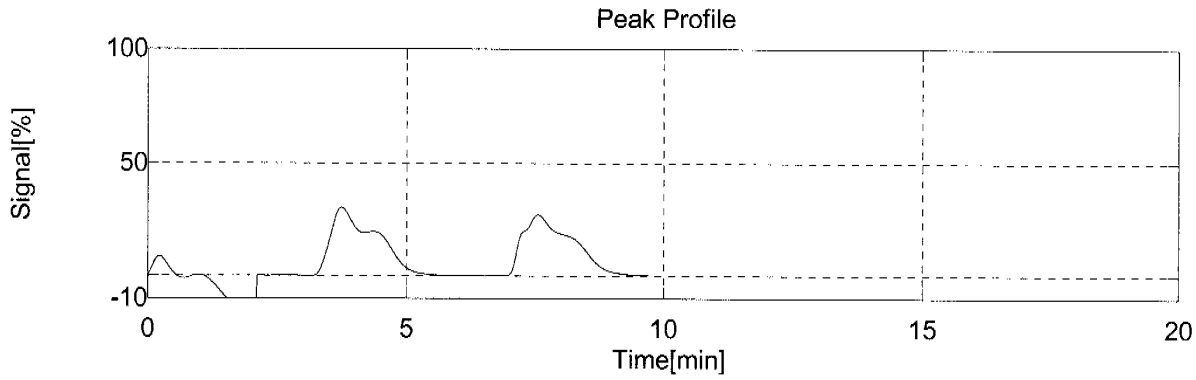
Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/12/2012 14:46:38

Mean Area	Conc	Result	SD	CV	Weight	Modified
16185	8.711%		0.09999	1.15%	50.45	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	3419	50.50	1.7202	E	******	09/12/2012 14:35:37	b20829s1.cal
2	5	16170	50.00	8.7813		******	09/12/2012 14:41:27	b20829s1.cal
3	5	16201	50.90	8.6399		******	09/12/2012 14:46:38	b20829s1.cal

EXCLUDED
Hit button too late
BS 9/13/12

TOC-Control



Samples

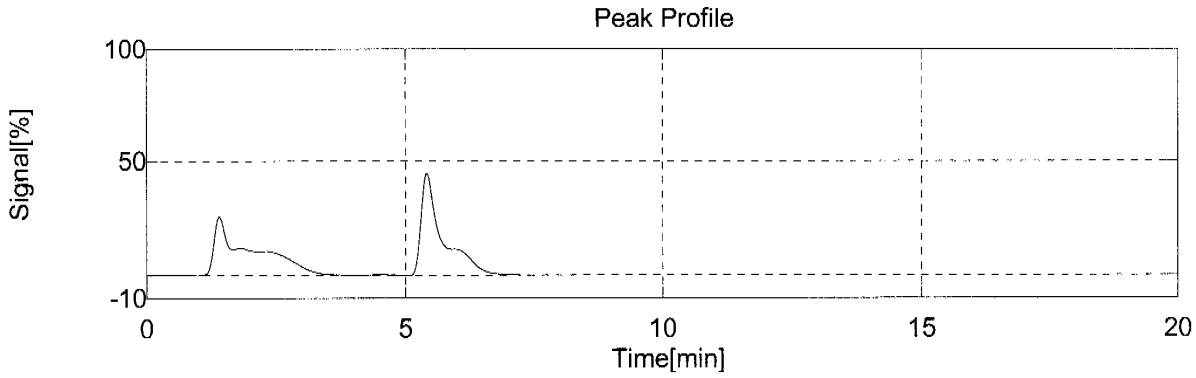
Sample Name: JB15129-17
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/12/2012 14:58:34

Mean Area	Conc	Result	SD	CV	Weight	Modified
11186	5.941%		0.2392	4.03%	51.75	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	10909	51.90	5.7716		******	09/12/2012 14:53:33	b20829s1.cal
2	5	11464	51.60	6.1100		******	09/12/2012 14:58:34	b20829s1.cal

TOC-Control



Samples

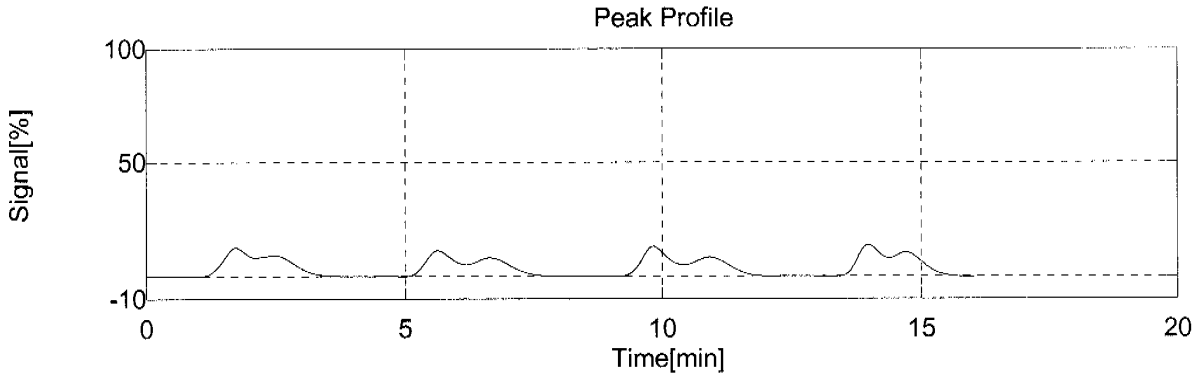
Sample Name: JB15129-19
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/12/2012 15:24:35

Mean Area	Conc	Result	SD	CV	Weight	Modified
8028	10.73%		0.2623	2.44%	20.28	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	7908	20.50	10.446		******	09/12/2012 15:05:04	b20829s1.cal
2	5	7814	20.00	10.573		******	09/12/2012 15:10:55	b20829s1.cal
3	5	8323	20.60	10.972		******	09/12/2012 15:18:40	b20829s1.cal
4	5	8068	20.00	10.936		******	09/12/2012 15:24:35	b20829s1.cal

TOC-Control



Samples

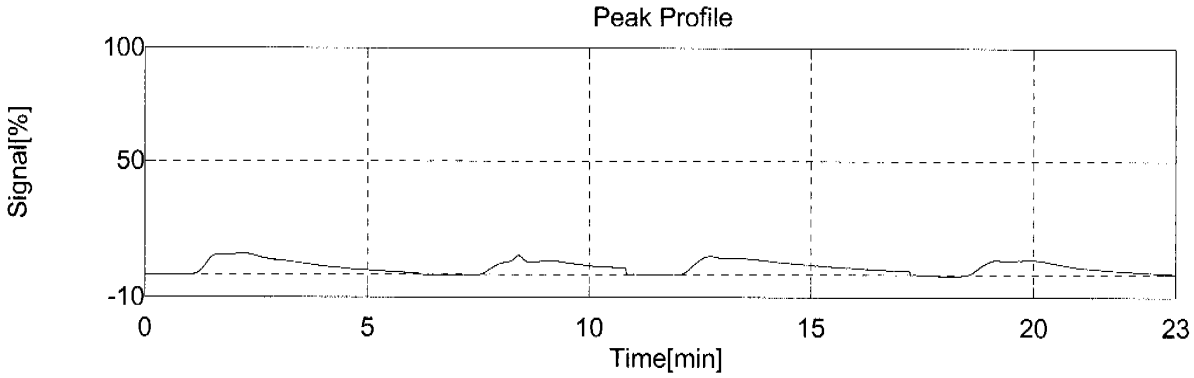
Sample Name: JB14858-18R
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/12/2012 15:55:23

Mean Area	Conc	Result	SD	CV	Weight	Modified
8934	9.641%		2.814	29.2%	25.23	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	11325	25.10	12.404		******	09/12/2012 15:32:24	b20829s1.cal
2	5	5484	25.00	5.7907		******	09/12/2012 15:39:05	b20829s1.cal
3	5	9927	25.20	10.783		******	09/12/2012 15:47:48	b20829s1.cal
4	5	9002	25.60	9.5884		******	09/12/2012 15:55:23	b20829s1.cal

TOC-Control



Samples

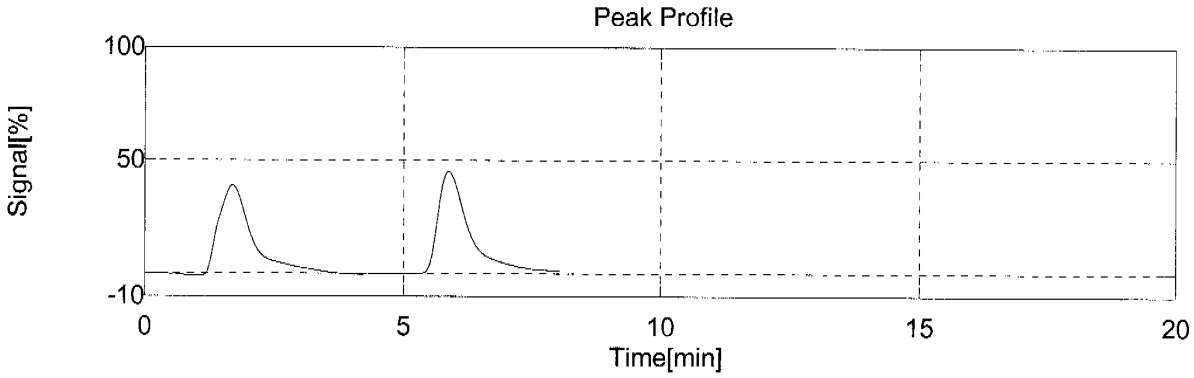
Sample Name: GP67107-D1
Sample ID:
Remark:
Comment:
Method: tocss.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/12/2012 16:07:24

Mean Area	Conc	Result	SD	CV	Weight	Modified
16586	2.990%		0.01851	0.619%	150.0	

No.	Range	Area	Weight	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	16699	150.2	3.0034		******	09/12/2012 16:01:22	b20829s1.cal
2	5	16474	149.8	2.9772		******	09/12/2012 16:07:24	b20829s1.cal

TOC-Control



Samples

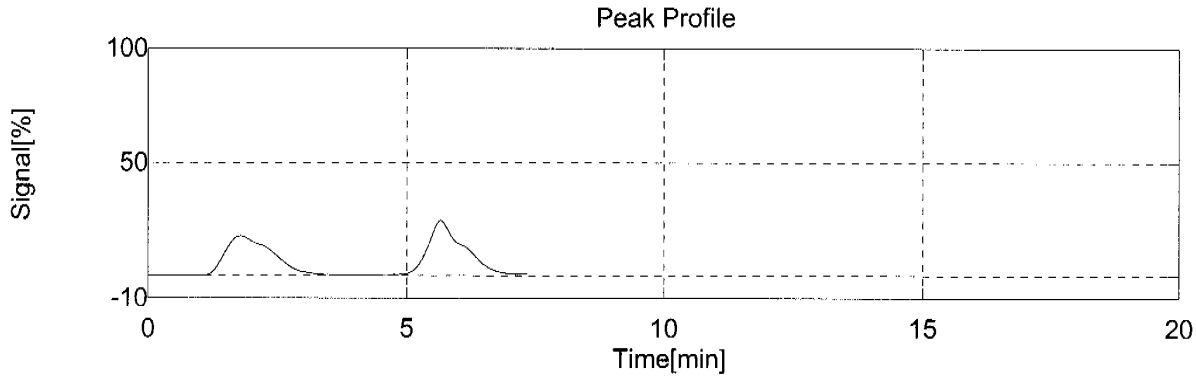
Sample Name: CCV
Sample ID:
Remark:
Comment:
Method: tocsscal.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/12/2012 16:19:14

Mean Area	Conc	Result	SD	CV	Modified
9850	2.696%		0.05630	2.09%	

No.	Range	Area	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	9710	2.6557		******	09/12/2012 16:13:57	b20829s1.cal
2	5	9991	2.7353		******	09/12/2012 16:19:14	b20829s1.cal

TOC-Control



Samples

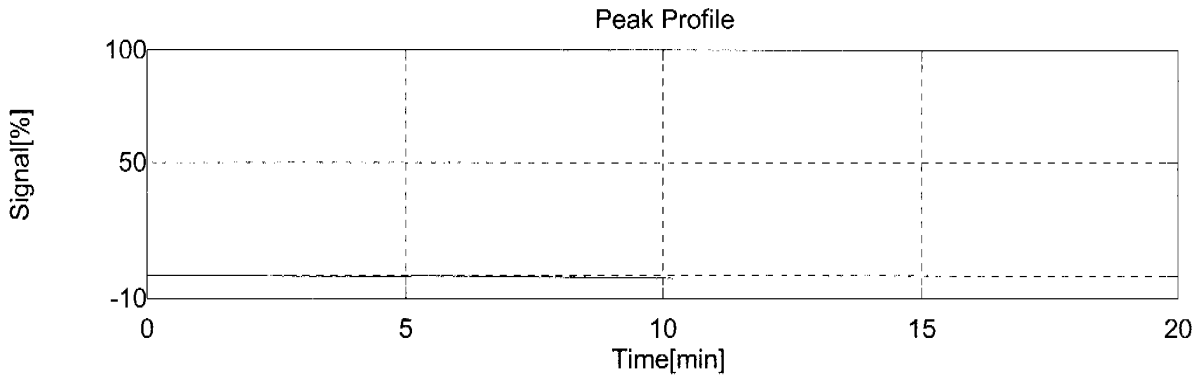
Sample Name: CCB
Sample ID:
Remark:
Comment:
Method: tocsscal.met
Cal Curve: 1: b20829s1.cal

Type	Analysis	Dilution	Date/Time
Unknown	SSM-TC	1.000	09/12/2012 17:08:13

Mean Area	Conc	Result	SD	CV	Modified
0	0.000%		0.000	0.00%	

No.	Range	Area	Conc	Excl.	Notes	Date/Time	Cal Curve
1	5	0	0.0000		******	09/12/2012 16:26:50	b20829s1.cal
2	5	0	0.0000		******	09/12/2012 17:08:13	b20829s1.cal

TOC-Control



Statistics / Summary

Sample Name	Analysis	Conc.	Abs C [µg]
CRI	SSM-TC	0.1061 %	106
HSTD	SSM-TC	5.148 %	5147
ICV	SSM-TC	1.848 %	1848
ICB	SSM-TC	0.000 %	0
CCV	SSM-TC	2.690 %	2690
CCB	SSM-TC	0.000 %	0
GP67057-MB2	SSM-TC	0.000 %	0
GP67057-B2	SSM-TC	0.1948 %	1947
JB15129-17	SSM-TC	5.636 %	4506
JB15129-18	SSM-TC	2.856 %	4351
JB15129-19	SSM-TC	10.29 %	6372
JB15500-2R	SSM-TC	1.583 %	1637
JB14848-18R	SSM-TC	10.82 %	5462
GP67107-D1	SSM-TC	2.787 %	4186
JB15129-16	SSM-TC	9.146 %	1833
GP67107-S1	SSM-TC	6.825 %	3436
JB15129-2	SSM-TC	0.1534 %	1575
JB15129-5	SSM-TC	4.998 %	3567
JB15129-10	SSM-TC	6.665 %	1350
JB15129-11	SSM-TC	5.269 %	1078
JB15129-12	SSM-TC	5.631 %	2841
JB15129-15	SSM-TC	8.711 %	4394
JB14858-18R	SSM-TC	9.641 %	2433

ACCUTEST.

TOLLK

B209125I.TOC

Test: **Total Organic Carbon** Units = mg/kg GN Batch ID GN71899
Product: **TOC** Balance ID: B-39 Date 9/12/12
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
CCI			
MSTD			
ICV/ICB			
CCV/CCB			
GP67057 -MB2	1.0000		GP67107 -MB1
	1.0000		
GP67057 -B2	1.0000		GP67107 -B1
	1.0000		
JB15129-17	0.1114		Overrange. Rerun at 0.05g
	0.1064		
	0.1034		
	0.1070		
JB15129-18	0.1560		
	0.1489		
	0.1462		
	0.1517		
JB15129-19	0.1073		Overrange. Rerun at 0.02g
	0.1045		
	0.1005		
	0.1012		
JB15300-D2K @VA 9/12/12	0.1039		
	0.1028		
	0.1022		
	0.1067		

Analyst: VA Date: 9/12/12 QCReviewer: _____ Date: _____
Manager Review: _____ Date: _____
Comments:
MS + BSP = 100 µL of 20000 mg/L (glucose) → 1.000 g of silica sand TV = 2000 mg/kg

Form: GN-058a
Rev. Date: 11/11/08

ACCUTEST.

TOCLK (2)

Test: **Total Organic Carbon** Units = mg/kg GN Batch ID GN71899
Product: **TOC** Balance ID: B-39 Date 9/12/12
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
JB15958-18R	0.0505	2-1	Overrange. Rerun at 0.025g
	0.0503		
	0.0500		
	0.0503		
GP67107-D2	0.1524	3.	JB15129-18
	0.1487		
	0.1489		
	0.1462		
GP67107-S2	0.0516		JB15129-18. ~~Overrange~~ VA 9/12/12 (4)
	0.0502 (1)		TV = 39721
	0.0520		
	0.0505. (2)		
VA 9/12/12 JB15129 - CCV/CCB			

Analyst: VA Date: 9/12/12 QCReviewer: _____ Date: _____
Manager Review: _____ Date: _____
Comments: _____

Form: GN-058a
Rev. Date: 11/11/08

ACCUTEST.

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

Product: **TOC** Balance ID: _____ Date 9/12/12

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
JB15129-16	0.0201	4	G167057-MB2 middle
	0.0200		
	0.0203		
CCVlccB	0.0207		
JB15129-2	1.0372	3	
	1.0151		
	1.0527		
	1.0794		
JB15129-5	0.0726	3	
	0.0701		
	0.0710		
	0.0700		
JB15129-10	0.0201	3	
	0.0201		
	0.0205		
	0.0204		
JB15129-11	0.0208	3	Top
	0.0205		
	0.0203		
	0.0201		
JB15129-12	0.0509	3	
	VA @ 9/12/12 ~~0.500~~ 0.0500		
	0.0505		
	0.0501		

Analyst: VA Date: 9/12/12 QCReviewer: _____ Date: _____

Manager Review: _____ Date: _____

Comments: _____

Form: GN-058a
Rev. Date: 11/11/08

ACCUTEST.

Test: **Total Organic Carbon** Units = mg/kg GN Batch ID GN71899
Product: **TOC** Balance ID: B-39 Date 9/12/12
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
JB15129-15	0.0505	3	1ST boat excluded hit button too late
	0.0500		
	0.0509		
	0.0505		
~~JB15500-2R~~ VA @ 9/12/12	~~0.1039~~		moved.
	~~0.1028~~		
	~~0.1022~~		
	~~0.1067~~		
JB15129-17	0.0519	3	
	0.0516		
	0.0504		
	0.0504		
JB15129-19	0.0205	3	
	0.0200		
	0.0206		
	0.0200		
JB14858-18R	0.0251	2,1	
	0.0250		
	0.0252		
	0.0256		
GP67407-B1	0.1502	3	JB15129-18
	0.1498		
CCV/CCB			

Analyst: VA Date: 9/12/12 QCReviewer: Date:
Manager Review: Date:
Comments:

Form: GN-058a
Rev. Date: 11/11/08

ACCUTEST

GENERAL CHEMISTRY STANDARD PREPARATION LOG

B-39 Balance
Glass pipets Class A

Product: TOC LL

GN or GP Number: GN71899

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
GNE8-33397-TOC	EMD 1400C115	Sucrose	47.5 g	DI H_2O	100mL	200000	9/25/12		9/12/12
GNE8-33398-TOC	Fisher 120314	Glucose	12.5 g	↓	↓	50000	↓	↓	↓

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									
GNE8-33399-TOC	GNE8-33397-TOC	200000	0.5	DI H_2O	100mL	1000	9/25/12		9/12/12
GNE8-33400-TOC	↓	↓	2.5	↓	↓	5000	↓	↓	↓
GNE8-33401-TOC			5.0			10000			
GNE8-33402-TOC			12.5			25000			
GNE8-33403-TOC			20.0			40000			
GNE8-33404-TOC			25.0			50000			
Glucose STD									
GNE8-33408-TOC	GNE8-33398-TOC	50000	40.0	DI H_2O	100mL	20000	9/25/12	JA	9/12/12
GNE8-33409-TOC	↓	↓	50.0	↓	↓	25000	↓	↓	

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

GN71899

ACCUTEST

Reagent Information Log - TOC - Soil

Reagent	Reagent # or Manufacturer/Lot
Sucrose Stock Solution, 200000 mg/L	GNE8-33397-TOC XP 9/25/12
Glucose Stock Solution, 50000 ug/L	GNE8-33398-TOC 9/25/12
Glucose Check Solution, 25000 ug/L	GNE8-33409-TOC 9/25/12
Nitric Acid, Reagent Grade	K50030 Baker 2/7/17
Glucose Check Stock Solution, 20000 ug/L	GNE8-33408-TOC 9/25/12 (8/29/12)
KHP, 20,000 ug/mL	GNSTK-863-TOC 11/14/12

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

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

7.1
7

ACCUTEST.

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

ANALYST: J. R. Tumalla
DATE: 9/12/12

GN BATCH: GN71909
REAGENT ID's: See attached page

F = Weight of Iron in g / Vol. Of Dichomate in mL
F = 0.005495
%Fe2/7 = ml Dichromate x F x 100 / sample wt in g x (%sol/100)

QC Summary						Units	Within limits? (Y/N)
Dup. Sample ID: D1	Original: 0.87	Duplicate: 0.88	RPD: 1.14				
MS Sample ID: S1	Original: 0.87	Amt. Spiked: 55.64	MS: 56.01	RDL: 0.2	REC: 99.1			
MB ID and prep date: MB1	Result: <0.2		<RDL? Y				
SB ID and prep date:	Amt. Spiked:		Result:		REC:			
External ID:	Known:		Result:		REC:			

Spike prep:

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	0.00	0.10	0.10	0.1099	<0.2	0.2	%
	GN -B			0.00	45.50	45.53	→ For Standardization only			%
1	JB15353-1R	0.54		0.00	0.75	0.75	0.8662	0.87		%
	GN -D	0.53		0.00	0.75	0.75	0.8826	0.88		%
	GN -S	0.51		0.00	45.80	45.80	56.0127	56.01		%
2	JB13560-1RF	0.54		0.00	1.00	1.00	1.186	1.19		%
3	JB15354-1R	0.52		0.00	0.40	0.40	1.0016	1.00		%
4	JB15355-1R	0.55		0.00	0.40	0.40	1.083	1.08		%
5	JB15356-1R	0.60		0.00	0.60	0.60	1.194	1.19		%
6	JB15500-2R	0.54		0.00	0.95	0.95	1.0777	1.08		%
7	JB14858-1BR	0.54		0.00	0.50	0.50	0.6227	0.62		%
8	JB15635-1R	0.61	13:40	0.00	1.00	1.00	0.9562	0.96		%
9										%
10	% Solids:									%
11	JB15353-1R → 88.1									%
12	JB13560-1RF → 85.8			MS =	0.25	x100x	1	= 55.64		%
13	JB15354-1R → 42.2				0.51		0.881			%
14	JB15355-1R → 36.9									%
15	JB15356-1R → 46.0									%
16	JB15500-2R → 89.7									%
17	JB14858-1BR → 81.7									%
18	JB15635-1R → 94.2									%
19										%
20										%

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

ANALYST: J. R. Tumalla DATE: 9/12/12 QC REVIEW: DATE:

COMMENTS:

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

ACCUTEST

Reagent Information Log
Fe2/7

Work Group #_____

Reagent	Reagent # or Manufacturer/Lot
Iron Wire Std	Aldrich # MKBH5978V NA
HCL (1:1)	Fme4-31822-Fe2/7 11/12/12
60% Sulfuric Acid/Phosphoric Acid	Fme6-32705-Fe2/7 12/26/12
Potassium Dichromate Solution	Fme6-32673-Fe2/7 12/22/12
Diphenyl Amino Indicator	Fme4-31960-Fe2/7 10/24/12

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 S R. Tripathy

Method Sulfide

Prep Date 9/12/12

Balance # B-14

GF# GN71910

Sample Prep Log

Sample ID	Sample Size	Final Volume
MB1		Negative
JB15353-1R	10.42 gm +10ml DI H2O	Negative
JB15353-1R Dup	10.39 gm	Negative
JB15350-1RT	10.74 gm	Negative
JB15354-1R	10.79 gm	Negative
JB15355-1R	10.15 gm	Negative
JB15357-1R	10.34 gm	Negative
JB15500-2R	10.57 gm	Negative
JB14858-1R	10.46 gm	Negative
JB15635-1R	10.92 gm	Negative.

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

QC Review_____

Hexavalent Chromium

Test Title:	XCRA
GN Batch:	GN71967
Analyst:	MP
Prep Date:	9/12/2012
Analysis Date:	9/13/2012
Instrument ID:	H

Method: SW846 3060A, 7196A

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

Corr. Coef: 0.99980

Slope: 0.8686

Y intercept: 0.0047

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	8:59	0.000	0.0000							
	STD 1	0.011	NA	NA	0.011	0.0100							
	STD 2	0.045	NA	NA	0.045	0.0500							
	STD 3	0.089	NA	NA	0.089	0.1000							
	STD 4	0.280	NA	NA	0.280	0.3000							
	STD 5	0.443	NA	NA	0.443	0.5000							
	STD 6	0.700	NA	NA	0.700	0.8000							
	STD 7	0.867	NA	9:02	0.867	1.0000							
	CCV	0.440	NA	11:28	0.440	0.5011	NA	NA	NA	NA	mg/l	0.003	0.010
	CCB	0.001	NA	11:28	0.001	-0.0043	NA	NA	NA	NA	mg/l	0.003	0.010
	GP67127-MB1	0.001	0.000	11:37	0.001	-0.0043	100.0	2.5000	1	-0.171	mg/kg	0.117	0.400
	GP67127-B1	0.848	0.000	11:37	0.848	0.9709	100.0	2.5000	1	38.835	mg/kg	0.117	0.400
	GP67127-S1	0.712	0.117	11:37	0.595	0.6796	100.0	2.4800	1	27.403	mg/kg	0.118	0.403
	GP67127-D1	0.197	0.111	11:37	0.086	0.0936	100.0	2.5200	1	3.714	mg/kg	0.116	0.397
	JB14858-18R	0.150	0.091	11:37	0.059	0.0625	100.0	2.4300	1	2.572	mg/kg	0.121	0.412
	JB14858-18RPSCONF				FALSE	-0.0054	100.0	2.4300	2	-0.446	mg/kg	0.241	0.823
	GP67127-B2	>3	OVR		FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
	GP67127-S2	>3	OVR		FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
	GP67127-B2	0.295	0.000	11:37	0.295	0.3342	100.0	2.5000	50	668.413	mg/kg	5.860	20.000
	GP67127-S2	0.417	0.000	11:37	0.417	0.4747	100.0	2.5000	50	949.327	mg/kg	5.860	20.000
	CCV	0.438	NA	11:37	0.438	0.4988	NA	NA	NA	NA	mg/l	0.003	0.010
	CCB	0.001	NA	11:37	0.001	-0.0043	NA	NA	NA	NA	mg/l	0.003	0.010
					FALSE	-0.0054	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	-0.0054	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	-0.0054	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	-0.0054	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	-0.0054	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	-0.0054	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	-0.0054	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	-0.0054	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	-0.0054	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	-0.0054	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
	CCV	0.422	NA	12:28	0.422	0.4804	NA	NA	NA	NA	mg/l	0.003	0.010
	CCB	0.000	NA	12:28	0.000	-0.0054	NA	NA	NA	NA	mg/l	0.003	0.010
	JB14858-1R	0.007	0.000	12:47	0.007	0.0026	100.0	2.5500	1	0.103	mg/kg	0.115	0.392
	JB14858-2R	0.001	0.000	12:47	0.001	-0.0043	100.0	2.5300	1	-0.169	mg/kg	0.116	0.395
	JB14858-3R	0.084	0.070	12:47	0.014	0.0107	100.0	2.5600	1	0.418	mg/kg	0.114	0.391
	JB14858-4R	0.083	0.023	12:47	0.060	0.0637	100.0	2.5700	1	2.477	mg/kg	0.114	0.389
	JB14858-5R	0.101	0.096	12:47	0.005	0.0003	100.0	2.5400	1	0.013	mg/kg	0.115	0.394
	JB14858-6R	0.036	0.017	12:47	0.019	0.0165	100.0	2.5400	1	0.648	mg/kg	0.115	0.394
	JB14858-7R	0.156	0.108	12:47	0.048	0.0498	100.0	2.5600	1	1.947	mg/kg	0.114	0.391
	JB14858-8R	0.075	0.000	12:47	0.075	0.0809	100.0	2.4600	1	3.290	mg/kg	0.119	0.407
	JB14858-9R	0.039	0.001	12:47	0.038	0.0383	100.0	2.5100	1	1.527	mg/kg	0.117	0.398
	JB14858-10R	0.078	0.057	12:47	0.021	0.0188	100.0	2.5400	1	0.738	mg/kg	0.115	0.394
	CCV	0.422	NA	12:47	0.422	0.4804	NA	NA	NA	NA	mg/l	0.003	0.010
	CCB	0.000	NA	12:47	0.000	-0.0054	NA	NA	NA	NA	mg/l	0.003	0.010
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
	CCV	0.430	NA	13:28	0.430	0.4896	NA	NA	NA	NA	mg/l	0.003	0.010
	CCB	0.000	NA	13:28	0.000	-0.0054	NA	NA	NA	NA	mg/l	0.003	0.010
	JB14858-11R	0.015	0.000	13:35	0.015	0.0118	100.0	2.5300	1	0.468	mg/kg	0.116	0.395
	JB14858-12R	0.169	0.152	13:35	0.017	0.0141	100.0	2.5700	1	0.551	mg/kg	0.114	0.389
	JB14858-13R	0.266	0.122	13:35	0.144	0.1604	100.0	2.5500	1	6.289	mg/kg	0.115	0.392
	JB14858-14R	0.035	0.005	13:35	0.030	0.0291	100.0	2.5500	1	1.142	mg/kg	0.115	0.392
	JB14858-15R	0.032	0.001	13:35	0.031	0.0303	100.0	2.5100	1	1.206	mg/kg	0.117	0.398

9/14/12

7.4

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	JB14858-16R	0.000	0.000	13:35	0.000	-0.0054	100.0	2.4400	1	-0.222	mg/kg	0.120	0.410
	JB14858-18RPSCON	0.453	0.038	13:35	0.415	0.4724	100.0	2.4300	2	38.877	mg/kg	0.241	0.823
					FALSE	-0.0054	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	-0.0054	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
					FALSE	-0.0054	100.0		1	#DIV/0!	mg/kg	#DIV/0!	#DIV/0!
	CCV	0.430	NA	13:35	0.430	0.4896	NA	NA	NA	NA	mg/l	0.003	0.010
	CCB	0.000	NA	13:35	0.000	-0.0054	NA	NA	NA	NA	mg/l	0.003	0.010
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
	CCV		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.003	0.010
	CCB		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.003	0.010
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
	CCV		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.003	0.010
	CCB		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.003	0.010
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
	CCV		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.003	0.010
	CCB		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.003	0.010
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
	CCV		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.003	0.010
	CCB		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.003	0.010
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
					FALSE	-0.0054	100.0	2.5000	1	-0.217	mg/kg	0.117	0.400
	CCV		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.005	0.010
	CCB		NA			#VALUE!	NA	NA	NA	NA	mg/l	0.005	0.010

revised 4/25/11

Comments:

ACCUTEST LABS
DAYTON, NJ

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

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?
JB14858-18R	2.43	1.0935	2.572	0.437	yes	1	2	0.219	0.23	0.542	42.067	efault (40 mg/kg) spike
		0		0.000	no	0		#DIV/0!		#DIV/0!	#DIV/0!	efault (40 mg/kg) spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike
		#VALUE!		#VALUE!	#VALUE!	#VALUE!		#VALUE!		#VALUE!	#VALUE!	calculated spike

3060A/7196A INSOLUBLE SPIKE CALCULATION

Weight of PbCrO4	Weight of Sample	Amount Spiked
0.0112	2.5	720.792
0.0168	2.5	1081.188
		#VALUE!
		#VALUE!
		#VALUE!
		#VALUE!
		#VALUE!
		#VALUE!
		#VALUE!

ACCUTEST.

Test: **Hexavalent Chromium** MDL = 0.117 mg/kg GNBatch ID: GN 71967
Product: **XCr** RDL = 0.40 mg/kg Date: 9/13/12
Method: **SW846 3060A/7196A**

Digestion Batch QC Summary Units = mg/kg

Method Blank ID: GN 67167 - MB1 Date: 9/13/12 Result: < RDL RDL: .40 <RDL: yes
Sol. Spike Blank ID: -B1 Date: Result: 38.84 Spike: 40 %Rec.: 97.1
Insol. Spike Blank ID: -B2 Date: Result: 668.41 Spike: 720.79 %Rec.: 92.73
Duplicate ID: -D1 Samp. Result: 2.57 Dup. Result: 3.71 %RPD: 36.31
Sol. MS ID: -S1 Samp. Result: MS Result: 27.40 Spike: 40.32 %Rec: ~~67.96~~ 61.6
Insol. MS ID: -S2 Samp. Result: MS Result: 949.33 Spike: 1081.19 %Rec: ~~87.80~~ 87.6
Post Spike ID: JB14858-18R Samp. Result: PS Result: 38.88 Spike: 42.07 %Rec: ~~94.42~~ 86.3
Diluted Sample ID: Samp. Result: Dil. Result: %RPD: NC
pH adj. PS ID: Samp. Result: MS Result: Spike: %Rec: 9/13/12 #1

Analysis Batch QC Summary Units = mg/l

CCV: 9/13/12	Result: .501	TV: 0.500	%Rec.: 100.2	
CCV:	Result: .499	TV: 0.500	%Rec.: 99.8	
CCV:	Result: .480	TV: 0.500	%Rec.: 96	
CCV:	Result: .480	TV: 0.500	%Rec.: 96	
CCV:	Result: .489	TV: 0.500	%Rec.: 97.8	
CCV:	Result: .489	TV: 0.500	%Rec.: 97.8	
CCV:	Result:	TV: 0.500	%Rec.:	
CCV:	Result:	TV: 0.500	%Rec.:	
CCV:	Result:	TV: 0.500	%Rec.:	

CCB: 9/13/12	Result: < RDL	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: MP Date: Temp 9/13/12

Comments: Post spike was ran in last batch.
MB, B1, B2, JB14858-4R & JB14858-5R were filtered.

Form: GN066-01
Rev. Date: 4/25/11

ACCUTEST

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

pH adj. start time: 13:00 / 13:25 | 11:02 / 12:00 | 13:10 - 13:18 | 11:18 / 12:14
pH adj. end time: 11:09 / 12:08 | 11:23 / 12:20

pH Meter ID: 4
Digestion Date: 9/12/12
pH adj. Date: 9/13/12
GN Batch ID: GN 71967

GP67127 Sample ID	Sample Weight in g	pH after HNO3	Final Volume (ml)	pH after H2SO4	bkg pH after H2SO4	Spike Amounts	Spike Solution	Digestate Description/Comments
CCV		7.636	100	1.964	—	5.0 mL	10 ppm Cr	
CCV		7.519	100	1.807	—	↓	↓	
CCV								
CCV								
CCB								
CCB								
CCB		7.518	100	1.731	—			
CCB		7.708	↓	1.711	—			
MS (Sol) B14858 -18R	2.48	7.710		1.968	2.121	1.0 mL	100 ppm Cr	
MS (Insol.)	2.50	7.558		2.198	OVR	0.0968	$PbCrO_4$	
DUP	2.52	7.855		1.907	2.113			
SB (Sol)	2.50	7.881		1.672	2.089	1.0 mL	100 ppm Cr	* filtered
SB (Insol)	2.50	7.240		2.181	OVR	0.0112	$PbCrO_4$	* filtered
MB	2.50	7.421		1.652	2.051			
1 B14858 -18R	2.43	7.718		2.035	1.750			amber
2 -1R	2.55	7.100		2.108	2.336			clear
3 -2R	2.53	7.674		1.868	2.108			clear
4 -3R	2.56	7.262		1.829	2.172			black * filtered
5 -4R	2.57	7.648		1.603	1.852			black * filtered
6 -5R	2.54	7.416		1.848	2.041			amber
7 -6R	2.54	7.781		2.117	2.354			yellow
8 -7R	2.56	7.540		1.711	2.299			amber
9 -8R	2.46	7.683		2.103	2.094			pale yellow
10 -9R	2.51	7.364		1.757	1.953			yellow
11 -10R	2.54	7.427		1.784	2.200			yellow
12 -11R	2.53	7.862		1.744	2.072			pale yellow
13 -12R	2.57	7.915		1.904	2.135			beige
14 -13R	2.55	7.847		1.891	1.686			brown
15 -14R	2.55	7.389		1.801	2.155			yellow
16 -15R	2.51	7.475		1.701	1.815			clear
17 -16R	2.44	7.340	↓	1.858	2.195			clear
18								
19								
20								
SB (Insol)	2.50	7.240	100	2.224	2.197			dilution 1:50 diluted
MS (Insol.)	2.50	7.558	↓	2.137	1.654			dilution 1:50 diluted
PS	2.43	7.718		1.643	2.046	0.23ml of 100 ppm Cr soln.		1:2 dilution
pH adjusted PS								
1:5 dil.								
B14858 -18R	2.46							

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 $PbCrO_4$

2nd analyst check: [signature] 9.13.12

Anayst: MP
Date: 9/12/12 9/13/12

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

ACCUTEST.

GN/GP Batch ID: GP67027 GN 71967

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

Reagent	Exp. Date	Reagent # or Manufacturer/Lot
Calibration Source: Hexavalent Chromium, 1000 mg/L Stock	7/25/2015	Absolute Grade Lot # 072512
Calibration Checks: Hexavalent Chromium, 1000 mg/L Stock	5/31/2017	Ultra lot # L00439
Spiking Solution Source	7/25/2015	Absolute Grade Lot # 072512
Lead Chromate (Insoluble Hexavalent Chromium Spike)	7/26/2017	Sigma Aldrich Lot # BCBG0578V
Magnesium Chloride, Anhydrous	9/2/2017	Alfa Aesar Lot #H10X010
1N NaOH	—	—
Digestion Solution	10/11/2012	GNE9-33546-XCR
Phosphate Buffer Solution	2/14/13	GNE8-33273-XCRA
5.0 M Nitric Acid	3/13/13	GNE9-33563-XCRA
Diphenylcarbazide Solution	10/13/12	GNE9-33564-XCR
Sulfuric Acid, 10%	3/13/13	GNE9-33562-XCR
Filter	-	F2EA19E11
Teflon Chips	NA	919120

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

ACCUTEST

GA7127

HEXAVALENT CHROMIUM TEMPERATURE AND TIME DIGESTON LOG - METHOD 3060A

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

Thermometer ID: 381/347/182/175
Thermometer Correction factor: 0/-2/2/0

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
GA67125 GA67126 GA67127	Starting Time	17:30	90/90	92/90	90/92	90/90
	Time 1	18:00	90/90	92/90	90/92	90/90
	Ending Time	18:30	90/90	92/90	90/92	90/90
	Starting Time	18:35	90/90	92/90	90/92	90/90
	Time 1	19:05	90/90	92/90	90/92	90/90
	Ending Time	19:35	90/90	92/90	90/92	90/90
	Starting Time	—				
	Time 1	—				
	Ending Time	—				

Analyst: [signature]
2nd Analyst Check: [signature]

Date: 9/13/12

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

ACCUTEST

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

pH adj. start time: 8:35 / 8:47
pH adj. end time: 8:43 / 8:51
pH adjustment Date:
GN Batch ID:

Sample ID	Sample Weight in g	pH after HNO3	Final Volume (ml)	pH after H2SO4	Comments	Spike Info.
Calibration Blank	NA	7.325	100	1.772	10 ppm MS	—
0.010 mg/l standard	NA	7.218		1.976		0.10 ml of 10 mg/l
0.050 mg/l standard	NA	7.740		1.839		0.50 ml of 10 mg/l
0.100 mg/l standard	NA	7.871		1.782		1.00 ml of 10 mg/l
0.300 mg/l standard	NA	7.735		1.998		3.00 ml of 10 mg/l
0.500 mg/l standard	NA	7.859		1.811		5.00 ml of 10 mg/l
0.800 mg/l standard	NA	7.524		1.991		8.00 ml of 10 mg/l
1.00 mg/l standard	NA	7.654		1.744		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: MP
Date: 9/13/16

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

7.4.7

ACCUTEST.

HEXAVALENT CHROMIUM STANDARD PREPARATION LOG

Product: XCrA

GN or GP Number: GN 71967

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 #072512	1000 ppm	1.0 ml	DI	100 mls	10 mg/l	7/25/2012	MP	9/13/12
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	9/14/12	MP	9/13/12
.050 ppm	↓	↓	0.5 ppm	DI	↓	0.05 mg/l	↓	↓	↓
.10 ppm	↓	↓	1.0 ppm	DI	↓	0.10 mg/l	↓	↓	↓
.30 ppm	↓	↓	3.0 ppm	DI	↓	0.30 mg/l	↓	↓	↓
.50 ppm	↓	↓	5.0 ppm	DI	↓	0.50 mg/l	↓	↓	↓
.80 ppm	↓	↓	8.0 ppm	DI	↓	0.80 mg/l	↓	↓	↓
1.00 ppm	↓	↓	10.0 ppm	DI	↓	1.0 mg/l	↓	↓	↓

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

AECOM
250 Apollo Drive
Chelmsford, MA 01824

978-905-2100 tel
978-905-2101 fax

Data Validation Report

Project:	PPG – Northern Transect Sampling
Laboratory:	TestAmerica, Edison, NJ
Laboratory Job No.:	460-31791
Analysis/Method:	Hexavalent Chromium SW846 3060A/7196A
Validation Level:	Full (Hexavalent Chromium)
Site Location/Address:	PPG Site 114 – Garfield Avenue, Jersey City, NJ
AECOM Project Number:	60213772.5.A
Prepared by: Kristin Rutherford/AECOM	Completed on: September 27, 2012
Reviewed by: Lisa Krowitz/AECOM	File Name: 2012-09-27 DV Report 460-31791-F

Introduction

The data were reviewed in accordance with the FSP-QAPP and the following NJDEP and/or Region 2 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.

Sample Information

The samples listed below were collected by AECOM on September 28, 2011 as part of the Garfield Northern Transect Sampling at the PPG Site - 114 Jersey City, New Jersey.

Field ID	Laboratory ID	Matrix	Fraction
NTB-C2-12.0	J31791-1	Soil	Hexavalent Chromium
NTB-C1-11.0	J31791-2	Soil	Hexavalent Chromium
NTB-B2-2.0	J31791-3	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 Sites 114, 132, 133, 135, 137, 143, and 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.

Hexavalent Chromium

Matrix Spike Results

Sample NTB-C1-11.0 (J31791-2) was selected for the matrix spike (MS) analysis associated with the samples in this SDG and was used for supporting data quality recommendations. The soluble and insoluble MS recoveries were 79% and 89%, respectively; both results met the quality control criteria of 75-125%. The post digestion spike (PDS) recovery was 112%, which met the PDS criteria of 85-115%. No data qualification was required on the basis of spike recoveries.

Data Quality and Usability

In general, these data appear to be valid and may be used for decision-making purposes. No data were qualified or rejected. The hexavalent chromium results for the samples in this SDG data are usable as reported by the laboratory without qualification.

Attachments

Attachment A Data Validation Report Form

Attachment A

Data Validation Report Form

Client Name: PPG Industries	**Project Number:** 60213772.5.A
Site Location: PPG- Northern Transect Sampling	**Project Manager:** Robert Cataldo
Laboratory: Test America, Edison, New Jersey	**Limited or Full Validation (circle one)**
Laboratory Job No: 460-31791	**Date Checked:** 09/27/2012
Validator: Kristin Rutherford	**Peer:** Lisa Krowitz

ITEM	YES	NO	N/A	COMMENTS
Sample results included?	x			3 soils
Reporting Limits met project requirements?	x			
Field I.D. included?	x			
Laboratory I.D. included?	x			
Sample matrix included?	x			
Sample receipt temperature 2-6ºC?	x			3.6°C
Signed COCs included?	x			
Date of sample collection included?	x			09/28/2011
Date of sample digestion included?	x			Soil: 460-31791 HxCr prepped on 10/20/2011
Holding time to digestion met criteria? Soils -30 days from collection to digestion.	x			Yes
Date of analysis included?	x			Soil: 460-31791: HxCr analyzed on 10/21/2011.
Holding time to analysis met criteria? Soils -168 hours from digestion to analysis. Aqueous – 24 hours from collection to analysis.	x			Yes
Method reference included?	x			3060A/7196A
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.

Comments

Field Duplicates: none in this SDG

Percent Solids: all samples >50%, no qualifications

Sample Dilutions: None for this SDG

ITEM	YES	NO	N/A	COMMENTS
Initial Calibration Documentation Included in Lab Package?	x			Cal source J31791 soil – WThcrIM 00029
1. Blank plus 4 standards (7196A) or blank plus 3 standards (7199), 2. Correlation coefficient of ≥0.995 (7196A) or ≥0.999 (7199). 3. Calibrate daily or each time instrument is set up.	x x x			1. Each analysis 1 blank and 7 cal STDs 2. All analyses meet CC 3. Yes
Calibration Check Standard (CCS) for 7196A and Quality Control Sample (QCS) for 7199 Included in Lab Package?	x			Check source (soil– WThcrIM3_00014)
1. %R criteria met? (90 - 110%). 2. Correct frequency of once every 10 samples 3. CCS and QCS from independent source and at mid level of calibration curve.	x x x			1. All met %R 2. Analyzed every 10 samples 3. Yes
Calibration Blanks	x			
1. Analyzed prior to initial calibration standards and after each CCS/QCS? 2. Absolute value should not exceed MDL.	x x			1. Yes 2. Yes
Method Blank and Field Blanks Included in Lab Package?	x			No field blank in this SDG
1. Method blank analyzed with each preparation batch? 2. Absolute value should not exceed MDL.	x x			1. Yes, Soil – MB 460-90228/1-A 2. Yes, all method and field blanks were less than MDL.
Eh and pH data.	x			
Eh and pH data was included and plotted for all samples?	x			
Soluble Matrix Spike Data Included in Lab Package?	x			J31791-2 [NTB-C1-11.0]
1. %R criteria met? (75-125%R). 2. Was the spike concentration 40 mg/Kg or twice the sample concentration, whichever is greater? 3. Was a sample spiked at the frequency of 1/batch or 20 samples?	x x x			1. 460-31791 – Yes (79 %) 2. 460-31791 Yes, 49.1 mg/kg. 3. Yes for all batches.
Insoluble Matrix Spike Data Included in Lab Package?	x			J31791-2 [NTB-C1-11.0]
1. %R criteria met? (75-125%R). 2. Was the spike concentration around 400 to 800 mg/Kg? 3. Was a sample spiked at the frequency of 1/batch or 20 samples?	x x x			1. 460-31791: Yes (89%) 2. 460-31791 Yes (870 mg/kg). 3. Yes for all batches.
Post Digestion Spike	x			J31791-2 [NTB-C1-11.0]
1. %R criteria met? (85-115%R). 2. Was the spike concentration 40 mg/Kg or twice the sample concentration? 3. Was a sample spiked at the frequency of 1/batch or 20 samples?	x x x			1. 460-31791 Yes (112%) 2. 460-31791 Yes, 49.1 mg/kg 3. Yes for all batches.
Sample Duplicate Data Included in Lab Package?	x			J31791-2 [NTB-C1-11.0]
1. RPD criteria met? (RPD < 20%) of both results are ≥4x RL or control limit of ±RL if both results are <4x RL. 2. Was a sample spiked at the frequency of 1/batch or 20 samples?	x x			1. 460-31791 – Yes, both results ND 2. Yes
Was a Laboratory Control Sample (LCS) Included in Lab Package?	x			
1. %R criteria met? (80-120%R). 2. Was an LCS analyzed at the frequency of 1/batch or 20 samples?	x x			1. Yes, all LCS recoveries were within quality control criteria. 2. Yes
Miscellaneous Items.				
1. For soils by 3060A, was the initial pH within a range of 7.0-8.0? 2. For soils by 7199, was the pH within a range of 9.0-9.5? 3. For aqueous by 7196A, was the pH with a range of 1.5-2,5? 4. For soils (3060A), was the digestion temperature 90-95°C for at least 60 minutes? 5. For 7199, was each sample injected twice and was the RPD ≤20?	x x 		 x x x	1. Yes 2. NA 3. NA 4. Yes 5. NA

Holding Time

Sample ID	Method	Days from Sampling to Prep	Days from Prep to Analysis	Days from Sampling to Analysis	Sample to Prep Status	Prep to Analysis Status	Sample to Analysis Status
NTB-B2-2.0	SW7196	9	0	9	OK @30 days	OK @7 days	OK @37 days
NTB-C1-11.0	SW7196	9	0	9	OK @30 days	OK @7 days	OK @37 days
NTB-C2-12.0	SW7196	9	0	9	OK @30 days	OK @7 days	OK @37 days

Percent Solids

Sample ID	Percent Solids (%)	Status
NTB-B2-2.0	86.9	ok @50%
NTB-C1-11.0	81.4	ok @50%
NTB-C2-12.0	64.1	ok @50%

PPG GARA Soils by Method 7196	x - concentration	y - response
SDG#: J31791		
Batch: 88553	0	0
Cr+6 ICAL 10/21/11	50	0.048
(p. 319 of data pkg)	100	0.089
	500	0.416
	750	0.612
	1250	1.003

(p. 319 of data pkg)

AECOM Calculated Intercept	-9.508	OK	Reported intercept	-9.508
AECOM Slope	1249	OK	Reported Slope	1249
AECOM Calculated r	1.000	OK	Reported r	1.000

LCS calculation	**460-90228/2-A p. 324, 298**			
Background Absorbance	0			
Total absorbance	0.302			
Total absorbance - background	0.302			
Instrument Concentration (mg/L)	367/581			
Sample weight (g)	2.5			
Final Volume (L)	0.1			
Dilution Factor	1			
AECOM Calculated LCS Result (mg/Kg)	14.70	OK rounding	Reported Result (mg/Kg)	14.71

%R = Found/True*100	**pg. 298**			
True Value (mg/Kg)	14.2			
AECOM Calculated %R	104	OK rounding	Reported %R	103

MS calculation	**NTB-C1-11.0 (J31791-2) p. 324, 295**			
Background absorbance reading	0.006			
Total absorbance	0.645			
Total absorbance - background	0.639			
Instrument Concentration (mg/L)	788.372			
Sample weight (g)	2.5			
Final Volume (L)	0.1			
Percent solids	0.814			
Dilution Factor	1			
AECOM Calculated MS Result (mg/Kg)	38.74	OK rounding	Reported Result (mg/Kg)	38.75

%R = Found/True*100	**NTB-C1-11.0 (J31791-2) p. 324, 295**			
True Value (mg/Kg)	49.1			
Native concentration (mg/Kg)	0			
AECOM%R	79	OK	Reported %R	79

Percent Solids	**NTB-C1-11.0 (J31791-2) p. 327**			
Empty dish weight (g)	1.01			
Wet weight (g)	6.55			
Dry weight (g)	5.52			
AECOM%solids =	81.4	OK	reported %solids=	81.4

Reporting Limit	NTB-C1-11.0 (J31791-2) p. 324, 16			
Low Standard (mg/L)	50			
Initial weight (g)	2.5			
Final volume (L)	0.1			
Percent solids	0.814			
Dilution Factor	1			
Reporting Limit (mg/Kg)	2.5	OK	Reported RL (mg/Kg)=	2.5

Sample Calculations

	NTB-C1-11.0 (J31791-2) p. 324, 16			
Background absorbance reading	0.004			
Total absorbance	0.009			
Total absorbance - background	0.005			
Instrument Response (mg/L)	-3.265			
Sample weight (g)	2.5			
Final Volume (L)	0.1			
Percent solids	0.814			
Dilution Factor	1			
AECOM Calculated Result (mg/Kg)	-0.16	OK < 2.5	Reported Result (mg/Kg)	2.5U

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 460-31791-1

Job Description: PPG Northern Transects

For:
AECOM, Inc.
250 Apollo Drive
Chelmsford, MA 01824

Attention: Ms. Lisa Krowitz

Approved for release.
Patricia Grieco
Project Manager II
10/21/2011 6:42 PM

Patricia Grieco
Project Manager II
patricia.grieco@testamericainc.com
10/21/2011
Revision: 1

cc: Ms. Erin Farrell
NJ NJLABDATA

TestAmerica Edison Certifications and Approvals: Connecticut: CTDOH #PH-0200, New Jersey: NJDEP (NELAP) #12028, New York: NYDOH (NELAP) #11452, NYDOH (ELAP) #11452, Pennsylvania: PADEP (NELAP) 68-00522 and Rhode Island: RIDOH LAO00132

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Table of Contents

CASE NARRATIVE

Client: AECOM, Inc.

Project: PPG Northern Transects

Report Number: 460-31791-1

Revision #1 - Run QC Specifically on These Samples not Indicated on COC

This case narrative is in the form of an exception report, where only the anomalies related to this report, method specific performance and/or QA/QC issues are discussed. If there are no issues to report, this narrative will include a statement that documents that there are no relevant data issues.

It should be noted that samples with elevated Reporting Limits (RLs) as a result of a dilution may not be able to satisfy customer reporting limits in some cases. Such increases in the RLs are unavoidable but acceptable consequence of sample dilution that enables quantification of target analytes or interferences which exceed the calibration range of the instrument.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 09/28/2011; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 3.6 C.

Note: All samples which require thermal preservation are considered acceptable if the arrival temperature is within 2C of the required temperature or method specified range. For samples with a specified temperature of 4C, samples with a temperature ranging from just above freezing temperature of water to 6C shall be acceptable. Samples that are hand delivered immediately following collection may not meet these criteria, however they will be deemed acceptable according to NELAC standards, if there is evidence that the chilling process has begun, such as arrival on ice, etc.

REDUCTION-OXIDATION (REDOX) POTENTIAL

Samples 460-31791-1 through 460-31791-3 were analyzed for Reduction-Oxidation (REDOX) Potential in accordance with SM 2580B Oxidation Reduction Potential. The samples were leached on 10/06/2011 and analyzed on 10/06/2011.

No difficulties were encountered during the redox analyses.

All quality control parameters were within the acceptance limits.

TOTAL METALS

Samples 460-31791-1 through 460-31791-3 were analyzed for total metals in accordance with EPA SW-846 Method 6020. The samples were prepared on 10/05/2011 and analyzed on 10/06/2011 and 10/07/2011.

Antimony and Copper failed the recovery criteria low for the MS of sample 460-31791-3 in batch 460-88109. Several analytes failed the recovery criteria high.

Refer to the QC report for details.

Barium, Calcium, Lead and Nickel exceeded the rpd limit for the duplicate of sample 460-31791-3. Refer to the QC report for details.

Sample 460-31791-1(100X) required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No other difficulties were encountered during the metals analyses.

All other quality control parameters were within the acceptance limits.

HEXAVALENT CHROMIUM

Samples 460-31791-1 through 460-31791-3 were analyzed for hexavalent chromium in accordance with EPA SW-846 Method 3060A/7196A. The samples were prepared and analyzed on 10/07/2011.

No difficulties were encountered during the hexchrome Cr6 analyses.

All quality control parameters were within the acceptance limits.

TOTAL MERCURY

Samples 460-31791-1 through 460-31791-3 were analyzed for total mercury in accordance with EPA SW-846 Method 7471A. The samples were prepared and analyzed on 10/03/2011.

Mercury failed the recovery criteria high for the MS of sample 460-31882-16 in batch 460-88109. The presence of the '4' qualifier in the report indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount.

Refer to the QC report for details.

No other difficulties were encountered during the mercury analyses.

All other quality control parameters were within the acceptance limits.

CORROSIVITY (PH)

Samples 460-31791-1 through 460-31791-3 were analyzed for corrosivity (pH) in accordance with EPA SW-846 Method 9045C. The samples were analyzed on 10/06/2011.

This analysis is normally performed in the field and has a method-defined holding time of 15 minutes. The following samples have been qualified with the "HF" flag to indicate analysis was performed in the laboratory outside the 15 minute timeframe: NTB-B2-2.0 (460-31791-3), NTB-C1-11.0 (460-31791-2), NTB-C2-12.0 (460-31791-1)

No difficulties were encountered during the corrosivity (pH) analyses.

All quality control parameters were within the acceptance limits.

PERCENT SOLIDS

Samples 460-31791-1 through 460-31791-3 were analyzed for percent solids in accordance with ASTM D2974-87 Modified. The samples were analyzed on 10/04/2011.

No difficulties were encountered during the % solids analyses.

All quality control parameters were within the acceptance limits.

SAMPLE SUMMARY

Client: AECOM, Inc. Job Number: 460-31791-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
460-31791-1	NTB-C2-12.0	Solid	09/28/2011 1200	09/28/2011 1740
460-31791-2	NTB-C1-11.0	Solid	09/28/2011 1240	09/28/2011 1740
460-31791-3	NTB-B2-2.0	Solid	09/28/2011 1440	09/28/2011 1740

EXECUTIVE SUMMARY - Detections

Client: AECOM, Inc. Job Number: 460-31791-1

Lab Sample ID / Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
460-31791-1	**NTB-C2-12.0**					
Arsenic		1.0		0.77	mg/Kg	6020
Barium		12.4		1.5	mg/Kg	6020
Chromium		2.1		1.5	mg/Kg	6020
Copper		8.0		1.5	mg/Kg	6020
Manganese		442		3.1	mg/Kg	6020
Lead		1.9		0.46	mg/Kg	6020
Zinc		35.4		6.2	mg/Kg	6020
Aluminum		963		15.4	mg/Kg	6020
Sodium		2560		77.2	mg/Kg	6020
Magnesium		10100		77.2	mg/Kg	6020
Calcium		318000		386	mg/Kg	6020
Iron		782		46.3	mg/Kg	6020
pH		9.48	HF		SU	9045C
Percent Moisture		35.9		1.0	%	Moisture
Percent Solids		64.1		1.0	%	Moisture
Soluble						
Oxidation Reduction Potential-Soluble		390			millivolts	SM 2580B

EXECUTIVE SUMMARY - Detections

Client: AECOM, Inc. Job Number: 460-31791-1

Lab Sample ID / Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
460-31791-2	**NTB-C1-11.0**					
Arsenic		8.2		0.56	mg/Kg	6020
Barium		51.8		1.1	mg/Kg	6020
Beryllium		0.61		0.23	mg/Kg	6020
Cobalt		6.9		1.1	mg/Kg	6020
Chromium		17.7		1.1	mg/Kg	6020
Copper		20.3		1.1	mg/Kg	6020
Manganese		259		2.3	mg/Kg	6020
Nickel		10.5		1.1	mg/Kg	6020
Lead		53.3		0.34	mg/Kg	6020
Selenium		1.1		0.56	mg/Kg	6020
Vanadium		30.8		1.1	mg/Kg	6020
Zinc		85.4		4.5	mg/Kg	6020
Aluminum		8580		11.3	mg/Kg	6020
Sodium		147		56.3	mg/Kg	6020
Magnesium		4350		56.3	mg/Kg	6020
Potassium		1660		56.3	mg/Kg	6020
Calcium		1770		56.3	mg/Kg	6020
Iron		13300		33.8	mg/Kg	6020
Thallium		0.21	J	0.23	mg/Kg	6020
Mercury		0.042		0.041	mg/Kg	7471A
pH		7.93	HF		SU	9045C
Percent Moisture		18.6		1.0	%	Moisture
Percent Solids		81.4		1.0	%	Moisture
Soluble						
Oxidation Reduction Potential-Soluble		430			millivolts	SM 2580B

EXECUTIVE SUMMARY - Detections

Client: AECOM, Inc. Job Number: 460-31791-1

Lab Sample ID / Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
460-31791-3	**NTB-B2-2.0**					
Arsenic		12.0		0.56	mg/Kg	6020
Barium		181		1.1	mg/Kg	6020
Beryllium		0.29		0.23	mg/Kg	6020
Cadmium		0.45	J	0.56	mg/Kg	6020
Cobalt		4.2		1.1	mg/Kg	6020
Chromium		56.9		1.1	mg/Kg	6020
Copper		136		1.1	mg/Kg	6020
Manganese		181		2.3	mg/Kg	6020
Nickel		14.9		1.1	mg/Kg	6020
Lead		1330		0.34	mg/Kg	6020
Antimony		1.3		0.56	mg/Kg	6020
Selenium		1.5		0.56	mg/Kg	6020
Vanadium		59.7		1.1	mg/Kg	6020
Zinc		200		4.5	mg/Kg	6020
Aluminum		4610		11.3	mg/Kg	6020
Sodium		66.9		56.4	mg/Kg	6020
Magnesium		1450		56.4	mg/Kg	6020
Potassium		476		56.4	mg/Kg	6020
Calcium		1660		56.4	mg/Kg	6020
Iron		11600		33.8	mg/Kg	6020
Thallium		0.18	J	0.23	mg/Kg	6020
Mercury		0.53		0.037	mg/Kg	7471A
pH		7.46	HF		SU	9045C
Percent Moisture		13.1		1.0	%	Moisture
Percent Solids		86.9		1.0	%	Moisture
Soluble						
Oxidation Reduction Potential-Soluble		444			millivolts	SM 2580B

METHOD SUMMARY

Client: AECOM, Inc. Job Number: 460-31791-1

Description	Lab Location	Method	Preparation Method
Matrix: Solid			
Metals (ICP/MS)	TAL EDI	SW846 6020	
Preparation, Metals	TAL EDI		SW846 3050B
Mercury (CVAA)	TAL EDI	SW846 7471A	
Preparation, Mercury	TAL EDI		SW846 7471A
Chromium, Hexavalent	TAL EDI	SW846 7196A	
Alkaline Digestion (Chromium, Hexavalent)	TAL EDI		SW846 3060A
pH	TAL EDI	SW846 9045C	
Percent Moisture	TAL EDI	EPA Moisture	
Reduction-Oxidation (REDOX) Potential	TAL EDI	SM SM 2580B	
Deionized Water Leaching Procedure	TAL EDI		ASTM DI Leach

Lab References:

TAL EDI = TestAmerica Edison

Method References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

METHOD / ANALYST SUMMARY

Client: AECOM, Inc. Job Number: 460-31791-1

Method	Analyst	Analyst ID
SW846 6020	Polidori, Michael	MPP
SW846 7471A	Staib, Thomas	TS
SW846 7196A	Carlone, John	JC
SW846 9045C	Cabanganan, Maria	MB
EPA Moisture	Armbruster, Chris	CHA
SM SM 2580B	Cabanganan, Maria	MB

Client: AECOM, Inc. Job Number: 460-31791-1

Client Sample ID: **NTB-C2-12.0**

Lab Sample ID: 460-31791-1 Date Sampled: 09/28/2011 1200
Client Matrix: Solid % Moisture: 35.9 Date Received: 09/28/2011 1740

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	460-88662	Instrument ID:	ICPMS2
Prep Method:	3050B	Prep Batch:	460-88293	Lab File ID:	039SMPL.D
Dilution:	20			Initial Weight/Volume:	1.01 g
Analysis Date:	10/06/2011 2149			Final Weight/Volume:	50 mL
Prep Date:	10/05/2011 0822				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Silver		1.5	U	1.2	1.5
Arsenic		1.0		0.68	0.77
Barium		12.4		1.0	1.5
Beryllium		0.31	U	0.22	0.31
Cadmium		0.77	U	0.62	0.77
Cobalt		1.5	U	1.3	1.5
Chromium		2.1		1.2	1.5
Copper		8.0		1.2	1.5
Manganese		442		2.5	3.1
Nickel		1.5	U	1.2	1.5
Lead		1.9		0.34	0.46
Antimony		0.77	U	0.56	0.77
Selenium		0.77	U	0.56	0.77
Vanadium		1.5	U	1.2	1.5
Zinc		35.4		4.9	6.2
Aluminum		963		12.9	15.4
Sodium		2560		58.7	77.2
Magnesium		10100		60.2	77.2
Potassium		77.2	U	58.6	77.2
Iron		782		38.9	46.3
Thallium		0.31	U	0.25	0.31

Analysis Method:	6020	Analysis Batch:	460-88792	Instrument ID:	ICPMS2
Prep Method:	3050B	Prep Batch:	460-88293	Lab File ID:	034SMPL.D
Dilution:	100			Initial Weight/Volume:	1.01 g
Analysis Date:	10/07/2011 2150			Final Weight/Volume:	50 mL
Prep Date:	10/05/2011 0822				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Calcium		318000		312	386

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	460-88109	Instrument ID:	LEEMAN3
Prep Method:	7471A	Prep Batch:	460-88100	Lab File ID:	100311.PRN
Dilution:	1.0			Initial Weight/Volume:	0.62 g
Analysis Date:	10/03/2011 2127			Final Weight/Volume:	100 mL
Prep Date:	10/03/2011 1800				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.050	U	0.033	0.050

Client: AECOM, Inc. Job Number: 460-31791-1

Client Sample ID: **NTB-C1-11.0**

Lab Sample ID: 460-31791-2 Date Sampled: 09/28/2011 1240
Client Matrix: Solid % Moisture: 18.6 Date Received: 09/28/2011 1740

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	460-88662	Instrument ID:	ICPMS2
Prep Method:	3050B	Prep Batch:	460-88293	Lab File ID:	040SMPL.D
Dilution:	20			Initial Weight/Volume:	1.09 g
Analysis Date:	10/06/2011 2153			Final Weight/Volume:	50 mL
Prep Date:	10/05/2011 0822				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Silver		1.1	U	0.90	1.1
Arsenic		8.2		0.50	0.56
Barium		51.8		0.74	1.1
Beryllium		0.61		0.16	0.23
Cadmium		0.56	U	0.45	0.56
Cobalt		6.9		0.92	1.1
Chromium		17.7		0.88	1.1
Copper		20.3		0.90	1.1
Manganese		259		1.8	2.3
Nickel		10.5		0.88	1.1
Lead		53.3		0.25	0.34
Antimony		0.56	U	0.41	0.56
Selenium		1.1		0.41	0.56
Vanadium		30.8		0.88	1.1
Zinc		85.4		3.6	4.5
Aluminum		8580		9.4	11.3
Sodium		147		42.9	56.3
Magnesium		4350		43.9	56.3
Potassium		1660		42.7	56.3
Calcium		1770		45.6	56.3
Iron		13300		28.4	33.8
Thallium		0.21	J	0.18	0.23

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	460-88109	Instrument ID:	LEEMAN3
Prep Method:	7471A	Prep Batch:	460-88100	Lab File ID:	100311.PRN
Dilution:	1.0			Initial Weight/Volume:	0.60 g
Analysis Date:	10/03/2011 2129			Final Weight/Volume:	100 mL
Prep Date:	10/03/2011 1800				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.042		0.027	0.041

Client: AECOM, Inc. Job Number: 460-31791-1

Client Sample ID: **NTB-B2-2.0**

Lab Sample ID: 460-31791-3 Date Sampled: 09/28/2011 1440
Client Matrix: Solid % Moisture: 13.1 Date Received: 09/28/2011 1740

6020 Metals (ICP/MS)

Analysis Method:	6020	Analysis Batch:	460-88662	Instrument ID:	ICPMS2
Prep Method:	3050B	Prep Batch:	460-88293	Lab File ID:	035SMPL.D
Dilution:	20			Initial Weight/Volume:	1.02 g
Analysis Date:	10/06/2011 2130			Final Weight/Volume:	50 mL
Prep Date:	10/05/2011 0822				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Silver		1.1	U	0.90	1.1
Arsenic		12.0		0.50	0.56
Barium		181		0.74	1.1
Beryllium		0.29		0.16	0.23
Cadmium		0.45	J	0.45	0.56
Cobalt		4.2		0.92	1.1
Chromium		56.9		0.88	1.1
Copper		136		0.90	1.1
Manganese		181		1.8	2.3
Nickel		14.9		0.88	1.1
Lead		1330		0.25	0.34
Antimony		1.3		0.41	0.56
Selenium		1.5		0.41	0.56
Vanadium		59.7		0.88	1.1
Zinc		200		3.6	4.5
Aluminum		4610		9.4	11.3
Sodium		66.9		42.9	56.4
Magnesium		1450		43.9	56.4
Potassium		476		42.8	56.4
Calcium		1660		45.6	56.4
Iron		11600		28.4	33.8
Thallium		0.18	J	0.18	0.23

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	460-88109	Instrument ID:	LEEMAN3
Prep Method:	7471A	Prep Batch:	460-88100	Lab File ID:	100311.PRN
Dilution:	1.0			Initial Weight/Volume:	0.61 g
Analysis Date:	10/03/2011 2131			Final Weight/Volume:	100 mL
Prep Date:	10/03/2011 1800				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.53		0.025	0.037

General Chemistry

Client Sample ID: **NTB-C2-12.0**

Lab Sample ID: 460-31791-1 Date Sampled: 09/28/2011 1200
Client Matrix: Solid % Moisture: 35.9 Date Received: 09/28/2011 1740

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Cr (VI)	3.2	U	mg/Kg	0.80	3.2	1.0	7196A
Analysis Batch: 460-90310	Analysis Date: 10/21/2011 1042						DryWt Corrected: Y
Prep Batch: 460-90228	Prep Date: 10/20/2011 1300						

Analyte	Result	Qual	Units	Dil	Method
pH	9.48	HF	SU	1.0	9045C
Analysis Batch: 460-88553	Analysis Date: 10/06/2011 1149				DryWt Corrected: N
Oxidation Reduction Potential-Soluble	390		millivolts	1.0	SM 2580B
Analysis Batch: 460-88558	Analysis Date: 10/06/2011 1340				DryWt Corrected: N

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	35.9		%	1.0	1.0	1.0	Moisture
Analysis Batch: 460-88198	Analysis Date: 10/04/2011 1314						DryWt Corrected: N
Percent Solids	64.1		%	1.0	1.0	1.0	Moisture
Analysis Batch: 460-88198	Analysis Date: 10/04/2011 1314						DryWt Corrected: N

General Chemistry

Client Sample ID: **NTB-C1-11.0**

Lab Sample ID: 460-31791-2 Date Sampled: 09/28/2011 1240
Client Matrix: Solid % Moisture: 18.6 Date Received: 09/28/2011 1740

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Cr (VI)	2.5	U	mg/Kg	0.61	2.5	1.0	7196A
Analysis Batch: 460-90310	Analysis Date: 10/21/2011 1042						DryWt Corrected: Y
Prep Batch: 460-90228	Prep Date: 10/20/2011 1300						

Analyte	Result	Qual	Units	Dil	Method
pH	7.93	HF	SU	1.0	9045C
Analysis Batch: 460-88553	Analysis Date: 10/06/2011 1151				DryWt Corrected: N
Oxidation Reduction Potential-Soluble	430		millivolts	1.0	SM 2580B
Analysis Batch: 460-88558	Analysis Date: 10/06/2011 1342				DryWt Corrected: N

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	18.6		%	1.0	1.0	1.0	Moisture
Analysis Batch: 460-88198	Analysis Date: 10/04/2011 1314						DryWt Corrected: N
Percent Solids	81.4		%	1.0	1.0	1.0	Moisture
Analysis Batch: 460-88198	Analysis Date: 10/04/2011 1314						DryWt Corrected: N

General Chemistry

Client Sample ID: **NTB-B2-2.0**

Lab Sample ID: 460-31791-3 Date Sampled: 09/28/2011 1440
Client Matrix: Solid % Moisture: 13.1 Date Received: 09/28/2011 1740

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Cr (VI)	2.2	U	mg/Kg	0.56	2.2	1.0	7196A
Analysis Batch: 460-90310	Analysis Date: 10/21/2011 1042						DryWt Corrected: Y
Prep Batch: 460-90228	Prep Date: 10/20/2011 1300						

Analyte	Result	Qual	Units	Dil	Method
pH	7.46	HF	SU	1.0	9045C
Analysis Batch: 460-88553	Analysis Date: 10/06/2011 1152				DryWt Corrected: N
Oxidation Reduction Potential-Soluble	444		millivolts	1.0	SM 2580B
Analysis Batch: 460-88558	Analysis Date: 10/06/2011 1345				DryWt Corrected: N

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	13.1		%	1.0	1.0	1.0	Moisture
Analysis Batch: 460-88198	Analysis Date: 10/04/2011 1314						DryWt Corrected: N
Percent Solids	86.9		%	1.0	1.0	1.0	Moisture
Analysis Batch: 460-88198	Analysis Date: 10/04/2011 1314						DryWt Corrected: N

Client: AECOM, Inc. Job Number: 460-31791-1

Method Blank - Batch: 460-88293

Method: 6020
Preparation: 3050B

Lab Sample ID:	MB 460-88293/1-A ^20	Analysis Batch:	460-88662	Instrument ID:	ICPMS2
Client Matrix:	Solid	Prep Batch:	460-88293	Lab File ID:	0326CCB.D
Dilution:	20	Leach Batch:	N/A	Initial Weight/Volume:	1.00 g
Analysis Date:	10/06/2011 2116	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	10/05/2011 0822				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Silver	1.0	U	0.80	1.0
Arsenic	0.50	U	0.44	0.50
Barium	1.0	U	0.66	1.0
Beryllium	0.20	U	0.14	0.20
Cadmium	0.50	U	0.40	0.50
Cobalt	1.0	U	0.82	1.0
Chromium	1.0	U	0.78	1.0
Copper	1.0	U	0.80	1.0
Manganese	2.0	U	1.6	2.0
Nickel	1.0	U	0.78	1.0
Lead	0.30	U	0.22	0.30
Antimony	0.50	U	0.36	0.50
Selenium	0.50	U	0.36	0.50
Vanadium	1.0	U	0.78	1.0
Zinc	4.0	U	3.2	4.0
Aluminum	10.0	U	8.4	10.0
Sodium	50.0	U	38.0	50.0
Magnesium	50.0	U	39.0	50.0
Potassium	50.0	U	37.9	50.0
Calcium	50.0	U	40.4	50.0
Iron	30.0	U	25.2	30.0
Thallium	0.20	U	0.16	0.20

Client: AECOM, Inc. Job Number: 460-31791-1

LCS-Certified Reference Material - Batch: 460-88293

Method: 6020
Preparation: 3050B

Lab Sample ID:	LCSSRM 460-88293/2-A	Analysis Batch:	460-88662	Instrument ID:	ICPMS2
Client Matrix:	Solid	Prep Batch:	460-88293	Lab File ID:	033SMPL.D
Dilution:	100	Leach Batch:	N/A	Initial Weight/Volume:	1.00 g
Analysis Date:	10/06/2011 2121	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	10/05/2011 0822				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Silver	30.1	32.78	109	64.5 - 135	
Arsenic	104	108.5	104	70.3 - 130	
Barium	198	201.7	102	72.1 - 128	
Beryllium	77.6	76.61	99	75.4 - 125	
Cadmium	60.7	62.24	103	72.9 - 125	
Cobalt	91.2	98.23	108	72.1 - 128	
Chromium	236	237.4	101	74.9 - 125	
Copper	174	179.2	103	74.8 - 125	
Manganese	558	596.6	107	78.8 - 121	
Nickel	134	141.5	106	70.6 - 129	
Lead	86.0	90.48	105	72.0 - 128	
Antimony	67.4	191.3	284	0 - 311	
Selenium	286	295.2	103	65.1 - 135	
Vanadium	115	117.0	102	71.1 - 128	
Zinc	594	614.5	103	71.4 - 129	
Aluminum	10500	8154	78	39.2 - 162	
Sodium	1020	947.0	93	68.7 - 132	
Magnesium	4000	4026	101	74 - 126	
Potassium	4300	4632	108	71.9 - 128	
Calcium	9870	10210	103	75.0 - 125	
Iron	18000	18020	100	55.7 - 144	
Thallium	121	130.8	108	71.7 - 129	

Matrix Spike - Batch: 460-88293

Method: 6020
Preparation: 3050B

Lab Sample ID:	460-31791-3	Analysis Batch:	460-88662	Instrument ID:	ICPMS2
Client Matrix:	Solid	Prep Batch:	460-88293	Lab File ID:	037SMPL.D
Dilution:	20	Leach Batch:	N/A	Initial Weight/Volume:	1.03 g
Analysis Date:	10/06/2011 2140	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	10/05/2011 0822				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Silver	1.1	U	5.58	6.12	110	75 - 125	
Arsenic	12.0		11.2	24.21	110	75 - 125	
Barium	181		11.2	355.3	1558	75 - 125	4
Beryllium	0.29		5.58	6.29	107	75 - 125	
Cadmium	0.45	J	5.58	6.15	102	75 - 125	
Cobalt	4.2		5.58	10.19	107	75 - 125	
Chromium	56.9		11.2	70.21	120	75 - 125	4
Copper	136		11.2	131.2	-39	75 - 125	4
Manganese	181		55.8	260.9	143	75 - 125	F
Nickel	14.9		11.2	27.56	113	75 - 125	
Lead	1330		5.58	1739	7391	75 - 125	4
Antimony	1.3		5.58	3.82	45	75 - 125	F
Selenium	1.5		11.2	12.08	94	75 - 125	
Vanadium	59.7		11.2	76.11	147	75 - 125	4
Zinc	200		55.8	308.8	196	75 - 125	F
Aluminum	4610		558	5703	196	75 - 125	4
Sodium	66.9		558	675.6	109	75 - 125	
Magnesium	1450		558	2156	127	75 - 125	F
Potassium	476		558	1124	116	75 - 125	
Calcium	1660		558	2478	147	75 - 125	F
Iron	11600		558	12960	235	75 - 125	4
Thallium	0.18	J	4.47	4.31	92	75 - 125	

Post Digestion Spike - Batch: 460-88293

Method: 6020
Preparation: 3050B

Lab Sample ID:	460-31791-3	Analysis Batch:	460-88662	Instrument ID:	ICPMS2
Client Matrix:	Solid	Prep Batch:	460-88293	Lab File ID:	038SMPL.D
Dilution:	20	Leach Batch:	N/A	Initial Weight/Volume:	1.02 g
Analysis Date:	10/06/2011 2144	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	10/05/2011 0822				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Silver	1.1	U	5.64	6.09	108	75 - 125	
Arsenic	12.0		11.3	22.60	94	75 - 125	
Barium	181		11.3	193.1	NC	75 - 125	
Beryllium	0.29		5.64	5.87	99	75 - 125	
Cadmium	0.45	J	5.64	6.16	101	75 - 125	

Client: AECOM, Inc.

Job Number: 460-31791-1

Post Digestion Spike - Batch: 460-88293

Method: 6020
Preparation: 3050B

Lab Sample ID:	460-31791-3	Analysis Batch:	460-88662	Instrument ID:	ICPMS2
Client Matrix:	Solid	Prep Batch:	460-88293	Lab File ID:	038SMPL.D
Dilution:	20	Leach Batch:	N/A	Initial Weight/Volume:	1.02 g
Analysis Date:	10/06/2011 2144	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	10/05/2011 0822				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Spike Amount	Result	% Rec.	Limit	Qual
Cobalt	4.2	5.64	9.79	99	75 - 125	
Chromium	56.9	11.3	67.87	98	75 - 125	
Copper	136	11.3	146.8	NC	75 - 125	
Manganese	181	56.4	236.0	97	75 - 125	
Nickel	14.9	11.3	26.23	100	75 - 125	
Lead	1330	5.64	1335	NC	75 - 125	
Antimony	1.3	5.64	6.69	96	75 - 125	
Selenium	1.5	11.3	11.94	92	75 - 125	
Vanadium	59.7	11.3	70.97	100	75 - 125	
Zinc	200	56.4	254.3	97	75 - 125	
Aluminum	4610	564	5181	102	75 - 125	
Sodium	66.9	564	665.2	106	75 - 125	
Magnesium	1450	564	1989	96	75 - 125	
Potassium	476	564	1097	110	75 - 125	
Calcium	1660	564	2270	109	75 - 125	
Iron	11600	564	12220	NC	75 - 125	
Thallium	0.18 J	4.51	4.43	94	75 - 125	

Client: AECOM, Inc. Job Number: 460-31791-1

Duplicate - Batch: 460-88293

Method: 6020
Preparation: 3050B

Lab Sample ID:	460-31791-3	Analysis Batch:	460-88662	Instrument ID:	ICPMS2
Client Matrix:	Solid	Prep Batch:	460-88293	Lab File ID:	034SMPL.D
Dilution:	20	Leach Batch:	N/A	Initial Weight/Volume:	1.03 g
Analysis Date:	10/06/2011 2126	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	10/05/2011 0822				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Silver	1.1	U	1.1	NC	20	U
Arsenic	12.0		12.28	3	20	
Barium	181		265.8	38	20	F
Beryllium	0.29		0.351	17	20	
Cadmium	0.45	J	0.601	28	20	
Cobalt	4.2		3.95	6	20	
Chromium	56.9		58.55	3	20	
Copper	136		146.2	8	20	
Manganese	181		152.3	17	20	
Nickel	14.9		18.49	22	20	F
Lead	1330		1636	21	20	F
Antimony	1.3		1.34	3	20	
Selenium	1.5		1.83	18	20	
Vanadium	59.7		60.63	2	20	
Zinc	200		214.7	7	20	
Aluminum	4610		4563	1	20	
Sodium	66.9		73.49	9	20	
Magnesium	1450		1307	10	20	
Potassium	476		484.5	2	20	
Calcium	1660		2085	23	20	F
Iron	11600		11710	0.6	20	
Thallium	0.18	J	0.302	49	20	

Serial Dilution - Batch: 460-88293

Method: 6020
Preparation: 3050B

Lab Sample ID:	460-31791-3	Analysis Batch:	460-88662	Instrument ID:	ICPMS2
Client Matrix:	Solid	Prep Batch:	460-88293	Lab File ID:	036SMPL.D
Dilution:	100	Leach Batch:	N/A	Initial Weight/Volume:	1.02 g
Analysis Date:	10/06/2011 2135	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	10/05/2011 0822				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Result	%Diff	Limit	Qual
Silver	1.1	U	5.6	NC	10	U
Arsenic	12.0		11.28	NC	10	
Barium	181		183.7	1.3	10	
Beryllium	0.29		1.1	NC	10	U
Cadmium	0.45	J	2.8	NC	10	U
Cobalt	4.2		5.6	NC	10	U
Chromium	56.9		56.21	1.1	10	

Client: AECOM, Inc. Job Number: 460-31791-1

Serial Dilution - Batch: 460-88293

Method: 6020
Preparation: 3050B

Lab Sample ID:	460-31791-3	Analysis Batch:	460-88662	Instrument ID:	ICPMS2
Client Matrix:	Solid	Prep Batch:	460-88293	Lab File ID:	036SMPL.D
Dilution:	100	Leach Batch:	N/A	Initial Weight/Volume:	1.02 g
Analysis Date:	10/06/2011 2135	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	10/05/2011 0822				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Result	%Diff	Limit	Qual
Copper	136		136.5	0.65	10	
Manganese	181		181.3	0.08	10	
Nickel	14.9		13.76	NC	10	
Lead	1330		1389	4.7	10	
Antimony	1.3		2.8	NC	10	U
Selenium	1.5		2.8	NC	10	U
Vanadium	59.7		60.08	0.63	10	
Zinc	200		209.7	5.1	10	
Aluminum	4610		4668	1.3	10	
Sodium	66.9		282	NC	10	U
Magnesium	1450		1456	NC	10	
Potassium	476		385.5	NC	10	
Calcium	1660		1577	NC	10	
Iron	11600		11720	0.65	10	
Thallium	0.18	J	1.1	NC	10	U

Method Blank - Batch: 460-88100

Method: 7471A
Preparation: 7471A

Lab Sample ID:	MB 460-88100/10-A	Analysis Batch:	460-88109	Instrument ID:	LEEMAN3
Client Matrix:	Solid	Prep Batch:	460-88100	Lab File ID:	100311.PRN
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	0.60 g
Analysis Date:	10/03/2011 2117	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	10/03/2011 1800				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Mercury	0.033	U	0.022	0.033

LCS-Certified Reference Material - Batch: 460-88100

Method: 7471A
Preparation: 7471A

Lab Sample ID:	LCSSRM	Analysis Batch:	460-88109	Instrument ID:	LEEMAN3
Client Matrix:	Solid	Prep Batch:	460-88100	Lab File ID:	100311.PRN
Dilution:	10	Leach Batch:	N/A	Initial Weight/Volume:	0.60 g
Analysis Date:	10/03/2011 2119	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	10/03/2011 1800				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Mercury	8.46	8.58	101	51.3 - 149	

Matrix Spike - Batch: 460-88100

Method: 7471A
Preparation: 7471A

Lab Sample ID:	460-31882-F-16-C MS	Analysis Batch:	460-88109	Instrument ID:	LEEMAN3
Client Matrix:	Solid	Prep Batch:	460-88100	Lab File ID:	100311.PRN
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	0.60 g
Analysis Date:	10/03/2011 2125	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	10/03/2011 1800				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Spike Amount	Result	% Rec.	Limit	Qual
Mercury	0.040	0.181	0.353	173	75 - 125	F

Client: AECOM, Inc. Job Number: 460-31791-1

Duplicate - Batch: 460-88100

Method: 7471A
Preparation: 7471A

Lab Sample ID:	460-31882-F-16-B DU	Analysis Batch:	460-88109	Instrument ID:	LEEMAN3
Client Matrix:	Solid	Prep Batch:	460-88100	Lab File ID:	100311.PRN
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	0.60 g
Analysis Date:	10/03/2011 2123	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	10/03/2011 1800				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Mercury	0.040	0.0618	42	20	

Serial Dilution - Batch: 460-88100

Method: 7471A
Preparation: 7471A

Lab Sample ID:	460-31882-F-16-A SD	Analysis Batch:	460-88109	Instrument ID:	LEEMAN3
Client Matrix:	Solid	Prep Batch:	460-88100	Lab File ID:	100311.PRN
Dilution:	5.0	Leach Batch:	N/A	Initial Weight/Volume:	0.60 g
Analysis Date:	10/03/2011 2210	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	10/03/2011 1800				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	%Diff	Limit	Qual
Mercury	0.040	0.18	NC		U

Client: AECOM, Inc. Job Number: 460-31791-1

Method Blank - Batch: 460-90228

Method: 7196A
Preparation: 3060A

Lab Sample ID:	MB 460-90228/1-A	Analysis Batch:	460-90310	Instrument ID:	WetHexSpec
Client Matrix:	Solid	Prep Batch:	460-90228	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	2.50 g
Analysis Date:	10/21/2011 1042	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	10/20/2011 1300				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Cr (VI)	2.0	U	0.50	2.0

Lab Control Sample Insoluble - Batch: 460-90228

Method: 7196A
Preparation: 3060A

Lab Sample ID:	LCSI 460-90228/3-A	Analysis Batch:	460-90310	Instrument ID:	WetHexSpec
Client Matrix:	Solid	Prep Batch:	460-90228	Lab File ID:	N/A
Dilution:	50	Leach Batch:	N/A	Initial Weight/Volume:	2.50 g
Analysis Date:	10/21/2011 1042	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	10/20/2011 1300				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Cr (VI)	708	702.9	99	80 - 120	

Lab Control Sample Soluble - Batch: 460-90228

Method: 7196A
Preparation: 3060A

Lab Sample ID:	LCSS 460-90228/2-A	Analysis Batch:	460-90310	Instrument ID:	WetHexSpec
Client Matrix:	Solid	Prep Batch:	460-90228	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	2.50 g
Analysis Date:	10/21/2011 1042	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	10/20/2011 1300				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Cr (VI)	14.2	14.71	103	85 - 115	

Client: AECOM, Inc. Job Number: 460-31791-1

Matrix Spike Insoluble - Batch: 460-90228

Method: 7196A
Preparation: 3060A

Lab Sample ID:	460-31791-2	Analysis Batch:	460-90310	Instrument ID:	WetHexSpec
Client Matrix:	Solid	Prep Batch:	460-90228	Lab File ID:	N/A
Dilution:	50	Leach Batch:	N/A	Initial Weight/Volume:	2.50 g
Analysis Date:	10/21/2011 1042	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	10/20/2011 1300				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Cr (VI)	2.5	U	870	774.5	89	75 - 125	

Matrix Spike Soluble - Batch: 460-90228

Method: 7196A
Preparation: 3060A

Lab Sample ID:	460-31791-2	Analysis Batch:	460-90310	Instrument ID:	WetHexSpec
Client Matrix:	Solid	Prep Batch:	460-90228	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	2.50 g
Analysis Date:	10/21/2011 1042	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	10/20/2011 1300				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Cr (VI)	2.5	U	49.1	38.75	79	75 - 125	

Post Digestion Spike - Batch: 460-90228

Method: 7196A
Preparation: 3060A

Lab Sample ID:	460-31791-2	Analysis Batch:	460-90310	Instrument ID:	WetHexSpec
Client Matrix:	Solid	Prep Batch:	460-90228	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	2.50 g
Analysis Date:	10/21/2011 1042	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	10/20/2011 1300				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Cr (VI)	2.5	U	49.1	55.01	112	85 - 115	

Client: AECOM, Inc.

Job Number: 460-31791-1

Duplicate - Batch: 460-90228

Method: 7196A
Preparation: 3060A

Lab Sample ID:	460-31791-2	Analysis Batch:	460-90310	Instrument ID:	WetHexSpec
Client Matrix:	Solid	Prep Batch:	460-90228	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	2.50 g
Analysis Date:	10/21/2011 1042	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	10/20/2011 1300				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Cr (VI)	2.5	U	2.5	NC	20	U

Client: AECOM, Inc. Job Number: 460-31791-1

Method Blank - Batch: 460-88553

Method: 9045C
Preparation: N/A

Lab Sample ID:	MB 460-88553/2	Analysis Batch:	460-88553	Instrument ID:	No Equipment
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	20 mL
Analysis Date:	10/06/2011 1129	Units:	SU	Final Weight/Volume:	20 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Result	Qual	NONE	NONE
pH	5.720			

Lab Control Sample - Batch: 460-88553

Method: 9045C
Preparation: N/A

Lab Sample ID:	LCS 460-88553/3	Analysis Batch:	460-88553	Instrument ID:	No Equipment
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	20 mL
Analysis Date:	10/06/2011 1130	Units:	SU	Final Weight/Volume:	20 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
pH	5.50	5.490	100	95 - 105	

Duplicate - Batch: 460-88553

Method: 9045C
Preparation: N/A

Lab Sample ID:	460-31882-J-16 DU	Analysis Batch:	460-88553	Instrument ID:	No Equipment
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	20 g
Analysis Date:	10/06/2011 1132	Units:	SU	Final Weight/Volume:	20 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
pH	8.51	8.450	0.7	10	

Client: AECOM, Inc. Job Number: 460-31791-1

Duplicate - Batch: 460-88198

Method: Moisture
Preparation: N/A

Lab Sample ID:	460-31864-A-3 DU	Analysis Batch:	460-88198	Instrument ID:	No Equipment
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	10/04/2011 1314	Units:	%	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Percent Moisture	28.5	24.1	17	20	
Percent Solids	71.5	75.9	6	20	

Client: AECOM, Inc.

Job Number: 460-31791-1

Duplicate - Batch: 460-88558

Method: SM 2580B
Preparation: N/A

Lab Sample ID:	460-31882-J-16-B DU	Analysis Batch:	460-88558	Instrument ID:	No Equipment
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	460-88556	Initial Weight/Volume:	
Analysis Date:	10/06/2011 1307	Units:	millivolts	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	10/06/2011 1100				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Oxidation Reduction Potential-Soluble	470	468.0	0.4	10	

DATA REPORTING QUALIFIERS

Client: AECOM, Inc. Job Number: 460-31791-1

Lab Section	Qualifier	Description
Metals		
	U	Indicates the analyte was analyzed for but not detected.
	4	MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable.
	F	MS/MSD Recovery or RPD exceeds the control limits
	J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
General Chemistry		
	HF	Field parameter with a holding time of 15 minutes
	U	Indicates the analyte was analyzed for but not detected.

Client: AECOM, Inc. Job Number: 460-31791-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
Metals					
Prep Batch: 460-88100					
LCSSRM 460-88100/11-A ^10	LCS-Certified Reference Material	T	Solid	7471A	
MB 460-88100/10-A	Method Blank	T	Solid	7471A	
460-31791-1	NTB-C2-12.0	T	Solid	7471A	
460-31791-2	NTB-C1-11.0	T	Solid	7471A	
460-31791-3	NTB-B2-2.0	T	Solid	7471A	
460-31882-F-16-B DU	Duplicate	T	Solid	7471A	
460-31882-F-16-C MS	Matrix Spike	T	Solid	7471A	
Analysis Batch:460-88109					
LCSSRM 460-88100/11-A ^10	LCS-Certified Reference Material	T	Solid	7471A	460-88100
MB 460-88100/10-A	Method Blank	T	Solid	7471A	460-88100
460-31791-1	NTB-C2-12.0	T	Solid	7471A	460-88100
460-31791-2	NTB-C1-11.0	T	Solid	7471A	460-88100
460-31791-3	NTB-B2-2.0	T	Solid	7471A	460-88100
460-31882-F-16-B DU	Duplicate	T	Solid	7471A	460-88100
460-31882-F-16-C MS	Matrix Spike	T	Solid	7471A	460-88100
Prep Batch: 460-88293					
LCSSRM 460-88293/2-A ^100	LCS-Certified Reference Material	T	Solid	3050B	
MB 460-88293/1-A ^20	Method Blank	T	Solid	3050B	
460-31791-1	NTB-C2-12.0	T	Solid	3050B	
460-31791-2	NTB-C1-11.0	T	Solid	3050B	
460-31791-3	NTB-B2-2.0	T	Solid	3050B	
460-31791-3DU	Duplicate	T	Solid	3050B	
460-31791-3MS	Matrix Spike	T	Solid	3050B	
Analysis Batch:460-88662					
LCSSRM 460-88293/2-A ^100	LCS-Certified Reference Material	T	Solid	6020	460-88293
MB 460-88293/1-A ^20	Method Blank	T	Solid	6020	460-88293
460-31791-1	NTB-C2-12.0	T	Solid	6020	460-88293
460-31791-2	NTB-C1-11.0	T	Solid	6020	460-88293
460-31791-3	NTB-B2-2.0	T	Solid	6020	460-88293
460-31791-3DU	Duplicate	T	Solid	6020	460-88293
460-31791-3MS	Matrix Spike	T	Solid	6020	460-88293
Analysis Batch:460-88792					
460-31791-1	NTB-C2-12.0	T	Solid	6020	460-88293

Report Basis
T = Total

Client: AECOM, Inc. Job Number: 460-31791-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
General Chemistry					
Analysis Batch:460-88198					
460-31791-1	NTB-C2-12.0	T	Solid	Moisture	
460-31791-2	NTB-C1-11.0	T	Solid	Moisture	
460-31791-3	NTB-B2-2.0	T	Solid	Moisture	
460-31864-A-3 DU	Duplicate	T	Solid	Moisture	
Analysis Batch:460-88553					
LCS 460-88553/3	Lab Control Sample	T	Solid	9045C	
MB 460-88553/2	Method Blank	T	Solid	9045C	
460-31791-1	NTB-C2-12.0	T	Solid	9045C	
460-31791-2	NTB-C1-11.0	T	Solid	9045C	
460-31791-3	NTB-B2-2.0	T	Solid	9045C	
460-31882-J-16 DU	Duplicate	T	Solid	9045C	
Prep Batch: 460-88556					
460-31791-1	NTB-C2-12.0	S	Solid	DI Leach	
460-31791-2	NTB-C1-11.0	S	Solid	DI Leach	
460-31791-3	NTB-B2-2.0	S	Solid	DI Leach	
460-31882-J-16-B DU	Duplicate	S	Solid	DI Leach	
Analysis Batch:460-88558					
460-31791-1	NTB-C2-12.0	S	Solid	SM 2580B	
460-31791-2	NTB-C1-11.0	S	Solid	SM 2580B	
460-31791-3	NTB-B2-2.0	S	Solid	SM 2580B	
460-31882-J-16-B DU	Duplicate	S	Solid	SM 2580B	
Prep Batch: 460-90228					
LCSI 460-90228/3-A	Lab Control Sample Insoluble	T	Solid	3060A	
LCSS 460-90228/2-A	Lab Control Sample Soluble	T	Solid	3060A	
MB 460-90228/1-A	Method Blank	T	Solid	3060A	
460-31791-1	NTB-C2-12.0	T	Solid	3060A	
460-31791-2	NTB-C1-11.0	T	Solid	3060A	
460-31791-2DU	Duplicate	T	Solid	3060A	
460-31791-2MSI	Matrix Spike Insoluble	T	Solid	3060A	
460-31791-2MSS	Matrix Spike Soluble	T	Solid	3060A	
460-31791-3	NTB-B2-2.0	T	Solid	3060A	

Client: AECOM, Inc. Job Number: 460-31791-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
General Chemistry					
Analysis Batch:460-90310					
LCSI 460-90228/3-A	Lab Control Sample Insoluble	T	Solid	7196A	460-90228
LCSS 460-90228/2-A	Lab Control Sample Soluble	T	Solid	7196A	460-90228
MB 460-90228/1-A	Method Blank	T	Solid	7196A	460-90228
460-31791-1	NTB-C2-12.0	T	Solid	7196A	460-90228
460-31791-2	NTB-C1-11.0	T	Solid	7196A	460-90228
460-31791-2DU	Duplicate	T	Solid	7196A	460-90228
460-31791-2MSI	Matrix Spike Insoluble	T	Solid	7196A	460-90228
460-31791-2MSS	Matrix Spike Soluble	T	Solid	7196A	460-90228
460-31791-3	NTB-B2-2.0	T	Solid	7196A	460-90228

Report Basis
S = Soluble
T = Total

Client: AECOM, Inc. Job Number: 460-31791-1

Laboratory Chronicle

Lab ID: 460-31791-1 **Client ID: NTB-C2-12.0**

Sample Date/Time: 09/28/2011 12:00 Received Date/Time: 09/28/2011 17:40

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3050B	460-31791-A-1-B ^20		460-88662	460-88293	10/05/2011 08:22	20	TAL EDI	MC
A:6020	460-31791-A-1-B ^20		460-88662	460-88293	10/06/2011 21:49	20	TAL EDI	MPP
P:3050B	460-31791-A-1-B ^100		460-88792	460-88293	10/05/2011 08:22	100	TAL EDI	MC
A:6020	460-31791-A-1-B ^100		460-88792	460-88293	10/07/2011 21:50	100	TAL EDI	MPP
P:7471A	460-31791-A-1-A		460-88109	460-88100	10/03/2011 18:00	1	TAL EDI	TS
A:7471A	460-31791-A-1-A		460-88109	460-88100	10/03/2011 21:27	1	TAL EDI	TS
P:3060A	460-31791-A-1-G		460-90310	460-90228	10/20/2011 13:00	1	TAL EDI	MA
A:7196A	460-31791-A-1-G		460-90310	460-90228	10/21/2011 10:42	1	TAL EDI	JC
A:9045C	460-31791-A-1		460-88553		10/06/2011 11:49	1	TAL EDI	MB
A:Moisture	460-31791-A-1		460-88198		10/04/2011 13:14	1	TAL EDI	CHA
A:SM 2580B	460-31791-A-1-D		460-88558		10/06/2011 13:40	1	TAL EDI	MB

Lab ID: 460-31791-2 **Client ID: NTB-C1-11.0**

Sample Date/Time: 09/28/2011 12:40 Received Date/Time: 09/28/2011 17:40

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3050B	460-31791-A-2-B ^20		460-88662	460-88293	10/05/2011 08:22	20	TAL EDI	MC
A:6020	460-31791-A-2-B ^20		460-88662	460-88293	10/06/2011 21:53	20	TAL EDI	MPP
P:7471A	460-31791-A-2-A		460-88109	460-88100	10/03/2011 18:00	1	TAL EDI	TS
A:7471A	460-31791-A-2-A		460-88109	460-88100	10/03/2011 21:29	1	TAL EDI	TS
P:3060A	460-31791-A-2-J		460-90310	460-90228	10/20/2011 13:00	1	TAL EDI	MA
A:7196A	460-31791-A-2-J		460-90310	460-90228	10/21/2011 10:42	1	TAL EDI	JC
A:9045C	460-31791-A-2		460-88553		10/06/2011 11:51	1	TAL EDI	MB
A:Moisture	460-31791-A-2		460-88198		10/04/2011 13:14	1	TAL EDI	CHA
A:SM 2580B	460-31791-A-2-D		460-88558		10/06/2011 13:42	1	TAL EDI	MB

Lab ID: 460-31791-2 DU **Client ID: NTB-C1-11.0**

Sample Date/Time: 09/28/2011 12:40 Received Date/Time: 09/28/2011 17:40

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3060A	460-31791-A-2-K DU		460-90310	460-90228	10/20/2011 13:00	1	TAL EDI	MA
A:7196A	460-31791-A-2-K DU		460-90310	460-90228	10/21/2011 10:42	1	TAL EDI	JC

Client: AECOM, Inc. Job Number: 460-31791-1

Laboratory Chronicle

Lab ID: 460-31791-2 PDS **Client ID: NTB-C1-11.0**

Sample Date/Time: 09/28/2011 12:40 Received Date/Time: 09/28/2011 17:40

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3060A	460-31791-A-2-J PDS		460-90310	460-90228	10/20/2011 13:00	1	TAL EDI	MA
P:3060A	460-31791-A-2-L MSS		460-90310	460-90228	10/20/2011 13:00	1	TAL EDI	MA
P:3060A	460-31791-A-2-M MSI		460-90310	460-90228	10/20/2011 13:00	50	TAL EDI	MA
A:7196A	460-31791-A-2-J PDS		460-90310	460-90228	10/21/2011 10:42	1	TAL EDI	JC
A:7196A	460-31791-A-2-L MSS		460-90310	460-90228	10/21/2011 10:42	1	TAL EDI	JC
A:7196A	460-31791-A-2-M MSI		460-90310	460-90228	10/21/2011 10:42	50	TAL EDI	JC

Lab ID: 460-31791-3 **Client ID: NTB-B2-2.0**

Sample Date/Time: 09/28/2011 14:40 Received Date/Time: 09/28/2011 17:40

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3050B	460-31791-A-3-B ^20		460-88662	460-88293	10/05/2011 08:22	20	TAL EDI	MC
A:6020	460-31791-A-3-B ^20		460-88662	460-88293	10/06/2011 21:30	20	TAL EDI	MPP
P:7471A	460-31791-A-3-A		460-88109	460-88100	10/03/2011 18:00	1	TAL EDI	TS
A:7471A	460-31791-A-3-A		460-88109	460-88100	10/03/2011 21:31	1	TAL EDI	TS
P:3060A	460-31791-A-3-I		460-90310	460-90228	10/20/2011 13:00	1	TAL EDI	MA
A:7196A	460-31791-A-3-I		460-90310	460-90228	10/21/2011 10:42	1	TAL EDI	JC
A:9045C	460-31791-A-3		460-88553		10/06/2011 11:52	1	TAL EDI	MB
A:Moisture	460-31791-A-3		460-88198		10/04/2011 13:14	1	TAL EDI	CHA
A:SM 2580B	460-31791-A-3-F		460-88558		10/06/2011 13:45	1	TAL EDI	MB

Lab ID: 460-31791-3 MS **Client ID: NTB-B2-2.0**

Sample Date/Time: 09/28/2011 14:40 Received Date/Time: 09/28/2011 17:40

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3050B	460-31791-A-3-D MS ^20		460-88662	460-88293	10/05/2011 08:22	20	TAL EDI	MC
A:6020	460-31791-A-3-D MS ^20		460-88662	460-88293	10/06/2011 21:40	20	TAL EDI	MPP

Lab ID: 460-31791-3 DU **Client ID: NTB-B2-2.0**

Sample Date/Time: 09/28/2011 14:40 Received Date/Time: 09/28/2011 17:40

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3050B	460-31791-A-3-C DU ^20		460-88662	460-88293	10/05/2011 08:22	20	TAL EDI	MC
A:6020	460-31791-A-3-C DU ^20		460-88662	460-88293	10/06/2011 21:26	20	TAL EDI	MPP

Client: AECOM, Inc. Job Number: 460-31791-1

Laboratory Chronicle

Lab ID: 460-31791-3 SD **Client ID:** NTB-B2-2.0

Sample Date/Time: 09/28/2011 14:40 Received Date/Time: 09/28/2011 17:40

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3050B	460-31791-A-3-B SD ^100		460-88662	460-88293	10/05/2011 08:22	100	TAL EDI	MC
A:6020	460-31791-A-3-B SD ^100		460-88662	460-88293	10/06/2011 21:35	100	TAL EDI	MPP
P:3050B	460-31791-A-3-B PDS ^20		460-88662	460-88293	10/05/2011 08:22	20	TAL EDI	MC
A:6020	460-31791-A-3-B PDS ^20		460-88662	460-88293	10/06/2011 21:44	20	TAL EDI	MPP

Lab ID: MB **Client ID:** N/A

Sample Date/Time: N/A Received Date/Time: N/A

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3050B	MB 460-88293/1-A ^20		460-88662	460-88293	10/05/2011 08:22	20	TAL EDI	MC
A:6020	MB 460-88293/1-A ^20		460-88662	460-88293	10/06/2011 21:16	20	TAL EDI	MPP
P:7471A	MB 460-88100/10-A		460-88109	460-88100	10/03/2011 18:00	1	TAL EDI	TS
A:7471A	MB 460-88100/10-A		460-88109	460-88100	10/03/2011 21:17	1	TAL EDI	TS
P:3060A	MB 460-90228/1-A		460-90310	460-90228	10/20/2011 13:00	1	TAL EDI	MA
A:7196A	MB 460-90228/1-A		460-90310	460-90228	10/21/2011 10:42	1	TAL EDI	JC
A:9045C	MB 460-88553/2		460-88553		10/06/2011 11:29	1	TAL EDI	MB

Lab ID: LCS **Client ID:** N/A

Sample Date/Time: N/A Received Date/Time: N/A

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:9045C	LCS 460-88553/3		460-88553		10/06/2011 11:30	1	TAL EDI	MB

Lab ID: LCSSRM **Client ID:** N/A

Sample Date/Time: N/A Received Date/Time: N/A

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3050B	LCSSRM 460-88293/2-A ^100		460-88662	460-88293	10/05/2011 08:22	100	TAL EDI	MC
A:6020	LCSSRM 460-88293/2-A ^100		460-88662	460-88293	10/06/2011 21:21	100	TAL EDI	MPP
P:7471A	LCSSRM 460-88100/11-A ^10		460-88109	460-88100	10/03/2011 18:00	10	TAL EDI	TS
A:7471A	LCSSRM 460-88100/11-A ^10		460-88109	460-88100	10/03/2011 21:19	10	TAL EDI	TS

Client: AECOM, Inc. Job Number: 460-31791-1

Laboratory Chronicle

Lab ID: MS **Client ID:** N/A

Sample Date/Time: 10/01/2011 11:20 Received Date/Time: 10/02/2011 12:05

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:7471A	460-31882-F-16-C MS		460-88109	460-88100	10/03/2011 18:00	1	TAL EDI	TS
A:7471A	460-31882-F-16-C MS		460-88109	460-88100	10/03/2011 21:25	1	TAL EDI	TS

Lab ID: DU **Client ID:** N/A

Sample Date/Time: 10/01/2011 11:20 Received Date/Time: 10/02/2011 12:05

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:7471A	460-31882-F-16-B DU		460-88109	460-88100	10/03/2011 18:00	1	TAL EDI	TS
A:7471A	460-31882-F-16-B DU		460-88109	460-88100	10/03/2011 21:23	1	TAL EDI	TS
A:9045C	460-31882-J-16 DU		460-88553		10/06/2011 11:32	1	TAL EDI	MB
A:Moisture	460-31864-A-3 DU		460-88198		10/04/2011 13:14	1	TAL EDI	CHA
A:SM 2580B	460-31882-J-16-B DU		460-88558		10/06/2011 13:07	1	TAL EDI	MB

Lab ID: SD **Client ID:** N/A

Sample Date/Time: 10/01/2011 11:20 Received Date/Time: 10/02/2011 12:05

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:7471A	460-31882-F-16-A SD		460-88109	460-88100	10/03/2011 18:00	5	TAL EDI	TS
A:7471A	460-31882-F-16-A SD		460-88109	460-88100	10/03/2011 22:10	5	TAL EDI	TS
P:3060A	LCSI 460-90228/3-A		460-90310	460-90228	10/20/2011 13:00	50	TAL EDI	MA
P:3060A	LCSS 460-90228/2-A		460-90310	460-90228	10/20/2011 13:00	1	TAL EDI	MA
A:7196A	LCSI 460-90228/3-A		460-90310	460-90228	10/21/2011 10:42	50	TAL EDI	JC
A:7196A	LCSS 460-90228/2-A		460-90310	460-90228	10/21/2011 10:42	1	TAL EDI	JC

Lab References:
TAL EDI = TestAmerica Edison

METALS

COVER PAGE
METALS

Lab Name: TestAmerica Edison Job Number: 460-31791-1

SDG No.:

Project: PPG Northern Transects

Client Sample ID	Lab Sample ID
NTB-C2-12.0	460-31791-1
NTB-C1-11.0	460-31791-2
NTB-B2-2.0	460-31791-3

Comments:

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: NTB-C2-12.0 Lab Sample ID: 460-31791-1

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG ID.:

Matrix: Solid Date Sampled: 09/28/2011 12:00

Reporting Basis: DRY Date Received: 09/28/2011 17:40

% Solids: 64.1

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-22-4	Silver	1.5	1.5	1.2	mg/Kg	U		20	6020
7440-38-2	Arsenic	1.0	0.77	0.68	mg/Kg			20	6020
7440-39-3	Barium	12.4	1.5	1.0	mg/Kg			20	6020
7440-41-7	Beryllium	0.31	0.31	0.22	mg/Kg	U		20	6020
7440-43-9	Cadmium	0.77	0.77	0.62	mg/Kg	U		20	6020
7440-48-4	Cobalt	1.5	1.5	1.3	mg/Kg	U		20	6020
7440-47-3	Chromium	2.1	1.5	1.2	mg/Kg			20	6020
7440-50-8	Copper	8.0	1.5	1.2	mg/Kg			20	6020
7439-96-5	Manganese	442	3.1	2.5	mg/Kg			20	6020
7440-02-0	Nickel	1.5	1.5	1.2	mg/Kg	U		20	6020
7439-92-1	Lead	1.9	0.46	0.34	mg/Kg			20	6020
7440-36-0	Antimony	0.77	0.77	0.56	mg/Kg	U		20	6020
7782-49-2	Selenium	0.77	0.77	0.56	mg/Kg	U		20	6020
7440-62-2	Vanadium	1.5	1.5	1.2	mg/Kg	U		20	6020
7440-66-6	Zinc	35.4	6.2	4.9	mg/Kg			20	6020
7429-90-5	Aluminum	963	15.4	12.9	mg/Kg			20	6020
7440-23-5	Sodium	2560	77.2	58.7	mg/Kg			20	6020
7439-95-4	Magnesium	10100	77.2	60.2	mg/Kg			20	6020
7440-09-7	Potassium	77.2	77.2	58.6	mg/Kg	U		20	6020
7440-70-2	Calcium	318000	386	312	mg/Kg			100	6020
7439-89-6	Iron	782	46.3	38.9	mg/Kg			20	6020
7440-28-0	Thallium	0.31	0.31	0.25	mg/Kg	U		20	6020
7439-97-6	Mercury	0.050	0.050	0.033	mg/Kg	U		1	7471A

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: NTB-C1-11.0 Lab Sample ID: 460-31791-2

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG ID.:

Matrix: Solid Date Sampled: 09/28/2011 12:40

Reporting Basis: DRY Date Received: 09/28/2011 17:40

% Solids: 81.4

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-22-4	Silver	1.1	1.1	0.90	mg/Kg	U		20	6020
7440-38-2	Arsenic	8.2	0.56	0.50	mg/Kg			20	6020
7440-39-3	Barium	51.8	1.1	0.74	mg/Kg			20	6020
7440-41-7	Beryllium	0.61	0.23	0.16	mg/Kg			20	6020
7440-43-9	Cadmium	0.56	0.56	0.45	mg/Kg	U		20	6020
7440-48-4	Cobalt	6.9	1.1	0.92	mg/Kg			20	6020
7440-47-3	Chromium	17.7	1.1	0.88	mg/Kg			20	6020
7440-50-8	Copper	20.3	1.1	0.90	mg/Kg			20	6020
7439-96-5	Manganese	259	2.3	1.8	mg/Kg			20	6020
7440-02-0	Nickel	10.5	1.1	0.88	mg/Kg			20	6020
7439-92-1	Lead	53.3	0.34	0.25	mg/Kg			20	6020
7440-36-0	Antimony	0.56	0.56	0.41	mg/Kg	U		20	6020
7782-49-2	Selenium	1.1	0.56	0.41	mg/Kg			20	6020
7440-62-2	Vanadium	30.8	1.1	0.88	mg/Kg			20	6020
7440-66-6	Zinc	85.4	4.5	3.6	mg/Kg			20	6020
7429-90-5	Aluminum	8580	11.3	9.4	mg/Kg			20	6020
7440-23-5	Sodium	147	56.3	42.9	mg/Kg			20	6020
7439-95-4	Magnesium	4350	56.3	43.9	mg/Kg			20	6020
7440-09-7	Potassium	1660	56.3	42.7	mg/Kg			20	6020
7440-70-2	Calcium	1770	56.3	45.6	mg/Kg			20	6020
7439-89-6	Iron	13300	33.8	28.4	mg/Kg			20	6020
7440-28-0	Thallium	0.21	0.23	0.18	mg/Kg	J		20	6020
7439-97-6	Mercury	0.042	0.041	0.027	mg/Kg			1	7471A

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: NTB-B2-2.0 Lab Sample ID: 460-31791-3

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG ID.:

Matrix: Solid Date Sampled: 09/28/2011 14:40

Reporting Basis: DRY Date Received: 09/28/2011 17:40

% Solids: 86.9

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-22-4	Silver	1.1	1.1	0.90	mg/Kg	U		20	6020
7440-38-2	Arsenic	12.0	0.56	0.50	mg/Kg			20	6020
7440-39-3	Barium	181	1.1	0.74	mg/Kg			20	6020
7440-41-7	Beryllium	0.29	0.23	0.16	mg/Kg			20	6020
7440-43-9	Cadmium	0.45	0.56	0.45	mg/Kg	J		20	6020
7440-48-4	Cobalt	4.2	1.1	0.92	mg/Kg			20	6020
7440-47-3	Chromium	56.9	1.1	0.88	mg/Kg			20	6020
7440-50-8	Copper	136	1.1	0.90	mg/Kg			20	6020
7439-96-5	Manganese	181	2.3	1.8	mg/Kg			20	6020
7440-02-0	Nickel	14.9	1.1	0.88	mg/Kg			20	6020
7439-92-1	Lead	1330	0.34	0.25	mg/Kg			20	6020
7440-36-0	Antimony	1.3	0.56	0.41	mg/Kg			20	6020
7782-49-2	Selenium	1.5	0.56	0.41	mg/Kg			20	6020
7440-62-2	Vanadium	59.7	1.1	0.88	mg/Kg			20	6020
7440-66-6	Zinc	200	4.5	3.6	mg/Kg			20	6020
7429-90-5	Aluminum	4610	11.3	9.4	mg/Kg			20	6020
7440-23-5	Sodium	66.9	56.4	42.9	mg/Kg			20	6020
7439-95-4	Magnesium	1450	56.4	43.9	mg/Kg			20	6020
7440-09-7	Potassium	476	56.4	42.8	mg/Kg			20	6020
7440-70-2	Calcium	1660	56.4	45.6	mg/Kg			20	6020
7439-89-6	Iron	11600	33.8	28.4	mg/Kg			20	6020
7440-28-0	Thallium	0.18	0.23	0.18	mg/Kg	J		20	6020
7439-97-6	Mercury	0.53	0.037	0.025	mg/Kg			1	7471A

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

ICV Source: ME_IMS_ICV_00022 Concentration Units: ug/L

CCV Source: ME_imsCal3_00039

Analyte	ICV 460-88662/6 10/06/2011 19:24				CCV 460-88662/28 10/06/2011 21:07				CCV 460-88662/40 10/06/2011 22:03			
	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Aluminum	402.0		400	100	499.6		500	100	501.1		500	100
Antimony	39.80		40.0	99	49.99		50.0	100	50.27		50.0	101
Arsenic	40.25		40.0	101	49.62		50.0	99	50.03		50.0	100
Barium	40.14		40.0	100	50.18		50.0	100	50.46		50.0	101
Beryllium	40.51		40.0	101	50.73		50.0	101	50.81		50.0	102
Cadmium	39.96		40.0	100	50.03		50.0	100	50.60		50.0	101
Calcium	4032		4000	101	4990		5000	100	5020		5000	100
Chromium	40.32		40.0	101	50.17		50.0	100	50.43		50.0	101
Cobalt	40.19		40.0	100	50.14		50.0	100	50.23		50.0	100
Copper	40.04		40.0	100	50.18		50.0	100	50.31		50.0	101
Iron	4018		4000	100	4987		5000	100	5004		5000	100
Lead	39.75		40.0	99	50.15		50.0	100	49.90		50.0	100
Magnesium	4060		4000	102	5034		5000	101	5034		5000	101
Manganese	403.9		400	101	503.0		500	101	503.8		500	101
Nickel	40.12		40.0	100	50.22		50.0	100	49.99		50.0	100
Potassium	3899		4000	97	4893		5000	98	4854		5000	97
Selenium	40.02		40.0	100	49.02		50.0	98	50.18		50.0	100
Silver	40.15		40.0	100	50.29		50.0	101	50.83		50.0	102
Sodium	3994		4000	100	4994		5000	100	4983		5000	100
Thallium	7.97		8.00	100	9.94		10.0	99	9.97		10.0	100
Vanadium	39.84		40.0	100	50.00		50.0	100	50.14		50.0	100
Zinc	39.80		40.0	99	49.89		50.0	100	49.85		50.0	100

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.
Italicized analytes were not requested for this sequence.

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

ICV Source: ME_IMS_ICV_00022 Concentration Units: ug/L

CCV Source: ME_imsCal3_00039

Analyte	ICV 460-88792/6 10/07/2011 19:45				CCV 460-88792/25 10/07/2011 21:20				CCV 460-88792/34 10/07/2011 22:05			
	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Calcium	3957		4000	99	5116		5000	102	4938		5000	99
Aluminum	397.4		400	99	496.3		500	99	492.3		500	98
Antimony	40.11		40.0	100	50.52		50.0	101	49.88		50.0	100
Arsenic	39.73		40.0	99	50.05		50.0	100	49.84		50.0	100
Barium	39.92		40.0	100	50.67		50.0	101	49.32		50.0	99
Beryllium	39.46		40.0	99	51.25		50.0	102	50.73		50.0	101
Cadmium	39.91		40.0	100	49.83		50.0	100	49.14		50.0	98
Chromium	40.00		40.0	100	50.41		50.0	101	50.20		50.0	100
Cobalt	40.17		40.0	100	51.10		50.0	102	50.76		50.0	102
Copper	40.36		40.0	101	51.62		50.0	103	51.37		50.0	103
Iron	3992		4000	100	5021		5000	100	4998		5000	100
Lead	39.93		40.0	100	50.63		50.0	101	50.10		50.0	100
Magnesium	3984		4000	100	4993		5000	100	4944		5000	99
Manganese	395.0		400	99	504.5		500	101	501.5		500	100
Nickel	38.87		40.0	97	49.22		50.0	98	49.71		50.0	99
Potassium	3991		4000	100	4991		5000	100	4937		5000	99
Silver	39.63		40.0	99	50.66		50.0	101	50.24		50.0	100
Sodium	4029		4000	101	4962		5000	99	4915		5000	98
Thallium	7.92		8.00	99	10.04		10.0	100	9.93		10.0	99
Vanadium	39.93		40.0	100	50.77		50.0	102	49.92		50.0	100
Zinc	41.87		40.0	105	50.75		50.0	102	50.50		50.0	101

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.
Italicized analytes were not requested for this sequence.

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

ICV Source: ME_DQCS-INT_00332 Concentration Units: ug/L

CCV Source: ME_DQCS-INT_00332

Analyte	ICV 460-88100/7-A 10/03/2011 21:14				CCV 460-88100/8-A 10/03/2011 21:37				CCV 460-88100/8-A 10/03/2011 21:59			
	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Mercury	816.7		833	98	878.3		833	105	885.0		833	106

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.
Italicized analytes were not requested for this sequence.

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

ICV Source: ME_DQCS-INT_00332 Concentration Units: ug/L

CCV Source: ME_DQCS-INT_00332

Analyte	CCV 460-88100/8-A 10/03/2011 22:13											
	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Mercury	880.0		833	106								

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.
Italicized analytes were not requested for this sequence.

2B-IN
CRQL CHECK STANDARD
METALS

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

Method: 6020 Instrument ID: ICPMS2

Lab Sample ID: CRI 460-88662/8 Concentration Units: ug/L

CRQL Check Standard Source: ME_ICmsCal1_00038

Analyte	CRQL Check Standard				
	True	Found	Qualifiers	%R(1)	Limits
Silver	1.00	1.02		102	
Arsenic	0.500	0.483	J	97	
Barium	1.00	1.02		102	
Beryllium	0.200	0.20	U	69	
Cadmium	0.500	0.504		101	
Cobalt	1.00	1.04		104	
Chromium	1.00	1.04		104	
Copper	1.00	0.996	J	100	
Manganese	2.00	2.06		103	
Nickel	1.00	1.06		106	
Lead	0.300	0.310		103	
Antimony	0.500	0.495	J	99	
Selenium	0.500	0.50	U	72	
Vanadium	1.00	1.00		100	
Zinc	4.00	4.26		106	
Aluminum	10.0	11.14		111	
Sodium	50.0	50.75		102	
Magnesium	50.0	51.88		104	
Potassium	50.0	45.42	J	91	
Calcium	50.0	46.81	J	94	
Iron	30.0	32.87		110	
Thallium	0.200	0.204		102	

Lab Sample ID: CRI 460-88792/8 Concentration Units: ug/L

CRQL Check Standard Source: ME_ICmsCal1_00038

Analyte	CRQL Check Standard				
	True	Found	Qualifiers	%R(1)	Limits
Silver	1.00	0.979	J	98	
Arsenic	0.500	0.415	J	83	
Barium	1.00	0.982	J	98	
Beryllium	0.200	0.213		107	
Cadmium	0.500	0.497	J	99	
Cobalt	1.00	1.01		101	
Chromium	1.00	1.02		102	
Copper	1.00	0.974	J	97	

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM IIB-IN

2B-IN
CRQL CHECK STANDARD
METALS

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

Method: 6020 Instrument ID: ICPMS2

Lab Sample ID: CRI 460-88792/8 Concentration Units: ug/L

CRQL Check Standard Source: ME_ICmsCal1_00038

Analyte	CRQL Check Standard				
	True	Found	Qualifiers	%R(1)	Limits
Manganese	2.00	1.93	J	97	
Nickel	1.00	0.940	J	94	
Lead	0.300	0.308		103	
Antimony	0.500	0.488	J	98	
Vanadium	1.00	0.977	J	98	
Zinc	4.00	4.12		103	
Aluminum	10.0	9.41	J	94	
Sodium	50.0	43.32	J	87	
Magnesium	50.0	49.55	J	99	
Potassium	50.0	46.43	J	93	
Calcium	50.0	51.17		102	
Iron	30.0	32.13		107	
Thallium	0.200	0.193	J	97	

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM IIB-IN

3-IN
INSTRUMENT BLANKS
METALS

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

Concentration Units: ug/L

Analyte	RL	ICB 460-88662/7 10/06/2011 19:29		CCB 460-88662/29 10/06/2011 21:11		CCB 460-88662/41 10/06/2011 22:07			
		Found	C	Found	C	Found	C	Found	C
Aluminum	10.0	10.0	U	10.0	U	10.0	U		
Antimony	0.50	0.50	U	0.50	U	0.50	U		
Arsenic	0.50	0.50	U	0.50	U	0.50	U		
Barium	1.0	1.0	U	1.0	U	1.0	U		
Beryllium	0.20	0.20	U	0.20	U	0.20	U		
Cadmium	0.50	0.50	U	0.50	U	0.50	U		
Calcium	50.0	50.0	U	50.0	U	50.0	U		
Chromium	1.0	1.0	U	1.0	U	1.0	U		
Cobalt	1.0	1.0	U	1.0	U	1.0	U		
Copper	1.0	1.0	U	1.0	U	1.0	U		
Iron	30.0	30.0	U	30.0	U	30.0	U		
Lead	0.30	0.30	U	0.30	U	0.30	U		
Magnesium	50.0	50.0	U	50.0	U	50.0	U		
Manganese	2.0	2.0	U	2.0	U	2.0	U		
Nickel	1.0	1.0	U	1.0	U	1.0	U		
Potassium	50.0	50.0	U	50.0	U	50.0	U		
Selenium	0.50	0.50	U	0.50	U	0.50	U		
Silver	1.0	1.0	U	1.0	U	1.0	U		
Sodium	50.0	50.0	U	50.0	U	50.0	U		
Thallium	0.20	0.20	U	0.20	U	0.20	U		
Vanadium	1.0	1.0	U	1.0	U	1.0	U		
Zinc	4.0	4.0	U	4.0	U	4.0	U		

Italicized analytes were not requested for this sequence.

3-IN
INSTRUMENT BLANKS
METALS

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

Concentration Units: ug/L

Analyte	RL	ICB 460-88792/7 10/07/2011 19:50		CCB 460-88792/26 10/07/2011 21:25		CCB 460-88792/35 10/07/2011 22:10			
		Found	C	Found	C	Found	C	Found	C
Calcium	50.0	50.0	U	50.0	U	50.0	U		
Aluminum	10.0	10.0	U	10.0	U	10.0	U		
Antimony	0.50	0.50	U	0.50	U	0.50	U		
Arsenic	0.50	0.50	U	0.50	U	0.50	U		
Barium	1.0	1.0	U	1.0	U	1.0	U		
Beryllium	0.20	0.20	U	0.20	U	0.20	U		
Cadmium	0.50	0.50	U	0.50	U	0.50	U		
Chromium	1.0	1.0	U	1.0	U	1.0	U		
Cobalt	1.0	1.0	U	1.0	U	1.0	U		
Copper	1.0	1.0	U	1.0	U	1.0	U		
Iron	30.0	30.0	U	30.0	U	30.0	U		
Lead	0.30	0.30	U	0.30	U	0.30	U		
Magnesium	50.0	50.0	U	50.0	U	50.0	U		
Manganese	2.0	2.0	U	2.0	U	2.0	U		
Nickel	1.0	1.0	U	1.0	U	1.0	U		
Potassium	50.0	50.0	U	50.0	U	50.0	U		
Silver	1.0	1.0	U	1.0	U	1.0	U		
Sodium	50.0	50.0	U	50.0	U	50.0	U		
Thallium	0.20	0.20	U	0.20	U	0.20	U		
Vanadium	1.0	1.0	U	1.0	U	1.0	U		
Zinc	4.0	4.0	U	4.0	U	4.0	U		

Italicized analytes were not requested for this sequence.

3-IN
INSTRUMENT BLANKS
METALS

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

Concentration Units: ug/L

Analyte	RL	ICB 460-88109/8 10/03/2011 21:15		CCB 460-88109/20 10/03/2011 21:39		CCB 460-88109/32 10/03/2011 22:01		CCB 460-88109/40 10/03/2011 22:15	
		Found	C	Found	C	Found	C	Found	C
Mercury	0.20	0.20	U	0.20	U	0.20	U	0.20	U

Italicized analytes were not requested for this sequence.

3-IN
METHOD BLANK
METALS

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

Concentration Units: mg/Kg Lab Sample ID: MB 460-88293/1-A ^20

Instrument Code: ICPMS2 Batch No.: 88662

CAS No.	Analyte	Concentration	C	Q	Method
7440-22-4	Silver	1.0	U		6020
7440-38-2	Arsenic	0.50	U		6020
7440-39-3	Barium	1.0	U		6020
7440-41-7	Beryllium	0.20	U		6020
7440-43-9	Cadmium	0.50	U		6020
7440-48-4	Cobalt	1.0	U		6020
7440-47-3	Chromium	1.0	U		6020
7440-50-8	Copper	1.0	U		6020
7439-96-5	Manganese	2.0	U		6020
7440-02-0	Nickel	1.0	U		6020
7439-92-1	Lead	0.30	U		6020
7440-36-0	Antimony	0.50	U		6020
7782-49-2	Selenium	0.50	U		6020
7440-62-2	Vanadium	1.0	U		6020
7440-66-6	Zinc	4.0	U		6020
7429-90-5	Aluminum	10.0	U		6020
7440-23-5	Sodium	50.0	U		6020
7439-95-4	Magnesium	50.0	U		6020
7440-09-7	Potassium	50.0	U		6020
7440-70-2	Calcium	50.0	U		6020
7439-89-6	Iron	30.0	U		6020
7440-28-0	Thallium	0.20	U		6020

3-IN
METHOD BLANK
METALS

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

Concentration Units: mg/Kg Lab Sample ID: MB 460-88100/10-A

Instrument Code: LEEMAN3 Batch No.: 88109

CAS No.	Analyte	Concentration	C	Q	Method
7439-97-6	Mercury	0.033	U		7471A

4A-IN
INTERFERENCE CHECK STANDARD
METALS

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

Lab Sample ID: ICSA 460-88662/9 Instrument ID: ICPMS2

Lab File ID: 011SMPL.D ICS Source: ME_ICSA_MS_00143

Concentration Units: ug/L

Analyte	True Solution A	Found Solution A	Percent Recovery
Aluminum	**50000**	**48064**	**96**
Antimony		**0.384**	
Arsenic		**0.165**	
Barium		**0.157**	
Beryllium		**-0.0070**	
Cadmium		**0.274**	
Calcium	**150000**	**136837**	**91**
Chromium		**2.65**	
Cobalt		**1.85**	
Copper		**0.650**	
Iron	**125000**	**121307**	**97**
Lead		**0.0750**	
Magnesium	**50000**	**49266**	**99**
Manganese		**2.55**	
Nickel		**1.53**	
Potassium	**50000**	**48308**	**97**
Selenium		**0.288**	
Silver		**0.164**	
Sodium	**125000**	**124924**	**100**
Thallium		**0.0090**	
Vanadium		**0.197**	
Zinc		**1.47**	
Boron		*1.81*	
Molybdenum	*1000*	*1042*	*104*
Strontium		*6.97*	
Tin		*0.115*	
Titanium	*1000*	*1032*	*103*

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM IVA-IN

4A-IN
INTERFERENCE CHECK STANDARD
METALS

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

Lab Sample ID: ICSAB 460-88662/10 Instrument ID: ICPMS2

Lab File ID: 012SMPL.D ICS Source: ME_ICSB_MS_00137

Concentration Units: ug/L

Analyte	True Solution AB	Found Solution AB	Percent Recovery
Aluminum	**50000**	**46772**	**94**
Antimony		**0.406**	
Arsenic	**100**	**97.8**	**98**
Barium		**0.194**	
Beryllium		**-0.0070**	
Cadmium	**100**	**96.0**	**96**
Calcium	**150000**	**139310**	**93**
Chromium	**200**	**189**	**95**
Cobalt	**200**	**197**	**98**
Copper	**200**	**181**	**91**
Iron	**125000**	**117653**	**94**
Lead		**0.0830**	
Magnesium	**50000**	**48158**	**96**
Manganese	**200**	**189**	**95**
Nickel	**200**	**185**	**92**
Potassium	**50000**	**47152**	**94**
Selenium	**100**	**93.2**	**93**
Silver	**200**	**186**	**93**
Sodium	**125000**	**123280**	**99**
Thallium		**0.0060**	
Vanadium	**200**	**196**	**98**
Zinc	**100**	**92.4**	**92**
Boron		*1.52*	
Molybdenum	*1000*	*1026*	*103*
Strontium		*6.92*	
Tin		*0.113*	
Titanium	*1000*	*1008*	*101*

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM IVA-IN

4A-IN
INTERFERENCE CHECK STANDARD
METALS

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

Lab Sample ID: ICSA 460-88792/9 Instrument ID: ICPMS2

Lab File ID: 012SMPL.D ICS Source: ME_ICSA_MS_00143

Concentration Units: ug/L

Analyte	True Solution A	Found Solution A	Percent Recovery
Calcium	**150000**	**126230**	**84**
Aluminum	*50000*	*46524*	*93*
Antimony		*0.403*	
Arsenic		*0.147*	
Barium		*0.180*	
Beryllium		*-0.0120*	
Boron		*0.563*	
Cadmium		*0.276*	
Chromium		*2.53*	
Cobalt		*1.80*	
Copper		*0.627*	
Iron	*125000*	*119790*	*96*
Lead		*0.0770*	
Magnesium	*50000*	*46630*	*93*
Manganese		*2.83*	
Molybdenum	*1000*	*1001*	*100*
Nickel		*1.55*	
Potassium	*50000*	*46666*	*93*
Silver		*0.172*	
Sodium	*125000*	*118623*	*95*
Strontium		*6.84*	
Thallium		*0.0070*	
Tin		*0.125*	
Titanium	*1000*	*1023*	*102*
Vanadium		*0.149*	
Zinc		*1.42*	

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM IVA-IN

4A-IN
INTERFERENCE CHECK STANDARD
METALS

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

Lab Sample ID: ICSAB 460-88792/10 Instrument ID: ICPMS2

Lab File ID: 013SMPL.D ICS Source: ME_ICSB_MS_00137

Concentration Units: ug/L

Analyte	True Solution AB	Found Solution AB	Percent Recovery
Calcium	**150000**	**132053**	**88**
Aluminum	*50000*	*47213*	*94*
Antimony		*0.407*	
Arsenic	*100*	*100.0*	*100*
Barium		*0.199*	
Beryllium		*0.0110*	
Boron		*0.826*	
Cadmium	*100*	*96.1*	*96*
Chromium	*200*	*191*	*96*
Cobalt	*200*	*201*	*100*
Copper	*200*	*185*	*93*
Iron	*125000*	*120872*	*97*
Lead		*0.0810*	
Magnesium	*50000*	*47326*	*95*
Manganese	*200*	*191*	*96*
Molybdenum	*1000*	*1010*	*101*
Nickel	*200*	*182*	*91*
Potassium	*50000*	*47728*	*95*
Silver	*200*	*185*	*92*
Sodium	*125000*	*121530*	*97*
Strontium		*7.08*	
Thallium		*0.0050*	
Tin		*0.113*	
Titanium	*1000*	*1035*	*103*
Vanadium	*200*	*199*	*99*
Zinc	*100*	*94.8*	*95*

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM IVA-IN

5A-IN
MATRIX SPIKE SAMPLE RECOVERY
METALS

Client ID: NTB-B2-2.0 MS
Lab ID: 460-31791-3 MS
Lab Name: TestAmerica Edison
Job No.: 460-31791-1
SDG No.:
Matrix: Solid
Concentration Units: mg/Kg
% Solids: 86.9

Analyte	SSR	C	Sample Result (SR)	C	Spike Added (SA)	%R	Control Limit %R	Q	Method
Silver	6.12		1.1	U	5.58	110	75-125		6020
Arsenic	24.21		12.0		11.2	110	75-125		6020
Barium	355.3		181		11.2	1558	75-125	4	6020
Beryllium	6.29		0.29		5.58	107	75-125		6020
Cadmium	6.15		0.45	J	5.58	102	75-125		6020
Cobalt	10.19		4.2		5.58	107	75-125		6020
Chromium	70.21		56.9		11.2	120	75-125	4	6020
Copper	131.2		136		11.2	-39	75-125	4	6020
Manganese	260.9		181		55.8	143	75-125	F	6020
Nickel	27.56		14.9		11.2	113	75-125		6020
Lead	1739		1330		5.58	7391	75-125	4	6020
Antimony	3.82		1.3		5.58	45	75-125	F	6020
Selenium	12.08		1.5		11.2	94	75-125		6020
Vanadium	76.11		59.7		11.2	147	75-125	4	6020
Zinc	308.8		200		55.8	196	75-125	F	6020
Aluminum	5703		4610		558	196	75-125	4	6020
Sodium	675.6		66.9		558	109	75-125		6020
Magnesium	2156		1450		558	127	75-125	F	6020
Potassium	1124		476		558	116	75-125		6020
Calcium	2478		1660		558	147	75-125	F	6020
Iron	12960		11600		558	235	75-125	4	6020
Thallium	4.31		0.18	J	4.47	92	75-125		6020

SSR = Spiked Sample Result

Calculations are performed before rounding to avoid round-off errors in calculated results.
Note - Results and Reporting Limits have been adjusted for dry weight.

FORM VA - IN

5A-IN
MATRIX SPIKE SAMPLE RECOVERY
METALS

Client ID: Lab ID: 460-31882-F-16-C MS

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

Matrix: Solid Concentration Units: mg/Kg

% Solids: 92.2

Analyte	SSR	C	Sample Result (SR)	C	Spike Added (SA)	%R	Control Limit %R	Q	Method
Mercury	0.353		0.040		0.181	173	75-125	F	7471A

SSR = Spiked Sample Result

Calculations are performed before rounding to avoid round-off errors in calculated results.
Note - Results and Reporting Limits have been adjusted for dry weight.

FORM VA - IN

5B-IN
POST DIGESTION SPIKE SAMPLE RECOVERY
METALS

Client ID: NTB-B2-2.0 PDS Lab ID: 460-31791-3 PDS

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

Matrix: Solid Concentration Units: mg/Kg

Analyte	SSR	C	Sample Result (SR)	C	Spike Added (SA)	%R	Control Limit %R	Q	Method
Silver	6.09		1.1	U	5.64	108	75-125		6020
Arsenic	22.60		12.0		11.3	94	75-125		6020
Barium	193.1		181		11.3	NC	75-125		6020
Beryllium	5.87		0.29		5.64	99	75-125		6020
Cadmium	6.16		0.45	J	5.64	101	75-125		6020
Cobalt	9.79		4.2		5.64	99	75-125		6020
Chromium	67.87		56.9		11.3	98	75-125		6020
Copper	146.8		136		11.3	NC	75-125		6020
Manganese	236.0		181		56.4	97	75-125		6020
Nickel	26.23		14.9		11.3	100	75-125		6020
Lead	1335		1330		5.64	NC	75-125		6020
Antimony	6.69		1.3		5.64	96	75-125		6020
Selenium	11.94		1.5		11.3	92	75-125		6020
Vanadium	70.97		59.7		11.3	100	75-125		6020
Zinc	254.3		200		56.4	97	75-125		6020
Aluminum	5181		4610		564	102	75-125		6020
Sodium	665.2		66.9		564	106	75-125		6020
Magnesium	1989		1450		564	96	75-125		6020
Potassium	1097		476		564	110	75-125		6020
Calcium	2270		1660		564	109	75-125		6020
Iron	12220		11600		564	NC	75-125		6020
Thallium	4.43		0.18	J	4.51	94	75-125		6020

SSR = Spiked Sample Result

Calculations are performed before rounding to avoid round-off errors in calculated results.
Note - Results and Reporting Limits have been adjusted for dry weight.

FORM VB - IN

6-IN
DUPLICATES
METALS

Client ID: NTB-B2-2.0 DU | Lab ID: 460-31791-3 DU

Lab Name: TestAmerica Edison | Job No.: 460-31791-1

SDG No.:

% Solids for Sample: 86.9 | % Solids for Duplicate: 86.9

Matrix: Solid | Concentration Units: mg/Kg

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	Method
Silver	1.1	1.1	U	1.1	U	NC		6020
Arsenic	0.56	12.0		12.28		3		6020
Barium	1.1	181		265.8		38	F	6020
Beryllium	0.22	0.29		0.351		17		6020
Cadmium	0.56	0.45	J	0.601		28		6020
Cobalt	1.1	4.2		3.95		6		6020
Chromium	1.1	56.9		58.55		3		6020
Copper	1.1	136		146.2		8		6020
Manganese	2.2	181		152.3		17		6020
Nickel	1.1	14.9		18.49		22	F	6020
Lead	0.34	1330		1636		21	F	6020
Antimony	0.56	1.3		1.34		3		6020
Selenium	0.56	1.5		1.83		18		6020
Vanadium	1.1	59.7		60.63		2		6020
Zinc	4.5	200		214.7		7		6020
Aluminum	11.2	4610		4563		1		6020
Sodium	55.8	66.9		73.49		9		6020
Magnesium	55.8	1450		1307		10		6020
Potassium	55.8	476		484.5		2		6020
Calcium	55.8	1660		2085		23	F	6020
Iron	33.5	11600		11710		0.6		6020
Thallium	0.22	0.18	J	0.302		49		6020

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VI-IN

6-IN
DUPLICATES
METALS

Client ID: _____ Lab ID: 460-31882-F-16-B DU

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.: _____

% Solids for Sample: 92.2 % Solids for Duplicate: 92.2

Matrix: Solid Concentration Units: mg/Kg

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	Method
Mercury	0.036	0.040		0.0618		42		7471A

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VI-IN

7A-IN
LCS-CERTIFIED REFERENCE MATERIAL
METALS

Lab ID: LCSSRM 460-88293/2-A ^100

Lab Name: TestAmerica Edison Job No.: 460-31791-1

Sample Matrix: Solid LCS Source: ME_LCSS_62_00013

Analyte	Solid(mg/Kg)							
	True	Found	C	%R	Limits		Q	Method
Silver	30.1	32.78		109	64.5	135		6020
Arsenic	104	108.5		104	70.3	130		6020
Barium	198	201.7		102	72.1	128		6020
Beryllium	77.6	76.61		99	75.4	125		6020
Cadmium	60.7	62.24		103	72.9	125		6020
Cobalt	91.2	98.23		108	72.1	128		6020
Chromium	236	237.4		101	74.9	125		6020
Copper	174	179.2		103	74.8	125		6020
Manganese	558	596.6		107	78.8	121		6020
Nickel	134	141.5		106	70.6	129		6020
Lead	86.0	90.48		105	72.0	128		6020
Antimony	67.4	191.3		284	0	311		6020
Selenium	286	295.2		103	65.1	135		6020
Vanadium	115	117.0		102	71.1	128		6020
Zinc	594	614.5		103	71.4	129		6020
Aluminum	10500	8154		78	39.2	162		6020
Sodium	1020	947.0		93	68.7	132		6020
Magnesium	4000	4026		101	74	126		6020
Potassium	4300	4632		108	71.9	128		6020
Calcium	9870	10210		103	75.0	125		6020
Iron	18000	18020		100	55.7	144		6020
Thallium	121	130.8		108	71.7	129		6020

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIIA - IN

7A-IN
LCS-CERTIFIED REFERENCE MATERIAL
METALS

Lab ID: LCSSRM 460-88100/11-A ^10

Lab Name: TestAmerica Edison Job No.: 460-31791-1

Sample Matrix: Solid LCS Source: ME_LCSS_62_00013

Analyte	Solid(mg/Kg)							
	True	Found	C	%R	Limits		Q	Method
Mercury	8.46	8.58		101	51.3	149		7471A

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIIA - IN

8-IN
ICP-AES AND ICP-MS SERIAL DILUTIONS
METALS

Lab ID: 460-31791-3

SDG No:

Lab Name: TestAmerica Edison Job No: 460-31791-1

Matrix: Solid Concentration Units: mg/Kg

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	Method
Silver	1.1	U	5.6	U	NC		6020
Arsenic	12.0		11.28		NC		6020
Barium	181		183.7		1.3		6020
Beryllium	0.29		1.1	U	NC		6020
Cadmium	0.45	J	2.8	U	NC		6020
Cobalt	4.2		5.6	U	NC		6020
Chromium	56.9		56.21		1.1		6020
Copper	136		136.5		0.65		6020
Manganese	181		181.3		0.08		6020
Nickel	14.9		13.76		NC		6020
Lead	1330		1389		4.7		6020
Antimony	1.3		2.8	U	NC		6020
Selenium	1.5		2.8	U	NC		6020
Vanadium	59.7		60.08		0.63		6020
Zinc	200		209.7		5.1		6020
Aluminum	4610		4668		1.3		6020
Sodium	66.9		282	U	NC		6020
Magnesium	1450		1456		NC		6020
Potassium	476		385.5		NC		6020
Calcium	1660		1577		NC		6020
Iron	11600		11720		0.65		6020
Thallium	0.18	J	1.1	U	NC		6020

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIII-IN

8-IN
ICP-AES AND ICP-MS SERIAL DILUTIONS
METALS

Lab ID: 460-31882-F-16-A SD

SDG No:

Lab Name: TestAmerica Edison Job No: 460-31791-1

Matrix: Solid Concentration Units: mg/Kg

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	Method
Mercury	0.040		0.18	U	NC		7471A

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIII-IN

9-IN
DETECTION LIMITS
METALS

Lab Name: TestAmerica Edison Job Number: 460-31791-1

SDG Number:

Matrix: Solid Instrument ID: ICPMS2

Method: 6020 MDL Date: 12/31/2008 15:06

Prep Method: 3050B

Analyte	Wavelength/ Mass	RL (mg/Kg)	MDL (mg/Kg)
Aluminum	27	0.5	0.418
Antimony	121	0.025	0.018
Arsenic	75	0.025	0.022
Barium	137	0.05	0.033
Beryllium	9	0.01	0.007
Cadmium	111	0.025	0.02
Calcium	44	2.5	2.022
Chromium	52	0.05	0.039
Cobalt	59	0.05	0.041
Copper	63	0.05	0.04
Iron	56	1.5	1.26
Lead	208	0.015	0.011
Magnesium	24	2.5	1.948
Manganese	55	0.1	0.082
Nickel	60	0.05	0.039
Potassium	39	2.5	1.896
Selenium	78	0.025	0.018
Silver	107	0.05	0.04
Sodium	23	2.5	1.902
Thallium	205	0.01	0.008
Vanadium	51	0.05	0.039
Zinc	66	0.2	0.159

9-IN
CALIBRATION BLANK DETECTION LIMITS
METALS

Lab Name: TestAmerica Edison Job Number: 460-31791-1

SDG Number:

Matrix: Solid Instrument ID: ICPMS2

Method: 6020 XMDL Date: 12/31/2008 15:14

Analyte	Wavelength/ Mass	XRL (ug/L)	XMDL (ug/L)
Aluminum		10	8.05
Antimony		0.5	0.365
Arsenic		0.5	0.37
Barium		1	0.828
Beryllium		0.2	0.17
Cadmium		0.5	0.411
Calcium		50	36.3
Chromium		1	0.814
Cobalt		1	0.77
Copper		1	0.801
Iron		30	24.3
Lead		0.3	0.229
Magnesium		50	38
Manganese		2	1.5
Nickel		1	0.703
Potassium		50	37.1
Selenium		0.5	0.485
Silver		1	0.81
Sodium		50	36.4
Thallium		0.2	0.15
Vanadium		1	0.7
Zinc		4	3.06

9-IN
DETECTION LIMITS
METALS

Lab Name: TestAmerica Edison Job Number: 460-31791-1

SDG Number:

Matrix: Solid Instrument ID: LEEMAN3

Method: 7471A MDL Date: 03/23/2011 11:28

Prep Method: 7471A

Analyte	Wavelength/ Mass	RL (mg/Kg)	MDL (mg/Kg)
Mercury		0.033	0.022

9-IN
CALIBRATION BLANK DETECTION LIMITS
METALS

Lab Name: TestAmerica Edison Job Number: 460-31791-1

SDG Number:

Matrix: Solid Instrument ID: LEEMAN3

Method: 7471A XMDL Date: 12/30/2008 14:34

Analyte	Wavelength/ Mass	XRL (ug/L)	XMDL (ug/L)
Mercury		0.2	0.185

12-IN
PREPARATION LOG
METALS

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

Prep Method: 3050B

Lab Sample ID	Preparation Date	Prep Batch	Initial Weight (g)	Initial Volume	Final Volume (mL)
MB 460-88293/1-A ^20	10/05/2011 08:22	88293	1.00		50
LCSSRM 460-88293/2-A ^100	10/05/2011 08:22	88293	1.00		50
460-31791-3	10/05/2011 08:22	88293	1.02		50
460-31791-3 DU	10/05/2011 08:22	88293	1.03		50
460-31791-3 MS	10/05/2011 08:22	88293	1.03		50
460-31791-1	10/05/2011 08:22	88293	1.01		50
460-31791-2	10/05/2011 08:22	88293	1.09		50

12-IN
PREPARATION LOG
METALS

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

Prep Method: 7471A

Lab Sample ID	Preparation Date	Prep Batch	Initial Weight (g)	Initial Volume	Final Volume (mL)
MB 460-88100/10-A	10/03/2011 18:00	88100	0.60		100
LCSSRM 460-88100/11-A ^10	10/03/2011 18:00	88100	0.60		100
460-31882-F-16-B DU	10/03/2011 18:00	88100	0.60		100
460-31882-F-16-C MS	10/03/2011 18:00	88100	0.60		100
460-31791-1	10/03/2011 18:00	88100	0.62		100
460-31791-2	10/03/2011 18:00	88100	0.60		100
460-31791-3	10/03/2011 18:00	88100	0.61		100

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

Instrument ID: ICPMS2 Method: 6020

Start Date: 10/06/2011 19:01 End Date: 10/06/2011 22:21

Lab Sample ID	D/F	Type	Time	Analytes																			
				Ag	Al	As	Ba	Be	Ca	Cd	Co	Cr	Cu	Fe	K	Mg	Mn	Na	Ni	Pb	Sb	Se	Tl
ZZZZZZ			19:01																				
ZZZZZZ			19:06																				
ZZZZZZ			19:10																				
ZZZZZZ			19:15																				
ZZZZZZ			19:20																				
ICV 460-88662/6	1		19:24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ICB 460-88662/7	1		19:29	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CRI 460-88662/8	1		19:34	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ICSA 460-88662/9	1		19:38	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ICSAB 460-88662/10	1		19:43	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ZZZZZZ			19:47																				
ZZZZZZ			19:52																				
CCV 460-88662/13			19:57																				
CCB 460-88662/14			20:02																				
ZZZZZZ			20:06																				
ZZZZZZ			20:11																				
ZZZZZZ			20:16																				
CCV 460-88662/18			20:20																				
CCB 460-88662/19			20:25																				
ZZZZZZ			20:30																				
ZZZZZZ			20:35																				
ZZZZZZ			20:39																				
ZZZZZZ			20:44																				
ZZZZZZ			20:48																				
ZZZZZZ			20:53																				
ZZZZZZ			20:58																				
ZZZZZZ			21:02																				
CCV 460-88662/28	1		21:07	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CCB 460-88662/29	1		21:11	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MB 460-88293/1-A ^20	20	T	21:16	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
LCSSRM 460-88293/2-A ^100	100	T	21:21	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
460-31791-3 DU	20	T	21:26	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
460-31791-3	20	T	21:30	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
460-31791-3 SD	100	T	21:35	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
460-31791-3 MS	20	T	21:40	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
460-31791-3 PDS	20	T	21:44	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
460-31791-1	20	T	21:49	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
460-31791-2	20	T	21:53	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ZZZZZZ			21:58																				
CCV 460-88662/40	1		22:03	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CCB 460-88662/41	1		22:07	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

Instrument ID: ICPMS2 Method: 6020

Start Date: 10/06/2011 19:01 End Date: 10/06/2011 22:21

Lab Sample ID	D / F	Type	Time	Analytes																			
				Ag	Al	As	Ba	Be	Ca	Cd	Co	Cr	Cu	Fe	K	Mg	Mn	Na	Ni	Pb	Sb	Se	Tl
ZZZZZZ			22:12																				
CCV 460-88662/43			22:17																				
CCB 460-88662/44			22:21																				

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

Instrument ID: ICPMS2 Method: 6020

Start Date: 10/06/2011 19:01 End Date: 10/06/2011 22:21

Lab Sample ID	D / F	Type	Time	Analytes																			
				V	Zn																		
ZZZZZZ			19:01																				
ZZZZZZ			19:06																				
ZZZZZZ			19:10																				
ZZZZZZ			19:15																				
ZZZZZZ			19:20																				
ICV 460-88662/6	1		19:24	X	X																		
ICB 460-88662/7	1		19:29	X	X																		
CRI 460-88662/8	1		19:34	X	X																		
ICSA 460-88662/9	1		19:38	X	X																		
ICSAB 460-88662/10	1		19:43	X	X																		
ZZZZZZ			19:47																				
ZZZZZZ			19:52																				
CCV 460-88662/13			19:57																				
CCB 460-88662/14			20:02																				
ZZZZZZ			20:06																				
ZZZZZZ			20:11																				
ZZZZZZ			20:16																				
CCV 460-88662/18			20:20																				
CCB 460-88662/19			20:25																				
ZZZZZZ			20:30																				
ZZZZZZ			20:35																				
ZZZZZZ			20:39																				
ZZZZZZ			20:44																				
ZZZZZZ			20:48																				
ZZZZZZ			20:53																				
ZZZZZZ			20:58																				
ZZZZZZ			21:02																				
CCV 460-88662/28	1		21:07	X	X																		
CCB 460-88662/29	1		21:11	X	X																		
MB 460-88293/1-A ^20	20	T	21:16	X	X																		
LCSSRM 460-88293/2-A ^100	100	T	21:21	X	X																		
460-31791-3 DU	20	T	21:26	X	X																		
460-31791-3	20	T	21:30	X	X																		
460-31791-3 SD	100	T	21:35	X	X																		
460-31791-3 MS	20	T	21:40	X	X																		
460-31791-3 PDS	20	T	21:44	X	X																		
460-31791-1	20	T	21:49	X	X																		
460-31791-2	20	T	21:53	X	X																		
ZZZZZZ			21:58																				
CCV 460-88662/40	1		22:03	X	X																		
CCB 460-88662/41	1		22:07	X	X																		

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

Instrument ID: ICPMS2 Method: 6020

Start Date: 10/06/2011 19:01 End Date: 10/06/2011 22:21

Lab Sample ID	D / F	Type	Time	Analytes																			
				V	Zn																		
ZZZZZZ			22:12																				
CCV 460-88662/43			22:17																				
CCB 460-88662/44			22:21																				

Prep Types

T = Total/NA

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

Instrument ID: ICPMS2 Method: 6020

Start Date: 10/07/2011 19:20 End Date: 10/08/2011 04:07

Lab Sample ID	D / F	Type	Time	Analytes																			
				Ca																			
ZZZZZZ			19:20																				
ZZZZZZ			19:25																				
ZZZZZZ			19:30																				
ZZZZZZ			19:35																				
ZZZZZZ			19:40																				
ICV 460-88792/6	1		19:45	X																			
ICB 460-88792/7	1		19:50	X																			
CRI 460-88792/8	1		19:55	X																			
ICSA 460-88792/9	1		20:00	X																			
ICSAB 460-88792/10	1		20:05	X																			
ZZZZZZ			20:10																				
ZZZZZZ			20:15																				
CCV 460-88792/13			20:20																				
CCB 460-88792/14			20:25																				
ZZZZZZ			20:30																				
ZZZZZZ			20:35																				
ZZZZZZ			20:40																				
ZZZZZZ			20:45																				
ZZZZZZ			20:50																				
ZZZZZZ			20:55																				
ZZZZZZ			21:00																				
ZZZZZZ			21:05																				
ZZZZZZ			21:10																				
ZZZZZZ			21:15																				
CCV 460-88792/25	1		21:20	X																			
CCB 460-88792/26	1		21:25	X																			
ZZZZZZ			21:30																				
ZZZZZZ			21:35																				
ZZZZZZ			21:40																				
ZZZZZZ			21:45																				
460-31791-1	100	T	21:50	X																			
ZZZZZZ			21:55																				
ZZZZZZ			22:00																				
CCV 460-88792/34	1		22:05	X																			
CCB 460-88792/35	1		22:10	X																			
ZZZZZZ			22:15																				
ZZZZZZ			22:21																				
ZZZZZZ			22:26																				
ZZZZZZ			22:31																				
ZZZZZZ			22:36																				
ZZZZZZ			22:41																				
ZZZZZZ			22:46																				

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

Instrument ID: ICPMS2 Method: 6020

Start Date: 10/07/2011 19:20 End Date: 10/08/2011 04:07

Lab Sample ID	D / F	Type	Time	Analytes																			
				Ca																			
ZZZZZZ			22:51																				
ZZZZZZ			22:56																				
ZZZZZZ			23:01																				
CCV 460-88792/46			23:06																				
CCB 460-88792/47			23:10																				
ZZZZZZ			23:16																				
ZZZZZZ			23:21																				
ZZZZZZ			23:26																				
ZZZZZZ			23:31																				
ZZZZZZ			23:36																				
ZZZZZZ			23:41																				
ZZZZZZ			23:46																				
ZZZZZZ			23:51																				
CCV 460-88792/56			23:56																				
CCB 460-88792/57			00:00																				
ZZZZZZ			00:06																				
ZZZZZZ			00:11																				
ZZZZZZ			00:16																				
ZZZZZZ			00:21																				
ZZZZZZ			00:26																				
ZZZZZZ			00:31																				
ZZZZZZ			00:36																				
ZZZZZZ			00:41																				
ZZZZZZ			00:46																				
ZZZZZZ			00:51																				
CCV 460-88792/68			00:56																				
CCB 460-88792/69			01:01																				
ZZZZZZ			01:06																				
ZZZZZZ			01:11																				
ZZZZZZ			01:16																				
CCV 460-88792/73			01:21																				
CCB 460-88792/74			01:26																				
ZZZZZZ			01:31																				
ZZZZZZ			01:36																				
ZZZZZZ			01:41																				
ZZZZZZ			01:46																				
ZZZZZZ			01:51																				
ZZZZZZ			01:56																				
ZZZZZZ			02:01																				
ZZZZZZ			02:06																				
ZZZZZZ			02:11																				
ZZZZZZ			02:16																				

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

Instrument ID: ICPMS2 Method: 6020

Start Date: 10/07/2011 19:20 End Date: 10/08/2011 04:07

Lab Sample ID	D / F	Type	Time	Analytes																			
				Ca																			
CCV 460-88792/85			02:21																				
CCB 460-88792/86			02:26																				
ZZZZZZ			02:31																				
ZZZZZZ			02:36																				
ZZZZZZ			02:41																				
ZZZZZZ			02:46																				
ZZZZZZ			02:51																				
ZZZZZZ			02:56																				
ZZZZZZ			03:01																				
ZZZZZZ			03:06																				
ZZZZZZ			03:11																				
ZZZZZZ			03:16																				
CCV 460-88792/97			03:21																				
CCB 460-88792/98			03:26																				
ZZZZZZ			03:31																				
ZZZZZZ			03:36																				
ZZZZZZ			03:41																				
ZZZZZZ			03:46																				
ZZZZZZ			03:51																				
ZZZZZZ			03:57																				
CCV 460-88792/105			04:02																				
CCB 460-88792/106			04:07																				

Prep Types

T = Total/NA

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

Instrument ID: LEEMAN3 Method: 7471A

Start Date: 10/03/2011 21:03 End Date: 10/03/2011 22:50

Lab Sample ID	D/F	Type	Time	Analytes																			
				Hg																			
IC 460-88100/1-A			21:03	X																			
IC 460-88100/2-A			21:05	X																			
IC 460-88100/3-A			21:06	X																			
IC 460-88100/4-A			21:08	X																			
IC 460-88100/5-A			21:10	X																			
IC 460-88100/6-A			21:12	X																			
ICV 460-88100/7-A	1		21:14	X																			
ICB 460-88109/8	1		21:15	X																			
MB 460-88100/10-A	1	T	21:17	X																			
LCSSRM 460-88100/11-A ^10	10	T	21:19	X																			
ZZZZZZ			21:21																				
460-31882-F-16-B DU	1	T	21:23	X																			
460-31882-F-16-C MS	1	T	21:25	X																			
460-31791-1	1	T	21:27	X																			
460-31791-2	1	T	21:29	X																			
460-31791-3	1	T	21:31	X																			
ZZZZZZ			21:33																				
ZZZZZZ			21:35																				
CCV 460-88100/8-A	1		21:37	X																			
CCB 460-88109/20	1		21:39	X																			
ZZZZZZ			21:40																				
ZZZZZZ			21:42																				
ZZZZZZ			21:44																				
ZZZZZZ			21:46																				
ZZZZZZ			21:48																				
ZZZZZZ			21:50																				
ZZZZZZ			21:52																				
ZZZZZZ			21:54																				
ZZZZZZ			21:55																				
ZZZZZZ			21:57																				
CCV 460-88100/8-A	1		21:59	X																			
CCB 460-88109/32	1		22:01	X																			
ZZZZZZ			22:03																				
ZZZZZZ			22:05																				
ZZZZZZ			22:06																				
ZZZZZZ			22:08																				
460-31882-F-16-A SD	5	T	22:10	X																			
ZZZZZZ			22:12																				
CCV 460-88100/8-A	1		22:13	X																			
CCB 460-88109/40	1		22:15	X																			
ZZZZZZ			22:17																				

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

Instrument ID: LEEMAN3 Method: 7471A

Start Date: 10/03/2011 21:03 End Date: 10/03/2011 22:50

Lab Sample ID	D / F	Type	Time	Analytes																			
				Hg																			
ZZZZZZ			22:19																				
ZZZZZZ			22:21																				
ZZZZZZ			22:22																				
ZZZZZZ			22:24																				
ZZZZZZ			22:26																				
ZZZZZZ			22:28																				
ZZZZZZ			22:30																				
ZZZZZZ			22:32																				
ZZZZZZ			22:34																				
CCV 460-88100/8-A			22:36																				
CCB 460-88109/52			22:38																				
ZZZZZZ			22:39																				
ZZZZZZ			22:41																				
ZZZZZZ			22:43																				
ZZZZZZ			22:45																				
ZZZZZZ			22:47																				
CCV 460-88100/8-A			22:48																				
CCB 460-88109/59			22:50																				

Prep Types

T = Total/NA

15-IN
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
METALS

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

ICP-MS Instrument ID: ICPMS2 Start Date: 10/06/2011 End Date: 10/06/2011

Lab Sample ID	Time	Internal Standards %RI For:									
		Element Li-6	Q	Element Sc	Q	Element Ge	Q	Element In	Q	Element Tb	Q
ICV 460-88662/6	19:24	98		100		101		98		99	
ICB 460-88662/7	19:29	100		101		101		100		101	
CRI 460-88662/8	19:34	98		100		101		100		100	
ICSA 460-88662/9	19:38	86		94		96		90		94	
ICSAB 460-88662/10	19:43	85		99		100		93		96	
CCV 460-88662/28	21:07	99		99		100		98		100	
CCB 460-88662/29	21:11	99		99		100		99		100	
MB 460-88293/1-A	21:16	98		98		98		99		100	
LCSSRM	21:21	100		100		101		98		101	
460-31791-3 DU	21:26	97		98		99		97		100	
460-31791-3	21:30	99		99		99		97		100	
460-31791-3 SD	21:35	99		99		100		99		100	
460-31791-3 MS	21:40	95		98		99		96		99	
460-31791-3 PDS	21:44	96		99		100		97		100	
460-31791-1	21:49	94		94		95		92		95	
460-31791-2	21:53	97		99		98		95		100	
CCV 460-88662/40	22:03	96		97		98		96		98	
CCB 460-88662/41	22:07	97		98		99		99		100	

15-IN
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
METALS

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

ICP-MS Instrument ID: ICPMS2 Start Date: 10/06/2011 End Date: 10/06/2011

Lab Sample ID	Time	Internal Standards %RI For:									
		Element Bi	Q	Element	Q	Element	Q	Element	Q	Element	Q
ICV 460-88662/6	19:24	98									
ICB 460-88662/7	19:29	100									
CRI 460-88662/8	19:34	99									
ICSA 460-88662/9	19:38	87									
ICSAB 460-88662/10	19:43	89									
CCV 460-88662/28	21:07	99									
CCB 460-88662/29	21:11	100									
MB 460-88293/1-A	21:16	99									
LCSSRM	21:21	101									
460-31791-3 DU	21:26	101									
460-31791-3	21:30	101									
460-31791-3 SD	21:35	101									
460-31791-3 MS	21:40	100									
460-31791-3 PDS	21:44	101									
460-31791-1	21:49	92									
460-31791-2	21:53	98									
CCV 460-88662/40	22:03	98									
CCB 460-88662/41	22:07	100									

15-IN
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
METALS

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

ICP-MS Instrument ID: ICPMS2 Start Date: 10/07/2011 End Date: 10/07/2011

Lab Sample ID	Time	Internal Standards %RI For:									
		Element Li-6	Q	Element Sc	Q	Element Ge	Q	Element In	Q	Element Tb	Q
ICV 460-88792/6	19:45	97		98		100		96		97	
ICB 460-88792/7	19:50	99		98		99		98		98	
CRI 460-88792/8	19:55	99		100		101		99		99	
ICSA 460-88792/9	20:00	90		96		98		93		97	
ICSAB 460-88792/10	20:05	89		98		99		93		96	
CCV 460-88792/25	21:20	96		99		101		98		99	
CCB 460-88792/26	21:25	99		100		102		100		101	
460-31791-1	21:50	99		99		100		99		100	
CCV 460-88792/34	22:05	96		97		99		97		100	
CCB 460-88792/35	22:10	98		97		99		98		99	

15-IN
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
METALS

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

ICP-MS Instrument ID: ICPMS2 Start Date: 10/07/2011 End Date: 10/07/2011

Lab Sample ID	Time	Internal Standards %RI For:									
		Element Bi	Q	Element	Q	Element	Q	Element	Q	Element	Q
ICV 460-88792/6	19:45	97									
ICB 460-88792/7	19:50	99									
CRI 460-88792/8	19:55	100									
ICSA 460-88792/9	20:00	91									
ICSAB 460-88792/10	20:05	90									
CCV 460-88792/25	21:20	99									
CCB 460-88792/26	21:25	101									
460-31791-1	21:50	100									
CCV 460-88792/34	22:05	100									
CCB 460-88792/35	22:10	100									

METHOD:
2009t6020

C:\ICPMH\1\7500\QCTUNE.D

STD
914256

MP100611

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 6 Oct 2011 09:54:18 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\2008tune.m

Minimum Response(CPS)

Element	Actual	Required	Flag

RSD (%)

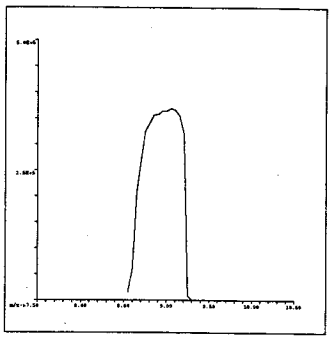
Element	Actual	Required	Flag
9 Be	0.54	5.00	
24 Mg	0.77	5.00	
25 Mg	0.40	5.00	
26 Mg	0.72	5.00	
59 Co	0.46	5.00	
115 In	1.02	5.00	
206 Pb	1.15	5.00	
207 Pb	0.37	5.00	
208 Pb	0.90	5.00	

Ion Ratio

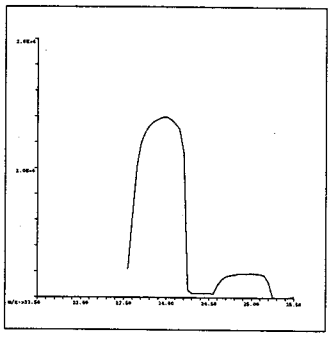
Element	Actual	Required	Flag

Maximum Bkg. Count(CPS)

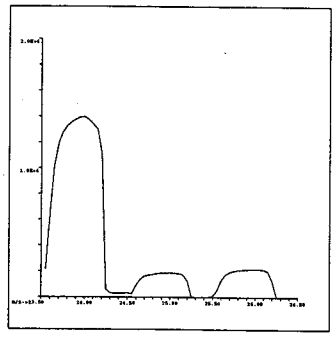
Element	Actual	Required	Flag



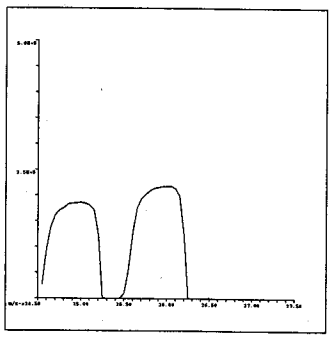
9 Be
Mass Calib.
Actual: 9.00
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.60
Required: 0.90
Flag:



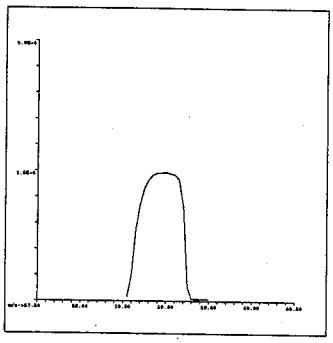
24 Mg
Mass Calib.
Actual: 23.95
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.90
Flag:



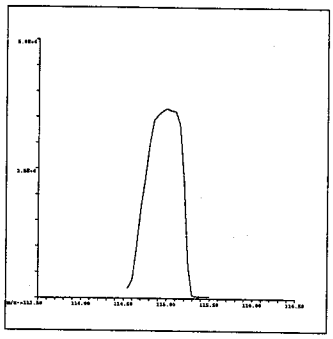
25 Mg
Mass Calib.
Actual: 24.95
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.90
Flag:



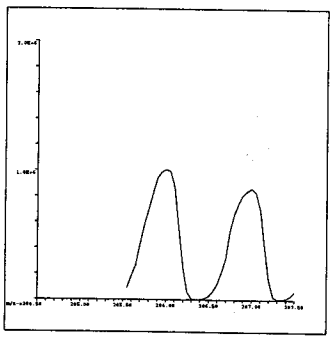
26 Mg
Mass Calib.
Actual: 25.95
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.90
Flag:



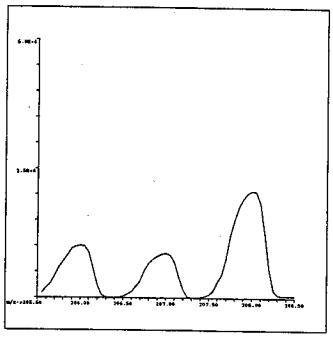
59 Co
Mass Calib.
Actual: 58.95
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.90
Flag:



115 In
Mass Calib.
Actual: 115.00
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.65
Required: 0.90
Flag:

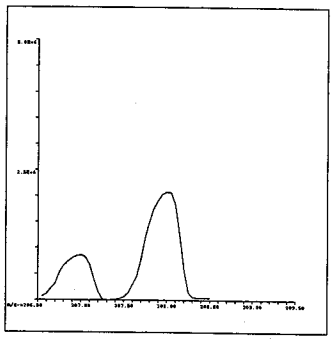


206 Pb
Mass Calib.
Actual: 206.00
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.60
Required: 0.90
Flag:



207 Pb
Mass Calib.
Actual: 206.95
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.60
Required: 0.90
Flag:

C:\ICPMH\1\7500\QCTUNE.D



208 Pb
Mass Calib.
Actual: 208.00
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.60
Required: 0.90
Flag:

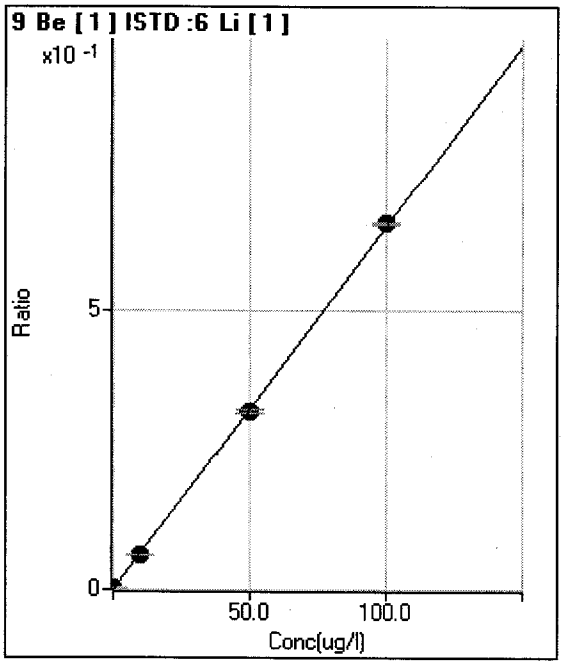
QC Tune Result:Pass

Calibration for 003CALB.D

Batch Folder: C:\ICPMH\1\DATA\11J06s00.B\
Analysis File: 11J06s00.batch.xml
DA Date-Time: 10/7/2011 8:41:09 AM
Calibration Title:
Calibration Method: External Calibration
VIS Interpolation Fit:
Tune Step: #1 helium.u

Level	Standard Data File	Sample Name	Acq. Date-Time
1	003CALB.D	Cal Blank	10/6/2011 7:01:17 PM
2	004CALS.D	CAL1 1187187	10/6/2011 7:06:02 PM
3	005CALS.D	CAL2 1187189	10/6/2011 7:10:48 PM
4	006CALS.D	CAL3 1187191	10/6/2011 7:15:30 PM
5	007CALS.D	CAL4 1187193	10/6/2011 7:20:06 PM

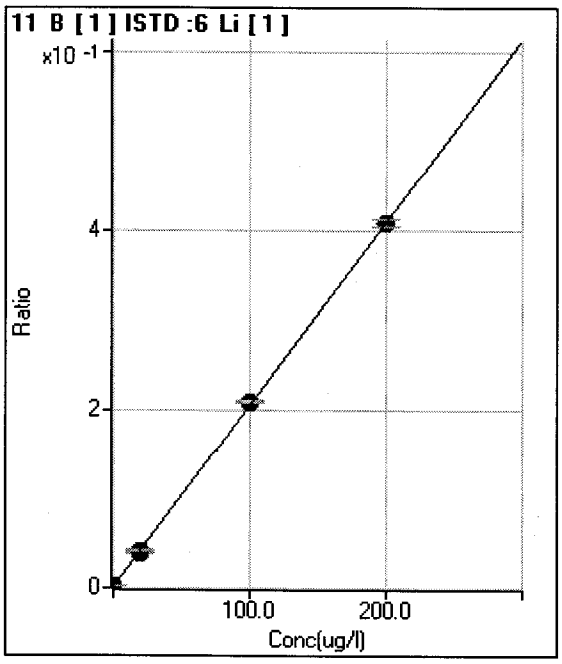
Calibration for 003CALB.D



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-0.002	1.11	0.0001	P	173.2
2	☐	0.200	0.272	28.33	0.0018	P	27.0
3	☐	10.000	9.520	935.60	0.0617	P	2.4
4	☐	50.000	49.317	4834.12	0.3190	P	1.8
5	☐	100.000	101.158	9773.60	0.6543	P	0.9

y = 0.0065 * x + 8.7439E-005
R = 0.9999
DL = 0.05856
BEC = 0.01352

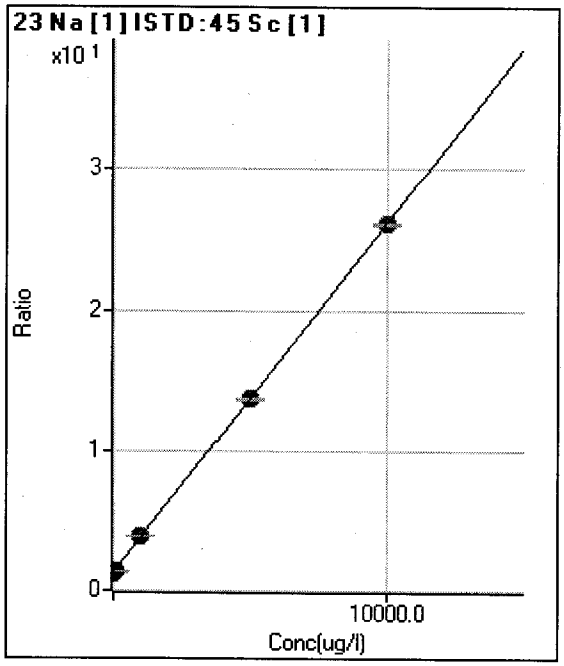
Weight: 1/y
Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.443	27.78	0.0018	P	37.9
2	☐	20.000	19.121	613.36	0.0400	P	2.2
3	☐	20.000	20.027	634.48	0.0418	P	5.1
4	☐	100.000	101.808	3164.86	0.2088	P	1.3
5	☐	200.000	199.705	6105.76	0.4088	P	2.1

y = 0.0020 * x + 9.1383E-004
R = 0.9999
DL = 1.013
BEC = 0.4474

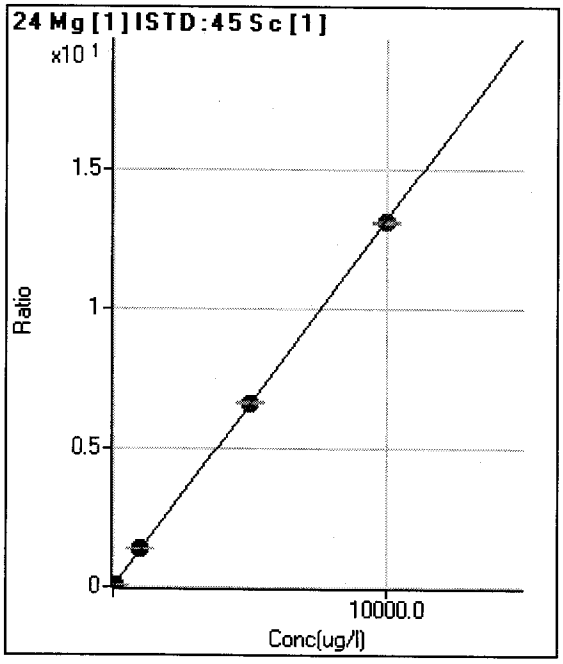
Weight: 1/SD^2
Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-0.598	437674.38	1.2819	P	0.6
2	☐	50.000	47.571	479803.99	1.4019	P	0.7
3	☐	1000.000	1060.441	1337724.55	3.9253	A	0.9
4	☐	5000.000	4972.773	4678336.11	13.6719	A	0.5
5	☐	10000.000	9976.413	8822254.24	26.1373	A	0.4

y = 0.0025 * x + 1.2834
R = 1.0000
DL = 9.369
BEC = 515.2

Weight: 1/SD^2
Min Conc: <None>

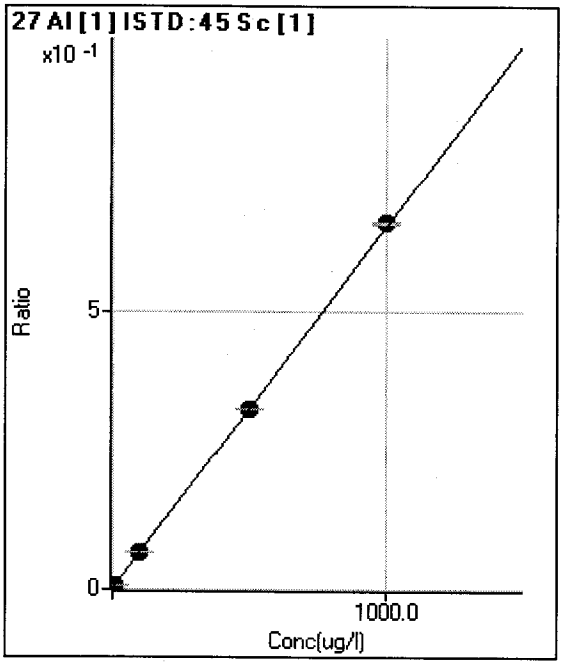


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-0.010	147.78	0.0004	P	6.7
2	☐	50.000	52.342	23735.27	0.0694	P	0.6
3	☐	1000.000	1039.211	466381.79	1.3685	P	0.7
4	☐	5000.000	5025.369	2263872.53	6.6160	A	1.2
5	☐	10000.000	9940.690	4417251.64	13.0867	A	0.2

y = 0.0013 * x + 4.4594E-004
R = 1.0000
DL = 0.06615
BEC = 0.3387

Weight: 1/SD^2
Min Conc: <None>

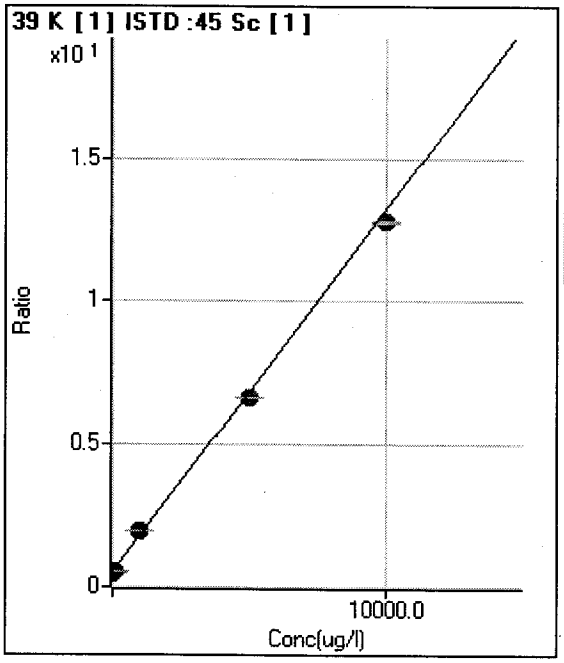
Calibration for 003CALB.D



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-0.004	93.33	0.0003	P	3.0
2	☐	10.000	11.176	2577.47	0.0075	P	1.9
3	☐	100.000	101.963	22652.69	0.0665	P	0.8
4	☐	500.000	499.571	111072.11	0.3246	P	0.1
5	☐	1000.000	1012.347	221924.74	0.6575	P	0.4

y = 6.4919E-004 * x + 2.7597E-004
R = 1.0000
DL = 0.03828
BEC = 0.4251

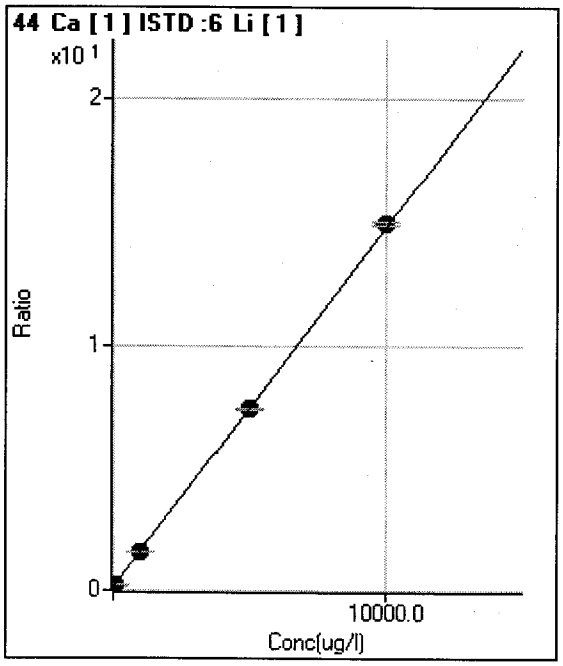
Weight: 1/SD^2
Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-13.828	171319.97	0.5018	P	0.7
2	☐	50.000	42.338	196111.23	0.5730	P	0.5
3	☐	1000.000	1116.532	659486.75	1.9351	P	0.3
4	☐	5000.000	4840.200	2277856.29	6.6568	A	0.3
5	☐	10000.000	9671.692	4314771.46	12.7832	A	0.5

y = 0.0013 * x + 0.5193
R = 0.9999
DL = 8.174
BEC = 409.6

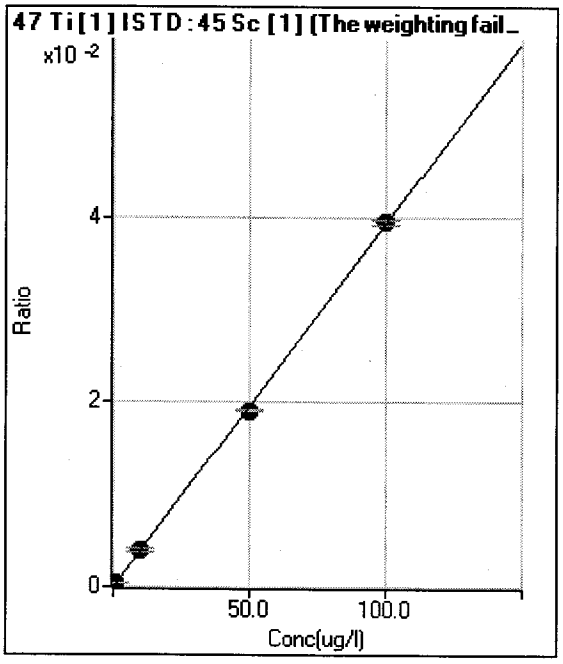
Weight: 1/SD^2
Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.202	2275.20	0.1492	P	1.4
2	☐	50.000	49.017	3384.30	0.2205	P	2.3
3	☐	1000.000	995.593	24316.98	1.6024	P	2.1
4	☐	5000.000	4969.348	112192.77	7.4037	P	0.8
5	☐	10000.000	10115.152	222810.65	14.9161	P	1.0

y = 0.0015 * x + 0.1489
R = 1.0000
DL = 4.241
BEC = 102

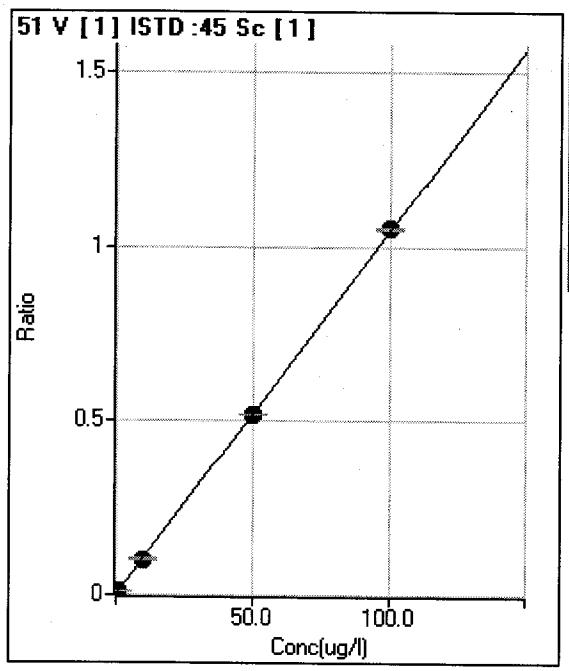
Weight: 1/SD^2
Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.115	0.00	0.0000	P	
2	☐	1.000	1.249	152.23	0.0004	P	16.3
3	☐	10.000	10.289	1360.10	0.0040	P	8.8
4	☐	50.000	48.757	6530.42	0.0191	P	1.3
5	☐	100.000	100.590	13304.86	0.0394	P	1.8

y = 3.9233E-004 * x - 4.5125E-005
R = 0.9999
DL = 0
BEC = -0.115

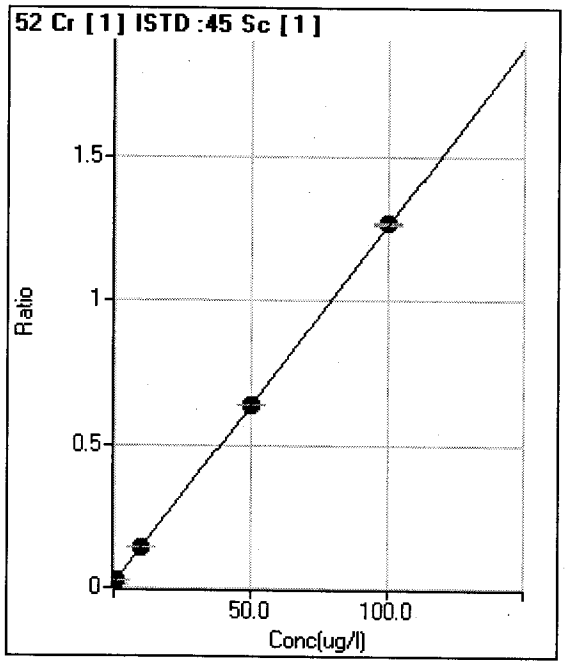
Weight: 1/SD^2
Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	158.89	0.0005	P	15.6
2	☐	1.000	1.023	3809.47	0.0111	P	4.0
3	☐	10.000	9.825	35084.86	0.1029	P	1.2
4	☐	50.000	49.752	177733.21	0.5194	P	0.3
5	☐	100.000	100.834	355156.31	1.0522	P	0.4

y = 0.0104 * x + 4.6372E-004
R = 1.0000
DL = 0.02095
BEC = 0.04446

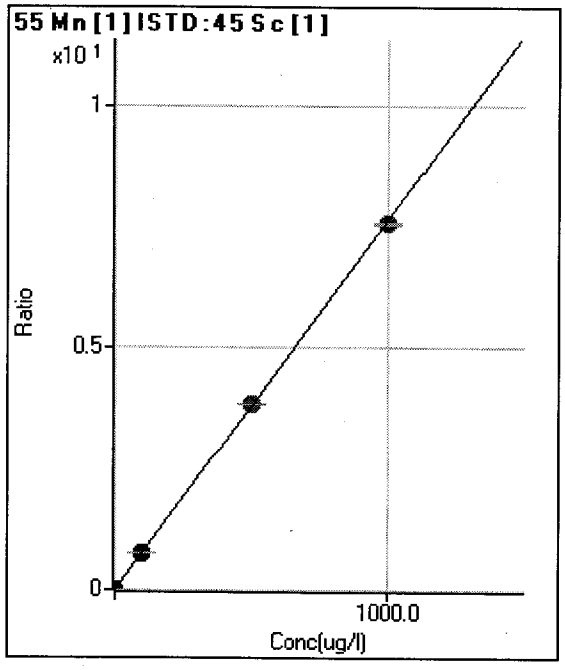
Weight: 1/SD^2
Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-0.010	5378.86	0.0158	P	1.3
2	☐	1.000	1.034	9837.74	0.0287	P	1.7
3	☐	10.000	10.113	48266.01	0.1416	P	0.6
4	☐	50.000	49.979	218071.08	0.6373	P	0.1
5	☐	100.000	100.720	428053.98	1.2682	P	0.6

y = 0.0124 * x + 0.0159
R = 1.0000
DL = 0.04909
BEC = 1.277

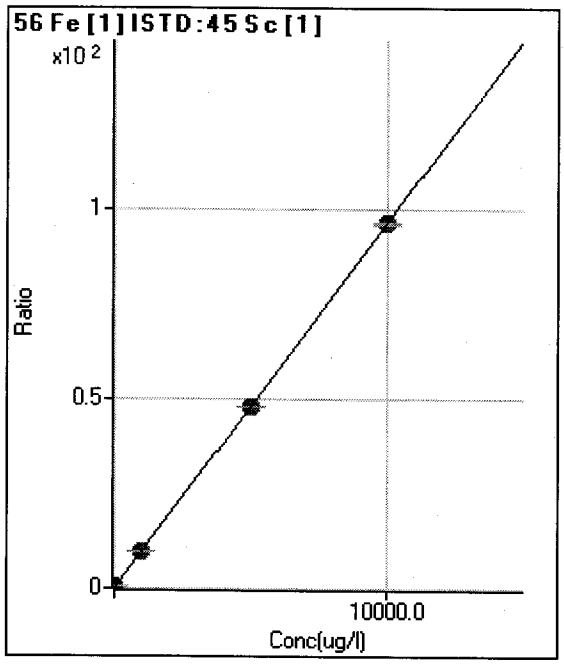
Weight: 1/SD^2
Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	301.12	0.0009	P	2.8
2	☐	2.000	2.035	5621.18	0.0164	P	4.1
3	☐	100.000	100.699	262426.79	0.7700	P	0.8
4	☐	500.000	504.652	1319288.75	3.8555	A	0.7
5	☐	1000.000	991.436	2556352.20	7.5736	A	0.5

y = 0.0076 * x + 8.8248E-004
R = 1.0000
DL = 0.009554
BEC = 0.1155

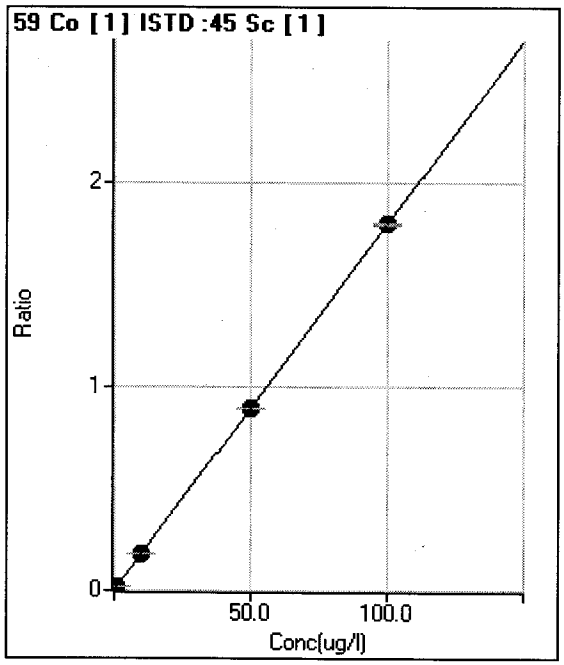
Weight: 1/SD^2
Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-0.111	3594.91	0.0105	P	3.4
2	☐	30.000	33.037	112521.25	0.3288	P	0.6
3	☐	1000.000	1016.756	3330712.03	9.7733	A	0.8
4	☐	5000.000	4981.366	16369033.50	47.8368	A	0.6
5	☐	10000.000	9999.579	32408269.52	96.0157	A	0.9

y = 0.0096 * x + 0.0116
R = 1.0000
DL = 0.1124
BEC = 1.208

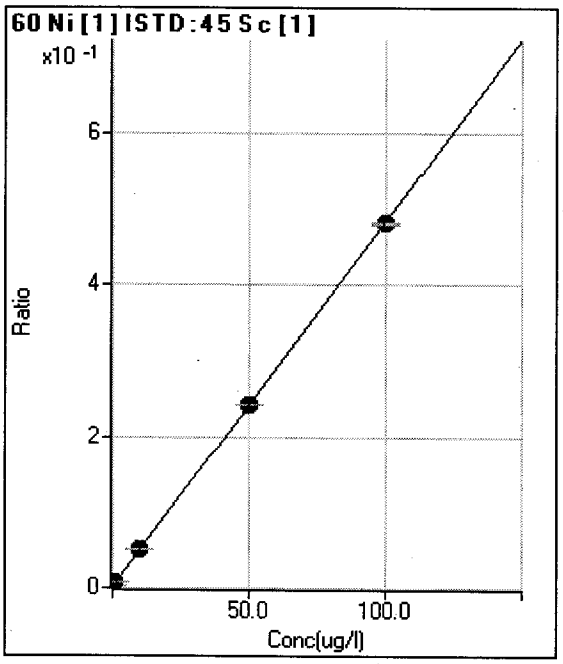
Weight: 1/y
Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-0.001	71.12	0.0002	P	5.1
2	☐	1.000	1.052	6530.45	0.0191	P	2.1
3	☐	10.000	10.129	61971.85	0.1818	P	0.9
4	☐	50.000	49.781	305515.33	0.8928	P	0.2
5	☐	100.000	100.044	605554.71	1.7941	P	0.7

y = 0.0179 * x + 2.2025E-004
R = 1.0000
DL = 0.001776
BEC = 0.01228

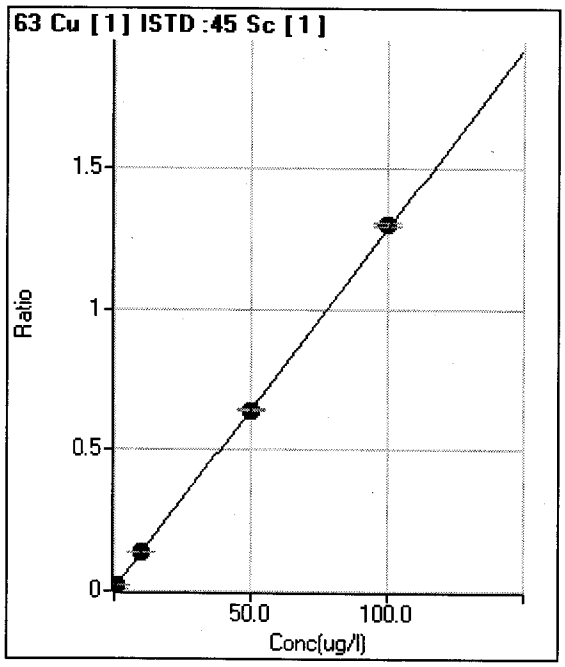
Weight: 1/y
Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-0.016	457.80	0.0013	P	8.0
2	☐	1.000	1.073	2250.24	0.0066	P	4.1
3	☐	10.000	10.101	17037.43	0.0500	P	1.0
4	☐	50.000	49.936	82664.41	0.2416	P	0.5
5	☐	100.000	99.691	162305.44	0.4809	P	0.7

y = 0.0048 * x + 0.0014
R = 1.0000
DL = 0.06683
BEC = 0.2944

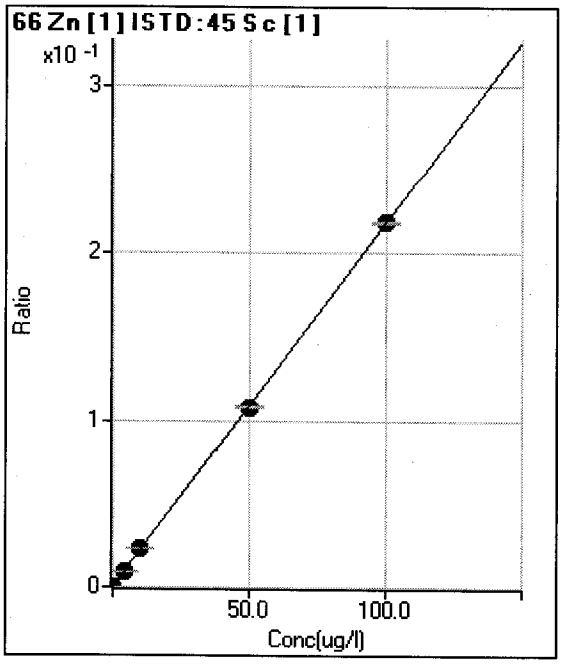
Weight: 1/SD^2
Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-0.003	2304.68	0.0068	P	1.4
2	☐	1.000	1.067	6976.20	0.0204	P	2.3
3	☐	10.000	10.119	46263.85	0.1358	P	1.5
4	☐	50.000	49.808	219553.61	0.6416	P	0.4
5	☐	100.000	101.244	437846.81	1.2972	P	0.9

y = 0.0127 * x + 0.0068
R = 1.0000
DL = 0.02202
BEC = 0.5323

Weight: 1/SD^2
Min Conc: <None>

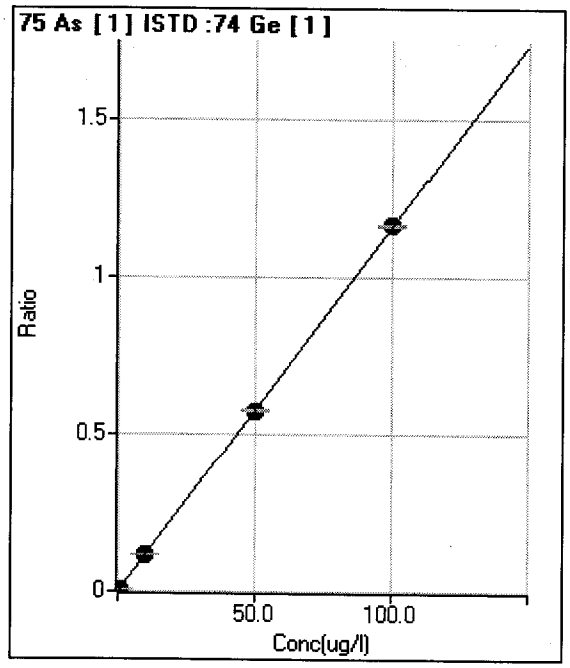


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-0.005	154.45	0.0005	P	9.7
2	☐	4.000	4.157	3255.99	0.0095	P	3.7
3	☐	10.000	10.339	7828.86	0.0230	P	1.8
4	☐	50.000	49.426	36980.73	0.1081	P	0.6
5	☐	100.000	100.236	73816.43	0.2187	P	0.4

y = 0.0022 * x + 4.6257E-004
R = 1.0000
DL = 0.06019
BEC = 0.2125

Weight: 1/SD^2
Min Conc: <None>

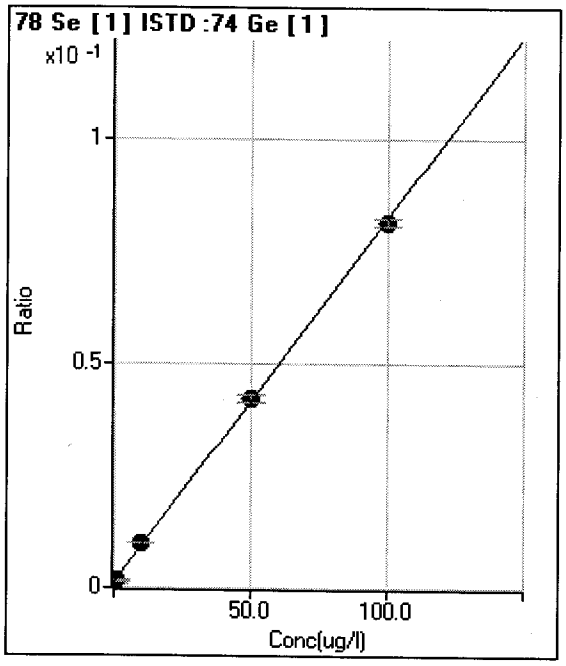
Calibration for 003CALB.D



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	33.89	0.0007	P	11.0
2	☐	0.500	0.502	325.01	0.0065	P	17.4
3	☐	10.000	10.022	5730.02	0.1166	P	1.1
4	☐	50.000	49.694	28533.97	0.5755	P	0.5
5	☐	100.000	100.580	57632.22	1.1640	P	0.5

y = 0.0116 * x + 6.9032E-004
R = 1.0000
DL = 0.01962
BEC = 0.05968

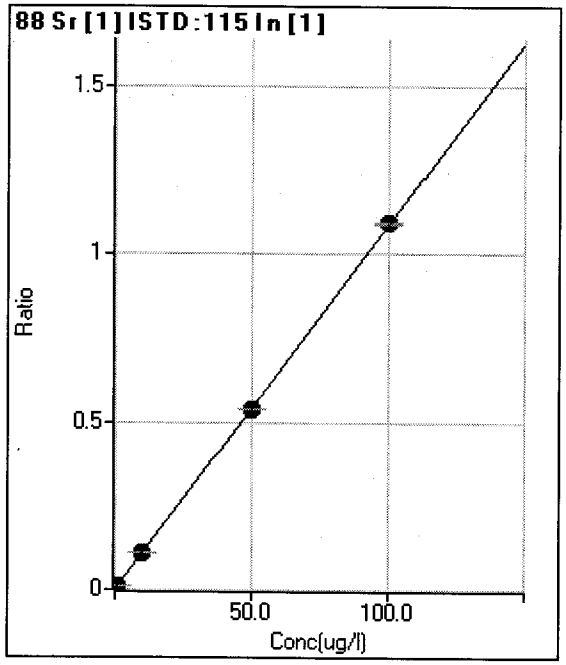
Weight: 1/SD^2
Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-0.148	50.00	0.0010	P	20.5
2	☐	0.500	0.624	82.22	0.0016	P	24.4
3	☐	10.000	10.675	481.68	0.0098	P	2.0
4	☐	50.000	50.694	2095.73	0.0423	P	3.9
5	☐	100.000	98.742	4022.80	0.0813	P	2.2

y = 8.1134E-004 * x + 0.0011
R = 0.9999
DL = 0.7727
BEC = 1.405

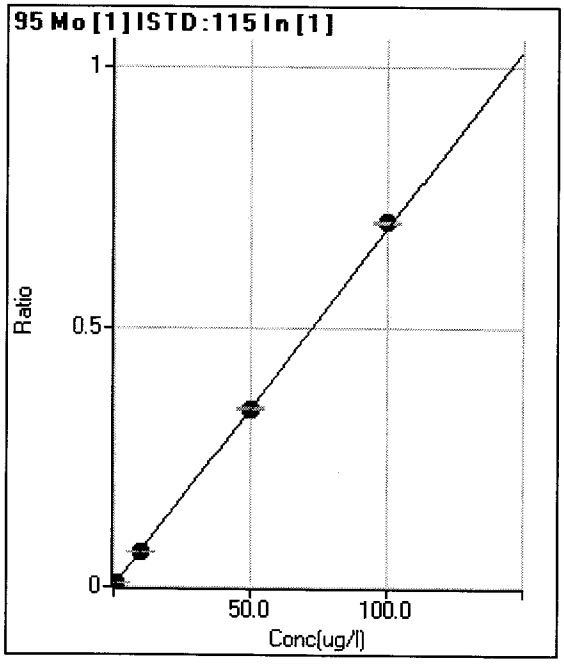
Weight: 1/y
Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	16.67	0.0001	P	19.7
2	☐	1.000	0.997	3152.64	0.0109	P	1.9
3	☐	10.000	9.963	30928.17	0.1082	P	1.9
4	☐	50.000	49.446	153222.32	0.5366	P	0.3
5	☐	100.000	100.652	304267.89	1.0922	P	0.2

y = 0.0109 * x + 5.7172E-005
R = 1.0000
DL = 0.003133
BEC = 0.005269

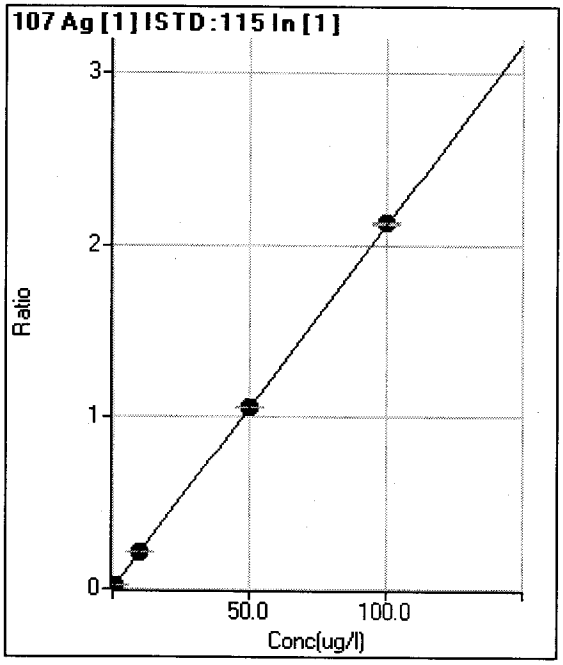
Weight: 1/SD^2
Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.016	62.23	0.0002	P	30.1
2	☐	1.000	0.928	1881.29	0.0065	P	6.0
3	☐	10.000	9.925	19554.06	0.0684	P	0.2
4	☐	50.000	49.972	98198.34	0.3439	P	1.1
5	☐	100.000	102.039	195589.29	0.7021	P	0.3

y = 0.0069 * x + 1.0381E-004
R = 0.9999
DL = 0.02813
BEC = 0.01509

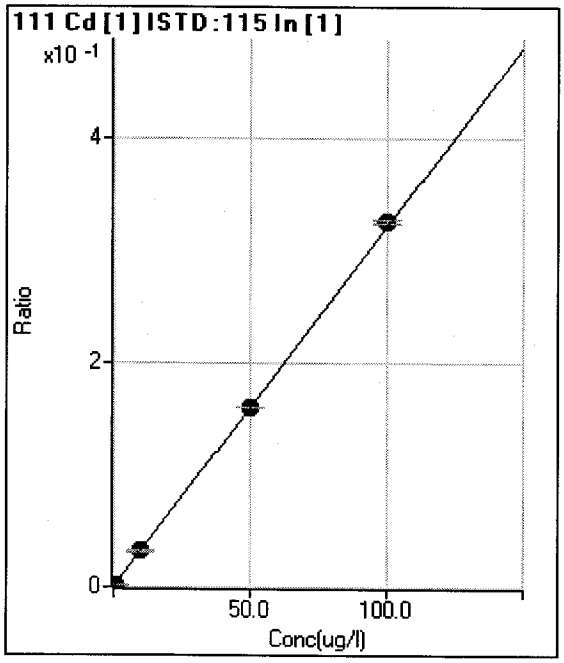
Weight: 1/SD^2
Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	18.89	0.0001	P	10.5
2	☐	1.000	1.042	6396.02	0.0221	P	1.3
3	☐	10.000	9.989	60323.98	0.2110	P	1.5
4	☐	50.000	49.998	301462.48	1.0557	P	0.0
5	☐	100.000	100.765	592703.23	2.1276	P	0.6

y = 0.0211 * x + 6.5689E-005
R = 1.0000
DL = 0.0009739
BEC = 0.003111

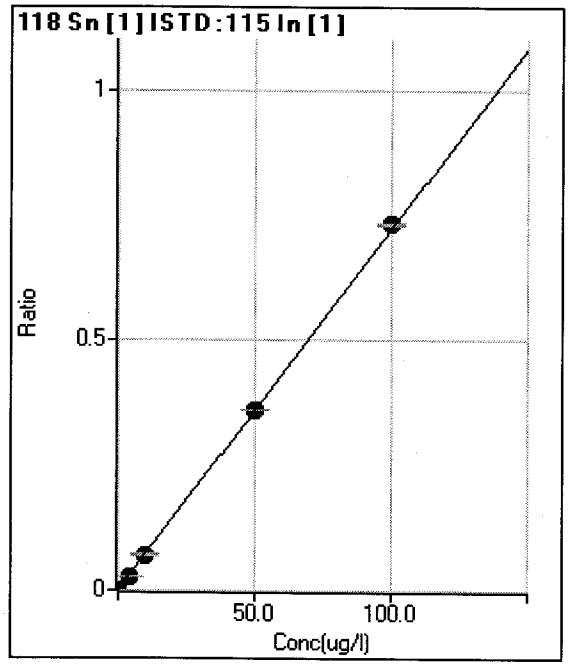
Weight: 1/SD^2
Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	3.33	0.0000	P	100.3
2	☐	0.500	0.514	482.25	0.0017	P	6.7
3	☐	10.000	9.994	9183.05	0.0321	P	1.7
4	☐	50.000	49.914	45790.64	0.1604	P	0.3
5	☐	100.000	101.416	90761.18	0.3258	P	1.0

y = 0.0032 * x + 1.1918E-005
R = 1.0000
DL = 0.01078
BEC = 0.00371

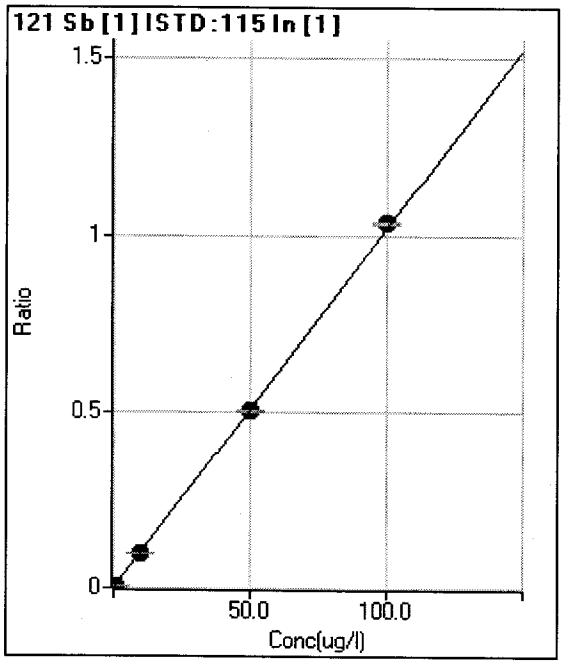
Weight: 1/SD^2
Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.002	82.23	0.0003	P	20.5
2	☐	4.000	3.889	8219.16	0.0283	P	2.5
3	☐	10.000	9.903	20517.84	0.0718	P	0.7
4	☐	50.000	50.068	103279.46	0.3617	P	1.0
5	☐	100.000	101.603	204393.39	0.7337	P	0.8

y = 0.0072 * x + 2.7083E-004
R = 1.0000
DL = 0.02416
BEC = 0.03752

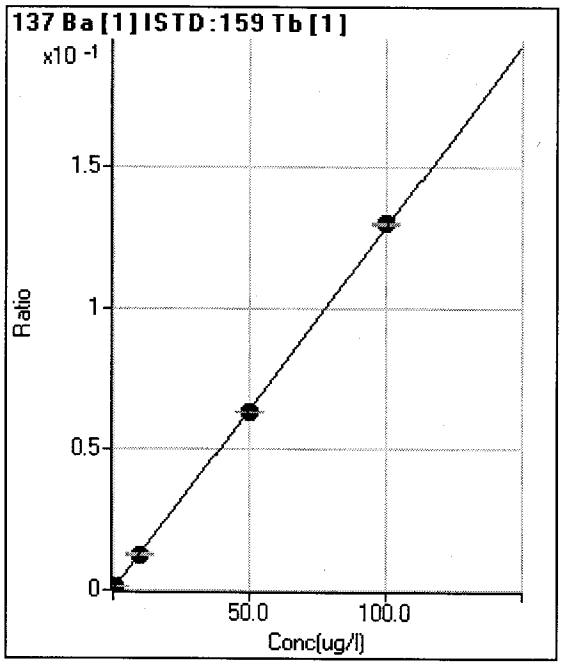
Weight: 1/SD^2
Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	23.33	0.0001	P	28.6
2	☐	0.500	0.458	1373.44	0.0047	P	5.5
3	☐	10.000	9.842	28656.64	0.1002	P	1.3
4	☐	50.000	49.364	143451.51	0.5024	P	0.9
5	☐	100.000	101.651	288165.22	1.0344	P	0.7

y = 0.0102 * x + 7.6615E-005
R = 0.9999
DL = 0.006776
BEC = 0.007529

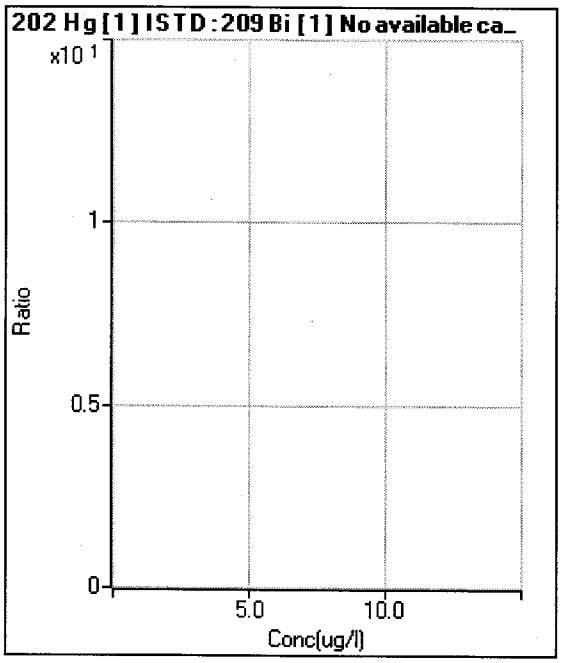
Weight: 1/SD^2
Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	18.89	0.0000	P	36.6
2	☐	1.000	0.997	1013.40	0.0013	P	5.0
3	☐	10.000	9.864	9732.34	0.0127	P	1.3
4	☐	50.000	49.325	48880.52	0.0635	P	0.9
5	☐	100.000	101.107	98449.14	0.1300	P	0.7

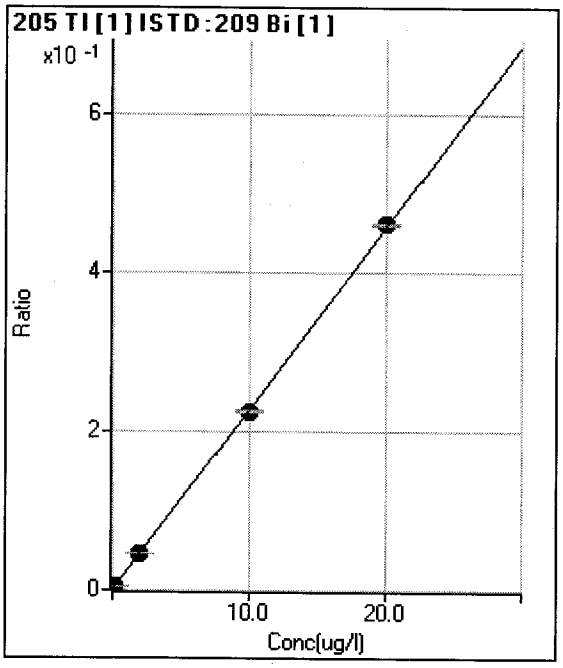
y = 0.0013 * x + 2.3832E-005
R = 0.9999
DL = 0.02088
BEC = 0.01853

Weight: 1/SD^2
Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000					
2	☐	0.100					
3	☐	0.500					
4	☐	2.500					
5	☐	5.000					

Calibration for 003CALB.D



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	37.78	0.0001	P	43.3
2	☐	0.200	0.192	2615.89	0.0045	P	6.2
3	☐	2.000	1.988	26429.60	0.0455	P	0.7
4	☐	10.000	9.885	130370.18	0.2259	P	1.5
5	☐	20.000	20.185	259045.44	0.4612	P	0.7

y = 0.0228 * x + 6.0313E-005

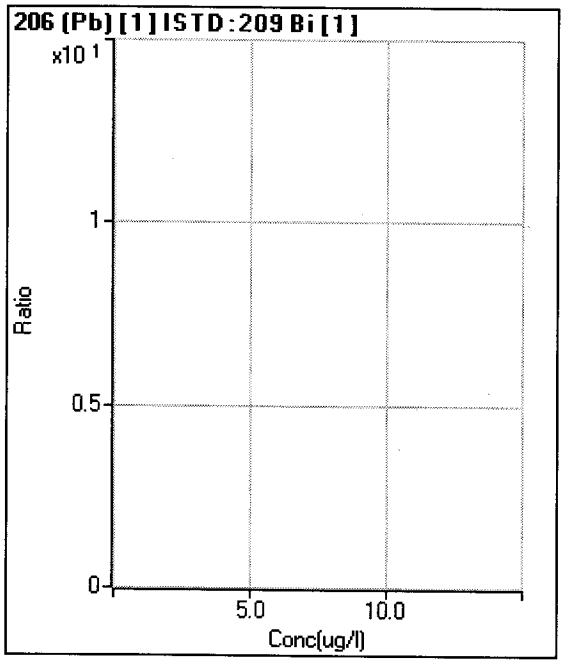
R = 0.9999

DL = 0.003658

BEC = 0.00264

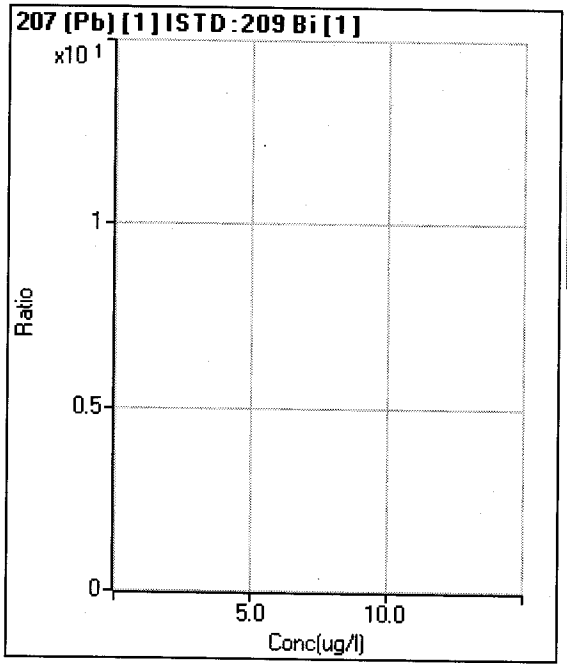
Weight: 1/SD^2

Min Conc: <None>



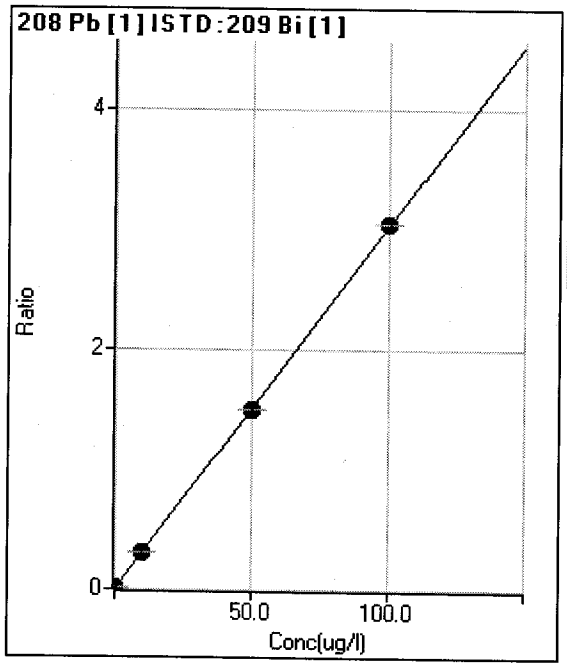
	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			58.89	0.0001	P	31.0
2	☐			1617.92	0.0028	P	10.1
3	☐			44477.85	0.0765	P	0.6
4	☐			221442.97	0.3837	P	1.3
5	☐			435360.72	0.7752	P	0.9

Excluded



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			71.12	0.0001	P	9.4
2	☐			1225.66	0.0021	P	5.2
3	☐			37588.14	0.0647	P	0.5
4	☐			183906.74	0.3187	P	1.0
5	☐			364673.36	0.6493	P	0.5

Excluded



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	257.79	0.0004	P	12.0
2	☐	0.300	0.323	6014.05	0.0102	P	3.1
3	☐	10.000	9.914	174924.27	0.3010	P	0.2
4	☐	50.000	49.613	868208.87	1.5043	P	0.7
5	☐	100.000	100.534	1711727.61	3.0478	P	0.2

y = 0.0303 * x + 4.4355E-004

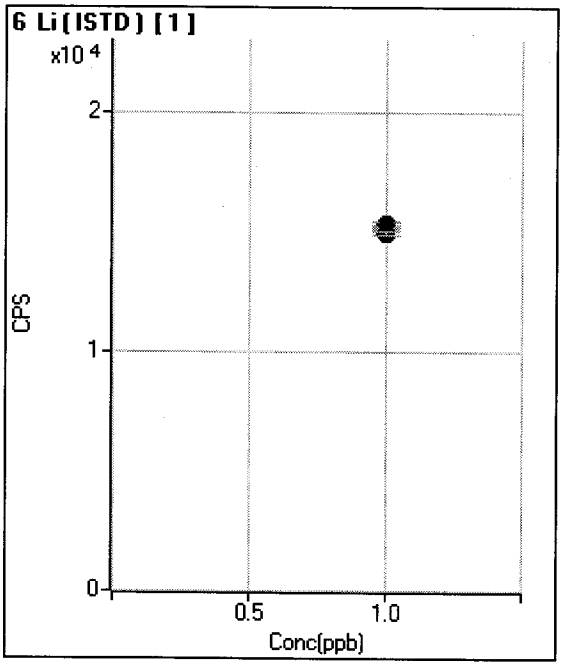
R = 1.0000

DL = 0.005198

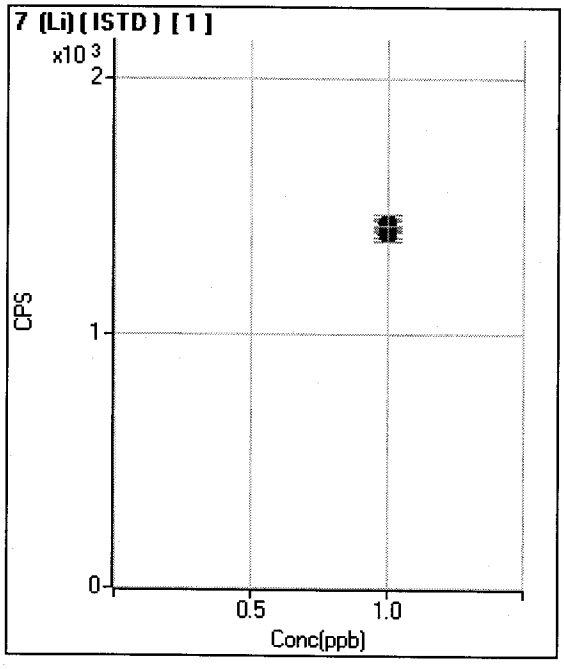
BEC = 0.01463

Weight: 1/SD^2

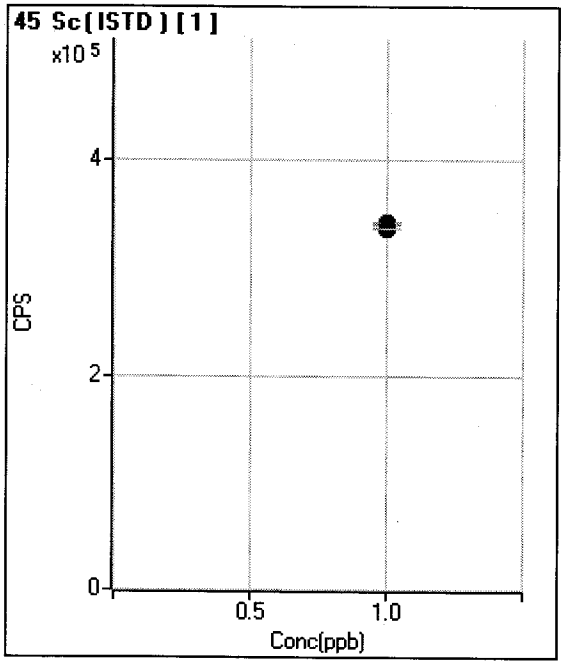
Min Conc: <None>



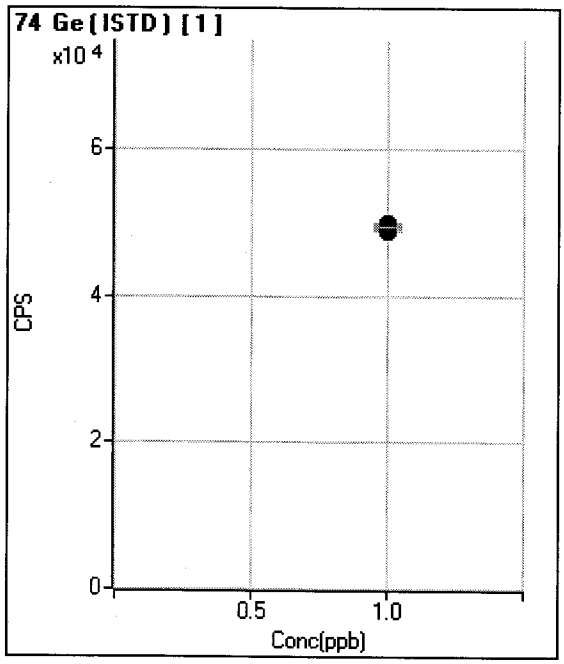
	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		15244.45		P	0.7
2	☐	1.000		15344.82		P	1.3
3	☐	1.000		15176.56		P	0.7
4	☐	1.000		15153.94		P	0.5
5	☐	1.000		14938.87		P	1.3



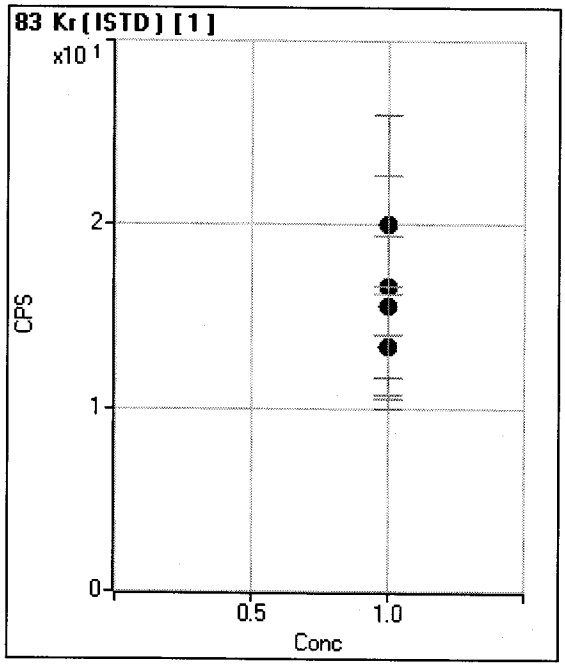
	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		1409.53		P	1.0
2	☐	1.000		1427.30		P	3.9
3	☐	1.000		1411.20		P	4.6
4	☐	1.000		1436.75		P	4.2
5	☐	1.000		1392.86		P	4.2



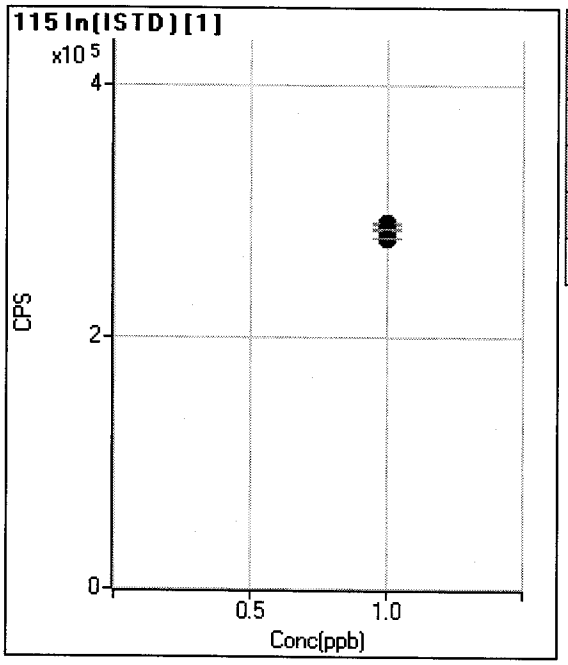
	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		341422.77		P	0.5
2	☐	1.000		342251.07		P	0.5
3	☐	1.000		340803.47		P	0.3
4	☐	1.000		342188.20		P	0.3
5	☐	1.000		337538.40		P	0.4



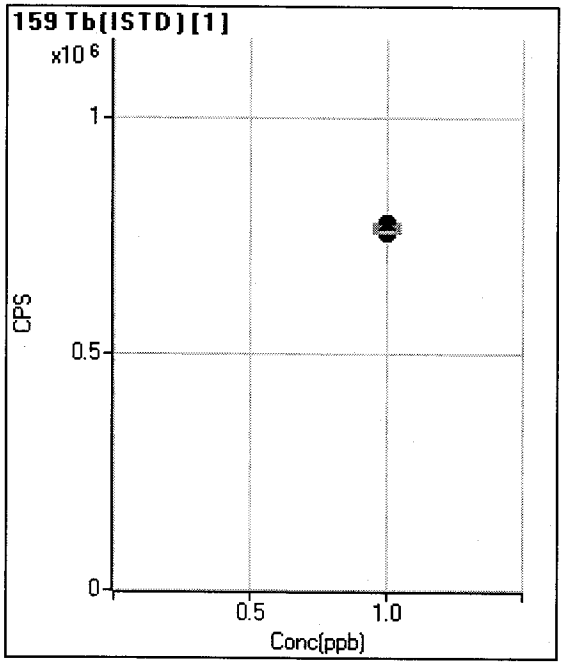
	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		49060.59		P	0.4
2	☐	1.000		49947.18		P	0.7
3	☐	1.000		49142.46		P	0.8
4	☐	1.000		49583.18		P	0.4
5	☐	1.000		49510.29		P	0.5



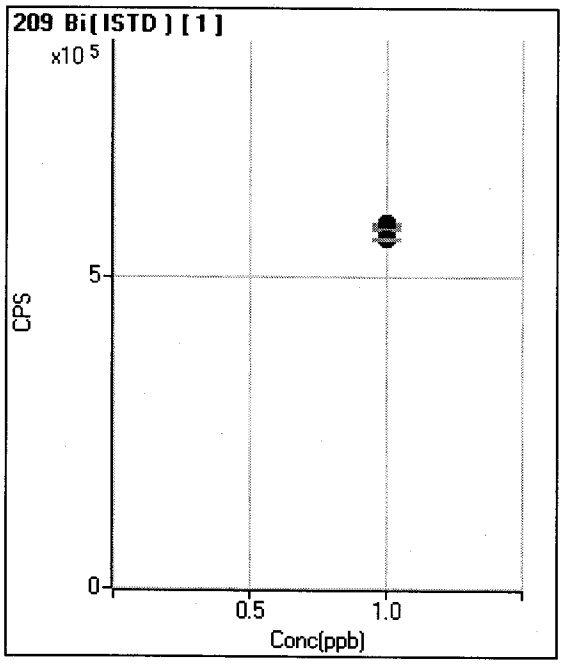
	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		16.67		P	72.1
2	☐	1.000		20.00		P	60.1
3	☐	1.000		15.56		P	49.5
4	☐	1.000		13.33		P	50.0
5	☐	1.000		13.34		P	43.3



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		289859.05		P	0.4
2	☐	1.000		289956.45		P	0.2
3	☐	1.000		285931.67		P	0.3
4	☐	1.000		285551.90		P	0.6
5	☐	1.000		278575.67		P	0.2



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		771893.27		P	0.2
2	☐	1.000		775604.75		P	0.6
3	☐	1.000		765769.08		P	0.6
4	☐	1.000		770321.26		P	0.5
5	☐	1.000		757048.24		P	0.5



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		586910.77		P	0.4
2	☐	1.000		586971.29		P	0.3
3	☐	1.000		581230.01		P	0.3
4	☐	1.000		577161.81		P	1.0
5	☐	1.000		561613.20		P	0.8

Calibration Blank Report

Sample Name	**Cal Blank**
Data File Name	**003CALB.D**
DataPath	**C:\ICPMH\1\DATA\11J06s00.B**
Acq Date Time	**2011-10-06T19:01:17-04:00**
Type	**CalBlk**
VialNumber	**1101**
Dilution	**1**
Comment	
Operator	**MP**

QC Analyte Table

Element	m/z	ISTD	Tune Step	CPS	%RSD
Pb	208	209	1	258	12.29
Tl	205	209	1	38	43.52
Ba	137	159	1	19	36.75
Sb	121	115	1	23	28.56
Sn	118	115	1	82	20.80
Cd	111	115	1	3	100.05
Ag	107	115	1	19	10.18
Mo	95	115	1	62	30.46
Sr	88	115	1	17	20.01
Se	78	74	1	50	20.28
As	75	74	1	34	11.35
Zn	66	45	1	154	9.97
Cu	63	45	1	2305	1.02
Ni	60	45	1	458	8.18
Co	59	45	1	71	5.41
Fe	56	45	1	3595	3.37
Mn	55	45	1	301	2.30
Cr	52	45	1	5379	1.72
V	51	45	1	159	15.46
Ca	44	6	1	2275	1.97
K	39	45	1	171320	0.24
Al	27	45	1	93	3.09
Mg	24	45	1	148	7.16
Na	23	45	1	437674	0.31
B	11	6	1	28	38.58
Be	9	6	1	1	173.21

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD
Bi	209	1	586911	0.45
Tb	159	1	771893	0.17
In	115	1	289859	0.37
Kr	83	1	17	72.13
Ge	74	1	49061	0.37
Sc	45	1	341423	0.46
Li	6	1	15244	0.69

Calibration Standard Report

Sample Name	**CAL1 1187187**
Data File Name	**004CALS.D**
DataPath	**C:\ICPMH\1\DATA\11J06s00.B**
Acq Date Time	**2011-10-06T19:06:02-04:00**
Type	**CalStd**
VialNumber	**1102**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**003CALB.D**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	CPS	%RSD
Be	9	6	1	28	26.96
B	11	6	1	613	3.39
Na	23	45	1	479804	0.27
Mg	24	45	1	23735	0.92
Al	27	45	1	2577	1.77
K	39	45	1	196111	0.03
Ca	44	6	1	3384	3.54
Ti	47	45	1	152	16.14
V	51	45	1	3809	4.08
Cr	52	45	1	9838	1.60
Mn	55	45	1	5621	3.65
Fe	56	45	1	112521	0.13
Co	59	45	1	6530	2.23
Ni	60	45	1	2250	4.48
Cu	63	45	1	6976	2.37
Zn	66	45	1	3256	3.95
As	75	74	1	325	18.12
Se	78	74	1	82	24.52
Sr	88	115	1	3153	2.10
Mo	95	115	1	1881	5.77
Ag	107	115	1	6396	1.30
Cd	111	115	1	482	6.53
Sn	118	115	1	8219	2.71
Sb	121	115	1	1373	5.47
Ba	137	159	1	1013	5.50
Tl	205	209	1	2616	6.14
(Pb)	206	209	1	1618	10.12
(Pb)	207	209	1	1226	4.88
Pb	208	209	1	6014	2.94

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Li	6	1	15345	1.32	15244	100.7	60	120	
Sc	45	1	342251	0.48	341423	100.2	60	120	
Ge	74	1	49947	0.70	49061	101.8	60	120	
Kr	83	1	20	60.08	17	120.0	1	1000	
In	115	1	289956	0.22	289859	100.0	60	120	
Tb	159	1	775605	0.63	771893	100.5	60	120	
Bi	209	1	586971	0.32	586911	100.0	60	120	

TuneStep	TuneFile
1	helium.u

Calibration Standard Report

Sample Name	**CAL2 1187189**
Data File Name	**005CALS.D**
DataPath	**C:\ICPMH\1\DATA\11J06s00.B**
Acq Date Time	**2011-10-06T19:10:48-04:00**
Type	**CalStd**
VialNumber	**1103**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**003CALB.D**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	CPS	%RSD
Be	9	6	1	936	1.79
B	11	6	1	634	4.41
Na	23	45	1	1337725	0.74
Mg	24	45	1	466382	0.38
Al	27	45	1	22653	0.48
K	39	45	1	659487	0.06
Ca	44	6	1	24317	1.45
Ti	47	45	1	1360	8.58
V	51	45	1	35085	1.45
Cr	52	45	1	48266	0.35
Mn	55	45	1	262427	0.53
Fe	56	45	1	3330712	0.54
Co	59	45	1	61972	0.63
Ni	60	45	1	17037	0.72
Cu	63	45	1	46264	1.16
Zn	66	45	1	7829	1.51
As	75	74	1	5730	0.76
Se	78	74	1	482	2.77
Sr	88	115	1	30928	1.95
Mo	95	115	1	19554	0.32
Ag	107	115	1	60324	1.41
Cd	111	115	1	9183	1.87
Sn	118	115	1	20518	0.64
Sb	121	115	1	28657	1.46
Ba	137	159	1	9732	1.84
Tl	205	209	1	26430	0.32
(Pb)	206	209	1	44478	0.80
(Pb)	207	209	1	37588	0.53
Pb	208	209	1	174924	0.26

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Li	6	1	15177	0.67	15244	99.6	60	120	
Sc	45	1	340803	0.29	341423	99.8	60	120	
Ge	74	1	49142	0.85	49061	100.2	60	120	
Kr	83	1	16	49.47	17	93.3	1	1000	
In	115	1	285932	0.25	289859	98.6	60	120	
Tb	159	1	765769	0.56	771893	99.2	60	120	
Bi	209	1	581230	0.35	586911	99.0	60	120	

TuneStep	TuneFile
1	helium.u

Calibration Standard Report

Sample Name	**CAL3 1187191**
Data File Name	**006CALS.D**
DataPath	**C:\ICPMH\1\DATA\11J06s00.B**
Acq Date Time	**2011-10-06T19:15:30-04:00**
Type	**CalStd**
VialNumber	**1104**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**003CALB.D**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	CPS	%RSD
Be	9	6	1	4834	1.35
B	11	6	1	3165	1.69
Na	23	45	1	4678336	0.39
Mg	24	45	1	2263873	1.02
Al	27	45	1	111072	0.37
K	39	45	1	2277856	0.11
Ca	44	6	1	112193	0.32
Ti	47	45	1	6530	1.61
V	51	45	1	177733	0.24
Cr	52	45	1	218071	0.32
Mn	55	45	1	1319289	0.47
Fe	56	45	1	16369034	0.38
Co	59	45	1	305515	0.46
Ni	60	45	1	82664	0.77
Cu	63	45	1	219554	0.44
Zn	66	45	1	36981	0.85
As	75	74	1	28534	0.46
Se	78	74	1	2096	3.62
Sr	88	115	1	153222	0.43
Mo	95	115	1	98198	0.62
Ag	107	115	1	301462	0.59
Cd	111	115	1	45791	0.55
Sn	118	115	1	103279	0.53
Sb	121	115	1	143452	0.33
Ba	137	159	1	48881	1.43
Tl	205	209	1	130370	0.70
(Pb)	206	209	1	221443	0.74
(Pb)	207	209	1	183907	0.81
Pb	208	209	1	868209	0.70

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Li	6	1	15154	0.48	15244	99.4	60	120	
Sc	45	1	342188	0.30	341423	100.2	60	120	
Ge	74	1	49583	0.44	49061	101.1	60	120	
Kr	83	1	13	49.99	17	80.0	1	1000	
In	115	1	285552	0.58	289859	98.5	60	120	
Tb	159	1	770321	0.52	771893	99.8	60	120	
Bi	209	1	577162	1.00	586911	98.3	60	120	

TuneStep	TuneFile
1	helium.u

Calibration Standard Report

Sample Name	**CAL4 1187193**
Data File Name	**007CALS.D**
DataPath	**C:\ICPMH\1\DATA\11J06s00.B**
Acq Date Time	**2011-10-06T19:20:06-04:00**
Type	**CalStd**
VialNumber	**1105**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**003CALB.D**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	CPS	%RSD
Be	9	6	1	9774	1.02
B	11	6	1	6106	1.08
Na	23	45	1	8822254	0.19
Mg	24	45	1	4417252	0.45
Al	27	45	1	221925	0.46
K	39	45	1	4314771	0.37
Ca	44	6	1	222811	0.25
Ti	47	45	1	13305	1.35
V	51	45	1	355156	0.12
Cr	52	45	1	428054	0.65
Mn	55	45	1	2556352	0.15
Fe	56	45	1	32408270	0.54
Co	59	45	1	605555	0.32
Ni	60	45	1	162305	0.39
Cu	63	45	1	437847	0.54
Zn	66	45	1	73816	0.24
As	75	74	1	57632	0.62
Se	78	74	1	4023	2.12
Sr	88	115	1	304268	0.18
Mo	95	115	1	195589	0.32
Ag	107	115	1	592703	0.75
Cd	111	115	1	90761	0.97
Sn	118	115	1	204393	0.77
Sb	121	115	1	288165	0.65
Ba	137	159	1	98449	1.14
Tl	205	209	1	259045	1.40
(Pb)	206	209	1	435361	1.69
(Pb)	207	209	1	364673	0.90
Pb	208	209	1	1711728	0.99

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Li	6	1	14939	1.27	15244	98.0	60	120	
Sc	45	1	337538	0.43	341423	98.9	60	120	
Ge	74	1	49510	0.45	49061	100.9	60	120	
Kr	83	1	13	43.29	17	80.0	1	1000	
In	115	1	278576	0.18	289859	96.1	60	120	
Tb	159	1	757048	0.54	771893	98.1	60	120	
Bi	209	1	561613	0.82	586911	95.7	60	120	

TuneStep	TuneFile
1	helium.u

Initial Calibration Verification (ICV) - US EPA Method 6020

Sample Name	**ICV 1123499**
Data File Name	**008_ICV.D**
DataPath	**C:\ICPMH\1\DATA\11J06s00.B**
Acq Date Time	**2011-10-06T19:24:42-04:00**
Type	**6-ICV**
VialNumber	**1201**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**003CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	Units	ExpectedValue	%Recovery	%QC Low	%QC High	QC Flag
Pb	208	209	1	39.75	ug/l	40	99.4	90	110	
Tl	205	209	1	7.97	ug/l	8	99.6	90	110	
Ba	137	159	1	40.14	ug/l	40	100.4	90	110	
Sb	121	115	1	39.80	ug/l	40	99.5	90	110	
Sn	118	115	1	39.87	ug/l	40	99.7	90	110	
Cd	111	115	1	39.96	ug/l	40	99.9	90	110	
Ag	107	115	1	40.15	ug/l	40	100.4	90	110	
Mo	95	115	1	39.90	ug/l	40	99.7	90	110	
Sr	88	115	1	39.56	ug/l	40	98.9	90	110	
Se	78	74	1	40.02	ug/l	40	100.0	90	110	
As	75	74	1	40.24	ug/l	40	100.6	90	110	
Zn	66	45	1	39.80	ug/l	40	99.5	90	110	
Cu	63	45	1	40.04	ug/l	40	100.1	90	110	
Ni	60	45	1	40.12	ug/l	40	100.3	90	110	
Co	59	45	1	40.19	ug/l	40	100.5	90	110	
Fe	56	45	1	4018.00	ug/l	4000	100.4	90	110	
Mn	55	45	1	403.90	ug/l	400	101.0	90	110	
Cr	52	45	1	40.32	ug/l	40	100.8	90	110	
V	51	45	1	39.84	ug/l	40	99.6	90	110	
Ti	47	45	1	39.21	ug/l	40	98.0	90	110	
Ca	44	6	1	4031.83	ug/l	4000	100.8	90	110	
K	39	45	1	3898.76	ug/l	4000	97.5	90	110	
Al	27	45	1	402.00	ug/l	400	100.5	90	110	
Mg	24	45	1	4060.17	ug/l	4000	101.5	90	110	
Na	23	45	1	3993.63	ug/l	4000	99.8	90	110	
B	11	6	1	82.49	ug/l	80	103.1	90	110	
Be	9	6	1	40.51	ug/l	40	101.3	90	110	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	575594	0.33	586911	98.1	60	120	
Tb	159	1	765875	0.27	771893	99.2	60	120	
In	115	1	283966	0.27	289859	98.0	60	120	
Kr	83	1	19	44.42	17	113.3	1	1000	
Ge	74	1	49512	0.56	49061	100.9	60	120	
Sc	45	1	339828	0.62	341423	99.5	60	120	
Li	6	1	14909	1.02	15244	97.8	60	120	

Continuing Calibration Blank (CCB) - US EPA Method 6020

Sample Name	**ICB**
Data File Name	**0096CCB.D**
DataPath	**C:\ICPMH\1\DATA\11J06s00.B**
Acq Date Time	**2011-10-06T19:29:17-04:00**
Type	**6-CCB**
VialNumber	**1302**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**003CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	%RSD	Units	CPS	CPS%RSD	QC High	QC Flag
Be	9	6	1	0.04	45.92	ug/l	5.00	33.40	0.2	
B	11	6	1	1.58	50.98	ug/l	63.33	39.74	20	
Na	23	45	1	-8.19	-16.59	ug/l	435134.25	0.23	50	
Mg	24	45	1	0.15	28.27	ug/l	219.45	8.47	50	
Al	27	45	1	-0.05	-74.49	ug/l	82.78	11.09	10	
K	39	45	1	-14.12	-8.11	ug/l	172752.70	0.33	50	
Ca	44	6	1	-7.85	-5.43	ug/l	2106.29	1.82	50	
Ti	47	45	1	0.15	9.66	ug/l	4.44	43.40	1	
V	51	45	1	0.01	140.50	ug/l	180.01	15.82	1	
Cr	52	45	1	-0.02	-72.56	ug/l	5403.31	0.96	1	
Mn	55	45	1	0.03	24.13	ug/l	374.46	4.57	2	
Fe	56	45	1	0.07	20.86	ug/l	4235.07	1.16	30	
Co	59	45	1	0.00	188.41	ug/l	92.22	33.39	1	
Ni	60	45	1	-0.07	-13.87	ug/l	378.91	3.97	1	
Cu	63	45	1	0.00	-646.46	ug/l	2322.47	4.10	1	
Zn	66	45	1	-0.04	-35.87	ug/l	131.12	7.77	4	
As	75	74	1	0.00	-1092.16	ug/l	33.33	32.78	0.5	
Se	78	74	1	0.07	358.78	ug/l	59.44	16.90	0.5	
Sr	88	115	1	0.00	134.61	ug/l	31.11	62.79	1	
Mo	95	115	1	0.04	24.99	ug/l	105.56	17.96	1	
Ag	107	115	1	0.00	32.22	ug/l	48.89	19.69	1	
Cd	111	115	1	0.00	-4187.28	ug/l	3.33	173.21	0.5	
Sn	118	115	1	0.05	23.13	ug/l	173.34	12.61	4	
Sb	121	115	1	0.02	24.98	ug/l	77.78	17.84	0.5	
Ba	137	159	1	0.00	-259.09	ug/l	15.56	49.47	1	
Tl	205	209	1	0.01	33.56	ug/l	214.45	28.51	0.2	
Pb	208	209	1	0.00	91.48	ug/l	292.23	10.60	0.3	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Ref CPS	%Rec	QC Low	QC High	QC Flag
Li	6	1	15320	1.94	15244	100.5	60	120	
Sc	45	1	344521	0.04	341423	100.9	60	120	
Ge	74	1	49669	0.53	49061	101.2	60	120	
Kr	83	1	14	70.51	17	86.7	1	1000	
In	115	1	290777	0.20	289859	100.3	60	120	
Tb	159	1	779400	0.62	771893	101.0	60	120	
Bi	209	1	589032	1.02	586911	100.4	60	120	

TuneStep	TuneFile
1	helium.u

Quality Control Sample (QCS) - US EPA Method 200.8

Sample Name	**RepLim 1187187**
Data File Name	**010QCSR.D**
DataPath	**C:\ICPMH\1\DATA\11J06s00.B**
Acq Date Time	**2011-10-06T19:34:03-04:00**
Type	**2-QCS**
VialNumber	**1102**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**003CALB.D**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	Units	ExpectedValue	%Recovery	%QC Low	%QC High	QC Flag
Pb	208	209	1	0.31	ug/l	0.3	103.2	50	150	
Tl	205	209	1	0.20	ug/l	0.2	102.0	50	150	
Ba	137	159	1	1.02	ug/l	1	102.4	50	150	
Sb	121	115	1	0.50	ug/l	0.5	99.0	50	150	
Sn	118	115	1	3.91	ug/l	4	97.9	50	150	
Cd	111	115	1	0.50	ug/l	0.5	100.8	50	150	
Ag	107	115	1	1.01	ug/l	1	101.5	50	150	
Mo	95	115	1	0.95	ug/l	1	95.3	50	150	
Sr	88	115	1	1.01	ug/l	1	100.8	50	150	
Se	78	74	1	0.36	ug/l	0.5	71.8	50	150	
As	75	74	1	0.48	ug/l	0.5	96.7	50	150	
Zn	66	45	1	4.26	ug/l	4	106.4	50	150	
Cu	63	45	1	1.00	ug/l	1	99.6	50	150	
Ni	60	45	1	1.06	ug/l	1	105.7	50	150	
Co	59	45	1	1.04	ug/l	1	104.2	50	150	
Fe	56	45	1	32.87	ug/l	30	109.6	50	150	
Mn	55	45	1	2.06	ug/l	2	103.2	50	150	
Cr	52	45	1	1.04	ug/l	1	103.7	50	150	
V	51	45	1	1.00	ug/l	1	100.1	50	150	
Ti	47	45	1	1.17	ug/l	1	117.2	50	150	
Ca	44	6	1	46.81	ug/l	50	93.6	50	150	
K	39	45	1	45.42	ug/l	50	90.8	50	150	
Al	27	45	1	11.14	ug/l	10	111.4	50	150	
Mg	24	45	1	51.88	ug/l	50	103.8	50	150	
Na	23	45	1	50.75	ug/l	50	101.5	50	150	
B	11	6	1	22.17	ug/l	20	110.9	50	150	
Be	9	6	1	0.14	ug/l	0.2	68.8	50	150	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limiy	Upper Limit	QC Flag
Bi	209	1	582705	0.38	586911	99.3	60	120	
Tb	159	1	768615	0.95	771893	99.6	60	120	
In	115	1	288794	0.71	289859	99.6	60	120	
Kr	83	1	18	39.03	17	106.7	1	1000	
Ge	74	1	49711	0.35	49061	101.3	60	120	
Sc	45	1	342848	0.16	341423	100.4	60	120	
Li	6	1	14906	2.22	15244	97.8	60	120	

Sample Report

Sample Name	**ICSA 1187215**
Data File Name	**011SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J06s00.B**
Acq Date Time	**2011-10-06T19:38:47-04:00**
Type	**Sample**
VialNumber	**1202**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**003CALB.D**
SamplePassFail	**Fail**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	0.07	0.07	ug/l	3600	
Tl	205	209	1	0.01	0.01	ug/l	720	
Ba	137	159	1	0.16	0.16	ug/l	3600	
Sb	121	115	1	0.38	0.38	ug/l	3600	
Sn	118	115	1	0.12	0.12	ug/l	3600	
Cd	111	115	1	0.27	0.27	ug/l	1800	
Ag	107	115	1	0.16	0.16	ug/l	180	
Mo	95	115	1	1041.64	1041.64	ug/l	3600	
Sr	88	115	1	6.97	6.97	ug/l	3600	
Se	78	74	1	0.29	0.29	ug/l	450	
As	75	74	1	0.17	0.17	ug/l	1800	
Zn	66	45	1	1.47	1.47	ug/l	450	
Cu	63	45	1	0.65	0.65	ug/l	450	
Ni	60	45	1	1.53	1.53	ug/l	900	
Co	59	45	1	1.85	1.85	ug/l	450	
Fe	56	45	1	121306.59	121306.59	ug/l	180000	
Mn	55	45	1	2.55	2.55	ug/l	9000	
Cr	52	45	1	2.65	2.65	ug/l	900	
V	51	45	1	0.20	0.20	ug/l	3600	
Tl	47	45	1	1031.50	1031.50	ug/l	3600	
Ca	44	6	1	136837.49	136837.49	ug/l	90000	fail
K	39	45	1	48307.57	48307.57	ug/l	360000	
Al	27	45	1	48064.21	48064.21	ug/l	36000	fail
Mg	24	45	1	49266.42	49266.42	ug/l	180000	
Na	23	45	1	124923.71	124923.71	ug/l	360000	
B	11	6	1	1.80	1.80	ug/l	7200	
Be	9	6	1	-0.01	-0.01	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	509169	0.18	586911	86.8	60	120	
Tb	159	1	724754	0.47	771893	93.9	60	120	
In	115	1	259379	0.48	289859	89.5	60	120	
Kr	83	1	29	37.08	17	173.3	1	1000	
Ge	74	1	46973	0.91	49061	95.7	60	120	
Sc	45	1	322245	0.76	341423	94.4	60	120	
Li	6	1	13050	1.21	15244	85.6	60	120	

Sample Report

Sample Name	**ICSAB 1187217**
Data File Name	**012SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J06s00.B**
Acq Date Time	**2011-10-06T19:43:20-04:00**
Type	**Sample**
VialNumber	**1203**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**003CALB.D**
SamplePassFail	**Fail**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	0.08	0.08	ug/l	3600	
Tl	205	209	1	0.01	0.01	ug/l	720	
Ba	137	159	1	0.19	0.19	ug/l	3600	
Sb	121	115	1	0.41	0.41	ug/l	3600	
Sn	118	115	1	0.11	0.11	ug/l	3600	
Cd	111	115	1	95.97	95.97	ug/l	1800	
Ag	107	115	1	186.33	186.33	ug/l	180	fail
Mo	95	115	1	1025.52	1025.52	ug/l	3600	
Sr	88	115	1	6.92	6.92	ug/l	3600	
Se	78	74	1	93.24	93.24	ug/l	450	
As	75	74	1	97.79	97.79	ug/l	1800	
Zn	66	45	1	92.36	92.36	ug/l	450	
Cu	63	45	1	181.11	181.11	ug/l	450	
Ni	60	45	1	184.64	184.64	ug/l	900	
Co	59	45	1	196.56	196.56	ug/l	450	
Fe	56	45	1	117652.87	117652.87	ug/l	180000	
Mn	55	45	1	189.46	189.46	ug/l	9000	
Cr	52	45	1	189.18	189.18	ug/l	900	
V	51	45	1	196.05	196.05	ug/l	3600	
Ti	47	45	1	1007.54	1007.54	ug/l	3600	
Ca	44	6	1	139309.93	139309.93	ug/l	90000	fail
K	39	45	1	47151.98	47151.98	ug/l	360000	
Al	27	45	1	46772.36	46772.36	ug/l	36000	fail
Mg	24	45	1	48157.75	48157.75	ug/l	180000	
Na	23	45	1	123280.31	123280.31	ug/l	360000	
B	11	6	1	1.52	1.52	ug/l	7200	
Be	9	6	1	-0.01	-0.01	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	522792	0.38	586911	89.1	60	120	
Tb	159	1	744172	0.34	771893	96.4	60	120	
In	115	1	268319	0.22	289859	92.6	60	120	
Kr	83	1	21	24.12	17	126.7	1	1000	
Ge	74	1	48929	0.55	49061	99.7	60	120	
Sc	45	1	336621	0.42	341423	98.6	60	120	
Li	6	1	13023	1.26	15244	85.4	60	120	

Sample Report

Sample Name	**Rn chk**
Data File Name	**013SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J06s00.B**
Acq Date Time	**2011-10-06T19:47:54-04:00**
Type	**Sample**
VialNumber	**1**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**003CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	0.01	0.01	ug/l	3600	
Tl	205	209	1	0.00	0.00	ug/l	720	
Ba	137	159	1	0.03	0.03	ug/l	3600	
Sb	121	115	1	0.01	0.01	ug/l	3600	
Sn	118	115	1	0.02	0.02	ug/l	3600	
Cd	111	115	1	0.02	0.02	ug/l	1800	
Ag	107	115	1	0.02	0.02	ug/l	180	
Mo	95	115	1	0.24	0.24	ug/l	3600	
Sr	88	115	1	0.04	0.04	ug/l	3600	
Se	78	74	1	0.28	0.28	ug/l	450	
As	75	74	1	0.00	0.00	ug/l	1800	
Zn	66	45	1	0.02	0.02	ug/l	450	
Cu	63	45	1	0.04	0.04	ug/l	450	
Ni	60	45	1	-0.19	-0.19	ug/l	900	
Co	59	45	1	0.02	0.02	ug/l	450	
Fe	56	45	1	18.92	18.92	ug/l	180000	
Mn	55	45	1	0.17	0.17	ug/l	9000	
Cr	52	45	1	0.06	0.06	ug/l	900	
V	51	45	1	0.01	0.01	ug/l	3600	
Ti	47	45	1	0.25	0.25	ug/l	3600	
Ca	44	6	1	18.49	18.49	ug/l	90000	
K	39	45	1	16.48	16.48	ug/l	360000	
Al	27	45	1	6.80	6.80	ug/l	36000	
Mg	24	45	1	9.78	9.78	ug/l	180000	
Na	23	45	1	71.29	71.29	ug/l	360000	
B	11	6	1	1.18	1.18	ug/l	7200	
Be	9	6	1	0.02	0.02	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	577160	0.17	586911	98.3	60	120	
Tb	159	1	762524	0.47	771893	98.8	60	120	
In	115	1	287566	0.42	289859	99.2	60	120	
Kr	83	1	20	28.87	17	120.0	1	1000	
Ge	74	1	49191	0.79	49061	100.3	60	120	
Sc	45	1	344575	0.30	341423	100.9	60	120	
Li	6	1	14753	1.26	15244	96.8	60	120	

Sample Report

Sample Name	**Rn chk**
Data File Name	**014SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J06s00.B**
Acq Date Time	**2011-10-06T19:52:40-04:00**
Type	**Sample**
VialNumber	**1**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**003CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	0.01	0.01	ug/l	3600	
Tl	205	209	1	0.00	0.00	ug/l	720	
Ba	137	159	1	0.03	0.03	ug/l	3600	
Sb	121	115	1	0.02	0.02	ug/l	3600	
Sn	118	115	1	0.02	0.02	ug/l	3600	
Cd	111	115	1	0.01	0.01	ug/l	1800	
Ag	107	115	1	0.02	0.02	ug/l	180	
Mo	95	115	1	0.12	0.12	ug/l	3600	
Sr	88	115	1	0.04	0.04	ug/l	3600	
Se	78	74	1	0.36	0.36	ug/l	450	
As	75	74	1	0.01	0.01	ug/l	1800	
Zn	66	45	1	0.02	0.02	ug/l	450	
Cu	63	45	1	0.01	0.01	ug/l	450	
Ni	60	45	1	-0.16	-0.16	ug/l	900	
Co	59	45	1	0.02	0.02	ug/l	450	
Fe	56	45	1	9.21	9.21	ug/l	180000	
Mn	55	45	1	0.17	0.17	ug/l	9000	
Cr	52	45	1	-0.05	-0.05	ug/l	900	
V	51	45	1	0.04	0.04	ug/l	3600	
Ti	47	45	1	0.20	0.20	ug/l	3600	
Ca	44	6	1	-6.99	-6.99	ug/l	90000	
K	39	45	1	-20.55	-20.55	ug/l	360000	
Al	27	45	1	3.09	3.09	ug/l	36000	
Mg	24	45	1	5.79	5.79	ug/l	180000	
Na	23	45	1	8.55	8.55	ug/l	360000	
B	11	6	1	0.27	0.27	ug/l	7200	
Be	9	6	1	0.01	0.01	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	611393	0.78	586911	104.2	60	120	
Tb	159	1	804851	0.61	771893	104.3	60	120	
In	115	1	300541	0.39	289859	103.7	60	120	
Kr	83	1	12	31.50	17	73.3	1	1000	
Ge	74	1	51600	0.33	49061	105.2	60	120	
Sc	45	1	358979	0.36	341423	105.1	60	120	
Li	6	1	15923	1.68	15244	104.5	60	120	

Continuing Calibration Verification (CCV) - US EPA Method 6020

Sample Name	**CCV 1187191**
Data File Name	**0156CCV.D**
DataPath	**C:\ICPMH\1\DATA\11J06s00.B**
Acq Date Time	**2011-10-06T19:57:24-04:00**
Type	**6-CCV**
VialNumber	**1301**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**003CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	%RSD	Units	CPS	CPS%RSD	Exp Value	%Rec	QC Low	QC High	QC Flag
Be	9	6	1	49.77	2.74	ug/l	5050.85	2.41	50	99.5	90	110	
B	11	6	1	100.82	2.45	ug/l	3244.87	2.43	100	100.8	90	110	
Na	23	45	1	5045.31	0.56	ug/l	4943551.59	0.08	5000	100.9	90	110	
Mg	24	45	1	5118.32	0.68	ug/l	2404686.49	0.27	5000	102.4	90	110	
Al	27	45	1	504.73	1.08	ug/l	117030.21	0.65	500	100.9	90	110	
K	39	45	1	4908.38	1.05	ug/l	2406505.50	1.26	5000	98.2	90	110	
Ca	44	6	1	5058.30	0.33	ug/l	118198.65	0.73	5000	101.2	90	110	
Ti	47	45	1	49.74	3.47	ug/l	6947.27	3.05	50	99.5	90	110	
V	51	45	1	50.21	0.73	ug/l	187072.67	0.72	50	100.4	90	110	
Cr	52	45	1	50.03	0.37	ug/l	227646.90	0.07	50	100.1	90	110	
Mn	55	45	1	501.57	0.92	ug/l	1367491.77	0.51	500	100.3	90	110	
Fe	56	45	1	4978.40	0.56	ug/l	17061176.55	0.13	5000	99.6	90	110	
Co	59	45	1	49.92	1.08	ug/l	319500.51	0.66	50	99.8	90	110	
Ni	60	45	1	50.15	1.17	ug/l	86572.92	1.10	50	100.3	90	110	
Cu	63	45	1	49.76	1.00	ug/l	228766.97	1.19	50	99.5	90	110	
Zn	66	45	1	48.90	1.78	ug/l	38155.86	1.64	50	97.8	90	110	
As	75	74	1	49.39	0.55	ug/l	29107.78	1.27	50	98.8	90	110	
Se	78	74	1	49.53	1.14	ug/l	2102.95	1.73	50	99.1	90	110	
Sr	88	115	1	49.92	0.56	ug/l	159336.61	0.03	50	99.8	90	110	
Mo	95	115	1	50.45	1.40	ug/l	102126.37	0.87	50	100.9	90	110	
Ag	107	115	1	50.72	1.08	ug/l	314996.32	0.61	50	101.4	90	110	
Cd	111	115	1	50.70	0.75	ug/l	47909.34	0.79	50	101.4	90	110	
Sn	118	115	1	50.61	1.02	ug/l	107550.23	0.58	50	101.2	90	110	
Sb	121	115	1	49.89	0.77	ug/l	149348.06	0.60	50	99.8	90	110	
Ba	137	159	1	49.68	0.32	ug/l	51265.19	0.16	50	99.4	90	110	
Tl	205	209	1	10.05	1.31	ug/l	137702.61	1.70	10	100.5	90	110	
Pb	208	209	1	49.99	0.97	ug/l	909144.18	1.32	50	100.0	90	110	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Ref CPS	%Rec	QC Low	QC High	QC Flag
Li	6	1	15689	0.41	15244	102.9	60	120	
Sc	45	1	356872	0.43	341423	104.5	60	120	
Ge	74	1	50886	0.74	49061	103.7	60	120	
Kr	83	1	12	56.76	17	73.3	1	1000	
In	115	1	294154	0.54	289859	101.5	60	120	
Tb	159	1	802167	0.24	771893	103.9	60	120	
Bi	209	1	599775	0.41	586911	102.2	60	120	

TuneStep	TuneFile
1	helium.u

Continuing Calibration Blank (CCB) - US EPA Method 6020

Sample Name	**CCB**
Data File Name	**0166CCB.D**
DataPath	**C:\ICPMH\1\DATA\11J06s00.B**
Acq Date Time	**2011-10-06T20:02:00-04:00**
Type	**6-CCB**
VialNumber	**1302**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**003CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	%RSD	Units	CPS	CPS%RSD	QC High	QC Flag
Be	9	6	1	0.00	2.61	ug/l	1.67	0.00	0.2	
B	11	6	1	0.94	32.86	ug/l	42.22	22.78	20	
Na	23	45	1	14.49	22.79	ug/l	455984.32	0.32	50	
Mg	24	45	1	0.54	6.78	ug/l	398.35	4.66	50	
Al	27	45	1	0.16	4.81	ug/l	131.12	1.94	10	
K	39	45	1	-1.58	-237.41	ug/l	178767.33	0.46	50	
Ca	44	6	1	-7.31	-52.73	ug/l	2053.50	4.15	50	
Ti	47	45	1	0.12	11.47	ug/l	1.11	173.21	1	
V	51	45	1	0.01	132.87	ug/l	180.01	13.98	1	
Cr	52	45	1	0.01	609.55	ug/l	5534.47	4.56	1	
Mn	55	45	1	0.00	-500.11	ug/l	292.24	20.79	2	
Fe	56	45	1	0.60	6.16	ug/l	5998.44	2.15	30	
Co	59	45	1	0.00	33.41	ug/l	91.11	5.59	1	
Ni	60	45	1	-0.16	-6.70	ug/l	228.90	7.18	1	
Cu	63	45	1	0.01	575.12	ug/l	2366.92	5.31	1	
Zn	66	45	1	-0.05	-20.30	ug/l	124.45	5.57	4	
As	75	74	1	-0.01	-75.89	ug/l	27.22	19.68	0.5	
Se	78	74	1	-0.11	-88.40	ug/l	52.22	7.37	0.5	
Sr	88	115	1	0.00	111.72	ug/l	21.11	24.12	1	
Mo	95	115	1	0.04	32.37	ug/l	108.89	22.98	1	
Ag	107	115	1	0.00	55.82	ug/l	40.00	28.88	1	
Cd	111	115	1	0.01	126.88	ug/l	8.89	78.08	0.5	
Sn	118	115	1	0.03	61.61	ug/l	137.78	26.54	4	
Sb	121	115	1	0.01	104.17	ug/l	48.89	56.77	0.5	
Ba	137	159	1	-0.01	-28.27	ug/l	6.67	50.03	1	
Tl	205	209	1	0.01	8.65	ug/l	213.34	7.16	0.2	
Pb	208	209	1	0.00	112.89	ug/l	290.01	12.43	0.3	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Ref CPS	%Rec	QC Low	QC High	QC Flag
Li	6	1	14850	0.58	15244	97.4	60	120	
Sc	45	1	345578	0.70	341423	101.2	60	120	
Ge	74	1	49691	0.14	49061	101.3	60	120	
Kr	83	1	14	35.26	17	86.7	1	1000	
In	115	1	289367	0.58	289859	99.8	60	120	
Tb	159	1	769854	0.44	771893	99.7	60	120	
Bi	209	1	583009	0.69	586911	99.3	60	120	

TuneStep	TuneFile
1	helium.u

Sample Report

Sample Name	**460-32013-e-8-a@5**
Data File Name	**017SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J06s00.B**
Acq Date Time	**2011-10-06T20:06:45-04:00**
Type	**Sample**
VialNumber	**2111**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**003CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	0.20	1.02	ug/l	3600	
Tl	205	209	1	0.01	0.05	ug/l	720	
Ba	137	159	1	14.76	73.79	ug/l	3600	
Sb	121	115	1	0.09	0.45	ug/l	3600	
Sn	118	115	1	0.07	0.36	ug/l	3600	
Cd	111	115	1	0.40	2.00	ug/l	1800	
Ag	107	115	1	0.01	0.04	ug/l	180	
Mo	95	115	1	0.21	1.06	ug/l	3600	
Sr	88	115	1	65.44	327.20	ug/l	3600	
Se	78	74	1	0.94	4.72	ug/l	450	
As	75	74	1	0.13	0.67	ug/l	1800	
Zn	66	45	1	106.33	531.66	ug/l	450	
Cu	63	45	1	1.76	8.79	ug/l	450	
Ni	60	45	1	51.62	258.09	ug/l	900	
Co	59	45	1	0.28	1.42	ug/l	450	
Fe	56	45	1	198.61	993.05	ug/l	180000	
Mn	55	45	1	100.66	503.29	ug/l	9000	
Cr	52	45	1	1.74	8.69	ug/l	900	
V	51	45	1	0.59	2.97	ug/l	3600	
Ti	47	45	1	5.81	29.04	ug/l	3600	
Ca	44	6	1	9110.32	45551.61	ug/l	90000	
K	39	45	1	1510.16	7550.81	ug/l	360000	
Al	27	45	1	205.06	1025.32	ug/l	36000	
Mg	24	45	1	1088.90	5444.52	ug/l	180000	
Na	23	45	1	20919.90	104599.50	ug/l	360000	
B	11	6	1	30.49	152.46	ug/l	7200	
Be	9	6	1	0.02	0.11	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	582046	0.92	586911	99.2	60	120	
Tb	159	1	775272	0.10	771893	100.4	60	120	
In	115	1	287297	0.61	289859	99.1	60	120	
Kr	83	1	16	12.40	17	93.3	1	1000	
Ge	74	1	50478	1.04	49061	102.9	60	120	
Sc	45	1	348320	0.42	341423	102.0	60	120	
Li	6	1	14701	1.22	15244	96.4	60	120	

Sample Report

Sample Name	**460-32013-d-9-a@5**
Data File Name	**018SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J06s00.B**
Acq Date Time	**2011-10-06T20:11:28-04:00**
Type	**Sample**
VialNumber	**2112**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**003CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	0.02	0.10	ug/l	3600	
Tl	205	209	1	0.00	0.01	ug/l	720	
Ba	137	159	1	0.06	0.32	ug/l	3600	
Sb	121	115	1	0.08	0.40	ug/l	3600	
Sn	118	115	1	0.02	0.12	ug/l	3600	
Cd	111	115	1	0.01	0.04	ug/l	1800	
Ag	107	115	1	0.00	0.01	ug/l	180	
Mo	95	115	1	0.04	0.18	ug/l	3600	
Sr	88	115	1	0.01	0.07	ug/l	3600	
Se	78	74	1	-0.03	-0.14	ug/l	450	
As	75	74	1	-0.01	-0.04	ug/l	1800	
Zn	66	45	1	7.01	35.03	ug/l	450	
Cu	63	45	1	1.37	6.85	ug/l	450	
Ni	60	45	1	0.22	1.10	ug/l	900	
Co	59	45	1	0.00	0.00	ug/l	450	
Fe	56	45	1	0.83	4.15	ug/l	180000	
Mn	55	45	1	0.01	0.04	ug/l	9000	
Cr	52	45	1	0.10	0.51	ug/l	900	
V	51	45	1	0.02	0.11	ug/l	3600	
Ti	47	45	1	0.16	0.78	ug/l	3600	
Ca	44	6	1	3.32	16.59	ug/l	90000	
K	39	45	1	33.04	165.19	ug/l	360000	
Al	27	45	1	1.21	6.05	ug/l	36000	
Mg	24	45	1	1.30	6.51	ug/l	180000	
Na	23	45	1	55.49	277.47	ug/l	360000	
B	11	6	1	4.63	23.13	ug/l	7200	
Be	9	6	1	-0.01	-0.04	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	575821	0.95	586911	98.1	60	120	
Tb	159	1	762925	0.35	771893	98.8	60	120	
In	115	1	286540	0.33	289859	98.9	60	120	
Kr	83	1	17	52.93	17	100.0	1	1000	
Ge	74	1	49696	0.35	49061	101.3	60	120	
Sc	45	1	341904	0.40	341423	100.1	60	120	
Li	6	1	14796	0.50	15244	97.1	60	120	

Sample Report

Sample Name	**460-31576-d-7-c@5**
Data File Name	**019SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J06s00.B**
Acq Date Time	**2011-10-06T20:16:13-04:00**
Type	**Sample**
VialNumber	**2303**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**003CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	0.01	0.04	ug/l	3600	
Tl	205	209	1	0.00	0.01	ug/l	720	
Ba	137	159	1	0.02	0.11	ug/l	3600	
Sb	121	115	1	0.02	0.08	ug/l	3600	
Sn	118	115	1	0.02	0.09	ug/l	3600	
Cd	111	115	1	0.01	0.07	ug/l	1800	
Ag	107	115	1	0.00	0.01	ug/l	180	
Mo	95	115	1	0.03	0.17	ug/l	3600	
Sr	88	115	1	0.01	0.04	ug/l	3600	
Se	78	74	1	0.18	0.90	ug/l	450	
As	75	74	1	0.00	-0.02	ug/l	1800	
Zn	66	45	1	1.43	7.13	ug/l	450	
Cu	63	45	1	0.06	0.31	ug/l	450	
Ni	60	45	1	-0.10	-0.49	ug/l	900	
Co	59	45	1	0.00	0.01	ug/l	450	
Fe	56	45	1	0.63	3.17	ug/l	180000	
Mn	55	45	1	-0.02	-0.10	ug/l	9000	
Cr	52	45	1	0.02	0.10	ug/l	900	
V	51	45	1	0.02	0.08	ug/l	3600	
Ti	47	45	1	0.16	0.78	ug/l	3600	
Ca	44	6	1	-3.92	-19.62	ug/l	90000	
K	39	45	1	5.48	27.40	ug/l	360000	
Al	27	45	1	0.70	3.51	ug/l	36000	
Mg	24	45	1	0.63	3.15	ug/l	180000	
Na	23	45	1	22.71	113.53	ug/l	360000	
B	11	6	1	0.46	2.31	ug/l	7200	
Be	9	6	1	0.00	-0.01	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	578935	0.26	586911	98.6	60	120	
Tb	159	1	769670	0.46	771893	99.7	60	120	
In	115	1	289705	0.41	289859	99.9	60	120	
Kr	83	1	13	25.01	17	80.0	1	1000	
Ge	74	1	49296	0.76	49061	100.5	60	120	
Sc	45	1	345402	0.73	341423	101.2	60	120	
Li	6	1	14949	2.10	15244	98.1	60	120	

Continuing Calibration Verification (CCV) - US EPA Method 6020

Sample Name	**CCV 1187191**
Data File Name	**0206CCV.D**
DataPath	**C:\ICPMH\1\DATA\11J06s00.B**
Acq Date Time	**2011-10-06T20:20:57-04:00**
Type	**6-CCV**
VialNumber	**1301**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**003CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	%RSD	Units	CPS	CPS%RSD	Exp Value	%Rec	QC Low	QC High	QC Flag
Be	9	6	1	50.99	0.56	ug/l	4914.70	0.50	50	102.0	90	110	
B	11	6	1	100.70	2.16	ug/l	3078.16	2.21	100	100.7	90	110	
Na	23	45	1	5101.68	0.75	ug/l	4762557.39	0.68	5000	102.0	90	110	
Mg	24	45	1	5095.16	0.47	ug/l	2283021.70	0.31	5000	101.9	90	110	
Al	27	45	1	508.39	0.23	ug/l	112423.82	0.40	500	101.7	90	110	
K	39	45	1	4990.33	0.56	ug/l	2330436.17	0.58	5000	99.8	90	110	
Ca	44	6	1	5158.43	0.42	ug/l	114434.50	0.37	5000	103.2	90	110	
Ti	47	45	1	49.73	1.57	ug/l	6624.92	1.67	50	99.5	90	110	
V	51	45	1	50.83	0.15	ug/l	180616.99	0.32	50	101.7	90	110	
Cr	52	45	1	50.92	0.27	ug/l	220902.55	0.34	50	101.8	90	110	
Mn	55	45	1	509.16	0.89	ug/l	1323931.65	0.72	500	101.8	90	110	
Fe	56	45	1	5055.42	0.26	ug/l	16523262.26	0.16	5000	101.1	90	110	
Co	59	45	1	50.92	0.33	ug/l	310849.00	0.50	50	101.8	90	110	
Ni	60	45	1	51.09	0.83	ug/l	84100.09	0.69	50	102.2	90	110	
Cu	63	45	1	50.31	0.07	ug/l	220567.63	0.18	50	100.6	90	110	
Zn	66	45	1	50.08	2.05	ug/l	37264.87	2.03	50	100.2	90	110	
As	75	74	1	50.31	1.53	ug/l	28930.77	0.35	50	100.6	90	110	
Se	78	74	1	50.58	1.53	ug/l	2094.62	0.64	50	101.2	90	110	
Sr	88	115	1	50.57	0.77	ug/l	154158.48	0.58	50	101.1	90	110	
Mo	95	115	1	50.78	0.43	ug/l	98180.21	0.64	50	101.6	90	110	
Ag	107	115	1	51.32	0.66	ug/l	304407.24	0.46	50	102.6	90	110	
Cd	111	115	1	51.28	0.82	ug/l	46283.15	0.86	50	102.6	90	110	
Sn	118	115	1	51.16	0.27	ug/l	103826.90	0.29	50	102.3	90	110	
Sb	121	115	1	50.76	0.45	ug/l	145130.13	0.43	50	101.5	90	110	
Ba	137	159	1	50.70	0.16	ug/l	49754.51	0.53	50	101.4	90	110	
Tl	205	209	1	10.03	0.49	ug/l	131707.46	0.13	10	100.3	90	110	
Pb	208	209	1	50.47	0.70	ug/l	879443.43	0.25	50	100.9	90	110	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Ref CPS	%Rec	QC Low	QC High	QC Flag
Li	6	1	14901	0.06	15244	97.7	60	120	
Sc	45	1	340352	0.17	341423	99.7	60	120	
Ge	74	1	49664	1.17	49061	101.2	60	120	
Kr	83	1	16	53.90	17	93.3	1	1000	
In	115	1	280932	0.23	289859	96.9	60	120	
Tb	159	1	762893	0.53	771893	98.8	60	120	
Bi	209	1	574663	0.57	586911	97.9	60	120	

TuneStep	TuneFile
1	helium.u

Continuing Calibration Blank (CCB) - US EPA Method 6020

Sample Name	**CCB**
Data File Name	**0216CCB.D**
DataPath	**C:\ICPMH\1\DATA\11J06s00.B**
Acq Date Time	**2011-10-06T20:25:32-04:00**
Type	**6-CCB**
VialNumber	**1302**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**003CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	%RSD	Units	CPS	CPS%RSD	QC High	QC Flag
Be	9	6	1	0.02	167.73	ug/l	2.78	91.68	0.2	
B	11	6	1	1.12	9.04	ug/l	46.67	7.15	20	
Na	23	45	1	18.80	13.15	ug/l	454116.00	0.41	50	
Mg	24	45	1	0.78	13.33	ug/l	503.35	8.51	50	
Al	27	45	1	0.11	76.52	ug/l	119.45	16.17	10	
K	39	45	1	-1.39	-193.42	ug/l	176681.02	0.29	50	
Ca	44	6	1	-6.48	-34.26	ug/l	2029.05	1.99	50	
Ti	47	45	1	0.13	10.91	ug/l	2.22	86.60	1	
V	51	45	1	0.01	41.81	ug/l	206.68	10.58	1	
Cr	52	45	1	0.05	34.75	ug/l	5614.49	2.03	1	
Mn	55	45	1	0.04	15.11	ug/l	396.69	3.66	2	
Fe	56	45	1	0.81	6.44	ug/l	6614.83	1.80	30	
Co	59	45	1	0.01	96.98	ug/l	111.12	32.08	1	
Ni	60	45	1	-0.15	-13.58	ug/l	241.12	13.14	1	
Cu	63	45	1	0.00	-12646.31	ug/l	2315.79	5.55	1	
Zn	66	45	1	-0.04	-80.11	ug/l	131.12	17.30	4	
As	75	74	1	-0.01	-57.02	ug/l	27.78	12.49	0.5	
Se	78	74	1	0.28	71.77	ug/l	67.22	11.46	0.5	
Sr	88	115	1	0.00	59.82	ug/l	27.78	24.98	1	
Mo	95	115	1	0.04	7.61	ug/l	114.45	6.07	1	
Ag	107	115	1	0.01	40.01	ug/l	54.44	25.49	1	
Cd	111	115	1	0.00	115.33	ug/l	7.78	65.47	0.5	
Sn	118	115	1	0.03	13.81	ug/l	136.67	6.45	4	
Sb	121	115	1	0.02	38.70	ug/l	74.45	27.36	0.5	
Ba	137	159	1	0.00	775.68	ug/l	18.89	26.96	1	
Tl	205	209	1	0.01	3.03	ug/l	222.23	2.29	0.2	
Pb	208	209	1	0.00	22.73	ug/l	321.12	4.91	0.3	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Ref CPS	%Rec	QC Low	QC High	QC Flag
Li	6	1	14548	1.44	15244	95.4	60	120	
Sc	45	1	341384	0.84	341423	100.0	60	120	
Ge	74	1	49178	0.62	49061	100.2	60	120	
Kr	83	1	17	34.64	17	100.0	1	1000	
In	115	1	285529	0.82	289859	98.5	60	120	
Tb	159	1	765016	0.12	771893	99.1	60	120	
Bi	209	1	576578	0.29	586911	98.2	60	120	

TuneStep	TuneFile
1	helium.u

Continuing Calibration Blank (CCB) - US EPA Method 6020

Sample Name	**mb 460-88247/1-a@20**
Data File Name	**0226CCB.D**
DataPath	**C:\ICPMH\1\DATA\11J06s00.B**
Acq Date Time	**2011-10-06T20:30:16-04:00**
Type	**6-CCB**
VialNumber	**2304**
Dilution	**20**
Comment	
Operator	**MP**
ISTDRefDataFileName	**003CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	%RSD	Units	CPS	CPS%RSD	QC High	QC Flag
Be	9	6	1	-0.01	0.00	ug/l	0.00	#DIV/0!	0.2	
B	11	6	1	0.89	1091.92	ug/l	40.00	36.33	20	
Na	23	45	1	5.41	432.62	ug/l	449347.60	0.09	50	
Mg	24	45	1	0.22	575.35	ug/l	255.01	11.56	50	
Al	27	45	1	0.97	289.42	ug/l	313.34	10.19	10	
K	39	45	1	-10.93	-521.37	ug/l	175132.98	0.43	50	
Ca	44	6	1	-8.02	-338.97	ug/l	2010.16	1.87	50	
Ti	47	45	1	0.19	449.25	ug/l	10.00	57.75	1	
V	51	45	1	0.01	804.37	ug/l	202.23	8.13	1	
Cr	52	45	1	0.01	3847.40	ug/l	5537.79	1.05	1	
Mn	55	45	1	-0.03	-476.91	ug/l	220.01	9.46	2	
Fe	56	45	1	0.07	640.09	ug/l	4253.97	1.75	30	
Co	59	45	1	0.00	-9882.05	ug/l	73.34	19.81	1	
Ni	60	45	1	-0.14	-104.57	ug/l	250.01	4.81	1	
Cu	63	45	1	-0.02	-801.69	ug/l	2260.24	1.79	1	
Zn	66	45	1	0.36	212.71	ug/l	432.24	6.42	4	
As	75	74	1	-0.01	-4695.37	ug/l	29.44	39.77	0.5	
Se	78	74	1	-0.10	-2061.17	ug/l	52.78	7.95	0.5	
Sr	88	115	1	0.00	1570.23	ug/l	25.55	27.15	1	
Mo	95	115	1	0.03	790.03	ug/l	91.12	25.70	1	
Ag	107	115	1	0.00	1074.07	ug/l	28.89	17.64	1	
Cd	111	115	1	0.01	1339.74	ug/l	11.11	45.82	0.5	
Sn	118	115	1	0.02	1133.80	ug/l	112.23	16.36	4	
Sb	121	115	1	0.01	1380.85	ug/l	54.45	41.67	0.5	
Ba	137	159	1	-0.01	-2578.65	ug/l	13.33	49.99	1	
Tl	205	209	1	0.00	492.79	ug/l	63.34	10.52	0.2	
Pb	208	209	1	0.00	2767.66	ug/l	278.90	8.97	0.3	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Ref CPS	%Rec	QC Low	QC High	QC Flag
Li	6	1	14647	0.46	15244	96.1	60	120	
Sc	45	1	346478	0.28	341423	101.5	60	120	
Ge	74	1	49849	0.24	49061	101.6	60	120	
Kr	83	1	23	57.15	17	140.0	1	1000	
In	115	1	290500	0.86	289859	100.2	60	120	
Tb	159	1	774731	0.36	771893	100.4	60	120	
Bi	209	1	586850	0.35	586911	100.0	60	120	

TuneStep	TuneFile
1	helium.u

Sample Report

Sample Name	**lcssrm 460-88247/2-a@100**
Data File Name	**023SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J06s00.B**
Acq Date Time	**2011-10-06T20:35:01-04:00**
Type	**Sample**
VialNumber	**2305**
Dilution	**100**
Comment	
Operator	**MP**
ISTDRefDataFileName	**003CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	17.03	1702.62	ug/l	3600	
Tl	205	209	1	25.86	2586.13	ug/l	720	
Ba	137	159	1	38.78	3877.93	ug/l	3600	
Sb	121	115	1	23.39	2338.53	ug/l	3600	
Sn	118	115	1	21.76	2176.44	ug/l	3600	
Cd	111	115	1	12.67	1266.60	ug/l	1800	
Ag	107	115	1	6.32	632.02	ug/l	180	
Mo	95	115	1	10.98	1097.81	ug/l	3600	
Sr	88	115	1	46.28	4628.20	ug/l	3600	
Se	78	74	1	60.06	6005.81	ug/l	450	
As	75	74	1	21.47	2147.00	ug/l	1800	
Zn	66	45	1	125.95	12594.73	ug/l	450	
Cu	63	45	1	36.54	3653.64	ug/l	450	
Ni	60	45	1	28.85	2885.23	ug/l	900	
Co	59	45	1	19.59	1958.88	ug/l	450	
Fe	56	45	1	3589.73	358972.64	ug/l	180000	
Mn	55	45	1	113.27	11327.03	ug/l	9000	
Cr	52	45	1	49.03	4902.92	ug/l	900	
V	51	45	1	23.63	2362.52	ug/l	3600	
Ti	47	45	1	94.10	9409.92	ug/l	3600	
Ca	44	6	1	2202.92	220291.74	ug/l	90000	
K	39	45	1	941.86	94186.07	ug/l	360000	
Al	27	45	1	1764.82	176482.47	ug/l	36000	
Mg	24	45	1	801.77	80176.98	ug/l	180000	
Na	23	45	1	212.31	21230.70	ug/l	360000	
B	11	6	1	30.13	3012.78	ug/l	7200	
Be	9	6	1	16.21	1620.52	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	595345	1.30	586911	101.4	60	120	
Tb	159	1	784050	1.03	771893	101.6	60	120	
In	115	1	290369	1.06	289859	100.2	60	120	
Kr	83	1	18	57.27	17	106.7	1	1000	
Ge	74	1	50342	1.15	49061	102.6	60	120	
Sc	45	1	351010	0.88	341423	102.8	60	120	
Li	6	1	14937	0.92	15244	98.0	60	120	

Sample Report

Sample Name	**460-31546-a-7-f du@50**
Data File Name	**024SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J06s00.B**
Acq Date Time	**2011-10-06T20:39:43-04:00**
Type	**Sample**
VialNumber	**2306**
Dilution	**50**
Comment	
Operator	**MP**
ISTDRefDataFileName	**003CALB.D**
SamplePassFail	**Fail**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	12.49	624.69	ug/l	3600	
Tl	205	209	1	0.21	10.45	ug/l	720	
Ba	137	159	1	3726.33	186316.35	ug/l	3600	fail
Sb	121	115	1	0.29	14.27	ug/l	3600	
Sn	118	115	1	15.59	779.34	ug/l	3600	
Cd	111	115	1	0.08	4.24	ug/l	1800	
Ag	107	115	1	0.03	1.34	ug/l	180	
Mo	95	115	1	0.16	8.23	ug/l	3600	
Sr	88	115	1	15.26	763.11	ug/l	3600	
Se	78	74	1	0.10	5.18	ug/l	450	
As	75	74	1	1.61	80.48	ug/l	1800	
Zn	66	45	1	47.58	2379.02	ug/l	450	
Cu	63	45	1	3.98	198.80	ug/l	450	
Ni	60	45	1	148.50	7425.05	ug/l	900	
Co	59	45	1	45.10	2254.96	ug/l	450	
Fe	56	45	1	15542.96	777147.82	ug/l	180000	
Mn	55	45	1	218.61	10930.28	ug/l	9000	
Cr	52	45	1	5157.84	257891.76	ug/l	900	fail
V	51	45	1	64.69	3234.65	ug/l	3600	
Ti	47	45	1	121.64	6082.07	ug/l	3600	
Ca	44	6	1	71508.19	3575409.67	ug/l	90000	
K	39	45	1	13.69	684.73	ug/l	360000	
Al	27	45	1	7221.71	361085.64	ug/l	36000	
Mg	24	45	1	7661.54	383077.25	ug/l	180000	
Na	23	45	1	152.35	7617.40	ug/l	360000	
B	11	6	1	2.38	119.03	ug/l	7200	
Be	9	6	1	0.03	1.42	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	563145	0.41	586911	96.0	60	120	
Tb	159	1	756405	0.68	771893	98.0	60	120	
In	115	1	277680	0.28	289859	95.8	60	120	
Kr	83	1	23	37.81	17	140.0	1	1000	
Ge	74	1	48570	0.39	49061	99.0	60	120	
Sc	45	1	337649	0.04	341423	98.9	60	120	
Li	6	1	14446	1.34	15244	94.8	60	120	

Sample Report

Sample Name	**460-31546-a-7-e@50**
Data File Name	**025SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J06s00.B**
Acq Date Time	**2011-10-06T20:44:18-04:00**
Type	**Sample**
VialNumber	**2307**
Dilution	**50**
Comment	
Operator	**MP**
ISTDRefDataFileName	**003CALB.D**
SamplePassFail	**Fail**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	12.21	610.58	ug/l	3600	
Tl	205	209	1	0.11	5.32	ug/l	720	
Ba	137	159	1	3702.39	185119.64	ug/l	3600	fail
Sb	121	115	1	0.26	13.10	ug/l	3600	
Sn	118	115	1	15.25	762.70	ug/l	3600	
Cd	111	115	1	0.09	4.37	ug/l	1800	
Ag	107	115	1	0.01	0.63	ug/l	180	
Mo	95	115	1	0.17	8.34	ug/l	3600	
Sr	88	115	1	15.59	779.46	ug/l	3600	
Se	78	74	1	-0.05	-2.55	ug/l	450	
As	75	74	1	1.40	69.90	ug/l	1800	
Zn	66	45	1	46.48	2324.21	ug/l	450	
Cu	63	45	1	3.69	184.44	ug/l	450	
Ni	60	45	1	134.90	6745.02	ug/l	900	
Co	59	45	1	40.62	2030.91	ug/l	450	
Fe	56	45	1	14426.70	721335.09	ug/l	180000	
Mn	55	45	1	197.66	9882.84	ug/l	9000	
Cr	52	45	1	4732.24	236611.92	ug/l	900	fail
V	51	45	1	59.97	2998.67	ug/l	3600	
Ti	47	45	1	114.63	5731.52	ug/l	3600	
Ca	44	6	1	76817.96	3840897.98	ug/l	90000	
K	39	45	1	-2.54	-126.94	ug/l	360000	
Al	27	45	1	6511.85	325592.57	ug/l	36000	
Mg	24	45	1	7067.20	353359.79	ug/l	180000	
Na	23	45	1	130.71	6535.41	ug/l	360000	
B	11	6	1	1.93	96.41	ug/l	7200	
Be	9	6	1	0.00	0.18	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	571904	0.32	586911	97.4	60	120	
Tb	159	1	764942	0.22	771893	99.1	60	120	
In	115	1	280722	0.88	289859	96.8	60	120	
Kr	83	1	17	72.11	17	100.0	1	1000	
Ge	74	1	48568	0.56	49061	99.0	60	120	
Sc	45	1	337972	0.13	341423	99.0	60	120	
Li	6	1	14864	1.71	15244	97.5	60	120	

Sample Report

Sample Name	**SD 460-31546-a-7-e@250**
Data File Name	**026SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J06s00.B**
Acq Date Time	**2011-10-06T20:48:53-04:00**
Type	**Sample**
VialNumber	**2308**
Dilution	**250**
Comment	
Operator	**MP**
ISTDRefDataFileName	**003CALB.D**
SamplePassFail	**Fail**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	2.46	615.60	ug/l	3600	
Tl	205	209	1	0.03	8.19	ug/l	720	
Ba	137	159	1	771.19	192796.65	ug/l	3600	
Sb	121	115	1	0.07	16.53	ug/l	3600	
Sn	118	115	1	3.13	782.38	ug/l	3600	
Cd	111	115	1	0.02	4.52	ug/l	1800	
Ag	107	115	1	0.00	1.02	ug/l	180	
Mo	95	115	1	0.05	13.24	ug/l	3600	
Sr	88	115	1	3.05	761.44	ug/l	3600	
Se	78	74	1	-0.14	-34.91	ug/l	450	
As	75	74	1	0.23	58.33	ug/l	1800	
Zn	66	45	1	10.32	2580.30	ug/l	450	
Cu	63	45	1	0.77	192.57	ug/l	450	
Ni	60	45	1	27.34	6835.76	ug/l	900	
Co	59	45	1	8.27	2067.39	ug/l	450	
Fe	56	45	1	2949.49	737373.45	ug/l	180000	
Mn	55	45	1	40.31	10077.58	ug/l	9000	
Cr	52	45	1	975.17	243793.26	ug/l	900	fail
V	51	45	1	11.96	2990.99	ug/l	3600	
Ti	47	45	1	23.49	5873.74	ug/l	3600	
Ca	44	6	1	18186.45	4546612.25	ug/l	90000	
K	39	45	1	-9.50	-2375.26	ug/l	360000	
Al	27	45	1	1321.46	330365.73	ug/l	36000	
Mg	24	45	1	1477.06	369264.71	ug/l	180000	
Na	23	45	1	27.53	6881.70	ug/l	360000	
B	11	6	1	0.28	70.74	ug/l	7200	
Be	9	6	1	0.00	0.97	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	582667	0.51	586911	99.3	60	120	
Tb	159	1	764592	0.27	771893	99.1	60	120	
In	115	1	284919	0.74	289859	98.3	60	120	
Kr	83	1	13	25.01	17	80.0	1	1000	
Ge	74	1	48708	0.73	49061	99.3	60	120	
Sc	45	1	338508	0.23	341423	99.1	60	120	
Li	6	1	14892	0.47	15244	97.7	60	120	

Sample Report

Sample Name	**460-31546-a-7-h ms@50**
Data File Name	**027SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J06s00.B**
Acq Date Time	**2011-10-06T20:53:35-04:00**
Type	**Sample**
VialNumber	**2309**
Dilution	**50**
Comment	
Operator	**MP**
ISTDRefDataFileName	**003CALB.D**
SamplePassFail	**Fail**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	13.01	650.57	ug/l	3600	
Tl	205	209	1	1.60	80.17	ug/l	720	
Ba	137	159	1	3493.45	174672.72	ug/l	3600	
Sb	121	115	1	2.20	110.04	ug/l	3600	
Sn	118	115	1	17.82	891.16	ug/l	3600	
Cd	111	115	1	1.99	99.70	ug/l	1800	
Ag	107	115	1	2.00	100.01	ug/l	180	
Mo	95	115	1	3.90	194.81	ug/l	3600	
Sr	88	115	1	18.35	917.32	ug/l	3600	
Se	78	74	1	3.92	196.17	ug/l	450	
As	75	74	1	5.06	253.18	ug/l	1800	
Zn	66	45	1	67.18	3358.95	ug/l	450	
Cu	63	45	1	7.37	368.29	ug/l	450	
Ni	60	45	1	157.56	7877.97	ug/l	900	
Co	59	45	1	48.39	2419.67	ug/l	450	
Fe	56	45	1	16622.55	831127.40	ug/l	180000	
Mn	55	45	1	243.31	12165.46	ug/l	9000	
Cr	52	45	1	5452.56	272628.18	ug/l	900	fail
V	51	45	1	72.48	3624.01	ug/l	3600	
Ti	47	45	1	129.11	6455.69	ug/l	3600	
Ca	44	6	1	67819.36	3390967.91	ug/l	90000	
K	39	45	1	219.42	10970.98	ug/l	360000	
Al	27	45	1	7592.65	379632.72	ug/l	36000	
Mg	24	45	1	8148.32	407416.09	ug/l	180000	
Na	23	45	1	381.50	19075.09	ug/l	360000	
B	11	6	1	41.01	2050.34	ug/l	7200	
Be	9	6	1	2.00	100.15	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	568158	0.42	586911	96.8	60	120	
Tb	159	1	758851	0.10	771893	98.3	60	120	
In	115	1	276934	1.15	289859	95.5	60	120	
Kr	83	1	14	35.26	17	86.7	1	1000	
Ge	74	1	47923	0.48	49061	97.7	60	120	
Sc	45	1	333530	0.79	341423	97.7	60	120	
Li	6	1	14656	0.56	15244	96.1	60	120	

Sample Report

Sample Name	**PDS 460-31546-a-7-e@50**
Data File Name	**028SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J06s00.B**
Acq Date Time	**2011-10-06T20:58:12-04:00**
Type	**Sample**
VialNumber	**2310**
Dilution	**50**
Comment	
Operator	**MP**
ISTDRefDataFileName	**003CALB.D**
SamplePassFail	**Fail**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	17.02	850.98	ug/l	3600	
Tl	205	209	1	3.88	193.87	ug/l	720	
Ba	137	159	1	3699.15	184957.68	ug/l	3600	fail
Sb	121	115	1	5.05	252.35	ug/l	3600	
Sn	118	115	1	24.00	1200.06	ug/l	3600	
Cd	111	115	1	4.88	244.20	ug/l	1800	
Ag	107	115	1	4.92	245.81	ug/l	180	
Mo	95	115	1	9.76	488.18	ug/l	3600	
Sr	88	115	1	24.64	1231.92	ug/l	3600	
Se	78	74	1	9.85	492.35	ug/l	450	
As	75	74	1	11.10	554.85	ug/l	1800	
Zn	66	45	1	91.03	4551.41	ug/l	450	
Cu	63	45	1	12.98	648.79	ug/l	450	
Ni	60	45	1	142.27	7113.65	ug/l	900	
Co	59	45	1	45.04	2252.19	ug/l	450	
Fe	56	45	1	14712.91	735645.55	ug/l	180000	
Mn	55	45	1	243.95	12197.26	ug/l	9000	
Cr	52	45	1	4725.07	236253.46	ug/l	900	fail
V	51	45	1	68.99	3449.25	ug/l	3600	
Ti	47	45	1	119.35	5967.57	ug/l	3600	
Ca	44	6	1	77070.31	3853515.31	ug/l	90000	
K	39	45	1	536.60	26830.00	ug/l	360000	
Al	27	45	1	6883.34	344166.90	ug/l	36000	
Mg	24	45	1	7449.67	372483.68	ug/l	180000	
Na	23	45	1	648.98	32449.24	ug/l	360000	
B	11	6	1	99.18	4959.21	ug/l	7200	
Be	9	6	1	4.91	245.46	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	571360	0.41	586911	97.4	60	120	
Tb	159	1	766041	0.35	771893	99.2	60	120	
In	115	1	280921	0.15	289859	96.9	60	120	
Kr	83	1	8	24.71	17	46.7	1	1000	
Ge	74	1	48138	1.38	49061	98.1	60	120	
Sc	45	1	337108	0.51	341423	98.7	60	120	
Li	6	1	14697	0.33	15244	96.4	60	120	

Sample Report

Sample Name	**460-31546-a-6-g@50**
Data File Name	**029SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J06s00.B**
Acq Date Time	**2011-10-06T21:02:46-04:00**
Type	**Sample**
VialNumber	**2311**
Dilution	**50**
Comment	
Operator	**MP**
ISTDRefDataFileName	**003CALB.D**
SamplePassFail	**Fail**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	13.60	679.82	ug/l	3600	
Tl	205	209	1	1.91	95.64	ug/l	720	
Ba	137	159	1	6908.58	345428.76	ug/l	3600	fail
Sb	121	115	1	0.26	13.22	ug/l	3600	
Sn	118	115	1	0.43	21.26	ug/l	3600	
Cd	111	115	1	2.37	118.36	ug/l	1800	
Ag	107	115	1	0.02	0.89	ug/l	180	
Mo	95	115	1	0.26	13.16	ug/l	3600	
Sr	88	115	1	48.45	2422.41	ug/l	3600	
Se	78	74	1	0.05	2.70	ug/l	450	
As	75	74	1	1.29	64.38	ug/l	1800	
Zn	66	45	1	221.78	11088.89	ug/l	450	
Cu	63	45	1	4.21	210.43	ug/l	450	
Ni	60	45	1	131.99	6599.28	ug/l	900	
Co	59	45	1	37.64	1882.25	ug/l	450	
Fe	56	45	1	13986.56	699328.03	ug/l	180000	
Mn	55	45	1	186.22	9310.85	ug/l	9000	
Cr	52	45	1	4608.94	230446.79	ug/l	900	fail
V	51	45	1	57.30	2865.08	ug/l	3600	
Ti	47	45	1	125.46	6272.80	ug/l	3600	
Ca	44	6	1	62221.43	3111071.65	ug/l	90000	
K	39	45	1	14.24	712.03	ug/l	360000	
Al	27	45	1	6780.66	339033.05	ug/l	36000	
Mg	24	45	1	7293.04	364652.25	ug/l	180000	
Na	23	45	1	134.83	6741.38	ug/l	360000	
B	11	6	1	1.82	90.84	ug/l	7200	
Be	9	6	1	0.07	3.52	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	561174	0.10	586911	95.6	60	120	
Tb	159	1	751883	0.45	771893	97.4	60	120	
In	115	1	275111	0.43	289859	94.9	60	120	
Kr	83	1	24	20.83	17	146.7	1	1000	
Ge	74	1	47858	0.85	49061	97.5	60	120	
Sc	45	1	330509	0.62	341423	96.8	60	120	
Li	6	1	14425	1.53	15244	94.6	60	120	

Continuing Calibration Verification (CCV) - US EPA Method 6020

Sample Name	**CCV 1187191**
Data File Name	**0306CCV.D**
DataPath	**C:\ICPMH\1\DATA\11J06s00.B**
Acq Date Time	**2011-10-06T21:07:22-04:00**
Type	**6-CCV**
VialNumber	**1301**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**003CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	%RSD	Units	CPS	CPS%RSD	Exp Value	%Rec	QC Low	QC High	QC Flag
Be	9	6	1	50.73	2.01	ug/l	4937.49	2.69	50	101.5	90	110	
B	11	6	1	98.01	2.74	ug/l	3025.93	3.69	100	98.0	90	110	
Na	23	45	1	4994.09	1.27	ug/l	4632469.17	0.35	5000	99.9	90	110	
Mg	24	45	1	5034.17	1.35	ug/l	2236891.70	0.08	5000	100.7	90	110	
Al	27	45	1	499.58	1.25	ug/l	109557.56	0.23	500	99.9	90	110	
K	39	45	1	4893.04	1.13	ug/l	2269426.88	0.38	5000	97.9	90	110	
Ca	44	6	1	4989.56	1.18	ug/l	111832.57	0.74	5000	99.8	90	110	
Ti	47	45	1	49.81	3.56	ug/l	6582.68	4.76	50	99.6	90	110	
V	51	45	1	50.00	0.55	ug/l	176192.13	1.13	50	100.0	90	110	
Cr	52	45	1	50.17	1.40	ug/l	215880.39	0.26	50	100.3	90	110	
Mn	55	45	1	503.00	1.92	ug/l	1296961.17	0.51	500	100.6	90	110	
Fe	56	45	1	4986.61	1.88	ug/l	16161740.59	0.54	5000	99.7	90	110	
Co	59	45	1	50.14	1.46	ug/l	303482.90	0.21	50	100.3	90	110	
Ni	60	45	1	50.22	1.92	ug/l	81990.95	0.49	50	100.4	90	110	
Cu	63	45	1	50.18	1.59	ug/l	218166.78	0.17	50	100.4	90	110	
Zn	66	45	1	49.89	0.71	ug/l	36820.41	1.20	50	99.8	90	110	
As	75	74	1	49.62	0.57	ug/l	28069.77	0.33	50	99.2	90	110	
Se	78	74	1	49.02	3.05	ug/l	1998.49	2.73	50	98.0	90	110	
Sr	88	115	1	49.20	0.46	ug/l	151350.59	0.36	50	98.4	90	110	
Mo	95	115	1	50.10	0.53	ug/l	97728.57	0.78	50	100.2	90	110	
Ag	107	115	1	50.29	0.76	ug/l	301009.88	0.73	50	100.6	90	110	
Cd	111	115	1	50.03	1.53	ug/l	45559.97	0.91	50	100.1	90	110	
Sn	118	115	1	50.59	0.82	ug/l	103597.84	0.31	50	101.2	90	110	
Sb	121	115	1	49.99	0.49	ug/l	144227.20	0.61	50	100.0	90	110	
Ba	137	159	1	50.18	0.16	ug/l	50023.20	0.19	50	100.4	90	110	
Tl	205	209	1	9.94	0.91	ug/l	132273.23	0.78	10	99.4	90	110	
Pb	208	209	1	50.15	0.38	ug/l	885091.04	0.10	50	100.3	90	110	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Ref CPS	%Rec	QC Low	QC High	QC Flag
Li	6	1	15046	0.98	15244	98.7	60	120	
Sc	45	1	337555	1.40	341423	98.9	60	120	
Ge	74	1	48853	0.24	49061	99.6	60	120	
Kr	83	1	12	15.73	17	73.3	1	1000	
In	115	1	283470	0.66	289859	97.8	60	120	
Tb	159	1	774958	0.31	771893	100.4	60	120	
Bi	209	1	582031	0.48	586911	99.2	60	120	

TuneStep	TuneFile
1	helium.u

Continuing Calibration Blank (CCB) - US EPA Method 6020

Sample Name	**CCB**
Data File Name	**0316CCB.D**
DataPath	**C:\ICPMH\1\DATA\11J06s00.B**
Acq Date Time	**2011-10-06T21:11:58-04:00**
Type	**6-CCB**
VialNumber	**1302**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**003CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	%RSD	Units	CPS	CPS%RSD	QC High	QC Flag
Be	9	6	1	-0.01	0.00	ug/l	0.00	#DIV/0!	0.2	
B	11	6	1	1.07	26.32	ug/l	46.67	18.90	20	
Na	23	45	1	-7.36	-19.49	ug/l	427576.37	0.06	50	
Mg	24	45	1	0.43	16.77	ug/l	343.34	9.70	50	
Al	27	45	1	0.14	10.90	ug/l	123.89	2.80	10	
K	39	45	1	-20.99	-12.33	ug/l	166525.80	0.40	50	
Ca	44	6	1	-14.27	-15.75	ug/l	1928.48	2.94	50	
Ti	47	45	1	0.15	25.78	ug/l	4.44	114.60	1	
V	51	45	1	0.01	88.37	ug/l	183.34	12.60	1	
Cr	52	45	1	0.02	125.71	ug/l	5436.67	1.73	1	
Mn	55	45	1	-0.01	-124.95	ug/l	268.90	13.37	2	
Fe	56	45	1	0.42	4.87	ug/l	5266.52	1.31	30	
Co	59	45	1	0.00	125.23	ug/l	81.11	10.34	1	
Ni	60	45	1	-0.18	-8.74	ug/l	187.79	13.79	1	
Cu	63	45	1	-0.04	-68.06	ug/l	2140.21	4.68	1	
Zn	66	45	1	-0.01	-338.77	ug/l	145.56	24.70	4	
As	75	74	1	0.00	-1043.06	ug/l	33.33	13.24	0.5	
Se	78	74	1	-0.07	-406.94	ug/l	52.78	22.40	0.5	
Sr	88	115	1	0.00	73.58	ug/l	30.00	33.33	1	
Mo	95	115	1	0.03	32.22	ug/l	95.56	22.43	1	
Ag	107	115	1	0.01	27.72	ug/l	50.00	17.64	1	
Cd	111	115	1	0.01	50.63	ug/l	10.00	33.30	0.5	
Sn	118	115	1	0.02	67.15	ug/l	124.45	25.32	4	
Sb	121	115	1	0.01	33.96	ug/l	58.89	21.43	0.5	
Ba	137	159	1	0.12	17.87	ug/l	133.34	15.00	1	
Tl	205	209	1	0.02	12.61	ug/l	360.02	10.92	0.2	
Pb	208	209	1	0.00	68.26	ug/l	332.24	14.24	0.3	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Ref CPS	%Rec	QC Low	QC High	QC Flag
Li	6	1	15052	0.39	15244	98.7	60	120	
Sc	45	1	337985	0.28	341423	99.0	60	120	
Ge	74	1	48896	0.38	49061	99.7	60	120	
Kr	83	1	10	33.30	17	60.0	1	1000	
In	115	1	288086	0.57	289859	99.4	60	120	
Tb	159	1	771669	0.41	771893	100.0	60	120	
Bi	209	1	589791	0.68	586911	100.5	60	120	

TuneStep	TuneFile
1	helium.u

Continuing Calibration Blank (CCB) - US EPA Method 6020

Sample Name	**mb 460-88293/1-a@20**
Data File Name	**0326CCB.D**
DataPath	**C:\ICPMH\1\DATA\11J06s00.B**
Acq Date Time	**2011-10-06T21:16:44-04:00**
Type	**6-CCB**
VialNumber	**2312**
Dilution	**20**
Comment	
Operator	**MP**
ISTDRefDataFileName	**003CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	%RSD	Units	CPS	CPS%RSD	QC High	QC Flag
Be	9	6	1	-0.01	0.00	ug/l	0.00	#DIV/0!	0.2	
B	11	6	1	0.46	2164.42	ug/l	27.78	55.43	20	
Na	23	45	1	18.86	419.35	ug/l	443441.16	0.50	50	
Mg	24	45	1	0.50	171.36	ug/l	370.01	5.19	50	
Al	27	45	1	2.00	235.11	ug/l	524.46	10.03	10	
K	39	45	1	11.59	67.60	ug/l	177997.31	0.26	50	
Ca	44	6	1	-10.21	-685.82	ug/l	1995.71	2.64	50	
Ti	47	45	1	0.18	162.72	ug/l	8.89	21.63	1	
V	51	45	1	0.04	478.33	ug/l	282.23	10.91	1	
Cr	52	45	1	0.09	1764.72	ug/l	5663.43	5.51	1	
Mn	55	45	1	-0.04	-327.37	ug/l	186.67	9.45	2	
Fe	56	45	1	1.33	48.15	ug/l	8114.96	0.94	30	
Co	59	45	1	0.01	239.89	ug/l	103.34	3.23	1	
Ni	60	45	1	-0.09	-369.77	ug/l	332.24	7.53	1	
Cu	63	45	1	0.10	554.08	ug/l	2680.31	4.47	1	
Zn	66	45	1	1.16	165.86	ug/l	997.85	6.95	4	
As	75	74	1	0.02	1303.24	ug/l	46.11	18.54	0.5	
Se	78	74	1	-0.22	-1961.50	ug/l	46.11	18.20	0.5	
Sr	88	115	1	0.01	10.75	ug/l	40.00	0.00	1	
Mo	95	115	1	0.02	797.96	ug/l	76.67	24.21	1	
Ag	107	115	1	0.00	1592.15	ug/l	32.22	33.25	1	
Cd	111	115	1	0.01	2315.41	ug/l	12.22	83.33	0.5	
Sn	118	115	1	0.06	384.77	ug/l	201.12	11.99	4	
Sb	121	115	1	0.04	305.12	ug/l	132.23	12.44	0.5	
Ba	137	159	1	0.14	158.09	ug/l	156.67	6.38	1	
Tl	205	209	1	0.01	220.89	ug/l	198.90	9.53	0.2	
Pb	208	209	1	0.00	2507.48	ug/l	293.35	14.51	0.3	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Ref CPS	%Rec	QC Low	QC High	QC Flag
Li	6	1	14894	1.52	15244	97.7	60	120	
Sc	45	1	333316	0.33	341423	97.6	60	120	
Ge	74	1	48107	0.69	49061	98.1	60	120	
Kr	83	1	14	26.66	17	86.7	1	1000	
In	115	1	286606	0.32	289859	98.9	60	120	
Tb	159	1	773751	0.82	771893	100.2	60	120	
Bi	209	1	582781	0.50	586911	99.3	60	120	

TuneStep	TuneFile
1	helium.u

Sample Report

Sample Name	**lcssrm 460-88293/2-a@100**
Data File Name	**033SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J06s00.B**
Acq Date Time	**2011-10-06T21:21:28-04:00**
Type	**Sample**
VialNumber	**2401**
Dilution	**100**
Comment	
Operator	**MP**
ISTDRefDataFileName	**003CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	18.09	1809.48	ug/l	3600	
Tl	205	209	1	26.17	2616.56	ug/l	720	
Ba	137	159	1	40.33	4033.14	ug/l	3600	
Sb	121	115	1	38.25	3825.27	ug/l	3600	
Sn	118	115	1	23.10	2310.34	ug/l	3600	
Cd	111	115	1	12.45	1244.83	ug/l	1800	
Ag	107	115	1	6.55	655.48	ug/l	180	
Mo	95	115	1	10.83	1083.13	ug/l	3600	
Sr	88	115	1	45.57	4557.45	ug/l	3600	
Se	78	74	1	59.04	5904.12	ug/l	450	
As	75	74	1	21.69	2169.07	ug/l	1800	
Zn	66	45	1	122.90	12289.91	ug/l	450	
Cu	63	45	1	35.84	3584.35	ug/l	450	
Ni	60	45	1	28.29	2829.50	ug/l	900	
Co	59	45	1	19.65	1964.62	ug/l	450	
Fe	56	45	1	3603.08	360308.44	ug/l	180000	
Mn	55	45	1	119.31	11931.38	ug/l	9000	
Cr	52	45	1	47.48	4748.25	ug/l	900	
V	51	45	1	23.39	2339.30	ug/l	3600	
Ti	47	45	1	77.35	7735.29	ug/l	3600	
Ca	44	6	1	2043.00	204299.64	ug/l	90000	
K	39	45	1	926.38	92638.00	ug/l	360000	
Al	27	45	1	1630.83	163083.17	ug/l	36000	
Mg	24	45	1	805.12	80511.98	ug/l	180000	
Na	23	45	1	189.41	18940.65	ug/l	360000	
B	11	6	1	29.17	2917.35	ug/l	7200	
Be	9	6	1	15.32	1532.24	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	591372	0.79	586911	100.8	60	120	
Tb	159	1	780795	0.51	771893	101.2	60	120	
In	115	1	284668	0.35	289859	98.2	60	120	
Kr	83	1	13	66.12	17	80.0	1	1000	
Ge	74	1	49416	0.35	49061	100.7	60	120	
Sc	45	1	340932	0.49	341423	99.9	60	120	
Li	6	1	15196	1.32	15244	99.7	60	120	

Sample Report

Sample Name	**460-31791-a-3-c du@20**
Data File Name	**034SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J06s00.B**
Acq Date Time	**2011-10-06T21:26:09-04:00**
Type	**Sample**
VialNumber	**2402**
Dilution	**20**
Comment	
Operator	**MP**
ISTDRefDataFileName	**003CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	1465.01	29300.19	ug/l	3600	
Tl	205	209	1	0.27	5.40	ug/l	720	
Ba	137	159	1	237.98	4759.63	ug/l	3600	
Sb	121	115	1	1.20	23.93	ug/l	3600	
Sn	118	115	1	16.26	325.26	ug/l	3600	
Cd	111	115	1	0.54	10.75	ug/l	1800	
Ag	107	115	1	0.40	7.95	ug/l	180	
Mo	95	115	1	1.33	26.57	ug/l	3600	
Sr	88	115	1	17.42	348.44	ug/l	3600	
Se	78	74	1	1.64	32.74	ug/l	450	
As	75	74	1	11.00	219.92	ug/l	1800	
Zn	66	45	1	192.21	3844.14	ug/l	450	
Cu	63	45	1	130.93	2618.63	ug/l	450	
Ni	60	45	1	16.55	331.08	ug/l	900	
Co	59	45	1	3.54	70.76	ug/l	450	
Fe	56	45	1	10487.97	209759.33	ug/l	180000	
Mn	55	45	1	136.35	2726.98	ug/l	9000	
Cr	52	45	1	52.43	1048.57	ug/l	900	
V	51	45	1	54.29	1085.81	ug/l	3600	
Ti	47	45	1	228.50	4569.94	ug/l	3600	
Ca	44	6	1	1866.48	37329.52	ug/l	90000	
K	39	45	1	433.79	8675.84	ug/l	360000	
Al	27	45	1	4085.34	81706.86	ug/l	36000	
Mg	24	45	1	1170.63	23412.62	ug/l	180000	
Na	23	45	1	65.80	1315.98	ug/l	360000	
B	11	6	1	3.14	62.74	ug/l	7200	
Be	9	6	1	0.31	6.28	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	591461	0.18	586911	100.8	60	120	
Tb	159	1	768081	0.76	771893	99.5	60	120	
In	115	1	282373	0.73	289859	97.4	60	120	
Kr	83	1	36	53.31	17	213.3	1	1000	
Ge	74	1	48721	1.25	49061	99.3	60	120	
Sc	45	1	334560	0.36	341423	98.0	60	120	
Li	6	1	14722	1.06	15244	96.6	60	120	

Sample Report

Sample Name	**460-31791-a-3-b@20**
Data File Name	**035SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J06s00.B**
Acq Date Time	**2011-10-06T21:30:48-04:00**
Type	**Sample**
VialNumber	**2403**
Dilution	**20**
Comment	
Operator	**MP**
ISTDRefDataFileName	**003CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	1176.34	23526.86	ug/l	3600	
Tl	205	209	1	0.16	3.24	ug/l	720	
Ba	137	159	1	160.78	3215.62	ug/l	3600	
Sb	121	115	1	1.15	23.02	ug/l	3600	
Sn	118	115	1	10.64	212.71	ug/l	3600	
Cd	111	115	1	0.40	8.03	ug/l	1800	
Ag	107	115	1	0.37	7.47	ug/l	180	
Mo	95	115	1	1.01	20.19	ug/l	3600	
Sr	88	115	1	13.35	266.95	ug/l	3600	
Se	78	74	1	1.35	27.04	ug/l	450	
As	75	74	1	10.60	212.10	ug/l	1800	
Zn	66	45	1	176.91	3538.13	ug/l	450	
Cu	63	45	1	120.24	2404.71	ug/l	450	
Ni	60	45	1	13.21	264.10	ug/l	900	
Co	59	45	1	3.73	74.59	ug/l	450	
Fe	56	45	1	10326.49	206529.80	ug/l	180000	
Mn	55	45	1	160.66	3213.28	ug/l	9000	
Cr	52	45	1	50.42	1008.37	ug/l	900	
V	51	45	1	52.94	1058.84	ug/l	3600	
Ti	47	45	1	232.42	4648.31	ug/l	3600	
Ca	44	6	1	1468.38	29367.67	ug/l	90000	
K	39	45	1	421.92	8438.48	ug/l	360000	
Al	27	45	1	4084.58	81691.55	ug/l	36000	
Mg	24	45	1	1281.78	25635.62	ug/l	180000	
Na	23	45	1	59.29	1185.72	ug/l	360000	
B	11	6	1	2.13	42.51	ug/l	7200	
Be	9	6	1	0.26	5.22	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	592663	0.30	586911	101.0	60	120	
Tb	159	1	772944	1.10	771893	100.1	60	120	
In	115	1	281899	0.84	289859	97.3	60	120	
Kr	83	1	36	21.64	17	213.3	1	1000	
Ge	74	1	48431	0.45	49061	98.7	60	120	
Sc	45	1	336469	0.37	341423	98.5	60	120	
Li	6	1	15047	1.23	15244	98.7	60	120	

Sample Report

Sample Name	**SD 460-31791-a-3-b@100**
Data File Name	**036SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J06s00.B**
Acq Date Time	**2011-10-06T21:35:26-04:00**
Type	**Sample**
VialNumber	**2404**
Dilution	**100**
Comment	
Operator	**MP**
ISTDRefDataFileName	**003CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	246.32	24632.17	ug/l	3600	
Tl	205	209	1	0.04	4.47	ug/l	720	
Ba	137	159	1	32.57	3257.14	ug/l	3600	
Sb	121	115	1	0.27	27.02	ug/l	3600	
Sn	118	115	1	2.17	217.39	ug/l	3600	
Cd	111	115	1	0.09	8.60	ug/l	1800	
Ag	107	115	1	0.08	8.02	ug/l	180	
Mo	95	115	1	0.21	20.96	ug/l	3600	
Sr	88	115	1	2.64	263.73	ug/l	3600	
Se	78	74	1	0.29	29.08	ug/l	450	
As	75	74	1	2.00	200.10	ug/l	1800	
Zn	66	45	1	37.20	3719.67	ug/l	450	
Cu	63	45	1	24.20	2420.26	ug/l	450	
Ni	60	45	1	2.44	244.09	ug/l	900	
Co	59	45	1	0.74	74.47	ug/l	450	
Fe	56	45	1	2078.72	207871.85	ug/l	180000	
Mn	55	45	1	32.16	3215.96	ug/l	9000	
Cr	52	45	1	9.97	996.78	ug/l	900	
V	51	45	1	10.65	1065.48	ug/l	3600	
Ti	47	45	1	46.06	4605.98	ug/l	3600	
Ca	44	6	1	279.65	27964.52	ug/l	90000	
K	39	45	1	68.37	6836.69	ug/l	360000	
Al	27	45	1	827.87	82786.52	ug/l	36000	
Mg	24	45	1	258.22	25822.16	ug/l	180000	
Na	23	45	1	1.06	106.22	ug/l	360000	
B	11	6	1	0.60	60.12	ug/l	7200	
Be	9	6	1	0.04	3.79	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	591101	0.22	586911	100.7	60	120	
Tb	159	1	775483	0.35	771893	100.5	60	120	
In	115	1	285418	0.35	289859	98.5	60	120	
Kr	83	1	11	75.52	17	66.7	1	1000	
Ge	74	1	48878	0.44	49061	99.6	60	120	
Sc	45	1	339109	0.27	341423	99.3	60	120	
Li	6	1	15039	0.32	15244	98.7	60	120	

Sample Report

Sample Name	**460-31791-a-3-d ms@20**
Data File Name	**037SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J06s00.B**
Acq Date Time	**2011-10-06T21:40:08-04:00**
Type	**Sample**
VialNumber	**2405**
Dilution	**20**
Comment	
Operator	**MP**
ISTDRefDataFileName	**003CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	1557.45	31148.96	ug/l	3600	
Tl	205	209	1	3.86	77.11	ug/l	720	
Ba	137	159	1	318.16	6363.28	ug/l	3600	
Sb	121	115	1	3.42	68.40	ug/l	3600	
Sn	118	115	1	23.79	475.72	ug/l	3600	
Cd	111	115	1	5.51	110.18	ug/l	1800	
Ag	107	115	1	5.48	109.68	ug/l	180	
Mo	95	115	1	10.76	215.20	ug/l	3600	
Sr	88	115	1	25.84	516.82	ug/l	3600	
Se	78	74	1	10.81	216.26	ug/l	450	
As	75	74	1	21.68	433.58	ug/l	1800	
Zn	66	45	1	276.51	5530.28	ug/l	450	
Cu	63	45	1	117.52	2350.30	ug/l	450	
Ni	60	45	1	24.67	493.45	ug/l	900	
Co	59	45	1	9.13	182.52	ug/l	450	
Fe	56	45	1	11601.21	232024.11	ug/l	180000	
Mn	55	45	1	233.58	4671.52	ug/l	9000	
Cr	52	45	1	62.87	1257.32	ug/l	900	
V	51	45	1	68.15	1362.92	ug/l	3600	
Ti	47	45	1	278.80	5576.02	ug/l	3600	
Ca	44	6	1	2219.19	44383.88	ug/l	90000	
K	39	45	1	1006.72	20134.39	ug/l	360000	
Al	27	45	1	5106.03	102120.50	ug/l	36000	
Mg	24	45	1	1930.20	38604.00	ug/l	180000	
Na	23	45	1	604.93	12098.62	ug/l	360000	
B	11	6	1	97.84	1956.85	ug/l	7200	
Be	9	6	1	5.63	112.57	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	589309	0.63	586911	100.4	60	120	
Tb	159	1	764933	0.96	771893	99.1	60	120	
In	115	1	278848	0.22	289859	96.2	60	120	
Kr	83	1	40	16.68	17	240.0	1	1000	
Ge	74	1	48378	0.72	49061	98.6	60	120	
Sc	45	1	335362	0.24	341423	98.2	60	120	
Li	6	1	14545	2.74	15244	95.4	60	120	

Sample Report

Sample Name	**PDS 460-31791-a-3-b@20**
Data File Name	**038SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J06s00.B**
Acq Date Time	**2011-10-06T21:44:44-04:00**
Type	**Sample**
VialNumber	**2406**
Dilution	**20**
Comment	
Operator	**MP**
ISTDRefDataFileName	**003CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	1183.63	23672.69	ug/l	3600	
Tl	205	209	1	3.93	78.61	ug/l	720	
Ba	137	159	1	171.26	3425.10	ug/l	3600	
Sb	121	115	1	5.93	118.60	ug/l	3600	
Sn	118	115	1	20.00	399.91	ug/l	3600	
Cd	111	115	1	5.46	109.22	ug/l	1800	
Ag	107	115	1	5.40	108.09	ug/l	180	
Mo	95	115	1	10.77	215.49	ug/l	3600	
Sr	88	115	1	23.05	461.07	ug/l	3600	
Se	78	74	1	10.59	211.75	ug/l	450	
As	75	74	1	20.04	400.83	ug/l	1800	
Zn	66	45	1	225.45	4509.08	ug/l	450	
Cu	63	45	1	130.18	2603.64	ug/l	450	
Ni	60	45	1	23.25	465.09	ug/l	900	
Co	59	45	1	8.68	173.55	ug/l	450	
Fe	56	45	1	10831.94	216638.82	ug/l	180000	
Mn	55	45	1	209.26	4185.18	ug/l	9000	
Cr	52	45	1	60.18	1203.60	ug/l	900	
V	51	45	1	62.92	1258.49	ug/l	3600	
Ti	47	45	1	240.95	4818.97	ug/l	3600	
Ca	44	6	1	2012.92	40258.42	ug/l	90000	
K	39	45	1	972.39	19447.85	ug/l	360000	
Al	27	45	1	4593.62	91872.39	ug/l	36000	
Mg	24	45	1	1763.77	35275.45	ug/l	180000	
Na	23	45	1	589.82	11796.33	ug/l	360000	
B	11	6	1	97.37	1947.49	ug/l	7200	
Be	9	6	1	5.21	104.16	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	591411	0.66	586911	100.8	60	120	
Tb	159	1	774462	0.07	771893	100.3	60	120	
In	115	1	281008	1.15	289859	96.9	60	120	
Kr	83	1	28	13.86	17	166.7	1	1000	
Ge	74	1	48881	0.66	49061	99.6	60	120	
Sc	45	1	337859	0.15	341423	99.0	60	120	
Li	6	1	14696	1.22	15244	96.4	60	120	

Sample Report

Sample Name	**460-31791-a-1-b@20**
Data File Name	**039SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J06s00.B**
Acq Date Time	**2011-10-06T21:49:19-04:00**
Type	**Sample**
VialNumber	**2407**
Dilution	**20**
Comment	
Operator	**MP**
ISTDRefDataFileName	**003CALB.D**
SamplePassFail	**Fail**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	1.24	24.71	ug/l	3600	
Tl	205	209	1	0.04	0.73	ug/l	720	
Ba	137	159	1	8.04	160.79	ug/l	3600	
Sb	121	115	1	0.05	0.96	ug/l	3600	
Sn	118	115	1	0.44	8.85	ug/l	3600	
Cd	111	115	1	0.06	1.17	ug/l	1800	
Ag	107	115	1	0.01	0.16	ug/l	180	
Mo	95	115	1	0.04	0.70	ug/l	3600	
Sr	88	115	1	325.71	6514.15	ug/l	3600	
Se	78	74	1	0.20	3.94	ug/l	450	
As	75	74	1	0.67	13.38	ug/l	1800	
Zn	66	45	1	22.95	458.99	ug/l	450	
Cu	63	45	1	5.20	104.06	ug/l	450	
Ni	60	45	1	0.45	9.02	ug/l	900	
Co	59	45	1	0.26	5.26	ug/l	450	
Fe	56	45	1	506.68	10133.54	ug/l	180000	
Mn	55	45	1	286.05	5720.92	ug/l	9000	
Cr	52	45	1	1.37	27.31	ug/l	900	
V	51	45	1	0.56	11.21	ug/l	3600	
Ti	47	45	1	38.49	769.77	ug/l	3600	
Ca	44	6	1	204094.96	4081899.15	ug/l	90000	fail
K	39	45	1	28.40	567.95	ug/l	360000	
Al	27	45	1	623.79	12475.76	ug/l	36000	
Mg	24	45	1	6512.54	130250.86	ug/l	180000	
Na	23	45	1	1658.88	33177.69	ug/l	360000	
B	11	6	1	3.29	65.79	ug/l	7200	
Be	9	6	1	0.03	0.57	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	540046	0.26	586911	92.0	60	120	
Tb	159	1	731456	0.39	771893	94.8	60	120	
In	115	1	266544	0.77	289859	92.0	60	120	
Kr	83	1	23	37.78	17	140.0	1	1000	
Ge	74	1	46614	0.32	49061	95.0	60	120	
Sc	45	1	320823	0.30	341423	94.0	60	120	
Li	6	1	14264	0.85	15244	93.6	60	120	

Sample Report

Sample Name	**460-31791-a-2-b@20**
Data File Name	**040SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J06s00.B**
Acq Date Time	**2011-10-06T21:53:56-04:00**
Type	**Sample**
VialNumber	**2408**
Dilution	**20**
Comment	
Operator	**MP**
ISTDRefDataFileName	**003CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	47.33	946.64	ug/l	3600	
Tl	205	209	1	0.18	3.66	ug/l	720	
Ba	137	159	1	45.96	919.10	ug/l	3600	
Sb	121	115	1	0.13	2.56	ug/l	3600	
Sn	118	115	1	1.94	38.84	ug/l	3600	
Cd	111	115	1	0.14	2.89	ug/l	1800	
Ag	107	115	1	0.03	0.66	ug/l	180	
Mo	95	115	1	0.47	9.49	ug/l	3600	
Sr	88	115	1	7.07	141.33	ug/l	3600	
Se	78	74	1	0.93	18.66	ug/l	450	
As	75	74	1	7.26	145.27	ug/l	1800	
Zn	66	45	1	75.82	1516.42	ug/l	450	
Cu	63	45	1	18.00	359.96	ug/l	450	
Ni	60	45	1	9.30	186.03	ug/l	900	
Co	59	45	1	6.13	122.63	ug/l	450	
Fe	56	45	1	11805.25	236105.03	ug/l	180000	
Mn	55	45	1	229.95	4599.00	ug/l	9000	
Cr	52	45	1	15.73	314.59	ug/l	900	
V	51	45	1	27.29	545.88	ug/l	3600	
Ti	47	45	1	679.31	13586.19	ug/l	3600	
Ca	44	6	1	1568.23	31364.66	ug/l	90000	
K	39	45	1	1473.56	29471.22	ug/l	360000	
Al	27	45	1	7613.45	152269.02	ug/l	36000	
Mg	24	45	1	3860.86	77217.23	ug/l	180000	
Na	23	45	1	130.50	2609.90	ug/l	360000	
B	11	6	1	3.84	76.77	ug/l	7200	
Be	9	6	1	0.54	10.78	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	575561	0.59	586911	98.1	60	120	
Tb	159	1	769606	0.24	771893	99.7	60	120	
In	115	1	275169	0.05	289859	94.9	60	120	
Kr	83	1	39	9.89	17	233.3	1	1000	
Ge	74	1	48299	0.68	49061	98.4	60	120	
Sc	45	1	336415	0.52	341423	98.5	60	120	
Li	6	1	14742	1.91	15244	96.7	60	120	

Sample Report

Sample Name	**460-31705-a-13-a@20**
Data File Name	**041SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J06s00.B**
Acq Date Time	**2011-10-06T21:58:35-04:00**
Type	**Sample**
VialNumber	**2409**
Dilution	**20**
Comment	
Operator	**MP**
ISTDRefDataFileName	**003CALB.D**
SamplePassFail	**Fail**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	61.15	1222.94	ug/l	3600	
Tl	205	209	1	0.12	2.34	ug/l	720	
Ba	137	159	1	68.44	1368.75	ug/l	3600	
Sb	121	115	1	0.36	7.15	ug/l	3600	
Sn	118	115	1	3.22	64.34	ug/l	3600	
Cd	111	115	1	0.23	4.63	ug/l	1800	
Ag	107	115	1	0.07	1.44	ug/l	180	
Mo	95	115	1	0.76	15.12	ug/l	3600	
Sr	88	115	1	14.96	299.13	ug/l	3600	
Se	78	74	1	1.00	19.93	ug/l	450	
As	75	74	1	6.67	133.38	ug/l	1800	
Zn	66	45	1	94.49	1889.74	ug/l	450	
Cu	63	45	1	39.42	788.41	ug/l	450	
Ni	60	45	1	12.12	242.39	ug/l	900	
Co	59	45	1	5.64	112.79	ug/l	450	
Fe	56	45	1	12757.87	255157.30	ug/l	180000	
Mn	55	45	1	366.75	7335.07	ug/l	9000	
Cr	52	45	1	3899.41	77988.11	ug/l	900	fail
V	51	45	1	26.24	524.87	ug/l	3600	
Ti	47	45	1	342.18	6843.55	ug/l	3600	
Ca	44	6	1	3405.89	68117.71	ug/l	90000	
K	39	45	1	844.15	16883.05	ug/l	360000	
Al	27	45	1	6810.66	136213.28	ug/l	36000	
Mg	24	45	1	2522.99	50459.80	ug/l	180000	
Na	23	45	1	2503.48	50069.53	ug/l	360000	
B	11	6	1	4.46	89.20	ug/l	7200	
Be	9	6	1	0.68	13.51	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	579361	0.43	586911	98.7	60	120	
Tb	159	1	770837	0.76	771893	99.9	60	120	
In	115	1	276483	0.31	289859	95.4	60	120	
Kr	83	1	49	33.63	17	293.3	1	1000	
Ge	74	1	47919	0.13	49061	97.7	60	120	
Sc	45	1	332506	0.88	341423	97.4	60	120	
Li	6	1	14957	1.37	15244	98.1	60	120	

Continuing Calibration Verification (CCV) - US EPA Method 6020

Sample Name	**CCV 1187191**
Data File Name	**0426CCV.D**
DataPath	**C:\ICPMH\1\DATA\11J06s00.B**
Acq Date Time	**2011-10-06T22:03:11-04:00**
Type	**6-CCV**
VialNumber	**1301**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**003CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	%RSD	Units	CPS	CPS%RSD	Exp Value	%Rec	QC Low	QC High	QC Flag
Be	9	6	1	50.81	3.63	ug/l	4810.78	3.31	50	101.6	90	110	
B	11	6	1	100.73	0.64	ug/l	3024.84	1.16	100	100.7	90	110	
Na	23	45	1	4982.95	0.95	ug/l	4546432.36	0.47	5000	99.7	90	110	
Mg	24	45	1	5034.45	0.94	ug/l	2199972.92	0.68	5000	100.7	90	110	
Al	27	45	1	501.05	0.71	ug/l	108058.92	0.28	500	100.2	90	110	
K	39	45	1	4853.69	0.42	ug/l	2215239.20	0.17	5000	97.1	90	110	
Ca	44	6	1	5020.15	0.59	ug/l	109460.37	0.46	5000	100.4	90	110	
Ti	47	45	1	50.07	5.09	ug/l	6505.97	5.46	50	100.1	90	110	
V	51	45	1	50.14	0.36	ug/l	173732.95	0.24	50	100.3	90	110	
Cr	52	45	1	50.43	0.65	ug/l	213408.64	0.33	50	100.9	90	110	
Mn	55	45	1	503.85	0.45	ug/l	1277693.38	0.10	500	100.8	90	110	
Fe	56	45	1	5003.97	0.68	ug/l	15950392.26	0.65	5000	100.1	90	110	
Co	59	45	1	50.23	0.21	ug/l	299041.00	0.62	50	100.5	90	110	
Ni	60	45	1	49.99	0.42	ug/l	80269.94	0.70	50	100.0	90	110	
Cu	63	45	1	50.31	0.60	ug/l	215073.49	0.30	50	100.6	90	110	
Zn	66	45	1	49.85	0.77	ug/l	36181.08	1.19	50	99.7	90	110	
As	75	74	1	50.03	0.24	ug/l	27865.51	0.38	50	100.1	90	110	
Se	78	74	1	50.18	1.79	ug/l	2012.94	2.12	50	100.4	90	110	
Sr	88	115	1	49.95	1.10	ug/l	150628.74	0.90	50	99.9	90	110	
Mo	95	115	1	50.55	0.73	ug/l	96680.51	0.72	50	101.1	90	110	
Ag	107	115	1	50.83	0.36	ug/l	298249.43	0.60	50	101.7	90	110	
Cd	111	115	1	50.60	0.33	ug/l	45173.22	0.34	50	101.2	90	110	
Sn	118	115	1	50.68	0.44	ug/l	101740.68	0.39	50	101.4	90	110	
Sb	121	115	1	50.27	0.57	ug/l	142169.50	0.59	50	100.5	90	110	
Ba	137	159	1	50.46	1.43	ug/l	49156.95	0.77	50	100.9	90	110	
Tl	205	209	1	9.97	0.23	ug/l	130686.33	1.19	10	99.7	90	110	
Pb	208	209	1	49.90	0.53	ug/l	867450.71	0.56	50	99.8	90	110	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Ref CPS	%Rec	QC Low	QC High	QC Flag
Li	6	1	14638	0.52	15244	96.0	60	120	
Sc	45	1	331930	0.43	341423	97.2	60	120	
Ge	74	1	48094	0.54	49061	98.0	60	120	
Kr	83	1	16	32.73	17	93.3	1	1000	
In	115	1	277905	0.25	289859	95.9	60	120	
Tb	159	1	757409	0.72	771893	98.1	60	120	
Bi	209	1	573347	0.96	586911	97.7	60	120	

TuneStep	TuneFile
1	helium.u

Continuing Calibration Blank (CCB) - US EPA Method 6020

Sample Name	**CCB**
Data File Name	**0436CCB.D**
DataPath	**C:\ICPMH\1\DATA\11J06s00.B**
Acq Date Time	**2011-10-06T22:07:47-04:00**
Type	**6-CCB**
VialNumber	**1302**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**003CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	%RSD	Units	CPS	CPS%RSD	QC High	QC Flag
Be	9	6	1	0.00	-545.62	ug/l	1.11	86.60	0.2	
B	11	6	1	1.13	5.08	ug/l	47.78	4.02	20	
Na	23	45	1	-6.68	-53.39	ug/l	422042.75	0.38	50	
Mg	24	45	1	0.37	10.18	ug/l	311.12	5.09	50	
Al	27	45	1	0.10	59.47	ug/l	113.89	11.18	10	
K	39	45	1	-28.00	-7.62	ug/l	161194.99	0.70	50	
Ca	44	6	1	-15.49	-13.16	ug/l	1867.92	2.01	50	
Ti	47	45	1	0.14	0.06	ug/l	3.33	0.00	1	
V	51	45	1	0.02	46.81	ug/l	208.90	11.98	1	
Cr	52	45	1	-0.06	-58.78	ug/l	5063.19	2.62	1	
Mn	55	45	1	-0.02	-69.46	ug/l	238.90	15.87	2	
Fe	56	45	1	0.42	14.90	ug/l	5201.48	3.51	30	
Co	59	45	1	0.00	159.79	ug/l	92.23	32.39	1	
Ni	60	45	1	-0.18	-12.35	ug/l	186.68	18.90	1	
Cu	63	45	1	-0.05	-63.55	ug/l	2065.75	5.67	1	
Zn	66	45	1	-0.02	-137.57	ug/l	141.12	13.01	4	
As	75	74	1	-0.01	-199.04	ug/l	30.00	24.21	0.5	
Se	78	74	1	0.03	441.16	ug/l	56.67	10.60	0.5	
Sr	88	115	1	0.01	46.22	ug/l	34.45	24.36	1	
Mo	95	115	1	0.03	12.39	ug/l	83.34	8.00	1	
Ag	107	115	1	0.00	32.54	ug/l	44.45	18.88	1	
Cd	111	115	1	0.01	41.82	ug/l	15.56	32.73	0.5	
Sn	118	115	1	0.02	21.87	ug/l	123.34	8.11	4	
Sb	121	115	1	0.02	12.08	ug/l	78.89	8.79	0.5	
Ba	137	159	1	0.03	21.44	ug/l	50.00	13.34	1	
Tl	205	209	1	0.02	8.70	ug/l	271.12	7.21	0.2	
Pb	208	209	1	0.02	12.45	ug/l	542.24	6.22	0.3	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Ref CPS	%Rec	QC Low	QC High	QC Flag
Li	6	1	14786	0.44	15244	97.0	60	120	
Sc	45	1	333169	0.32	341423	97.6	60	120	
Ge	74	1	48527	0.70	49061	98.9	60	120	
Kr	83	1	12	31.50	17	73.3	1	1000	
In	115	1	286328	0.13	289859	98.8	60	120	
Tb	159	1	767851	0.40	771893	99.5	60	120	
Bi	209	1	586711	0.37	586911	100.0	60	120	

TuneStep	TuneFile
1	helium.u

Sample Report

Sample Name	**460-31705-b-15-a@20**
Data File Name	**044SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J06s00.B**
Acq Date Time	**2011-10-06T22:12:32-04:00**
Type	**Sample**
VialNumber	**2410**
Dilution	**20**
Comment	
Operator	**MP**
ISTDRefDataFileName	**003CALB.D**
SamplePassFail	**Fail**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	443.68	8873.60	ug/l	3600	
Tl	205	209	1	0.13	2.66	ug/l	720	
Ba	137	159	1	84.86	1697.13	ug/l	3600	
Sb	121	115	1	0.42	8.46	ug/l	3600	
Sn	118	115	1	25.09	501.70	ug/l	3600	
Cd	111	115	1	0.54	10.82	ug/l	1800	
Ag	107	115	1	0.19	3.90	ug/l	180	
Mo	95	115	1	1.47	29.42	ug/l	3600	
Sr	88	115	1	43.89	877.82	ug/l	3600	
Se	78	74	1	1.76	35.28	ug/l	450	
As	75	74	1	11.64	232.81	ug/l	1800	
Zn	66	45	1	643.84	12876.82	ug/l	450	fail
Cu	63	45	1	23.37	467.42	ug/l	450	
Ni	60	45	1	12.95	259.05	ug/l	900	
Co	59	45	1	6.94	138.83	ug/l	450	
Fe	56	45	1	19247.22	384944.31	ug/l	180000	
Mn	55	45	1	391.93	7838.66	ug/l	9000	
Cr	52	45	1	1222.52	24450.42	ug/l	900	fail
V	51	45	1	27.24	544.75	ug/l	3600	
Ti	47	45	1	275.61	5512.23	ug/l	3600	
Ca	44	6	1	10885.18	217703.52	ug/l	90000	
K	39	45	1	1175.37	23507.35	ug/l	360000	
Al	27	45	1	11147.80	222955.91	ug/l	36000	
Mg	24	45	1	3457.21	69144.17	ug/l	180000	
Na	23	45	1	4644.98	92899.62	ug/l	360000	
B	11	6	1	7.78	155.67	ug/l	7200	
Be	9	6	1	0.70	13.96	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	580451	1.47	586911	98.9	60	120	
Tb	159	1	769749	1.17	771893	99.7	60	120	
In	115	1	276815	1.48	289859	95.5	60	120	
Kr	83	1	54	21.51	17	326.7	1	1000	
Ge	74	1	48196	1.72	49061	98.2	60	120	
Sc	45	1	335902	1.29	341423	98.4	60	120	
Li	6	1	14640	2.41	15244	96.0	60	120	

Continuing Calibration Verification (CCV) - US EPA Method 6020

Sample Name	**CCV 1187191**
Data File Name	**0456CCV.D**
DataPath	**C:\ICPMH\1\DATA\11J06s00.B**
Acq Date Time	**2011-10-06T22:17:05-04:00**
Type	**6-CCV**
VialNumber	**1301**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**003CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	%RSD	Units	CPS	CPS%RSD	Exp Value	%Rec	QC Low	QC High	QC Flag
Be	9	6	1	49.61	1.18	ug/l	4743.54	1.52	50	99.2	90	110	
B	11	6	1	96.49	3.98	ug/l	2925.92	3.08	100	96.5	90	110	
Na	23	45	1	5010.28	0.61	ug/l	4569488.93	0.68	5000	100.2	90	110	
Mg	24	45	1	5057.78	0.64	ug/l	2210381.96	0.79	5000	101.2	90	110	
Al	27	45	1	501.14	0.24	ug/l	108089.05	0.42	500	100.2	90	110	
K	39	45	1	4918.89	0.70	ug/l	2242871.58	0.75	5000	98.4	90	110	
Ca	44	6	1	5004.08	0.93	ug/l	110185.60	0.04	5000	100.1	90	110	
Ti	47	45	1	51.07	0.92	ug/l	6636.02	0.91	50	102.1	90	110	
V	51	45	1	50.68	0.06	ug/l	175621.43	0.22	50	101.4	90	110	
Cr	52	45	1	50.92	0.46	ug/l	215444.92	0.56	50	101.8	90	110	
Mn	55	45	1	506.19	0.06	ug/l	1283736.80	0.33	500	101.2	90	110	
Fe	56	45	1	5014.75	0.31	ug/l	15986020.46	0.39	5000	100.3	90	110	
Co	59	45	1	50.53	0.64	ug/l	300812.61	0.38	50	101.1	90	110	
Ni	60	45	1	50.59	0.46	ug/l	81240.44	0.53	50	101.2	90	110	
Cu	63	45	1	50.33	0.45	ug/l	215196.44	0.25	50	100.7	90	110	
Zn	66	45	1	50.37	0.59	ug/l	36553.12	0.34	50	100.7	90	110	
As	75	74	1	49.59	0.95	ug/l	28070.86	0.40	50	99.2	90	110	
Se	78	74	1	50.26	1.42	ug/l	2049.06	1.59	50	100.5	90	110	
Sr	88	115	1	49.47	0.48	ug/l	150655.00	0.10	50	98.9	90	110	
Mo	95	115	1	50.26	1.16	ug/l	97057.44	1.61	50	100.5	90	110	
Ag	107	115	1	50.74	1.23	ug/l	300651.30	1.44	50	101.5	90	110	
Cd	111	115	1	50.52	1.18	ug/l	45544.19	1.18	50	101.0	90	110	
Sn	118	115	1	50.70	0.33	ug/l	102773.26	0.51	50	101.4	90	110	
Sb	121	115	1	50.10	0.68	ug/l	143059.40	0.84	50	100.2	90	110	
Ba	137	159	1	50.71	0.28	ug/l	49911.67	0.50	50	101.4	90	110	
Tl	205	209	1	9.96	0.65	ug/l	131717.92	0.85	10	99.6	90	110	
Pb	208	209	1	50.07	0.74	ug/l	878452.79	0.43	50	100.1	90	110	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Ref CPS	%Rec	QC Low	QC High	QC Flag
Li	6	1	14782	0.95	15244	97.0	60	120	
Sc	45	1	331955	0.27	341423	97.2	60	120	
Ge	74	1	48886	0.77	49061	99.6	60	120	
Kr	83	1	14	13.35	17	86.7	1	1000	
In	115	1	280605	0.55	289859	96.8	60	120	
Tb	159	1	765172	0.78	771893	99.1	60	120	
Bi	209	1	578617	1.05	586911	98.6	60	120	

TuneStep	TuneFile
1	helium.u

Continuing Calibration Blank (CCB) - US EPA Method 6020

Sample Name	**CCB**
Data File Name	**0466CCB.D**
DataPath	**C:\ICPMH\1\DATA\11J06s00.B**
Acq Date Time	**2011-10-06T22:21:41-04:00**
Type	**6-CCB**
VialNumber	**1302**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**003CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	%RSD	Units	CPS	CPS%RSD	QC High	QC Flag
Be	9	6	1	-0.01	-124.37	ug/l	0.56	173.21	0.2	
B	11	6	1	1.16	45.00	ug/l	48.89	32.22	20	
Na	23	45	1	-12.97	-26.28	ug/l	424694.11	0.32	50	
Mg	24	45	1	0.40	15.82	ug/l	328.90	8.11	50	
Al	27	45	1	0.13	6.29	ug/l	122.23	1.58	10	
K	39	45	1	-33.70	-5.53	ug/l	161784.60	0.60	50	
Ca	44	6	1	-20.78	-8.81	ug/l	1772.35	1.62	50	
Ti	47	45	1	0.13	10.95	ug/l	2.22	86.60	1	
V	51	45	1	0.01	222.68	ug/l	177.79	25.87	1	
Cr	52	45	1	-0.06	-57.69	ug/l	5126.55	3.24	1	
Mn	55	45	1	0.00	-643.18	ug/l	292.23	16.70	2	
Fe	56	45	1	0.51	1.67	ug/l	5602.74	0.65	30	
Co	59	45	1	0.01	34.15	ug/l	107.78	10.86	1	
Ni	60	45	1	-0.19	-4.21	ug/l	174.45	7.72	1	
Cu	63	45	1	-0.05	-53.74	ug/l	2069.09	5.80	1	
Zn	66	45	1	0.01	200.88	ug/l	163.34	8.16	4	
As	75	74	1	0.01	58.68	ug/l	37.22	5.17	0.5	
Se	78	74	1	-0.05	-262.34	ug/l	54.44	9.84	0.5	
Sr	88	115	1	0.00	48.07	ug/l	23.33	14.29	1	
Mo	95	115	1	0.03	27.06	ug/l	93.34	18.90	1	
Ag	107	115	1	0.00	72.14	ug/l	48.89	44.36	1	
Cd	111	115	1	0.01	33.08	ug/l	13.33	25.01	0.5	
Sn	118	115	1	0.04	29.11	ug/l	155.56	13.94	4	
Sb	121	115	1	0.01	13.11	ug/l	58.89	8.64	0.5	
Ba	137	159	1	0.03	62.49	ug/l	46.67	37.79	1	
Tl	205	209	1	0.02	16.44	ug/l	296.68	14.08	0.2	
Pb	208	209	1	0.02	5.67	ug/l	611.14	3.15	0.3	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Ref CPS	%Rec	QC Low	QC High	QC Flag
Li	6	1	14946	1.93	15244	98.0	60	120	
Sc	45	1	339460	0.47	341423	99.4	60	120	
Ge	74	1	49495	0.37	49061	100.9	60	120	
Kr	83	1	19	44.42	17	113.3	1	1000	
In	115	1	291410	0.58	289859	100.5	60	120	
Tb	159	1	780976	0.34	771893	101.2	60	120	
Bi	209	1	594396	0.39	586911	101.3	60	120	

TuneStep	TuneFile
1	helium.u

METHOD: 200.8/6020
MP/00711

C:\ICPMH\1\7500\QCTUNE.D

STD 914256

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 7 Oct 2011 01:15:00 pm
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\2008tune.m

Minimum Response(CPS)

Element	Actual	Required	Flag

RSD (%)

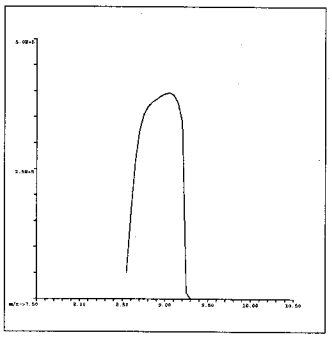
Element	Actual	Required	Flag
9 Be	0.68	5.00	
24 Mg	1.36	5.00	
25 Mg	1.21	5.00	
26 Mg	0.61	5.00	
59 Co	1.15	5.00	
115 In	0.32	5.00	
206 Pb	1.05	5.00	
207 Pb	0.83	5.00	
208 Pb	0.92	5.00	

Ion Ratio

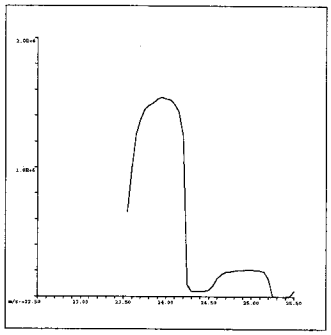
Element	Actual	Required	Flag

Maximum Bkg. Count(CPS)

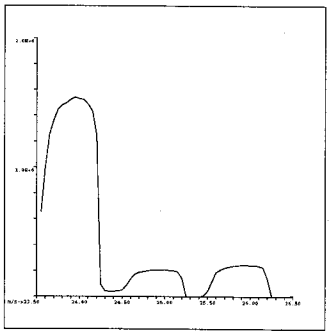
Element	Actual	Required	Flag



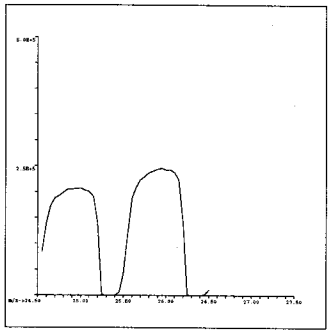
9 Be
Mass Calib.
Actual: 9.00
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.90
Flag:



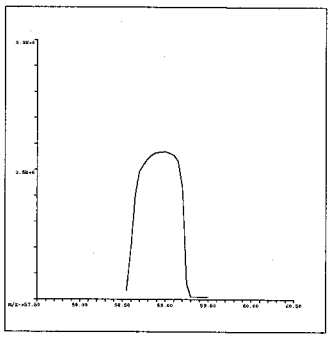
24 Mg
Mass Calib.
Actual: 23.95
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.90
Flag:



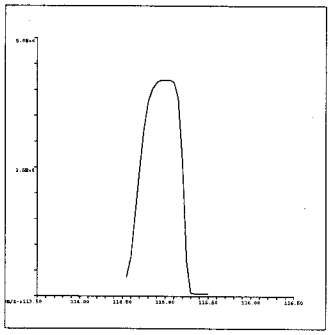
25 Mg
Mass Calib.
Actual: 24.95
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.90
Flag:



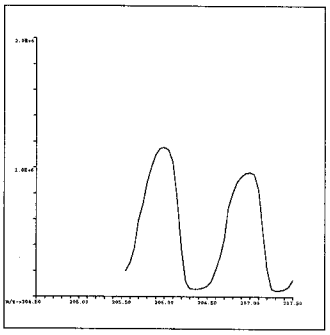
26 Mg
Mass Calib.
Actual: 25.95
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.90
Flag:



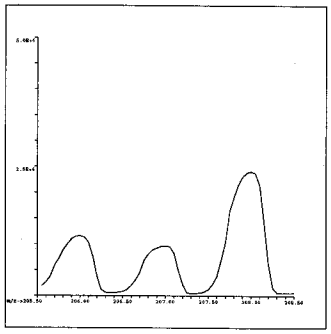
59 Co
Mass Calib.
Actual: 58.95
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.90
Flag:



115 In
Mass Calib.
Actual: 115.00
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.65
Required: 0.90
Flag:

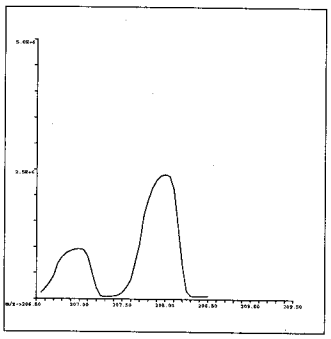


206 Pb
Mass Calib.
Actual: 206.00
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.65
Required: 0.90
Flag:



207 Pb
Mass Calib.
Actual: 206.95
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.60
Required: 0.90
Flag:

C:\ICPMH\1\7500\QCTUNE.D



208 Pb
Mass Calib.
Actual: 207.95
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.60
Required: 0.90
Flag:

QC Tune Result:Pass

Calibration Blank Report

Sample Name	**Cal Blank**
Data File Name	**004CALB.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T19:20:18-04:00**
Type	**CalBlk**
VialNumber	**1101**
Dilution	**1**
Comment	
Operator	**MP**

QC Analyte Table

Element	m/z	ISTD	Tune Step	CPS	%RSD
Pb	208	209	1	126	10.73
Tl	205	209	1	17	20.01
Ba	137	159	1	11	62.48
Sb	121	115	1	84	21.74
Sn	118	115	1	94	21.56
Cd	111	115	1	10	33.30
Ag	107	115	1	12	78.69
Mo	95	115	1	63	15.79
Sr	88	115	1	11	17.30
Se	78	74	1	46	20.15
As	75	74	1	26	35.16
Zn	66	45	1	217	9.61
Cu	63	45	1	2109	5.44
Ni	60	45	1	122	25.34
Co	59	45	1	2	86.60
Fe	56	45	1	3306	2.32
Mn	55	45	1	43	20.36
Cr	52	45	1	1915	0.36
V	51	45	1	472	2.48
Ca	44	6	1	251	13.94
K	39	45	1	92507	0.14
Al	27	45	1	633	4.87
Mg	24	45	1	196	2.99
Na	23	45	1	189461	0.42
B	11	6	1	7	132.33
Be	9	6	1	4	49.42

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD
Bi	209	1	513001	0.25
Tb	159	1	679167	0.48
In	115	1	247939	1.79
Kr	83	1	30	19.25
Ge	74	1	38549	0.98
Sc	45	1	263470	0.62
Li	6	1	12234	0.33

Calibration Standard Report

Sample Name	**CAL1 1187187**
Data File Name	**005CALS.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T19:25:23-04:00**
Type	**CalStd**
VialNumber	**1102**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	CPS	%RSD
Be	9	6	1	15	19.24
B	11	6	1	478	12.98
Na	23	45	1	217023	0.20
Mg	24	45	1	18043	2.00
Al	27	45	1	2390	2.97
K	39	45	1	110733	0.41
Ca	44	6	1	1127	0.15
Ti	47	45	1	101	16.26
V	51	45	1	3329	1.38
Cr	52	45	1	5304	1.51
Mn	55	45	1	4164	0.88
Fe	56	45	1	87594	0.60
Co	59	45	1	5067	3.43
Ni	60	45	1	1510	0.44
Cu	63	45	1	5530	3.36
Zn	66	45	1	2677	1.19
As	75	74	1	273	3.23
Se	78	74	1	63	8.11
Sr	88	115	1	2594	1.23
Mo	95	115	1	1757	2.87
Ag	107	115	1	5274	3.08
Cd	111	115	1	402	8.63
Sn	118	115	1	7350	0.36
Sb	121	115	1	1308	6.60
Ba	137	159	1	908	7.36
Tl	205	209	1	2476	6.98
(Pb)	206	209	1	1286	4.28
(Pb)	207	209	1	1047	3.67
Pb	208	209	1	4995	2.12

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Li	6	1	12142	1.33	12234	99.3	60	120	
Sc	45	1	257822	0.47	263470	97.9	60	120	
Ge	74	1	38314	0.62	38549	99.4	60	120	
Kr	83	1	28	18.33	30	92.6	1	1000	
In	115	1	244131	0.64	247939	98.5	60	120	
Tb	159	1	669669	0.70	679167	98.6	60	120	
Bi	209	1	509702	0.34	513001	99.4	60	120	

TuneStep	TuneFile
1	helium.u

Calibration Standard Report

Sample Name	**CAL2 1187189**
Data File Name	**006CALS.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T19:30:28-04:00**
Type	**CalStd**
VialNumber	**1103**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	CPS	%RSD
Be	9	6	1	807	1.73
B	11	6	1	512	10.09
Na	23	45	1	886613	0.30
Mg	24	45	1	359053	0.84
Al	27	45	1	18124	2.41
K	39	45	1	483278	0.53
Ca	44	6	1	17762	1.70
Ti	47	45	1	1048	2.39
V	51	45	1	28116	0.14
Cr	52	45	1	35014	0.79
Mn	55	45	1	204298	0.59
Fe	56	45	1	2601782	0.57
Co	59	45	1	48066	0.57
Ni	60	45	1	13285	0.50
Cu	63	45	1	36312	1.91
Zn	66	45	1	6156	2.95
As	75	74	1	4570	1.47
Se	78	74	1	357	6.07
Sr	88	115	1	25883	0.21
Mo	95	115	1	16361	1.37
Ag	107	115	1	50681	1.41
Cd	111	115	1	7538	2.56
Sn	118	115	1	17720	0.44
Sb	121	115	1	24315	1.76
Ba	137	159	1	9050	2.99
Tl	205	209	1	23286	3.38
(Pb)	206	209	1	39598	2.02
(Pb)	207	209	1	33535	1.09
Pb	208	209	1	156745	0.72

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Li	6	1	11935	1.95	12234	97.6	60	120	
Sc	45	1	256256	0.29	263470	97.3	60	120	
Ge	74	1	38135	0.38	38549	98.9	60	120	
Kr	83	1	21	39.75	30	70.4	1	1000	
In	115	1	241855	1.00	247939	97.5	60	120	
Tb	159	1	657588	0.53	679167	96.8	60	120	
Bi	209	1	505652	0.78	513001	98.6	60	120	

TuneStep	TuneFile
1	helium.u

Calibration Standard Report

Sample Name	**CAL3 1187191**
Data File Name	**007CALS.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T19:35:29-04:00**
Type	**CalStd**
VialNumber	**1104**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	CPS	%RSD
Be	9	6	1	4034	1.12
B	11	6	1	2335	3.21
Na	23	45	1	3531603	0.13
Mg	24	45	1	1760356	0.15
Al	27	45	1	87748	0.54
K	39	45	1	1788215	0.23
Ca	44	6	1	88038	1.12
Ti	47	45	1	5141	1.50
V	51	45	1	139562	0.39
Cr	52	45	1	166237	0.21
Mn	55	45	1	1017323	0.97
Fe	56	45	1	12670485	0.29
Co	59	45	1	239867	0.82
Ni	60	45	1	64125	1.08
Cu	63	45	1	172162	1.12
Zn	66	45	1	28776	1.28
As	75	74	1	22477	1.62
Se	78	74	1	1569	2.14
Sr	88	115	1	130441	0.66
Mo	95	115	1	81199	1.23
Ag	107	115	1	250827	0.31
Cd	111	115	1	38330	0.62
Sn	118	115	1	89273	0.48
Sb	121	115	1	123805	1.17
Ba	137	159	1	45423	0.94
Tl	205	209	1	117160	0.33
(Pb)	206	209	1	197844	0.73
(Pb)	207	209	1	166476	0.69
Pb	208	209	1	781391	0.30

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Li	6	1	11843	1.13	12234	96.8	60	120	
Sc	45	1	255996	0.25	263470	97.2	60	120	
Ge	74	1	37982	0.59	38549	98.5	60	120	
Kr	83	1	17	20.01	30	55.6	1	1000	
In	115	1	236914	0.45	247939	95.6	60	120	
Tb	159	1	659008	0.37	679167	97.0	60	120	
Bi	209	1	495069	0.69	513001	96.5	60	120	

TuneStep	TuneFile
1	helium.u

Calibration Standard Report

Sample Name	**CAL4 1187193**
Data File Name	**008CALS.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T19:40:24-04:00**
Type	**CalStd**
VialNumber	**1105**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	CPS	%RSD
Be	9	6	1	7843	0.71
B	11	6	1	4717	0.86
Na	23	45	1	6640728	0.81
Mg	24	45	1	3390604	0.54
Al	27	45	1	171209	0.35
K	39	45	1	3365942	0.28
Ca	44	6	1	172324	0.62
Ti	47	45	1	10271	2.44
V	51	45	1	276308	0.76
Cr	52	45	1	324344	0.63
Mn	55	45	1	2000000	0.49
Fe	56	45	1	24806055	0.22
Co	59	45	1	466969	0.38
Ni	60	45	1	125216	1.01
Cu	63	45	1	330533	0.27
Zn	66	45	1	55685	0.22
As	75	74	1	44938	1.28
Se	78	74	1	3064	0.42
Sr	88	115	1	258450	0.37
Mo	95	115	1	163938	1.34
Ag	107	115	1	486098	0.53
Cd	111	115	1	75686	0.59
Sn	118	115	1	176512	1.22
Sb	121	115	1	244627	0.92
Ba	137	159	1	89071	0.29
Tl	205	209	1	230356	0.43
(Pb)	206	209	1	389351	0.40
(Pb)	207	209	1	327468	1.17
Pb	208	209	1	1532598	0.75

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Li	6	1	11760	0.87	12234	96.1	60	120	
Sc	45	1	256188	0.37	263470	97.2	60	120	
Ge	74	1	38200	0.54	38549	99.1	60	120	
Kr	83	1	14	81.07	30	48.1	1	1000	
In	115	1	234478	0.97	247939	94.6	60	120	
Tb	159	1	658230	0.83	679167	96.9	60	120	
Bi	209	1	492636	1.41	513001	96.0	60	120	

TuneStep	TuneFile
1	helium.u

Initial Calibration Verification (ICV) - US EPA Method 6020

Sample Name	**ICV 1123499**
Data File Name	**009_ICV.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T19:45:20-04:00**
Type	**6-ICV**
VialNumber	**1201**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	Units	ExpectedValue	%Recovery	%QC Low	%QC High	QC Flag
Pb	208	209	1	39.93	ug/l	40	99.8	90	110	
Tl	205	209	1	7.92	ug/l	8	98.9	90	110	
Ba	137	159	1	39.92	ug/l	40	99.8	90	110	
Sb	121	115	1	40.11	ug/l	40	100.3	90	110	
Sn	118	115	1	40.00	ug/l	40	100.0	90	110	
Cd	111	115	1	39.91	ug/l	40	99.8	90	110	
Ag	107	115	1	39.62	ug/l	40	99.1	90	110	
Mo	95	115	1	38.91	ug/l	40	97.3	90	110	
Sr	88	115	1	40.06	ug/l	40	100.1	90	110	
Se	78	74	1	39.66	ug/l	40	99.2	90	110	
As	75	74	1	39.73	ug/l	40	99.3	90	110	
Zn	66	45	1	41.87	ug/l	40	104.7	90	110	
Cu	63	45	1	40.36	ug/l	40	100.9	90	110	
Ni	60	45	1	38.87	ug/l	40	97.2	90	110	
Co	59	45	1	40.17	ug/l	40	100.4	90	110	
Fe	56	45	1	3992.06	ug/l	4000	99.8	90	110	
Mn	55	45	1	394.98	ug/l	400	98.7	90	110	
Cr	52	45	1	40.00	ug/l	40	100.0	90	110	
V	51	45	1	39.93	ug/l	40	99.8	90	110	
Ti	47	45	1	39.80	ug/l	40	99.5	90	110	
Ca	44	6	1	3957.10	ug/l	4000	98.9	90	110	
K	39	45	1	3991.21	ug/l	4000	99.8	90	110	
Al	27	45	1	397.39	ug/l	400	99.3	90	110	
Mg	24	45	1	3984.07	ug/l	4000	99.6	90	110	
Na	23	45	1	4029.23	ug/l	4000	100.7	90	110	
B	11	6	1	82.24	ug/l	80	102.8	90	110	
Be	9	6	1	39.46	ug/l	40	98.6	90	110	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	498994	0.32	513001	97.3	60	120	
Tb	159	1	657280	0.47	679167	96.8	60	120	
In	115	1	237908	0.02	247939	96.0	60	120	
Kr	83	1	28	24.98	30	92.6	1	1000	
Ge	74	1	38452	0.76	38549	99.7	60	120	
Sc	45	1	257085	0.43	263470	97.6	60	120	
Li	6	1	11815	1.52	12234	96.6	60	120	

Continuing Calibration Blank (CCB) - US EPA Method 6020

Sample Name	**ICB**
Data File Name	**0106CCB.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T19:50:18-04:00**
Type	**6-CCB**
VialNumber	**1302**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	%RSD	Units	CPS	CPS%RSD	QC High	QC Flag
Be	9	6	1	0.00	-8574.86	ug/l	2.78	124.85	0.2	
B	11	6	1	1.27	51.04	ug/l	37.78	41.70	20	
Na	23	45	1	-2.88	-48.96	ug/l	182612.36	0.09	50	
Mg	24	45	1	0.25	14.53	ug/l	278.90	4.32	50	
Al	27	45	1	0.30	54.65	ug/l	686.14	4.32	10	
K	39	45	1	-8.07	-40.95	ug/l	91134.16	0.78	50	
Ca	44	6	1	1.27	138.25	ug/l	255.01	12.47	50	
Ti	47	45	1	-0.06	0.00	ug/l	0.00	#DIV/0!	1	
V	51	45	1	0.00	1994.40	ug/l	476.69	9.91	1	
Cr	52	45	1	0.03	81.87	ug/l	1972.41	3.91	1	
Mn	55	45	1	0.03	72.56	ug/l	97.78	40.38	2	
Fe	56	45	1	0.13	8.56	ug/l	4007.23	1.15	30	
Co	59	45	1	0.00	19.50	ug/l	12.22	15.73	1	
Ni	60	45	1	-0.08	-10.32	ug/l	101.11	10.07	1	
Cu	63	45	1	-0.06	-26.01	ug/l	1935.74	2.89	1	
Zn	66	45	1	0.04	52.75	ug/l	280.01	4.12	4	
As	75	74	1	-0.02	-148.09	ug/l	29.44	45.39	0.5	
Se	78	74	1	-0.33	-92.33	ug/l	37.22	24.65	0.5	
Sr	88	115	1	0.01	28.09	ug/l	28.89	17.63	1	
Mo	95	115	1	0.03	41.68	ug/l	111.12	18.33	1	
Ag	107	115	1	0.01	36.85	ug/l	44.44	26.35	1	
Cd	111	115	1	0.00	3553.94	ug/l	10.00	88.20	0.5	
Sn	118	115	1	0.05	18.15	ug/l	166.67	9.16	4	
Sb	121	115	1	0.02	61.47	ug/l	124.45	22.30	0.5	
Ba	137	159	1	0.00	-370.11	ug/l	8.89	78.08	1	
Tl	205	209	1	0.01	26.41	ug/l	81.11	21.09	0.2	
Pb	208	209	1	0.01	11.06	ug/l	267.79	6.39	0.3	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Ref CPS	%Rec	QC Low	QC High	QC Flag
Li	6	1	12065	0.24	12234	98.6	60	120	
Sc	45	1	258018	0.46	263470	97.9	60	120	
Ge	74	1	37967	1.29	38549	98.5	60	120	
Kr	83	1	22	31.22	30	74.1	1	1000	
In	115	1	243817	0.31	247939	98.3	60	120	
Tb	159	1	663194	0.68	679167	97.6	60	120	
Bi	209	1	506454	0.50	513001	98.7	60	120	

TuneStep	TuneFile
1	helium.u

Quality Control Sample (QCS) - US EPA Method 200.8

7 DE 10-8-11

Sample Name	**RepLim 118718**
Data File Name	**011QCSR.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T19:55:22-04:00**
Type	**2-QCS**
VialNumber	**1102**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	Units	ExpectedValue	%Recovery	%QC Low	%QC High	QC Flag
Pb	208	209	1	0.31	ug/l	0.3	102.6	50	150	
Tl	205	209	1	0.19	ug/l	0.2	96.4	50	150	
Ba	137	159	1	0.98	ug/l	1	98.2	50	150	
Sb	121	115	1	0.49	ug/l	0.5	97.5	50	150	
Sn	118	115	1	3.83	ug/l	4	95.8	50	150	
Cd	111	115	1	0.50	ug/l	0.5	99.5	50	150	
Ag	107	115	1	0.98	ug/l	1	97.9	50	150	
Mo	95	115	1	0.91	ug/l	1	91.3	50	150	
Sr	88	115	1	0.94	ug/l	1	94.3	50	150	
Se	78	74	1	0.04	ug/l	0.5	8.9	50	150	2-QCS Main Failed
As	75	74	1	0.41	ug/l	0.5	82.9	50	150	
Zn	66	45	1	4.11	ug/l	4	102.9	50	150	
Cu	63	45	1	0.97	ug/l	1	97.4	50	150	
Ni	60	45	1	0.94	ug/l	1	94.0	50	150	
Co	59	45	1	1.01	ug/l	1	100.7	50	150	
Fe	56	45	1	32.13	ug/l	30	107.1	50	150	
Mn	55	45	1	1.93	ug/l	2	96.7	50	150	
Cr	52	45	1	1.02	ug/l	1	101.6	50	150	
V	51	45	1	0.98	ug/l	1	97.7	50	150	
Ti	47	45	1	0.84	ug/l	1	84.3	50	150	
Ca	44	6	1	51.17	ug/l	50	102.3	50	150	
K	39	45	1	46.43	ug/l	50	92.9	50	150	
Al	27	45	1	9.41	ug/l	10	94.1	50	150	
Mg	24	45	1	49.55	ug/l	50	99.1	50	150	
Na	23	45	1	43.32	ug/l	50	86.6	50	150	
B	11	6	1	18.58	ug/l	20	92.9	50	150	
Be	9	6	1	0.21	ug/l	0.2	106.3	50	150	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limiy	Upper Limit	QC Flag
Bi	209	1	511053	7.77	513001	99.6	60	120	
Tb	159	1	672666	8.64	679167	99.0	60	120	
In	115	1	245420	8.51	247939	99.0	60	120	
Kr	83	1	22	37.76	30	74.1	1	1000	
Ge	74	1	38817	6.91	38549	100.7	60	120	
Sc	45	1	262832	8.60	263470	99.8	60	120	
Li	6	1	12068	6.52	12234	98.6	60	120	

Sample Report

Sample Name	**ICSA 1187215**
Data File Name	**012SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T20:00:27-04:00**
Type	**Sample**
VialNumber	**1202**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Fail**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	0.08	0.08	ug/l	3600	
Tl	205	209	1	0.01	0.01	ug/l	720	
Ba	137	159	1	0.18	0.18	ug/l	3600	
Sb	121	115	1	0.40	0.40	ug/l	3600	
Sn	118	115	1	0.12	0.12	ug/l	3600	
Cd	111	115	1	0.28	0.28	ug/l	1800	
Ag	107	115	1	0.17	0.17	ug/l	180	
Mo	95	115	1	1001.24	1001.24	ug/l	3600	
Sr	88	115	1	6.84	6.84	ug/l	3600	
Se	78	74	1	0.10	0.10	ug/l	450	
As	75	74	1	0.15	0.15	ug/l	1800	
Zn	66	45	1	1.42	1.42	ug/l	450	
Cu	63	45	1	0.63	0.63	ug/l	450	
Ni	60	45	1	1.55	1.55	ug/l	900	
Co	59	45	1	1.80	1.80	ug/l	450	
Fe	56	45	1	119790.09	119790.09	ug/l	180000	
Mn	55	45	1	2.83	2.83	ug/l	9000	
Cr	52	45	1	2.53	2.53	ug/l	900	
V	51	45	1	0.15	0.15	ug/l	3600	
Ti	47	45	1	1023.37	1023.37	ug/l	3600	
Ca	44	6	1	126230.36	126230.36	ug/l	90000	fail
K	39	45	1	46666.46	46666.46	ug/l	360000	
Al	27	45	1	46523.66	46523.66	ug/l	36000	fail
Mg	24	45	1	46630.04	46630.04	ug/l	180000	
Na	23	45	1	118622.74	118622.74	ug/l	360000	
B	11	6	1	0.56	0.56	ug/l	7200	
Be	9	6	1	-0.01	-0.01	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	466260	0.98	513001	90.9	60	120	
Tb	159	1	656853	0.34	679167	96.7	60	120	
In	115	1	231422	0.10	247939	93.3	60	120	
Kr	83	1	14	74.18	30	48.2	1	1000	
Ge	74	1	37747	1.15	38549	97.9	60	120	
Sc	45	1	254069	0.78	263470	96.4	60	120	
Li	6	1	11051	0.90	12234	90.3	60	120	

Sample Report

Sample Name	**ICSAB 1187217**
Data File Name	**013SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T20:05:19-04:00**
Type	**Sample**
VialNumber	**1203**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Fail**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	0.08	0.08	ug/l	3600	
Tl	205	209	1	0.01	0.01	ug/l	720	
Ba	137	159	1	0.20	0.20	ug/l	3600	
Sb	121	115	1	0.41	0.41	ug/l	3600	
Sn	118	115	1	0.11	0.11	ug/l	3600	
Cd	111	115	1	96.08	96.08	ug/l	1800	
Ag	107	115	1	184.99	184.99	ug/l	180	fail
Mo	95	115	1	1009.80	1009.80	ug/l	3600	
Sr	88	115	1	7.08	7.08	ug/l	3600	
Se	78	74	1	103.07	103.07	ug/l	450	
As	75	74	1	99.99	99.99	ug/l	1800	
Zn	66	45	1	94.80	94.80	ug/l	450	
Cu	63	45	1	185.18	185.18	ug/l	450	
Ni	60	45	1	182.49	182.49	ug/l	900	
Co	59	45	1	200.84	200.84	ug/l	450	
Fe	56	45	1	120872.28	120872.28	ug/l	180000	
Mn	55	45	1	191.28	191.28	ug/l	9000	
Cr	52	45	1	191.15	191.15	ug/l	900	
V	51	45	1	198.84	198.84	ug/l	3600	
Ti	47	45	1	1034.70	1034.70	ug/l	3600	
Ca	44	6	1	132053.16	132053.16	ug/l	90000	fail
K	39	45	1	47728.41	47728.41	ug/l	360000	
Al	27	45	1	47212.95	47212.95	ug/l	36000	fail
Mg	24	45	1	47325.92	47325.92	ug/l	180000	
Na	23	45	1	121529.60	121529.60	ug/l	360000	
B	11	6	1	0.83	0.83	ug/l	7200	
Be	9	6	1	0.01	0.01	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	460307	1.36	513001	89.7	60	120	
Tb	159	1	652516	0.96	679167	96.1	60	120	
In	115	1	230244	0.79	247939	92.9	60	120	
Kr	83	1	14	35.26	30	48.1	1	1000	
Ge	74	1	38187	0.10	38549	99.1	60	120	
Sc	45	1	258498	0.68	263470	98.1	60	120	
Li	6	1	10927	2.39	12234	89.3	60	120	

Sample Report

Sample Name	**Rn chk**
Data File Name	**014SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T20:10:13-04:00**
Type	**Sample**
VialNumber	**1**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	0.01	0.01	ug/l	3600	
Tl	205	209	1	0.00	0.00	ug/l	720	
Ba	137	159	1	0.00	0.00	ug/l	3600	
Sb	121	115	1	0.00	0.00	ug/l	3600	
Sn	118	115	1	0.03	0.03	ug/l	3600	
Cd	111	115	1	0.01	0.01	ug/l	1800	
Ag	107	115	1	0.02	0.02	ug/l	180	
Mo	95	115	1	0.11	0.11	ug/l	3600	
Sr	88	115	1	0.01	0.01	ug/l	3600	
Se	78	74	1	-0.12	-0.12	ug/l	450	
As	75	74	1	0.00	0.00	ug/l	1800	
Zn	66	45	1	-0.04	-0.04	ug/l	450	
Cu	63	45	1	-0.06	-0.06	ug/l	450	
Ni	60	45	1	-0.07	-0.07	ug/l	900	
Co	59	45	1	0.01	0.01	ug/l	450	
Fe	56	45	1	6.80	6.80	ug/l	180000	
Mn	55	45	1	0.06	0.06	ug/l	9000	
Cr	52	45	1	0.04	0.04	ug/l	900	
V	51	45	1	0.00	0.00	ug/l	3600	
Ti	47	45	1	-0.01	-0.01	ug/l	3600	
Ca	44	6	1	9.14	9.14	ug/l	90000	
K	39	45	1	2.08	2.08	ug/l	360000	
Al	27	45	1	1.87	1.87	ug/l	36000	
Mg	24	45	1	2.76	2.76	ug/l	180000	
Na	23	45	1	31.66	31.66	ug/l	360000	
B	11	6	1	-0.01	-0.01	ug/l	7200	
Be	9	6	1	-0.03	-0.03	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	510522	0.46	513001	99.5	60	120	
Tb	159	1	674876	0.49	679167	99.4	60	120	
In	115	1	247258	0.37	247939	99.7	60	120	
Kr	83	1	16	24.76	30	51.8	1	1000	
Ge	74	1	38957	0.78	38549	101.1	60	120	
Sc	45	1	265317	0.17	263470	100.7	60	120	
Li	6	1	12045	1.27	12234	98.5	60	120	

Sample Report

Sample Name	**Rn chk**
Data File Name	**015SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T20:15:19-04:00**
Type	**Sample**
VialNumber	**1**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	0.01	0.01	ug/l	3600	
Tl	205	209	1	0.00	0.00	ug/l	720	
Ba	137	159	1	0.01	0.01	ug/l	3600	
Sb	121	115	1	0.01	0.01	ug/l	3600	
Sn	118	115	1	0.02	0.02	ug/l	3600	
Cd	111	115	1	0.03	0.03	ug/l	1800	
Ag	107	115	1	0.02	0.02	ug/l	180	
Mo	95	115	1	0.10	0.10	ug/l	3600	
Sr	88	115	1	0.01	0.01	ug/l	3600	
Se	78	74	1	-0.19	-0.19	ug/l	450	
As	75	74	1	0.00	0.00	ug/l	1800	
Zn	66	45	1	-0.05	-0.05	ug/l	450	
Cu	63	45	1	-0.04	-0.04	ug/l	450	
Ni	60	45	1	-0.06	-0.06	ug/l	900	
Co	59	45	1	0.02	0.02	ug/l	450	
Fe	56	45	1	12.01	12.01	ug/l	180000	
Mn	55	45	1	0.08	0.08	ug/l	9000	
Cr	52	45	1	0.01	0.01	ug/l	900	
V	51	45	1	-0.01	-0.01	ug/l	3600	
Ti	47	45	1	0.13	0.13	ug/l	3600	
Ca	44	6	1	12.45	12.45	ug/l	90000	
K	39	45	1	2.26	2.26	ug/l	360000	
Al	27	45	1	4.10	4.10	ug/l	36000	
Mg	24	45	1	5.05	5.05	ug/l	180000	
Na	23	45	1	30.96	30.96	ug/l	360000	
B	11	6	1	-0.15	-0.15	ug/l	7200	
Be	9	6	1	-0.02	-0.02	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	512101	0.60	513001	99.8	60	120	
Tb	159	1	678398	0.40	679167	99.9	60	120	
In	115	1	248297	0.41	247939	100.1	60	120	
Kr	83	1	28	18.33	30	92.6	1	1000	
Ge	74	1	39299	0.52	38549	101.9	60	120	
Sc	45	1	264149	0.40	263470	100.3	60	120	
Li	6	1	12092	1.76	12234	98.8	60	120	

Continuing Calibration Verification (CCV) - US EPA Method 6020

Sample Name	**CCV 1187191**
Data File Name	**0166CCV.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T20:20:23-04:00**
Type	**6-CCV**
VialNumber	**1301**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	%RSD	Units	CPS	CPS%RSD	Exp Value	%Rec	QC Low	QC High	QC Flag
Be	9	6	1	50.00	4.13	ug/l	3964.99	3.91	50	100.0	90	110	
B	11	6	1	98.39	2.94	ug/l	2333.58	3.33	100	98.4	90	110	
Na	23	45	1	4933.66	0.46	ug/l	3596685.50	0.62	5000	98.7	90	110	
Mg	24	45	1	4950.33	0.62	ug/l	1790613.93	0.40	5000	99.0	90	110	
Al	27	45	1	498.97	0.99	ug/l	88826.20	0.57	500	99.8	90	110	
K	39	45	1	4964.49	0.74	ug/l	1830957.78	0.36	5000	99.3	90	110	
Ca	44	6	1	5130.69	0.72	ug/l	89960.21	0.81	5000	102.6	90	110	
Ti	47	45	1	50.46	2.32	ug/l	5341.06	2.04	50	100.9	90	110	
V	51	45	1	50.07	1.01	ug/l	143182.19	0.56	50	100.1	90	110	
Cr	52	45	1	50.04	0.56	ug/l	169569.07	0.18	50	100.1	90	110	
Mn	55	45	1	497.76	0.65	ug/l	1042574.47	0.21	500	99.6	90	110	
Fe	56	45	1	4994.60	0.85	ug/l	12883657.17	0.54	5000	99.9	90	110	
Co	59	45	1	50.52	0.61	ug/l	243942.93	0.24	50	101.0	90	110	
Ni	60	45	1	49.10	1.79	ug/l	65760.43	1.57	50	98.2	90	110	
Cu	63	45	1	51.19	0.36	ug/l	177100.99	0.50	50	102.4	90	110	
Zn	66	45	1	50.26	0.36	ug/l	28996.22	0.27	50	100.5	90	110	
As	75	74	1	50.21	0.54	ug/l	23155.09	0.13	50	100.4	90	110	
Se	78	74	1	50.72	3.78	ug/l	1611.78	3.88	50	101.4	90	110	
Sr	88	115	1	49.90	0.32	ug/l	131898.59	0.34	50	99.8	90	110	
Mo	95	115	1	48.76	0.69	ug/l	82464.79	0.63	50	97.5	90	110	
Ag	107	115	1	50.30	0.67	ug/l	256472.00	0.53	50	100.6	90	110	
Cd	111	115	1	49.50	1.10	ug/l	38760.97	0.99	50	99.0	90	110	
Sn	118	115	1	49.81	0.86	ug/l	90847.82	0.72	50	99.6	90	110	
Sb	121	115	1	50.26	0.32	ug/l	126260.58	0.35	50	100.5	90	110	
Ba	137	159	1	50.12	1.36	ug/l	45699.33	1.28	50	100.2	90	110	
Tl	205	209	1	10.00	1.08	ug/l	118156.92	0.68	10	100.0	90	110	
Pb	208	209	1	50.73	0.62	ug/l	789730.01	0.60	50	101.5	90	110	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Ref CPS	%Rec	QC Low	QC High	QC Flag
Li	6	1	11807	0.58	12234	96.5	60	120	
Sc	45	1	263766	0.45	263470	100.1	60	120	
Ge	74	1	38976	0.51	38549	101.1	60	120	
Kr	83	1	23	14.29	30	77.8	1	1000	
In	115	1	242732	0.17	247939	97.9	60	120	
Tb	159	1	667722	0.11	679167	98.3	60	120	
Bi	209	1	501324	0.58	513001	97.7	60	120	

TuneStep	TuneFile
1	helium.u

Continuing Calibration Blank (CCB) - US EPA Method 6020

Sample Name	**CCB**
Data File Name	**0176CCB.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T20:25:18-04:00**
Type	**6-CCB**
VialNumber	**1302**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	%RSD	Units	CPS	CPS%RSD	QC High	QC Flag
Be	9	6	1	-0.02	-55.75	ug/l	1.11	86.60	0.2	
B	11	6	1	1.07	24.82	ug/l	33.33	20.00	20	
Na	23	45	1	9.93	11.15	ug/l	196330.75	0.32	50	
Mg	24	45	1	0.60	19.56	ug/l	415.57	10.47	50	
Al	27	45	1	0.36	63.42	ug/l	714.47	5.97	10	
K	39	45	1	-7.04	-29.43	ug/l	93906.42	0.55	50	
Ca	44	6	1	0.85	89.79	ug/l	250.56	5.38	50	
Ti	47	45	1	-0.03	-99.98	ug/l	3.33	100.05	1	
V	51	45	1	0.03	31.25	ug/l	584.48	4.98	1	
Cr	52	45	1	0.00	-1494.68	ug/l	1925.73	3.47	1	
Mn	55	45	1	0.02	41.71	ug/l	93.34	21.72	2	
Fe	56	45	1	0.79	6.75	ug/l	5808.93	2.08	30	
Co	59	45	1	0.00	38.05	ug/l	20.00	33.35	1	
Ni	60	45	1	-0.07	-42.13	ug/l	115.56	33.68	1	
Cu	63	45	1	-0.08	-38.67	ug/l	1911.30	6.04	1	
Zn	66	45	1	0.09	58.09	ug/l	318.90	9.66	4	
As	75	74	1	-0.01	-462.66	ug/l	36.11	48.92	0.5	
Se	78	74	1	0.05	524.05	ug/l	50.00	18.56	0.5	
Sr	88	115	1	0.00	36.70	ug/l	20.00	16.65	1	
Mo	95	115	1	0.02	30.02	ug/l	103.34	11.63	1	
Ag	107	115	1	0.01	27.11	ug/l	81.11	22.63	1	
Cd	111	115	1	0.02	16.01	ug/l	22.22	8.65	0.5	
Sn	118	115	1	0.03	28.45	ug/l	131.12	10.28	4	
Sb	121	115	1	0.01	36.90	ug/l	116.67	11.43	0.5	
Ba	137	159	1	0.02	73.39	ug/l	26.66	43.31	1	
Tl	205	209	1	0.01	24.39	ug/l	107.78	20.59	0.2	
Pb	208	209	1	0.01	24.52	ug/l	237.79	11.24	0.3	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Ref CPS	%Rec	QC Low	QC High	QC Flag
Li	6	1	12215	0.54	12234	99.9	60	120	
Sc	45	1	264839	0.32	263470	100.5	60	120	
Ge	74	1	39014	1.04	38549	101.2	60	120	
Kr	83	1	19	44.42	30	63.0	1	1000	
In	115	1	248651	0.23	247939	100.3	60	120	
Tb	159	1	678310	0.92	679167	99.9	60	120	
Bi	209	1	516217	0.11	513001	100.6	60	120	

TuneStep	TuneFile
1	helium.u

Continuing Calibration Blank (CCB) - US EPA Method 6020

Sample Name	**mb 460-88638/1-a@5**
Data File Name	**0186CCB.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T20:30:22-04:00**
Type	**6-CCB**
VialNumber	**2101**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	%RSD	Units	CPS	CPS%RSD	QC High	QC Flag
Be	9	6	1	-0.02	-595.57	ug/l	1.11	173.21	0.2	
B	11	6	1	0.17	601.89	ug/l	11.11	45.82	20	
Na	23	45	1	17.19	40.93	ug/l	198853.32	0.47	50	
Mg	24	45	1	0.22	191.29	ug/l	272.23	10.99	50	
Al	27	45	1	-0.01	-4848.91	ug/l	640.58	2.24	10	
K	39	45	1	-1.43	-463.32	ug/l	94678.63	0.46	50	
Ca	44	6	1	2.78	29.31	ug/l	279.45	1.50	50	
Ti	47	45	1	-0.04	-219.45	ug/l	2.22	86.60	1	
V	51	45	1	0.02	382.77	ug/l	533.36	7.58	1	
Cr	52	45	1	0.03	521.13	ug/l	2007.98	5.30	1	
Mn	55	45	1	0.00	787.74	ug/l	52.22	24.17	2	
Fe	56	45	1	0.33	57.71	ug/l	4556.83	2.11	30	
Co	59	45	1	0.00	432.22	ug/l	10.00	66.70	1	
Ni	60	45	1	-0.07	-58.07	ug/l	106.67	10.83	1	
Cu	63	45	1	-0.05	-58.44	ug/l	2004.64	0.92	1	
Zn	66	45	1	-0.02	-832.29	ug/l	248.90	9.12	4	
As	75	74	1	-0.02	-214.17	ug/l	31.67	10.53	0.5	
Se	78	74	1	-0.41	-363.27	ug/l	35.56	25.82	0.5	
Sr	88	115	1	0.00	-1176.57	ug/l	7.78	89.21	1	
Mo	95	115	1	0.02	277.05	ug/l	103.34	22.58	1	
Ag	107	115	1	0.00	104.22	ug/l	31.11	12.36	1	
Cd	111	115	1	0.00	461.81	ug/l	13.33	25.01	0.5	
Sn	118	115	1	0.02	238.71	ug/l	112.23	13.39	4	
Sb	121	115	1	0.00	1054.35	ug/l	86.67	17.62	0.5	
Ba	137	159	1	0.00	4313.41	ug/l	11.11	17.30	1	
Tl	205	209	1	0.00	377.01	ug/l	34.45	39.11	0.2	
Pb	208	209	1	0.00	-5044.96	ug/l	123.33	19.49	0.3	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Ref CPS	%Rec	QC Low	QC High	QC Flag
Li	6	1	11960	2.12	12234	97.8	60	120	
Sc	45	1	261534	0.03	263470	99.3	60	120	
Ge	74	1	38784	0.57	38549	100.6	60	120	
Kr	83	1	9	78.08	30	29.6	1	1000	
In	115	1	243894	0.33	247939	98.4	60	120	
Tb	159	1	667652	0.27	679167	98.3	60	120	
Bi	209	1	507700	0.27	513001	99.0	60	120	

TuneStep	TuneFile
1	helium.u

Sample Report

Sample Name	**lcs 460-88638/2-a@5**
Data File Name	**019SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T20:35:26-04:00**
Type	**Sample**
VialNumber	**2102**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	5.16	25.80	ug/l	3600	
Tl	205	209	1	4.00	19.99	ug/l	720	
Ba	137	159	1	10.00	49.99	ug/l	3600	
Sb	121	115	1	5.14	25.72	ug/l	3600	
Sn	118	115	1	9.42	47.10	ug/l	3600	
Cd	111	115	1	5.06	25.30	ug/l	1800	
Ag	107	115	1	4.92	24.59	ug/l	180	
Mo	95	115	1	9.58	47.88	ug/l	3600	
Sr	88	115	1	9.98	49.89	ug/l	3600	
Se	78	74	1	10.23	51.14	ug/l	450	
As	75	74	1	9.90	49.49	ug/l	1800	
Zn	66	45	1	52.37	261.84	ug/l	450	
Cu	63	45	1	10.62	53.12	ug/l	450	
Ni	60	45	1	10.11	50.54	ug/l	900	
Co	59	45	1	5.16	25.81	ug/l	450	
Fe	56	45	1	530.69	2653.47	ug/l	180000	
Mn	55	45	1	50.63	253.15	ug/l	9000	
Cr	52	45	1	10.20	50.98	ug/l	900	
V	51	45	1	10.38	51.90	ug/l	3600	
Ti	47	45	1	10.11	50.54	ug/l	3600	
Ca	44	6	1	496.32	2481.62	ug/l	90000	
K	39	45	1	583.28	2916.39	ug/l	360000	
Al	27	45	1	505.85	2529.26	ug/l	36000	
Mg	24	45	1	520.60	2603.02	ug/l	180000	
Na	23	45	1	530.87	2654.36	ug/l	360000	
B	11	6	1	99.19	495.97	ug/l	7200	
Be	9	6	1	4.76	23.80	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	510905	0.80	513001	99.6	60	120	
Tb	159	1	675731	0.54	679167	99.5	60	120	
In	115	1	242736	0.33	247939	97.9	60	120	
Kr	83	1	22	31.22	30	74.1	1	1000	
Ge	74	1	38580	1.08	38549	100.1	60	120	
Sc	45	1	259652	0.59	263470	98.6	60	120	
Li	6	1	12171	0.35	12234	99.5	60	120	

Sample Report

Sample Name	**460-31646-d-4-b du@5**
Data File Name	**020SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T20:40:28-04:00**
Type	**Sample**
VialNumber	**2103**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	0.01	0.07	ug/l	3600	
Tl	205	209	1	0.01	0.07	ug/l	720	
Ba	137	159	1	10.11	50.56	ug/l	3600	
Sb	121	115	1	0.10	0.50	ug/l	3600	
Sn	118	115	1	0.06	0.32	ug/l	3600	
Cd	111	115	1	0.05	0.23	ug/l	1800	
Ag	107	115	1	0.00	0.01	ug/l	180	
Mo	95	115	1	0.01	0.04	ug/l	3600	
Sr	88	115	1	2.47	12.34	ug/l	3600	
Se	78	74	1	0.03	0.16	ug/l	450	
As	75	74	1	0.07	0.34	ug/l	1800	
Zn	66	45	1	2.14	10.70	ug/l	450	
Cu	63	45	1	0.26	1.30	ug/l	450	
Ni	60	45	1	0.22	1.10	ug/l	900	
Co	59	45	1	0.57	2.84	ug/l	450	
Fe	56	45	1	615.62	3078.11	ug/l	180000	
Mn	55	45	1	5.80	28.98	ug/l	9000	
Cr	52	45	1	0.10	0.52	ug/l	900	
V	51	45	1	0.16	0.79	ug/l	3600	
Ti	47	45	1	0.05	0.27	ug/l	3600	
Ca	44	6	1	522.48	2612.42	ug/l	90000	
K	39	45	1	660.09	3300.46	ug/l	360000	
Al	27	45	1	28.67	143.34	ug/l	36000	
Mg	24	45	1	94.80	474.01	ug/l	180000	
Na	23	45	1	1125.25	5626.23	ug/l	360000	
B	11	6	1	3.32	16.62	ug/l	7200	
Be	9	6	1	0.00	0.00	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	519258	0.63	513001	101.2	60	120	
Tb	159	1	674353	0.77	679167	99.3	60	120	
In	115	1	245670	0.20	247939	99.1	60	120	
Kr	83	1	19	26.96	30	63.0	1	1000	
Ge	74	1	39592	1.15	38549	102.7	60	120	
Sc	45	1	262045	0.56	263470	99.5	60	120	
Li	6	1	12104	0.76	12234	98.9	60	120	

Sample Report

Sample Name	**460-31646-d-4-a@5**
Data File Name	**021SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T20:45:29-04:00**
Type	**Sample**
VialNumber	**2104**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	0.01	0.05	ug/l	3600	
Tl	205	209	1	0.00	0.02	ug/l	720	
Ba	137	159	1	10.39	51.94	ug/l	3600	
Sb	121	115	1	0.08	0.41	ug/l	3600	
Sn	118	115	1	0.03	0.14	ug/l	3600	
Cd	111	115	1	0.05	0.23	ug/l	1800	
Ag	107	115	1	0.00	0.01	ug/l	180	
Mo	95	115	1	0.01	0.05	ug/l	3600	
Sr	88	115	1	2.54	12.69	ug/l	3600	
Se	78	74	1	-0.23	-1.16	ug/l	450	
As	75	74	1	0.08	0.38	ug/l	1800	
Zn	66	45	1	1.92	9.60	ug/l	450	
Cu	63	45	1	0.02	0.12	ug/l	450	
Ni	60	45	1	0.17	0.83	ug/l	900	
Co	59	45	1	0.56	2.81	ug/l	450	
Fe	56	45	1	628.10	3140.52	ug/l	180000	
Mn	55	45	1	6.14	30.72	ug/l	9000	
Cr	52	45	1	0.12	0.60	ug/l	900	
V	51	45	1	0.16	0.79	ug/l	3600	
Ti	47	45	1	-0.02	-0.10	ug/l	3600	
Ca	44	6	1	516.62	2583.12	ug/l	90000	
K	39	45	1	649.43	3247.15	ug/l	360000	
Al	27	45	1	29.03	145.15	ug/l	36000	
Mg	24	45	1	96.68	483.39	ug/l	180000	
Na	23	45	1	1128.96	5644.80	ug/l	360000	
B	11	6	1	2.54	12.70	ug/l	7200	
Be	9	6	1	-0.01	-0.04	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	518701	0.95	513001	101.1	60	120	
Tb	159	1	675992	0.79	679167	99.5	60	120	
In	115	1	244465	0.54	247939	98.6	60	120	
Kr	83	1	18	39.03	30	59.3	1	1000	
Ge	74	1	39072	0.70	38549	101.4	60	120	
Sc	45	1	260160	0.90	263470	98.7	60	120	
Li	6	1	12146	0.20	12234	99.3	60	120	

Sample Report

Sample Name	**SD 460-31646-d-4-a@25**
Data File Name	**022SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T20:50:31-04:00**
Type	**Sample**
VialNumber	**2105**
Dilution	**25**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	0.01	0.27	ug/l	3600	
Tl	205	209	1	0.00	0.07	ug/l	720	
Ba	137	159	1	2.10	52.48	ug/l	3600	
Sb	121	115	1	0.04	0.91	ug/l	3600	
Sn	118	115	1	0.02	0.53	ug/l	3600	
Cd	111	115	1	0.01	0.18	ug/l	1800	
Ag	107	115	1	0.00	0.06	ug/l	180	
Mo	95	115	1	0.02	0.51	ug/l	3600	
Sr	88	115	1	0.51	12.69	ug/l	3600	
Se	78	74	1	-0.04	-0.89	ug/l	450	
As	75	74	1	0.01	0.21	ug/l	1800	
Zn	66	45	1	1.38	34.39	ug/l	450	
Cu	63	45	1	0.31	7.66	ug/l	450	
Ni	60	45	1	0.05	1.21	ug/l	900	
Co	59	45	1	0.12	3.09	ug/l	450	
Fe	56	45	1	131.32	3283.08	ug/l	180000	
Mn	55	45	1	1.22	30.56	ug/l	9000	
Cr	52	45	1	0.06	1.42	ug/l	900	
V	51	45	1	0.04	1.04	ug/l	3600	
Ti	47	45	1	-0.03	-0.78	ug/l	3600	
Ca	44	6	1	113.07	2826.86	ug/l	90000	
K	39	45	1	145.10	3627.42	ug/l	360000	
Al	27	45	1	6.91	172.86	ug/l	36000	
Mg	24	45	1	19.39	484.72	ug/l	180000	
Na	23	45	1	233.09	5827.19	ug/l	360000	
B	11	6	1	0.35	8.85	ug/l	7200	
Be	9	6	1	-0.03	-0.70	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	513878	0.97	513001	100.2	60	120	
Tb	159	1	667744	0.42	679167	98.3	60	120	
In	115	1	245483	0.83	247939	99.0	60	120	
Kr	83	1	17	20.01	30	55.6	1	1000	
Ge	74	1	39089	0.80	38549	101.4	60	120	
Sc	45	1	261512	0.53	263470	99.3	60	120	
Li	6	1	12059	0.99	12234	98.6	60	120	

Sample Report

Sample Name	**460-31646-d-4-c ms@5**
Data File Name	**023SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T20:55:35-04:00**
Type	**Sample**
VialNumber	**2106**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	5.17	25.83	ug/l	3600	
Tl	205	209	1	3.95	19.76	ug/l	720	
Ba	137	159	1	20.12	100.62	ug/l	3600	
Sb	121	115	1	5.11	25.57	ug/l	3600	
Sn	118	115	1	9.36	46.79	ug/l	3600	
Cd	111	115	1	5.03	25.14	ug/l	1800	
Ag	107	115	1	4.85	24.24	ug/l	180	
Mo	95	115	1	9.73	48.67	ug/l	3600	
Sr	88	115	1	12.44	62.22	ug/l	3600	
Se	78	74	1	7.85	39.25	ug/l	450	
As	75	74	1	9.67	48.35	ug/l	1800	
Zn	66	45	1	54.39	271.97	ug/l	450	
Cu	63	45	1	10.58	52.92	ug/l	450	
Ni	60	45	1	10.25	51.23	ug/l	900	
Co	59	45	1	5.69	28.47	ug/l	450	
Fe	56	45	1	1117.79	5588.93	ug/l	180000	
Mn	55	45	1	56.36	281.80	ug/l	9000	
Cr	52	45	1	10.04	50.20	ug/l	900	
V	51	45	1	10.10	50.50	ug/l	3600	
Ti	47	45	1	10.21	51.06	ug/l	3600	
Ca	44	6	1	1017.15	5085.75	ug/l	90000	
K	39	45	1	1212.86	6064.31	ug/l	360000	
Al	27	45	1	527.80	2639.00	ug/l	36000	
Mg	24	45	1	606.19	3030.94	ug/l	180000	
Na	23	45	1	1617.61	8088.07	ug/l	360000	
B	11	6	1	100.57	502.85	ug/l	7200	
Be	9	6	1	4.63	23.16	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	511276	0.47	513001	99.7	60	120	
Tb	159	1	672189	0.67	679167	99.0	60	120	
In	115	1	242994	0.20	247939	98.0	60	120	
Kr	83	1	24	20.83	30	81.5	1	1000	
Ge	74	1	38875	0.43	38549	100.8	60	120	
Sc	45	1	259057	0.25	263470	98.3	60	120	
Li	6	1	11973	1.09	12234	97.9	60	120	

Sample Report

Sample Name	**PDS 460-31646-d-4-a@5**
Data File Name	**024SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T21:00:37-04:00**
Type	**Sample**
VialNumber	**2107**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	5.12	25.59	ug/l	3600	
Tl	205	209	1	3.98	19.90	ug/l	720	
Ba	137	159	1	20.66	103.28	ug/l	3600	
Sb	121	115	1	4.93	24.64	ug/l	3600	
Sn	118	115	1	9.89	49.45	ug/l	3600	
Cd	111	115	1	4.87	24.35	ug/l	1800	
Ag	107	115	1	5.05	25.27	ug/l	180	
Mo	95	115	1	9.56	47.80	ug/l	3600	
Sr	88	115	1	12.30	61.50	ug/l	3600	
Se	78	74	1	9.51	47.55	ug/l	450	
As	75	74	1	9.69	48.43	ug/l	1800	
Zn	66	45	1	53.17	265.86	ug/l	450	
Cu	63	45	1	10.73	53.64	ug/l	450	
Ni	60	45	1	10.19	50.95	ug/l	900	
Co	59	45	1	5.63	28.14	ug/l	450	
Fe	56	45	1	1126.36	5631.82	ug/l	180000	
Mn	55	45	1	55.70	278.49	ug/l	9000	
Cr	52	45	1	9.97	49.87	ug/l	900	
V	51	45	1	10.12	50.58	ug/l	3600	
Ti	47	45	1	9.78	48.92	ug/l	3600	
Ca	44	6	1	1029.43	5147.14	ug/l	90000	
K	39	45	1	1214.33	6071.63	ug/l	360000	
Al	27	45	1	519.62	2598.10	ug/l	36000	
Mg	24	45	1	601.22	3006.09	ug/l	180000	
Na	23	45	1	1634.90	8174.51	ug/l	360000	
B	11	6	1	98.00	489.98	ug/l	7200	
Be	9	6	1	4.84	24.21	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	512904	0.31	513001	100.0	60	120	
Tb	159	1	678526	0.11	679167	99.9	60	120	
In	115	1	242542	0.51	247939	97.8	60	120	
Kr	83	1	20	76.39	30	66.7	1	1000	
Ge	74	1	38567	1.11	38549	100.0	60	120	
Sc	45	1	260648	0.62	263470	98.9	60	120	
Li	6	1	11849	0.83	12234	96.9	60	120	

Sample Report

Sample Name	**460-32071-e-4-a@5**
Data File Name	**025SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T21:05:39-04:00**
Type	**Sample**
VialNumber	**2108**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	0.07	0.36	ug/l	3600	
Tl	205	209	1	0.01	0.05	ug/l	720	
Ba	137	159	1	18.10	90.49	ug/l	3600	
Sb	121	115	1	0.25	1.26	ug/l	3600	
Sn	118	115	1	0.05	0.25	ug/l	3600	
Cd	111	115	1	0.01	0.05	ug/l	1800	
Ag	107	115	1	0.00	0.01	ug/l	180	
Mo	95	115	1	1.01	5.05	ug/l	3600	
Sr	88	115	1	92.04	460.19	ug/l	3600	
Se	78	74	1	0.28	1.42	ug/l	450	
As	75	74	1	0.20	0.98	ug/l	1800	
Zn	66	45	1	17.29	86.46	ug/l	450	
Cu	63	45	1	0.73	3.65	ug/l	450	
Ni	60	45	1	0.36	1.80	ug/l	900	
Co	59	45	1	0.11	0.55	ug/l	450	
Fe	56	45	1	93.15	465.75	ug/l	180000	
Mn	55	45	1	6.52	32.59	ug/l	9000	
Cr	52	45	1	2.43	12.15	ug/l	900	
V	51	45	1	0.80	4.00	ug/l	3600	
Ti	47	45	1	2.53	12.67	ug/l	3600	
Ca	44	6	1	11360.06	56800.30	ug/l	90000	
K	39	45	1	3093.45	15467.25	ug/l	360000	
Al	27	45	1	101.55	507.77	ug/l	36000	
Mg	24	45	1	1755.16	8775.81	ug/l	180000	
Na	23	45	1	17034.88	85174.42	ug/l	360000	
B	11	6	1	31.39	156.96	ug/l	7200	
Be	9	6	1	-0.01	-0.07	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	505838	0.35	513001	98.6	60	120	
Tb	159	1	674372	0.63	679167	99.3	60	120	
In	115	1	242914	0.53	247939	98.0	60	120	
Kr	83	1	20	44.10	30	66.7	1	1000	
Ge	74	1	39161	0.64	38549	101.6	60	120	
Sc	45	1	259444	0.41	263470	98.5	60	120	
Li	6	1	11919	1.39	12234	97.4	60	120	

Sample Report

Sample Name	**460-32071-e-4-b ms@5**
Data File Name	**026SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T21:10:43-04:00**
Type	**Sample**
VialNumber	**2109**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	4.95	24.73	ug/l	3600	
Tl	205	209	1	3.81	19.03	ug/l	720	
Ba	137	159	1	27.21	136.06	ug/l	3600	
Sb	121	115	1	4.88	24.41	ug/l	3600	
Sn	118	115	1	8.88	44.39	ug/l	3600	
Cd	111	115	1	4.75	23.73	ug/l	1800	
Ag	107	115	1	4.50	22.51	ug/l	180	
Mo	95	115	1	10.29	51.45	ug/l	3600	
Sr	88	115	1	101.69	508.46	ug/l	3600	
Se	78	74	1	9.56	47.81	ug/l	450	
As	75	74	1	9.53	47.63	ug/l	1800	
Zn	66	45	1	50.12	250.60	ug/l	450	
Cu	63	45	1	10.35	51.74	ug/l	450	
Ni	60	45	1	9.88	49.41	ug/l	900	
Co	59	45	1	4.89	24.46	ug/l	450	
Fe	56	45	1	573.18	2865.89	ug/l	180000	
Mn	55	45	1	53.64	268.22	ug/l	9000	
Cr	52	45	1	11.84	59.20	ug/l	900	
V	51	45	1	10.27	51.33	ug/l	3600	
Ti	47	45	1	11.87	59.37	ug/l	3600	
Ca	44	6	1	12086.40	60431.99	ug/l	90000	
K	39	45	1	3553.41	17767.03	ug/l	360000	
Al	27	45	1	572.09	2860.43	ug/l	36000	
Mg	24	45	1	2196.20	10981.00	ug/l	180000	
Na	23	45	1	17442.06	87210.31	ug/l	360000	
B	11	6	1	124.80	623.99	ug/l	7200	
Be	9	6	1	5.05	25.25	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	505699	0.41	513001	98.6	60	120	
Tb	159	1	677632	0.99	679167	99.8	60	120	
In	115	1	243241	0.46	247939	98.1	60	120	
Kr	83	1	17	52.93	30	55.6	1	1000	
Ge	74	1	39268	0.79	38549	101.9	60	120	
Sc	45	1	261495	0.60	263470	99.3	60	120	
Li	6	1	11701	0.30	12234	95.6	60	120	

Sample Report

Sample Name	**460-32071-e-1-a@5**
Data File Name	**027SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T21:15:42-04:00**
Type	**Sample**
VialNumber	**2110**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	0.13	0.65	ug/l	3600	
Tl	205	209	1	0.02	0.09	ug/l	720	
Ba	137	159	1	18.42	92.12	ug/l	3600	
Sb	121	115	1	0.90	4.50	ug/l	3600	
Sn	118	115	1	0.05	0.27	ug/l	3600	
Cd	111	115	1	0.02	0.09	ug/l	1800	
Ag	107	115	1	0.00	0.01	ug/l	180	
Mo	95	115	1	8.11	40.55	ug/l	3600	
Sr	88	115	1	49.36	246.79	ug/l	3600	
Se	78	74	1	0.62	3.08	ug/l	450	
As	75	74	1	1.28	6.40	ug/l	1800	
Zn	66	45	1	2.22	11.10	ug/l	450	
Cu	63	45	1	0.87	4.35	ug/l	450	
Ni	60	45	1	0.40	2.00	ug/l	900	
Co	59	45	1	0.12	0.58	ug/l	450	
Fe	56	45	1	161.27	806.35	ug/l	180000	
Mn	55	45	1	11.79	58.94	ug/l	9000	
Cr	52	45	1	1.07	5.36	ug/l	900	
V	51	45	1	1.85	9.27	ug/l	3600	
Ti	47	45	1	3.76	18.78	ug/l	3600	
Ca	44	6	1	7923.69	39618.47	ug/l	90000	
K	39	45	1	1535.81	7679.06	ug/l	360000	
Al	27	45	1	166.08	830.41	ug/l	36000	
Mg	24	45	1	1837.78	9188.88	ug/l	180000	
Na	23	45	1	11965.18	59825.91	ug/l	360000	
B	11	6	1	35.23	176.13	ug/l	7200	
Be	9	6	1	-0.02	-0.10	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	511973	0.28	513001	99.8	60	120	
Tb	159	1	673203	0.43	679167	99.1	60	120	
In	115	1	244015	0.27	247939	98.4	60	120	
Kr	83	1	21	48.24	30	70.4	1	1000	
Ge	74	1	39011	1.73	38549	101.2	60	120	
Sc	45	1	260531	0.32	263470	98.9	60	120	
Li	6	1	11700	1.87	12234	95.6	60	120	

Continuing Calibration Verification (CCV) - US EPA Method 6020

Sample Name	**CCV 1187191**
Data File Name	**0286CCV.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T21:20:43-04:00**
Type	**6-CCV**
VialNumber	**1301**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	%RSD	Units	CPS	CPS%RSD	Exp Value	%Rec	QC Low	QC High	QC Flag
Be	9	6	1	51.25	0.31	ug/l	4056.11	0.56	50	102.5	90	110	
B	11	6	1	97.89	1.07	ug/l	2316.91	1.09	100	97.9	90	110	
Na	23	45	1	4962.15	0.37	ug/l	3589953.14	0.53	5000	99.2	90	110	
Mg	24	45	1	4992.51	0.48	ug/l	1792699.21	0.53	5000	99.9	90	110	
Al	27	45	1	496.35	1.08	ug/l	87718.29	0.84	500	99.3	90	110	
K	39	45	1	4991.13	0.34	ug/l	1826858.29	0.45	5000	99.8	90	110	
Ca	44	6	1	5115.55	0.85	ug/l	89517.99	0.56	5000	102.3	90	110	
Ti	47	45	1	50.78	3.23	ug/l	5335.50	3.39	50	101.6	90	110	
V	51	45	1	50.77	1.20	ug/l	144100.59	0.98	50	101.5	90	110	
Cr	52	45	1	50.41	0.41	ug/l	169555.99	0.24	50	100.8	90	110	
Mn	55	45	1	504.51	0.77	ug/l	1048996.73	0.77	500	100.9	90	110	
Fe	56	45	1	5020.72	0.70	ug/l	12856698.42	0.76	5000	100.4	90	110	
Co	59	45	1	51.10	0.26	ug/l	244923.45	0.12	50	102.2	90	110	
Ni	60	45	1	49.22	0.36	ug/l	65447.86	0.40	50	98.4	90	110	
Cu	63	45	1	51.62	0.75	ug/l	177280.46	0.75	50	103.2	90	110	
Zn	66	45	1	50.75	0.97	ug/l	29062.96	1.03	50	101.5	90	110	
As	75	74	1	50.05	0.47	ug/l	23123.37	0.99	50	100.1	90	110	
Se	78	74	1	51.31	3.67	ug/l	1633.44	4.54	50	102.6	90	110	
Sr	88	115	1	50.57	0.55	ug/l	133640.10	0.38	50	101.1	90	110	
Mo	95	115	1	48.91	0.55	ug/l	82702.58	0.78	50	97.8	90	110	
Ag	107	115	1	50.66	0.25	ug/l	258301.41	0.19	50	101.3	90	110	
Cd	111	115	1	49.83	1.36	ug/l	39010.69	1.13	50	99.7	90	110	
Sn	118	115	1	50.48	0.17	ug/l	92066.28	0.29	50	101.0	90	110	
Sb	121	115	1	50.52	0.54	ug/l	126908.86	0.26	50	101.0	90	110	
Ba	137	159	1	50.67	0.27	ug/l	46441.61	0.57	50	101.3	90	110	
Tl	205	209	1	10.04	0.57	ug/l	120122.94	1.14	10	100.4	90	110	
Pb	208	209	1	50.63	0.35	ug/l	797589.11	0.23	50	101.3	90	110	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Ref CPS	%Rec	QC Low	QC High	QC Flag
Li	6	1	11783	0.28	12234	96.3	60	120	
Sc	45	1	261838	0.23	263470	99.4	60	120	
Ge	74	1	39049	1.13	38549	101.3	60	120	
Kr	83	1	19	44.42	30	63.0	1	1000	
In	115	1	242697	0.29	247939	97.9	60	120	
Tb	159	1	671159	0.37	679167	98.8	60	120	
Bi	209	1	507269	0.58	513001	98.9	60	120	

TuneStep	TuneFile
1	helium.u

Continuing Calibration Blank (CCB) - US EPA Method 6020

Sample Name	**CCB**
Data File Name	**0296CCB.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T21:25:40-04:00**
Type	**6-CCB**
VialNumber	**1302**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	%RSD	Units	CPS	CPS%RSD	QC High	QC Flag
Be	9	6	1	-0.02	-55.85	ug/l	1.11	86.60	0.2	
B	11	6	1	1.22	49.90	ug/l	36.67	39.62	20	
Na	23	45	1	-1.62	-215.82	ug/l	187988.33	0.63	50	
Mg	24	45	1	0.47	11.40	ug/l	367.79	6.03	50	
Al	27	45	1	0.30	108.00	ug/l	702.25	7.51	10	
K	39	45	1	-11.35	-30.94	ug/l	92238.09	1.18	50	
Ca	44	6	1	1.24	112.00	ug/l	255.56	9.81	50	
Ti	47	45	1	-0.05	-34.82	ug/l	1.11	173.21	1	
V	51	45	1	0.00	-380.27	ug/l	475.58	8.12	1	
Cr	52	45	1	0.01	133.89	ug/l	1973.52	2.50	1	
Mn	55	45	1	0.05	22.96	ug/l	145.56	15.25	2	
Fe	56	45	1	0.40	12.47	ug/l	4785.79	1.96	30	
Co	59	45	1	0.01	14.96	ug/l	27.78	13.86	1	
Ni	60	45	1	-0.09	-4.13	ug/l	83.33	6.93	1	
Cu	63	45	1	-0.06	-10.97	ug/l	1975.75	0.99	1	
Zn	66	45	1	0.07	144.83	ug/l	307.79	20.33	4	
As	75	74	1	-0.02	-34.03	ug/l	29.44	11.77	0.5	
Se	78	74	1	0.19	69.13	ug/l	54.44	7.70	0.5	
Sr	88	115	1	0.00	105.87	ug/l	18.89	44.42	1	
Mo	95	115	1	0.01	288.52	ug/l	72.23	37.59	1	
Ag	107	115	1	0.01	64.30	ug/l	44.45	45.82	1	
Cd	111	115	1	0.01	197.77	ug/l	16.67	80.01	0.5	
Sn	118	115	1	0.02	70.04	ug/l	124.45	23.40	4	
Sb	121	115	1	0.02	31.44	ug/l	125.56	11.05	0.5	
Ba	137	159	1	0.00	467.13	ug/l	12.22	41.65	1	
Tl	205	209	1	0.01	23.93	ug/l	144.45	20.94	0.2	
Pb	208	209	1	0.01	19.67	ug/l	217.79	8.43	0.3	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Ref CPS	%Rec	QC Low	QC High	QC Flag
Li	6	1	12123	0.82	12234	99.1	60	120	
Sc	45	1	264393	0.75	263470	100.4	60	120	
Ge	74	1	39166	0.72	38549	101.6	60	120	
Kr	83	1	22	48.22	30	74.1	1	1000	
In	115	1	248625	0.10	247939	100.3	60	120	
Tb	159	1	682760	0.20	679167	100.5	60	120	
Bi	209	1	516266	0.46	513001	100.6	60	120	

TuneStep	TuneFile
1	helium.u

Sample Report

Sample Name	**460-32071-e-2-a@5**
Data File Name	**030SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T21:30:45-04:00**
Type	**Sample**
VialNumber	**2111**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	4.38	21.89	ug/l	3600	
Tl	205	209	1	0.03	0.15	ug/l	720	
Ba	137	159	1	47.43	237.14	ug/l	3600	
Sb	121	115	1	0.23	1.16	ug/l	3600	
Sn	118	115	1	0.23	1.15	ug/l	3600	
Cd	111	115	1	0.03	0.13	ug/l	1800	
Ag	107	115	1	0.01	0.06	ug/l	180	
Mo	95	115	1	0.47	2.34	ug/l	3600	
Sr	88	115	1	91.79	458.97	ug/l	3600	
Se	78	74	1	0.30	1.48	ug/l	450	
As	75	74	1	0.81	4.05	ug/l	1800	
Zn	66	45	1	11.96	59.79	ug/l	450	
Cu	63	45	1	5.14	25.68	ug/l	450	
Ni	60	45	1	4.02	20.11	ug/l	900	
Co	59	45	1	1.74	8.72	ug/l	450	
Fe	56	45	1	2168.49	10842.45	ug/l	180000	
Mn	55	45	1	147.00	735.02	ug/l	9000	
Cr	52	45	1	3.22	16.11	ug/l	900	
V	51	45	1	4.37	21.83	ug/l	3600	
Ti	47	45	1	51.54	257.71	ug/l	3600	
Ca	44	6	1	15307.67	76538.36	ug/l	90000	
K	39	45	1	1887.30	9436.51	ug/l	360000	
Al	27	45	1	1948.24	9741.20	ug/l	36000	
Mg	24	45	1	4304.59	21522.94	ug/l	180000	
Na	23	45	1	16806.01	84030.06	ug/l	360000	
B	11	6	1	29.66	148.29	ug/l	7200	
Be	9	6	1	0.10	0.49	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	504764	0.34	513001	98.4	60	120	
Tb	159	1	677456	0.04	679167	99.7	60	120	
In	115	1	240974	0.90	247939	97.2	60	120	
Kr	83	1	31	16.37	30	103.7	1	1000	
Ge	74	1	38894	0.30	38549	100.9	60	120	
Sc	45	1	259519	0.95	263470	98.5	60	120	
Li	6	1	11745	1.41	12234	96.0	60	120	

Sample Report

Sample Name	**460-32071-e-3-a@5**
Data File Name	**031SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T21:35:45-04:00**
Type	**Sample**
VialNumber	**2112**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	0.20	1.00	ug/l	3600	
Tl	205	209	1	0.01	0.04	ug/l	720	
Ba	137	159	1	28.01	140.03	ug/l	3600	
Sb	121	115	1	0.15	0.77	ug/l	3600	
Sn	118	115	1	0.12	0.58	ug/l	3600	
Cd	111	115	1	0.02	0.08	ug/l	1800	
Ag	107	115	1	0.01	0.03	ug/l	180	
Mo	95	115	1	0.44	2.22	ug/l	3600	
Sr	88	115	1	37.33	186.66	ug/l	3600	
Se	78	74	1	-0.17	-0.84	ug/l	450	
As	75	74	1	0.20	0.99	ug/l	1800	
Zn	66	45	1	3.49	17.46	ug/l	450	
Cu	63	45	1	2.01	10.07	ug/l	450	
Ni	60	45	1	0.84	4.20	ug/l	900	
Co	59	45	1	0.21	1.05	ug/l	450	
Fe	56	45	1	272.11	1360.55	ug/l	180000	
Mn	55	45	1	15.86	79.31	ug/l	9000	
Cr	52	45	1	0.59	2.93	ug/l	900	
V	51	45	1	1.06	5.31	ug/l	3600	
Ti	47	45	1	8.06	40.31	ug/l	3600	
Ca	44	6	1	7417.91	37089.55	ug/l	90000	
K	39	45	1	1008.65	5043.23	ug/l	360000	
Al	27	45	1	301.80	1509.00	ug/l	36000	
Mg	24	45	1	1396.96	6984.81	ug/l	180000	
Na	23	45	1	5533.30	27666.48	ug/l	360000	
B	11	6	1	25.07	125.33	ug/l	7200	
Be	9	6	1	0.00	0.00	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	515844	0.80	513001	100.6	60	120	
Tb	159	1	685072	0.79	679167	100.9	60	120	
In	115	1	247530	0.29	247939	99.8	60	120	
Kr	83	1	19	44.42	30	63.0	1	1000	
Ge	74	1	39238	1.69	38549	101.8	60	120	
Sc	45	1	261731	0.04	263470	99.3	60	120	
Li	6	1	11886	1.14	12234	97.2	60	120	

Sample Report

Sample Name	**460-32071-e-7-a@5**
Data File Name	**032SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T21:40:46-04:00**
Type	**Sample**
VialNumber	**2201**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	0.00	0.02	ug/l	3600	
Tl	205	209	1	0.00	0.01	ug/l	720	
Ba	137	159	1	0.01	0.07	ug/l	3600	
Sb	121	115	1	0.01	0.04	ug/l	3600	
Sn	118	115	1	0.01	0.05	ug/l	3600	
Cd	111	115	1	0.00	0.02	ug/l	1800	
Ag	107	115	1	0.00	0.01	ug/l	180	
Mo	95	115	1	0.01	0.06	ug/l	3600	
Sr	88	115	1	0.01	0.03	ug/l	3600	
Se	78	74	1	-0.20	-0.99	ug/l	450	
As	75	74	1	-0.01	-0.05	ug/l	1800	
Zn	66	45	1	1.17	5.83	ug/l	450	
Cu	63	45	1	-0.05	-0.23	ug/l	450	
Ni	60	45	1	-0.08	-0.41	ug/l	900	
Co	59	45	1	0.00	0.01	ug/l	450	
Fe	56	45	1	0.28	1.38	ug/l	180000	
Mn	55	45	1	0.01	0.07	ug/l	9000	
Cr	52	45	1	0.00	-0.01	ug/l	900	
V	51	45	1	0.10	0.49	ug/l	3600	
Ti	47	45	1	-0.02	-0.10	ug/l	3600	
Ca	44	6	1	3.70	18.50	ug/l	90000	
K	39	45	1	-12.19	-60.97	ug/l	360000	
Al	27	45	1	-0.05	-0.25	ug/l	36000	
Mg	24	45	1	0.32	1.58	ug/l	180000	
Na	23	45	1	-0.09	-0.46	ug/l	360000	
B	11	6	1	1.71	8.53	ug/l	7200	
Be	9	6	1	-0.02	-0.10	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	518412	0.26	513001	101.1	60	120	
Tb	159	1	684109	0.29	679167	100.7	60	120	
In	115	1	248498	0.32	247939	100.2	60	120	
Kr	83	1	19	36.75	30	63.0	1	1000	
Ge	74	1	39063	0.21	38549	101.3	60	120	
Sc	45	1	262428	0.76	263470	99.6	60	120	
Li	6	1	11952	0.33	12234	97.7	60	120	

Sample Report

Sample Name	**460-32013-d-9-c@5**
Data File Name	**033SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T21:45:51-04:00**
Type	**Sample**
VialNumber	**2202**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	0.01	0.03	ug/l	3600	
Tl	205	209	1	0.00	0.01	ug/l	720	
Ba	137	159	1	0.01	0.07	ug/l	3600	
Sb	121	115	1	0.00	0.01	ug/l	3600	
Sn	118	115	1	0.00	0.02	ug/l	3600	
Cd	111	115	1	0.00	0.02	ug/l	1800	
Ag	107	115	1	0.00	0.00	ug/l	180	
Mo	95	115	1	0.01	0.06	ug/l	3600	
Sr	88	115	1	0.01	0.04	ug/l	3600	
Se	78	74	1	0.17	0.85	ug/l	450	
As	75	74	1	-0.02	-0.09	ug/l	1800	
Zn	66	45	1	1.19	5.93	ug/l	450	
Cu	63	45	1	-0.02	-0.10	ug/l	450	
Ni	60	45	1	-0.07	-0.33	ug/l	900	
Co	59	45	1	0.00	0.01	ug/l	450	
Fe	56	45	1	0.32	1.60	ug/l	180000	
Mn	55	45	1	0.03	0.14	ug/l	9000	
Cr	52	45	1	0.03	0.14	ug/l	900	
V	51	45	1	0.09	0.43	ug/l	3600	
Ti	47	45	1	-0.04	-0.21	ug/l	3600	
Ca	44	6	1	2.06	10.29	ug/l	90000	
K	39	45	1	-12.99	-64.93	ug/l	360000	
Al	27	45	1	0.28	1.42	ug/l	36000	
Mg	24	45	1	0.43	2.16	ug/l	180000	
Na	23	45	1	-1.32	-6.61	ug/l	360000	
B	11	6	1	1.72	8.59	ug/l	7200	
Be	9	6	1	-0.01	-0.07	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	520562	0.40	513001	101.5	60	120	
Tb	159	1	682847	0.46	679167	100.5	60	120	
In	115	1	248258	0.21	247939	100.1	60	120	
Kr	83	1	18	21.66	30	59.3	1	1000	
Ge	74	1	39293	1.00	38549	101.9	60	120	
Sc	45	1	264061	0.46	263470	100.2	60	120	
Li	6	1	12139	1.75	12234	99.2	60	120	

Sample Report

Sample Name	**460-31791-a-1-b@100**
Data File Name	**034SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T21:50:55-04:00**
Type	**Sample**
VialNumber	**2203**
Dilution	**100**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	0.22	22.34	ug/l	3600	
Tl	205	209	1	0.00	0.18	ug/l	720	
Ba	137	159	1	1.65	165.40	ug/l	3600	
Sb	121	115	1	0.03	2.58	ug/l	3600	
Sn	118	115	1	0.08	8.16	ug/l	3600	
Cd	111	115	1	0.00	0.02	ug/l	1800	
Ag	107	115	1	0.00	0.14	ug/l	180	
Mo	95	115	1	0.00	0.27	ug/l	3600	
Sr	88	115	1	64.95	6494.74	ug/l	3600	
Se	78	74	1	-0.13	-12.78	ug/l	450	
As	75	74	1	0.10	10.46	ug/l	1800	
Zn	66	45	1	5.18	518.20	ug/l	450	
Cu	63	45	1	1.05	104.54	ug/l	450	
Ni	60	45	1	0.06	5.61	ug/l	900	
Co	59	45	1	0.05	5.27	ug/l	450	
Fe	56	45	1	108.68	10867.91	ug/l	180000	
Mn	55	45	1	56.72	5671.89	ug/l	9000	
Cr	52	45	1	0.29	29.15	ug/l	900	
V	51	45	1	0.23	22.84	ug/l	3600	
Ti	47	45	1	7.49	748.65	ug/l	3600	
Ca	44	6	1	41203.80	4120380.41	ug/l	90000	
K	39	45	1	-7.41	-740.87	ug/l	360000	
Al	27	45	1	123.47	12347.35	ug/l	36000	
Mg	24	45	1	1319.20	131920.20	ug/l	180000	
Na	23	45	1	299.13	29912.96	ug/l	360000	
B	11	6	1	0.21	21.01	ug/l	7200	
Be	9	6	1	-0.03	-3.48	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	511780	0.47	513001	99.8	60	120	
Tb	159	1	675675	0.65	679167	99.5	60	120	
In	115	1	245581	0.93	247939	99.0	60	120	
Kr	83	1	16	12.40	30	51.9	1	1000	
Ge	74	1	38637	0.08	38549	100.2	60	120	
Sc	45	1	261455	0.36	263470	99.2	60	120	
Li	6	1	12079	2.13	12234	98.7	60	120	

Sample Report

Sample Name	**460-31705-a-13-a@100**
Data File Name	**035SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T21:55:56-04:00**
Type	**Sample**
VialNumber	**2204**
Dilution	**100**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	12.52	1252.14	ug/l	3600	
Tl	205	209	1	0.02	2.13	ug/l	720	
Ba	137	159	1	13.86	1385.52	ug/l	3600	
Sb	121	115	1	0.09	9.11	ug/l	3600	
Sn	118	115	1	0.64	63.90	ug/l	3600	
Cd	111	115	1	0.07	6.57	ug/l	1800	
Ag	107	115	1	0.02	1.74	ug/l	180	
Mo	95	115	1	0.14	13.85	ug/l	3600	
Sr	88	115	1	3.06	306.37	ug/l	3600	
Se	78	74	1	-0.19	-19.21	ug/l	450	
As	75	74	1	1.32	132.33	ug/l	1800	
Zn	66	45	1	21.74	2174.39	ug/l	450	
Cu	63	45	1	8.28	828.04	ug/l	450	
Ni	60	45	1	2.42	242.01	ug/l	900	
Co	59	45	1	1.22	121.76	ug/l	450	
Fe	56	45	1	2653.91	265390.68	ug/l	180000	
Mn	55	45	1	74.31	7431.39	ug/l	9000	
Cr	52	45	1	824.50	82449.79	ug/l	900	
V	51	45	1	5.36	536.05	ug/l	3600	
Ti	47	45	1	72.18	7218.33	ug/l	3600	
Ca	44	6	1	699.44	69943.76	ug/l	90000	
K	39	45	1	161.42	16142.10	ug/l	360000	
Al	27	45	1	1398.33	139832.78	ug/l	36000	
Mg	24	45	1	511.66	51165.91	ug/l	180000	
Na	23	45	1	478.96	47896.21	ug/l	360000	
B	11	6	1	0.36	35.85	ug/l	7200	
Be	9	6	1	0.12	11.74	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	520063	0.07	513001	101.4	60	120	
Tb	159	1	677772	0.78	679167	99.8	60	120	
In	115	1	242716	0.78	247939	97.9	60	120	
Kr	83	1	21	71.19	30	70.4	1	1000	
Ge	74	1	38395	1.48	38549	99.6	60	120	
Sc	45	1	258624	0.25	263470	98.2	60	120	
Li	6	1	12004	1.29	12234	98.1	60	120	

Sample Report

Sample Name	**460-31705-b-15-a@50**
Data File Name	**036SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T22:00:57-04:00**
Type	**Sample**
VialNumber	**2205**
Dilution	**50**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	186.11	9305.65	ug/l	3600	
Tl	205	209	1	0.05	2.61	ug/l	720	
Ba	137	159	1	33.61	1680.62	ug/l	3600	
Sb	121	115	1	0.19	9.55	ug/l	3600	
Sn	118	115	1	10.06	502.89	ug/l	3600	
Cd	111	115	1	0.19	9.47	ug/l	1800	
Ag	107	115	1	0.07	3.64	ug/l	180	
Mo	95	115	1	0.62	30.88	ug/l	3600	
Sr	88	115	1	17.46	872.82	ug/l	3600	
Se	78	74	1	0.84	41.90	ug/l	450	
As	75	74	1	4.76	237.96	ug/l	1800	
Zn	66	45	1	272.89	13644.68	ug/l	450	
Cu	63	45	1	9.89	494.70	ug/l	450	
Ni	60	45	1	5.26	263.11	ug/l	900	
Co	59	45	1	2.91	145.50	ug/l	450	
Fe	56	45	1	8009.57	400478.70	ug/l	180000	
Mn	55	45	1	160.07	8003.39	ug/l	9000	
Cr	52	45	1	528.73	26436.45	ug/l	900	
V	51	45	1	11.13	556.47	ug/l	3600	
Ti	47	45	1	113.06	5653.12	ug/l	3600	
Ca	44	6	1	4243.43	212171.40	ug/l	90000	
K	39	45	1	466.98	23349.08	ug/l	360000	
Al	27	45	1	4618.05	230902.47	ug/l	36000	
Mg	24	45	1	1417.00	70850.21	ug/l	180000	
Na	23	45	1	1935.64	96781.93	ug/l	360000	
B	11	6	1	3.19	159.40	ug/l	7200	
Be	9	6	1	0.19	9.52	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	515708	0.66	513001	100.5	60	120	
Tb	159	1	671962	0.45	679167	98.9	60	120	
In	115	1	237516	0.28	247939	95.8	60	120	
Kr	83	1	31	12.36	30	103.7	1	1000	
Ge	74	1	38052	0.83	38549	98.7	60	120	
Sc	45	1	252372	0.65	263470	95.8	60	120	
Li	6	1	11799	0.99	12234	96.4	60	120	

Continuing Calibration Verification (CCV) - US EPA Method 6020

Sample Name	**CCV 1187191**
Data File Name	**0376CCV.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T22:05:56-04:00**
Type	**6-CCV**
VialNumber	**1301**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	%RSD	Units	CPS	CPS%RSD	Exp Value	%Rec	QC Low	QC High	QC Flag
Be	9	6	1	50.73	0.65	ug/l	4012.22	0.27	50	101.5	90	110	
B	11	6	1	97.72	3.16	ug/l	2311.35	3.10	100	97.7	90	110	
Na	23	45	1	4914.97	0.38	ug/l	3484608.84	0.76	5000	98.3	90	110	
Mg	24	45	1	4943.97	0.36	ug/l	1738820.43	0.11	5000	98.9	90	110	
Al	27	45	1	492.30	1.11	ug/l	85221.53	0.74	500	98.5	90	110	
K	39	45	1	4937.20	0.59	ug/l	1771011.24	0.34	5000	98.7	90	110	
Ca	44	6	1	4937.58	0.65	ug/l	86354.76	0.28	5000	98.8	90	110	
Ti	47	45	1	48.49	4.26	ug/l	4990.93	4.21	50	97.0	90	110	
V	51	45	1	49.92	0.85	ug/l	138793.28	1.25	50	99.8	90	110	
Cr	52	45	1	50.20	0.29	ug/l	165400.74	0.68	50	100.4	90	110	
Mn	55	45	1	501.51	1.30	ug/l	1021343.20	1.08	500	100.3	90	110	
Fe	56	45	1	4998.26	0.94	ug/l	12536248.98	0.71	5000	100.0	90	110	
Co	59	45	1	50.76	0.92	ug/l	238317.77	0.54	50	101.5	90	110	
Ni	60	45	1	49.70	1.08	ug/l	64727.35	0.84	50	99.4	90	110	
Cu	63	45	1	51.37	0.83	ug/l	172803.89	0.67	50	102.7	90	110	
Zn	66	45	1	50.50	2.27	ug/l	28321.68	1.86	50	101.0	90	110	
As	75	74	1	49.84	0.61	ug/l	22574.82	0.62	50	99.7	90	110	
Se	78	74	1	49.97	5.17	ug/l	1560.66	5.04	50	99.9	90	110	
Sr	88	115	1	49.07	0.43	ug/l	129000.57	0.42	50	98.1	90	110	
Mo	95	115	1	48.81	0.67	ug/l	82111.50	1.29	50	97.6	90	110	
Ag	107	115	1	50.24	0.52	ug/l	254818.49	0.85	50	100.5	90	110	
Cd	111	115	1	49.14	0.83	ug/l	38276.52	0.98	50	98.3	90	110	
Sn	118	115	1	50.01	1.16	ug/l	90729.15	0.98	50	100.0	90	110	
Sb	121	115	1	49.88	0.75	ug/l	124648.31	0.46	50	99.8	90	110	
Ba	137	159	1	49.32	2.11	ug/l	45622.53	2.30	50	98.6	90	110	
Tl	205	209	1	9.93	1.14	ug/l	120221.44	0.69	10	99.3	90	110	
Pb	208	209	1	50.10	0.54	ug/l	798512.68	0.12	50	100.2	90	110	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Ref CPS	%Rec	QC Low	QC High	QC Flag
Li	6	1	11776	0.82	12234	96.3	60	120	
Sc	45	1	256465	0.40	263470	97.3	60	120	
Ge	74	1	38285	0.48	38549	99.3	60	120	
Kr	83	1	12	41.65	30	40.7	1	1000	
In	115	1	241453	0.68	247939	97.4	60	120	
Tb	159	1	677349	0.23	679167	99.7	60	120	
Bi	209	1	513240	0.46	513001	100.0	60	120	

TuneStep	TuneFile
1	helium.u

Continuing Calibration Blank (CCB) - US EPA Method 6020

Sample Name	**CCB**
Data File Name	**0386CCB.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T22:10:51-04:00**
Type	**6-CCB**
VialNumber	**1302**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	%RSD	Units	CPS	CPS%RSD	QC High	QC Flag
Be	9	6	1	-0.01	-165.51	ug/l	2.22	43.11	0.2	
B	11	6	1	0.73	29.83	ug/l	24.44	20.83	20	
Na	23	45	1	-5.29	-41.64	ug/l	179436.66	0.70	50	
Mg	24	45	1	0.48	17.53	ug/l	358.34	8.15	50	
Al	27	45	1	0.31	28.25	ug/l	681.14	2.14	10	
K	39	45	1	-11.99	-20.19	ug/l	89024.71	0.85	50	
Ca	44	6	1	1.21	169.70	ug/l	251.67	14.75	50	
Ti	47	45	1	-0.02	-96.22	ug/l	4.44	43.40	1	
V	51	45	1	-0.01	-128.42	ug/l	452.24	5.18	1	
Cr	52	45	1	0.04	39.44	ug/l	2007.98	2.75	1	
Mn	55	45	1	0.05	22.54	ug/l	148.90	15.88	2	
Fe	56	45	1	0.46	6.99	ug/l	4774.68	1.75	30	
Co	59	45	1	0.00	16.65	ug/l	25.55	15.07	1	
Ni	60	45	1	-0.09	-25.72	ug/l	91.11	31.12	1	
Cu	63	45	1	-0.08	-37.86	ug/l	1865.73	5.07	1	
Zn	66	45	1	0.07	75.01	ug/l	296.68	9.99	4	
As	75	74	1	-0.01	-143.57	ug/l	33.89	22.18	0.5	
Se	78	74	1	-0.08	-82.16	ug/l	45.00	3.71	0.5	
Sr	88	115	1	0.00	51.25	ug/l	23.33	28.56	1	
Mo	95	115	1	0.02	25.73	ug/l	91.11	9.20	1	
Ag	107	115	1	0.01	32.89	ug/l	54.45	24.75	1	
Cd	111	115	1	0.00	476.04	ug/l	11.11	62.48	0.5	
Sn	118	115	1	0.00	187.20	ug/l	90.00	19.59	4	
Sb	121	115	1	0.01	55.09	ug/l	105.56	13.15	0.5	
Ba	137	159	1	0.00	146.29	ug/l	14.44	35.26	1	
Tl	205	209	1	0.01	24.15	ug/l	100.01	20.82	0.2	
Pb	208	209	1	0.01	27.27	ug/l	355.57	18.21	0.3	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Ref CPS	%Rec	QC Low	QC High	QC Flag
Li	6	1	11956	0.53	12234	97.7	60	120	
Sc	45	1	255805	0.12	263470	97.1	60	120	
Ge	74	1	38248	0.50	38549	99.2	60	120	
Kr	83	1	12	15.73	30	40.7	1	1000	
In	115	1	242390	0.87	247939	97.8	60	120	
Tb	159	1	671645	0.30	679167	98.9	60	120	
Bi	209	1	511539	0.68	513001	99.7	60	120	

TuneStep	TuneFile
1	helium.u

Continuing Calibration Blank (CCB) - US EPA Method 6020

Sample Name	**mb 460-87830/1-a@20**
Data File Name	**0396CCB.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T22:15:56-04:00**
Type	**6-CCB**
VialNumber	**2206**
Dilution	**20**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Fail**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	%RSD	Units	CPS	CPS%RSD	QC High	QC Flag
Be	9	6	1	0.00	-60654.85	ug/l	2.78	34.52	0.2	
B	11	6	1	0.30	2220.67	ug/l	14.44	58.06	20	
Na	23	45	1	50.98	34.45	ug/l	218494.21	0.19	50	6-CCB Main Failed
Mg	24	45	1	2.94	84.00	ug/l	1228.96	3.74	50	
Al	27	45	1	5.38	99.79	ug/l	1559.55	2.97	10	
K	39	45	1	68.66	45.06	ug/l	117089.10	0.20	50	6-CCB Main Failed
Ca	44	6	1	31.10	122.56	ug/l	788.92	5.49	50	
Ti	47	45	1	-0.04	-1792.67	ug/l	2.22	173.21	1	
V	51	45	1	0.11	303.59	ug/l	783.38	6.27	1	
Cr	52	45	1	0.10	404.45	ug/l	2210.23	2.77	1	
Mn	55	45	1	0.14	217.28	ug/l	337.79	9.17	2	
Fe	56	45	1	12.43	10.39	ug/l	34940.19	0.55	30	
Co	59	45	1	0.01	207.88	ug/l	68.89	10.07	1	
Ni	60	45	1	0.39	179.34	ug/l	710.04	6.45	1	
Cu	63	45	1	2.75	56.57	ug/l	11313.28	1.97	1	6-CCB Main Failed
Zn	66	45	1	5.43	76.21	ug/l	3284.89	3.20	4	6-CCB Main Failed
As	75	74	1	0.03	1842.97	ug/l	51.11	21.72	0.5	
Se	78	74	1	-0.21	-3772.46	ug/l	41.11	28.77	0.5	
Sr	88	115	1	0.05	370.23	ug/l	140.01	17.17	1	
Mo	95	115	1	0.02	1113.64	ug/l	103.34	22.58	1	
Ag	107	115	1	0.01	304.62	ug/l	45.56	11.18	1	
Cd	111	115	1	0.00	195.32	ug/l	10.00	0.00	0.5	
Sn	118	115	1	0.15	171.65	ug/l	347.80	6.73	4	
Sb	121	115	1	0.06	430.67	ug/l	230.01	13.98	0.5	
Ba	137	159	1	0.12	507.56	ug/l	117.78	22.88	1	
Tl	205	209	1	0.01	132.50	ug/l	168.90	6.03	0.2	
Pb	208	209	1	0.08	52.50	ug/l	1453.42	2.55	0.3	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Ref CPS	%Rec	QC Low	QC High	QC Flag
Li	6	1	12073	1.41	12234	98.7	60	120	
Sc	45	1	257410	0.34	263470	97.7	60	120	
Ge	74	1	38326	0.26	38549	99.4	60	120	
Kr	83	1	22	37.76	30	74.1	1	1000	
In	115	1	244333	0.24	247939	98.5	60	120	
Tb	159	1	679638	0.29	679167	100.1	60	120	
Bi	209	1	515542	0.19	513001	100.5	60	120	

TuneStep	TuneFile
1	helium.u

Sample Report

Sample Name	**lcssrm 460-87830/2-a@100**
Data File Name	**040SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T22:21:01-04:00**
Type	**Sample**
VialNumber	**2207**
Dilution	**100**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	17.93	1793.41	ug/l	3600	
Tl	205	209	1	26.32	2631.62	ug/l	720	
Ba	137	159	1	39.66	3965.79	ug/l	3600	
Sb	121	115	1	39.10	3909.74	ug/l	3600	
Sn	118	115	1	22.45	2244.91	ug/l	3600	
Cd	111	115	1	13.39	1338.67	ug/l	1800	
Ag	107	115	1	6.58	657.78	ug/l	180	
Mo	95	115	1	11.26	1125.52	ug/l	3600	
Sr	88	115	1	47.34	4734.13	ug/l	3600	
Se	78	74	1	60.77	6077.30	ug/l	450	
As	75	74	1	21.32	2132.29	ug/l	1800	
Zn	66	45	1	128.40	12840.11	ug/l	450	
Cu	63	45	1	37.51	3751.33	ug/l	450	
Ni	60	45	1	29.16	2916.35	ug/l	900	
Co	59	45	1	20.25	2024.67	ug/l	450	
Fe	56	45	1	3789.13	378913.34	ug/l	180000	
Mn	55	45	1	115.29	11528.97	ug/l	9000	
Cr	52	45	1	49.77	4977.41	ug/l	900	
V	51	45	1	23.86	2386.26	ug/l	3600	
Ti	47	45	1	85.09	8509.43	ug/l	3600	
Ca	44	6	1	2052.56	205255.91	ug/l	90000	
K	39	45	1	940.24	94023.87	ug/l	360000	
Al	27	45	1	1769.94	176993.67	ug/l	36000	
Mg	24	45	1	798.58	79858.14	ug/l	180000	
Na	23	45	1	193.08	19307.94	ug/l	360000	
B	11	6	1	28.28	2828.22	ug/l	7200	
Be	9	6	1	16.36	1636.30	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	518819	0.94	513001	101.1	60	120	
Tb	159	1	677159	0.93	679167	99.7	60	120	
In	115	1	240299	0.80	247939	96.9	60	120	
Kr	83	1	19	71.30	30	63.0	1	1000	
Ge	74	1	38898	0.81	38549	100.9	60	120	
Sc	45	1	260203	0.77	263470	98.8	60	120	
Li	6	1	12116	0.71	12234	99.0	60	120	

Sample Report

Sample Name	**460-31559-b-1-b du@50**
Data File Name	**041SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T22:26:02-04:00**
Type	**Sample**
VialNumber	**2208**
Dilution	**50**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	196.69	9834.29	ug/l	3600	
Tl	205	209	1	0.11	5.45	ug/l	720	
Ba	137	159	1	75.32	3766.09	ug/l	3600	
Sb	121	115	1	0.80	39.85	ug/l	3600	
Sn	118	115	1	10.39	519.34	ug/l	3600	
Cd	111	115	1	0.16	8.15	ug/l	1800	
Ag	107	115	1	0.04	1.84	ug/l	180	
Mo	95	115	1	0.17	8.66	ug/l	3600	
Sr	88	115	1	6.27	313.46	ug/l	3600	
Se	78	74	1	0.02	0.97	ug/l	450	
As	75	74	1	1.73	86.36	ug/l	1800	
Zn	66	45	1	114.57	5728.45	ug/l	450	
Cu	63	45	1	22.01	1100.55	ug/l	450	
Ni	60	45	1	9.40	469.91	ug/l	900	
Co	59	45	1	2.51	125.34	ug/l	450	
Fe	56	45	1	4683.54	234176.87	ug/l	180000	
Mn	55	45	1	76.83	3841.49	ug/l	9000	
Cr	52	45	1	448.78	22438.77	ug/l	900	
V	51	45	1	14.84	742.22	ug/l	3600	
Ti	47	45	1	92.13	4606.60	ug/l	3600	
Ca	44	6	1	1743.13	87156.32	ug/l	90000	
K	39	45	1	205.98	10298.76	ug/l	360000	
Al	27	45	1	1577.91	78895.71	ug/l	36000	
Mg	24	45	1	1121.66	56083.07	ug/l	180000	
Na	23	45	1	420.92	21046.09	ug/l	360000	
B	11	6	1	1.04	52.08	ug/l	7200	
Be	9	6	1	0.05	2.37	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	519219	0.51	513001	101.2	60	120	
Tb	159	1	673714	0.28	679167	99.2	60	120	
In	115	1	237667	0.47	247939	95.9	60	120	
Kr	83	1	33	26.46	30	111.1	1	1000	
Ge	74	1	37742	1.18	38549	97.9	60	120	
Sc	45	1	253972	0.35	263470	96.4	60	120	
Li	6	1	12075	0.27	12234	98.7	60	120	

Sample Report

Sample Name	**460-31559-b-1-a@50**
Data File Name	**042SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T22:31:05-04:00**
Type	**Sample**
VialNumber	**2209**
Dilution	**50**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	242.96	12148.10	ug/l	3600	
Tl	205	209	1	0.07	3.47	ug/l	720	
Ba	137	159	1	75.83	3791.62	ug/l	3600	
Sb	121	115	1	1.63	81.41	ug/l	3600	
Sn	118	115	1	6.85	342.35	ug/l	3600	
Cd	111	115	1	0.14	7.24	ug/l	1800	
Ag	107	115	1	0.06	2.93	ug/l	180	
Mo	95	115	1	0.48	24.05	ug/l	3600	
Sr	88	115	1	9.77	488.65	ug/l	3600	
Se	78	74	1	0.07	3.34	ug/l	450	
As	75	74	1	2.92	146.20	ug/l	1800	
Zn	66	45	1	115.72	5785.79	ug/l	450	
Cu	63	45	1	35.52	1775.86	ug/l	450	
Ni	60	45	1	18.41	920.34	ug/l	900	
Co	59	45	1	5.11	255.39	ug/l	450	
Fe	56	45	1	7983.23	399161.67	ug/l	180000	
Mn	55	45	1	86.39	4319.58	ug/l	9000	
Cr	52	45	1	741.16	37058.21	ug/l	900	
V	51	45	1	28.43	1421.36	ug/l	3600	
Ti	47	45	1	134.84	6741.84	ug/l	3600	
Ca	44	6	1	4303.71	215185.48	ug/l	90000	
K	39	45	1	287.19	14359.67	ug/l	360000	
Al	27	45	1	2505.07	125253.44	ug/l	36000	
Mg	24	45	1	2178.32	108916.01	ug/l	180000	
Na	23	45	1	568.56	28427.99	ug/l	360000	
B	11	6	1	1.53	76.44	ug/l	7200	
Be	9	6	1	0.15	7.30	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	512136	0.28	513001	99.8	60	120	
Tb	159	1	666361	0.35	679167	98.1	60	120	
In	115	1	236935	0.53	247939	95.6	60	120	
Kr	83	1	26	27.15	30	85.2	1	1000	
Ge	74	1	37458	0.81	38549	97.2	60	120	
Sc	45	1	251389	0.44	263470	95.4	60	120	
Li	6	1	11892	0.56	12234	97.2	60	120	

Sample Report

Sample Name	**SD 460-31559-b-1-a@250**
Data File Name	**043SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T22:36:06-04:00**
Type	**Sample**
VialNumber	**2210**
Dilution	**250**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	48.59	12146.41	ug/l	3600	
Tl	205	209	1	0.02	4.87	ug/l	720	
Ba	137	159	1	15.37	3842.03	ug/l	3600	
Sb	121	115	1	0.34	84.66	ug/l	3600	
Sn	118	115	1	1.31	327.12	ug/l	3600	
Cd	111	115	1	0.02	4.86	ug/l	1800	
Ag	107	115	1	0.02	3.83	ug/l	180	
Mo	95	115	1	0.11	27.10	ug/l	3600	
Sr	88	115	1	1.94	484.90	ug/l	3600	
Se	78	74	1	0.03	6.95	ug/l	450	
As	75	74	1	0.57	143.62	ug/l	1800	
Zn	66	45	1	24.22	6056.15	ug/l	450	
Cu	63	45	1	7.13	1783.13	ug/l	450	
Ni	60	45	1	3.60	899.88	ug/l	900	
Co	59	45	1	1.02	254.47	ug/l	450	
Fe	56	45	1	1617.44	404359.59	ug/l	180000	
Mn	55	45	1	17.51	4376.98	ug/l	9000	
Cr	52	45	1	149.84	37461.06	ug/l	900	
V	51	45	1	5.61	1402.83	ug/l	3600	
Ti	47	45	1	27.43	6856.42	ug/l	3600	
Ca	44	6	1	863.71	215928.60	ug/l	90000	
K	39	45	1	42.38	10593.91	ug/l	360000	
Al	27	45	1	499.52	124881.24	ug/l	36000	
Mg	24	45	1	434.73	108683.40	ug/l	180000	
Na	23	45	1	105.48	26369.25	ug/l	360000	
B	11	6	1	0.32	80.85	ug/l	7200	
Be	9	6	1	0.01	1.87	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	513368	0.25	513001	100.1	60	120	
Tb	159	1	669384	0.88	679167	98.6	60	120	
In	115	1	238259	0.23	247939	96.1	60	120	
Kr	83	1	19	53.91	30	63.0	1	1000	
Ge	74	1	37504	0.24	38549	97.3	60	120	
Sc	45	1	251743	0.49	263470	95.5	60	120	
Li	6	1	11840	1.12	12234	96.8	60	120	

Sample Report

Sample Name	**460-31559-b-1-c ms@50**
Data File Name	**044SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T22:41:08-04:00**
Type	**Sample**
VialNumber	**2211**
Dilution	**50**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	198.02	9900.97	ug/l	3600	
Tl	205	209	1	1.59	79.74	ug/l	720	
Ba	137	159	1	94.89	4744.64	ug/l	3600	
Sb	121	115	1	1.78	88.94	ug/l	3600	
Sn	118	115	1	12.05	602.46	ug/l	3600	
Cd	111	115	1	2.10	104.85	ug/l	1800	
Ag	107	115	1	2.09	104.65	ug/l	180	
Mo	95	115	1	4.12	205.80	ug/l	3600	
Sr	88	115	1	13.62	680.81	ug/l	3600	
Se	78	74	1	4.08	203.85	ug/l	450	
As	75	74	1	6.24	311.84	ug/l	1800	
Zn	66	45	1	154.75	7737.68	ug/l	450	
Cu	63	45	1	34.42	1721.22	ug/l	450	
Ni	60	45	1	23.63	1181.69	ug/l	900	
Co	59	45	1	7.31	365.50	ug/l	450	
Fe	56	45	1	7329.49	366474.54	ug/l	180000	
Mn	55	45	1	93.45	4672.54	ug/l	9000	
Cr	52	45	1	558.79	27939.42	ug/l	900	
V	51	45	1	32.81	1640.68	ug/l	3600	
Ti	47	45	1	117.29	5864.64	ug/l	3600	
Ca	44	6	1	3752.77	187638.31	ug/l	90000	
K	39	45	1	474.75	23737.49	ug/l	360000	
Al	27	45	1	2394.11	119705.27	ug/l	36000	
Mg	24	45	1	2006.27	100313.58	ug/l	180000	
Na	23	45	1	693.06	34653.14	ug/l	360000	
B	11	6	1	37.74	1887.03	ug/l	7200	
Be	9	6	1	1.91	95.37	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	510366	0.72	513001	99.5	60	120	
Tb	159	1	666798	1.07	679167	98.2	60	120	
In	115	1	236175	0.41	247939	95.3	60	120	
Kr	83	1	24	43.83	30	81.5	1	1000	
Ge	74	1	37361	0.25	38549	96.9	60	120	
Sc	45	1	250561	0.36	263470	95.1	60	120	
Li	6	1	11930	0.59	12234	97.5	60	120	

Sample Report

Sample Name	**PDS 460-31559-b-1-a@50**
Data File Name	**045SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T22:46:11-04:00**
Type	**Sample**
VialNumber	**2212**
Dilution	**50**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	247.72	12386.07	ug/l	3600	
Tl	205	209	1	3.90	195.08	ug/l	720	
Ba	137	159	1	84.66	4233.00	ug/l	3600	
Sb	121	115	1	6.50	324.98	ug/l	3600	
Sn	118	115	1	15.74	786.77	ug/l	3600	
Cd	111	115	1	5.14	256.90	ug/l	1800	
Ag	107	115	1	5.02	251.22	ug/l	180	
Mo	95	115	1	9.99	499.63	ug/l	3600	
Sr	88	115	1	19.25	962.46	ug/l	3600	
Se	78	74	1	10.17	508.58	ug/l	450	
As	75	74	1	12.34	617.00	ug/l	1800	
Zn	66	45	1	164.22	8210.89	ug/l	450	
Cu	63	45	1	45.62	2280.81	ug/l	450	
Ni	60	45	1	28.05	1402.68	ug/l	900	
Co	59	45	1	10.03	501.62	ug/l	450	
Fe	56	45	1	8447.94	422397.21	ug/l	180000	
Mn	55	45	1	134.42	6721.21	ug/l	9000	
Cr	52	45	1	743.68	37183.82	ug/l	900	
V	51	45	1	37.98	1899.25	ug/l	3600	
Ti	47	45	1	140.87	7043.64	ug/l	3600	
Ca	44	6	1	4801.93	240096.58	ug/l	90000	
K	39	45	1	825.82	41290.83	ug/l	360000	
Al	27	45	1	2955.49	147774.37	ug/l	36000	
Mg	24	45	1	2630.06	131502.92	ug/l	180000	
Na	23	45	1	1090.70	54534.80	ug/l	360000	
B	11	6	1	99.60	4979.78	ug/l	7200	
Be	9	6	1	4.95	247.45	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	510513	0.66	513001	99.5	60	120	
Tb	159	1	670516	0.40	679167	98.7	60	120	
In	115	1	235221	0.36	247939	94.9	60	120	
Kr	83	1	34	14.78	30	114.8	1	1000	
Ge	74	1	37235	1.32	38549	96.6	60	120	
Sc	45	1	250228	0.41	263470	95.0	60	120	
Li	6	1	11693	0.98	12234	95.6	60	120	

Sample Report

Sample Name	**460-31559-e-5-b@20**
Data File Name	**046SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T22:51:09-04:00**
Type	**Sample**
VialNumber	**2301**
Dilution	**20**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Fail**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	240.25	4804.94	ug/l	3600	
Tl	205	209	1	0.12	2.39	ug/l	720	
Ba	137	159	1	84.80	1696.08	ug/l	3600	
Sb	121	115	1	0.29	5.84	ug/l	3600	
Sn	118	115	1	28.63	572.53	ug/l	3600	
Cd	111	115	1	0.28	5.67	ug/l	1800	
Ag	107	115	1	0.17	3.31	ug/l	180	
Mo	95	115	1	1.32	26.43	ug/l	3600	
Sr	88	115	1	23.95	479.05	ug/l	3600	
Se	78	74	1	1.65	33.10	ug/l	450	
As	75	74	1	49.56	991.25	ug/l	1800	
Zn	66	45	1	629.77	12595.35	ug/l	450	fail
Cu	63	45	1	30.93	618.70	ug/l	450	
Ni	60	45	1	12.20	244.02	ug/l	900	
Co	59	45	1	6.27	125.32	ug/l	450	
Fe	56	45	1	14929.57	298591.39	ug/l	180000	
Mn	55	45	1	518.80	10375.90	ug/l	9000	
Cr	52	45	1	44.21	884.29	ug/l	900	
V	51	45	1	26.83	536.53	ug/l	3600	
Ti	47	45	1	367.57	7351.45	ug/l	3600	
Ca	44	6	1	3415.96	68319.24	ug/l	90000	
K	39	45	1	1022.72	20454.31	ug/l	360000	
Al	27	45	1	7543.58	150871.64	ug/l	36000	
Mg	24	45	1	2400.34	48006.86	ug/l	180000	
Na	23	45	1	2639.12	52782.30	ug/l	360000	
B	11	6	1	4.29	85.77	ug/l	7200	
Be	9	6	1	0.50	9.95	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	518578	0.82	513001	101.1	60	120	
Tb	159	1	688198	0.29	679167	101.3	60	120	
In	115	1	238874	0.65	247939	96.3	60	120	
Kr	83	1	38	22.21	30	125.9	1	1000	
Ge	74	1	37973	0.14	38549	98.5	60	120	
Sc	45	1	259753	0.27	263470	98.6	60	120	
Li	6	1	11967	1.29	12234	97.8	60	120	

Sample Report

Sample Name	**460-31559-e-5-b@50**
Data File Name	**047SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T22:56:04-04:00**
Type	**Sample**
VialNumber	**2302**
Dilution	**20**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	96.36	1927.26	ug/l	3600	
Tl	205	209	1	0.05	1.10	ug/l	720	
Ba	137	159	1	34.72	694.40	ug/l	3600	
Sb	121	115	1	0.14	2.80	ug/l	3600	
Sn	118	115	1	11.51	230.27	ug/l	3600	
Cd	111	115	1	0.11	2.12	ug/l	1800	
Ag	107	115	1	0.06	1.25	ug/l	180	
Mo	95	115	1	0.57	11.32	ug/l	3600	
Sr	88	115	1	9.60	192.00	ug/l	3600	
Se	78	74	1	0.49	9.75	ug/l	450	
As	75	74	1	19.98	399.64	ug/l	1800	
Zn	66	45	1	260.66	5213.27	ug/l	450	
Cu	63	45	1	12.67	253.37	ug/l	450	
Ni	60	45	1	4.97	99.45	ug/l	900	
Co	59	45	1	2.51	50.12	ug/l	450	
Fe	56	45	1	6152.10	123041.98	ug/l	180000	
Mn	55	45	1	210.57	4211.31	ug/l	9000	
Cr	52	45	1	18.25	364.97	ug/l	900	
V	51	45	1	10.88	217.60	ug/l	3600	
Ti	47	45	1	152.62	3052.32	ug/l	3600	
Ca	44	6	1	1402.66	28053.20	ug/l	90000	
K	39	45	1	409.14	8182.77	ug/l	360000	
Al	27	45	1	3118.64	62372.75	ug/l	36000	
Mg	24	45	1	988.18	19763.59	ug/l	180000	
Na	23	45	1	1096.90	21937.95	ug/l	360000	
B	11	6	1	2.16	43.23	ug/l	7200	
Be	9	6	1	0.19	3.81	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	515668	0.45	513001	100.5	60	120	
Tb	159	1	674727	0.39	679167	99.3	60	120	
In	115	1	238834	0.28	247939	96.3	60	120	
Kr	83	1	27	12.51	30	88.9	1	1000	
Ge	74	1	38006	0.45	38549	98.6	60	120	
Sc	45	1	254625	0.10	263470	96.6	60	120	
Li	6	1	11760	0.33	12234	96.1	60	120	

Sample Report

Sample Name	**460-31559-a-6-a@20**
Data File Name	**048SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T23:01:05-04:00**
Type	**Sample**
VialNumber	**2303**
Dilution	**20**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	76.07	1521.43	ug/l	3600	
Tl	205	209	1	0.11	2.14	ug/l	720	
Ba	137	159	1	61.69	1233.76	ug/l	3600	
Sb	121	115	1	0.14	2.89	ug/l	3600	
Sn	118	115	1	3.73	74.51	ug/l	3600	
Cd	111	115	1	0.19	3.86	ug/l	1800	
Ag	107	115	1	0.07	1.34	ug/l	180	
Mo	95	115	1	0.49	9.84	ug/l	3600	
Sr	88	115	1	11.07	221.30	ug/l	3600	
Se	78	74	1	1.14	22.87	ug/l	450	
As	75	74	1	7.49	149.85	ug/l	1800	
Zn	66	45	1	138.32	2766.39	ug/l	450	
Cu	63	45	1	19.39	387.81	ug/l	450	
Ni	60	45	1	13.13	262.63	ug/l	900	
Co	59	45	1	6.56	131.28	ug/l	450	
Fe	56	45	1	14274.02	285480.43	ug/l	180000	
Mn	55	45	1	283.93	5678.62	ug/l	9000	
Cr	52	45	1	375.84	7516.75	ug/l	900	
V	51	45	1	27.12	542.34	ug/l	3600	
Ti	47	45	1	442.26	8845.28	ug/l	3600	
Ca	44	6	1	2321.69	46433.73	ug/l	90000	
K	39	45	1	989.34	19786.79	ug/l	360000	
Al	27	45	1	7852.33	157046.64	ug/l	36000	
Mg	24	45	1	3039.94	60798.78	ug/l	180000	
Na	23	45	1	604.52	12090.30	ug/l	360000	
B	11	6	1	2.71	54.21	ug/l	7200	
Be	9	6	1	0.65	13.08	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	523367	0.34	513001	102.0	60	120	
Tb	159	1	699201	0.43	679167	102.9	60	120	
In	115	1	241648	0.48	247939	97.5	60	120	
Kr	83	1	57	41.18	30	188.9	1	1000	
Ge	74	1	38146	0.19	38549	99.0	60	120	
Sc	45	1	262809	1.04	263470	99.7	60	120	
Li	6	1	12023	1.15	12234	98.3	60	120	

Continuing Calibration Verification (CCV) - US EPA Method 6020

Sample Name	**CCV 1187191**
Data File Name	**0496CCV.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T23:06:03-04:00**
Type	**6-CCV**
VialNumber	**1301**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	%RSD	Units	CPS	CPS%RSD	Exp Value	%Rec	QC Low	QC High	QC Flag
Be	9	6	1	50.09	1.84	ug/l	3918.86	0.96	50	100.2	90	110	
B	11	6	1	95.20	1.56	ug/l	2228.01	1.56	100	95.2	90	110	
Na	23	45	1	4898.79	0.66	ug/l	3443772.00	0.26	5000	98.0	90	110	
Mg	24	45	1	4948.60	0.61	ug/l	1725484.54	0.57	5000	99.0	90	110	
Al	27	45	1	490.07	0.95	ug/l	84109.03	0.57	500	98.0	90	110	
K	39	45	1	4892.85	1.06	ug/l	1740814.61	0.63	5000	97.9	90	110	
Ca	44	6	1	4934.81	1.97	ug/l	85372.26	0.29	5000	98.7	90	110	
Ti	47	45	1	51.52	2.21	ug/l	5256.58	2.58	50	103.0	90	110	
V	51	45	1	50.30	0.49	ug/l	138652.36	0.14	50	100.6	90	110	
Cr	52	45	1	50.55	0.81	ug/l	165103.07	0.80	50	101.1	90	110	
Mn	55	45	1	502.20	1.05	ug/l	1013959.83	0.85	500	100.4	90	110	
Fe	56	45	1	5033.31	0.66	ug/l	12515578.84	0.31	5000	100.7	90	110	
Co	59	45	1	51.22	0.58	ug/l	238397.54	0.21	50	102.4	90	110	
Ni	60	45	1	49.15	0.35	ug/l	63462.04	0.33	50	98.3	90	110	
Cu	63	45	1	52.00	0.71	ug/l	173396.17	0.46	50	104.0	90	110	
Zn	66	45	1	50.65	0.67	ug/l	28165.77	0.55	50	101.3	90	110	
As	75	74	1	50.49	2.10	ug/l	22505.81	1.91	50	101.0	90	110	
Se	78	74	1	50.67	1.16	ug/l	1556.77	1.50	50	101.3	90	110	
Sr	88	115	1	49.57	0.34	ug/l	128022.27	0.71	50	99.1	90	110	
Mo	95	115	1	49.40	0.27	ug/l	81645.80	0.43	50	98.8	90	110	
Ag	107	115	1	50.26	0.06	ug/l	250445.94	0.54	50	100.5	90	110	
Cd	111	115	1	50.06	0.81	ug/l	38304.31	1.03	50	100.1	90	110	
Sn	118	115	1	49.64	0.73	ug/l	88475.19	1.21	50	99.3	90	110	
Sb	121	115	1	50.10	0.73	ug/l	123009.07	1.21	50	100.2	90	110	
Ba	137	159	1	49.71	0.70	ug/l	45298.09	1.20	50	99.4	90	110	
Tl	205	209	1	9.94	0.38	ug/l	118593.37	1.15	10	99.4	90	110	
Pb	208	209	1	50.58	0.32	ug/l	794776.04	0.82	50	101.2	90	110	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Ref CPS	%Rec	QC Low	QC High	QC Flag
Li	6	1	11651	1.76	12234	95.2	60	120	
Sc	45	1	254258	0.38	263470	96.5	60	120	
Ge	74	1	37677	0.57	38549	97.7	60	120	
Kr	83	1	14	58.06	30	48.1	1	1000	
In	115	1	237201	0.48	247939	95.7	60	120	
Tb	159	1	667244	0.73	679167	98.2	60	120	
Bi	209	1	506040	0.81	513001	98.6	60	120	

TuneStep	TuneFile
1	helium.u

Continuing Calibration Blank (CCB) - US EPA Method 6020

Sample Name	**CCB**
Data File Name	**0506CCB.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T23:10:59-04:00**
Type	**6-CCB**
VialNumber	**1302**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	%RSD	Units	CPS	CPS%RSD	QC High	QC Flag
Be	9	6	1	-0.01	-461.32	ug/l	2.22	114.49	0.2	
B	11	6	1	0.77	57.03	ug/l	25.55	41.94	20	
Na	23	45	1	-26.61	-4.44	ug/l	168036.17	0.66	50	
Mg	24	45	1	0.34	18.27	ug/l	314.45	6.84	50	
Al	27	45	1	0.22	18.70	ug/l	676.69	0.85	10	
K	39	45	1	-28.80	-5.11	ug/l	84783.10	0.39	50	
Ca	44	6	1	-0.49	-84.18	ug/l	222.23	4.13	50	
Ti	47	45	1	-0.05	-35.22	ug/l	1.11	173.21	1	
V	51	45	1	-0.02	-54.97	ug/l	412.24	8.87	1	
Cr	52	45	1	0.01	171.92	ug/l	1925.74	2.76	1	
Mn	55	45	1	0.05	32.85	ug/l	150.01	23.20	2	
Fe	56	45	1	0.55	10.69	ug/l	5108.13	3.15	30	
Co	59	45	1	0.01	9.44	ug/l	42.22	9.12	1	
Ni	60	45	1	-0.07	-8.65	ug/l	108.89	7.71	1	
Cu	63	45	1	-0.08	-41.57	ug/l	1882.40	6.25	1	
Zn	66	45	1	0.09	60.87	ug/l	311.12	9.60	4	
As	75	74	1	-0.03	-124.08	ug/l	27.78	51.73	0.5	
Se	78	74	1	-0.32	-116.03	ug/l	37.78	30.03	0.5	
Sr	88	115	1	0.00	56.88	ug/l	24.44	31.49	1	
Mo	95	115	1	0.01	63.47	ug/l	84.45	15.95	1	
Ag	107	115	1	0.01	56.48	ug/l	60.00	44.45	1	
Cd	111	115	1	0.00	98.83	ug/l	13.33	25.01	0.5	
Sn	118	115	1	0.03	42.31	ug/l	137.79	16.99	4	
Sb	121	115	1	0.01	120.55	ug/l	101.11	24.30	0.5	
Ba	137	159	1	0.00	-295.55	ug/l	8.89	78.08	1	
Tl	205	209	1	0.01	31.80	ug/l	143.34	28.29	0.2	
Pb	208	209	1	0.02	18.09	ug/l	422.24	12.29	0.3	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Ref CPS	%Rec	QC Low	QC High	QC Flag
Li	6	1	11993	1.06	12234	98.0	60	120	
Sc	45	1	260267	0.21	263470	98.8	60	120	
Ge	74	1	38445	0.21	38549	99.7	60	120	
Kr	83	1	13	#VALUE!	30	44.4	1	1000	
In	115	1	248282	0.40	247939	100.1	60	120	
Tb	159	1	688160	0.20	679167	101.3	60	120	
Bi	209	1	526217	0.27	513001	102.6	60	120	

TuneStep	TuneFile
1	helium.u

Sample Report

Sample Name	**460-31559-a-7-a@20**
Data File Name	**051SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T23:16:04-04:00**
Type	**Sample**
VialNumber	**2304**
Dilution	**20**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	171.64	3432.85	ug/l	3600	
Tl	205	209	1	0.09	1.79	ug/l	720	
Ba	137	159	1	78.62	1572.30	ug/l	3600	
Sb	121	115	1	0.30	6.04	ug/l	3600	
Sn	118	115	1	21.35	427.04	ug/l	3600	
Cd	111	115	1	0.41	8.12	ug/l	1800	
Ag	107	115	1	0.08	1.64	ug/l	180	
Mo	95	115	1	1.03	20.55	ug/l	3600	
Sr	88	115	1	29.57	591.39	ug/l	3600	
Se	78	74	1	0.94	18.89	ug/l	450	
As	75	74	1	5.32	106.47	ug/l	1800	
Zn	66	45	1	327.36	6547.15	ug/l	450	
Cu	63	45	1	22.45	448.96	ug/l	450	
Ni	60	45	1	9.61	192.13	ug/l	900	
Co	59	45	1	5.27	105.48	ug/l	450	
Fe	56	45	1	9950.36	199007.23	ug/l	180000	
Mn	55	45	1	214.98	4299.62	ug/l	9000	
Cr	52	45	1	118.91	2378.16	ug/l	900	
V	51	45	1	21.91	438.25	ug/l	3600	
Ti	47	45	1	332.79	6655.79	ug/l	3600	
Ca	44	6	1	4109.69	82193.82	ug/l	90000	
K	39	45	1	702.10	14042.04	ug/l	360000	
Al	27	45	1	5351.35	107027.02	ug/l	36000	
Mg	24	45	1	1737.37	34747.31	ug/l	180000	
Na	23	45	1	1101.51	22030.24	ug/l	360000	
B	11	6	1	3.88	77.67	ug/l	7200	
Be	9	6	1	0.33	6.60	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	523444	0.51	513001	102.0	60	120	
Tb	159	1	689555	0.23	679167	101.5	60	120	
In	115	1	241985	0.08	247939	97.6	60	120	
Kr	83	1	46	27.70	30	151.9	1	1000	
Ge	74	1	38115	0.64	38549	98.9	60	120	
Sc	45	1	260878	0.34	263470	99.0	60	120	
Li	6	1	12086	2.25	12234	98.8	60	120	

Sample Report

Sample Name	**460-31559-a-8-a@20**
Data File Name	**052SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T23:21:03-04:00**
Type	**Sample**
VialNumber	**2305**
Dilution	**20**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Fail**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	187.83	3756.51	ug/l	3600	
Tl	205	209	1	0.11	2.18	ug/l	720	
Ba	137	159	1	92.66	1853.26	ug/l	3600	
Sb	121	115	1	1.20	24.06	ug/l	3600	
Sn	118	115	1	39.83	796.61	ug/l	3600	
Cd	111	115	1	0.43	8.59	ug/l	1800	
Ag	107	115	1	0.16	3.13	ug/l	180	
Mo	95	115	1	2.30	46.01	ug/l	3600	
Sr	88	115	1	57.27	1145.41	ug/l	3600	
Se	78	74	1	1.32	26.44	ug/l	450	
As	75	74	1	9.18	183.59	ug/l	1800	
Zn	66	45	1	1163.98	23279.65	ug/l	450	fail
Cu	63	45	1	24.38	487.57	ug/l	450	
Ni	60	45	1	10.12	202.40	ug/l	900	
Co	59	45	1	4.49	89.81	ug/l	450	
Fe	56	45	1	12590.76	251815.25	ug/l	180000	
Mn	55	45	1	1550.18	31003.64	ug/l	9000	
Cr	52	45	1	14.79	295.85	ug/l	900	
V	51	45	1	16.08	321.69	ug/l	3600	
Ti	47	45	1	122.26	2445.15	ug/l	3600	
Ca	44	6	1	6133.43	122668.62	ug/l	90000	
K	39	45	1	628.09	12561.81	ug/l	360000	
Al	27	45	1	4173.96	83479.27	ug/l	36000	
Mg	24	45	1	766.18	15323.69	ug/l	180000	
Na	23	45	1	1880.08	37601.70	ug/l	360000	
B	11	6	1	4.33	86.62	ug/l	7200	
Be	9	6	1	0.48	9.52	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	513757	0.45	513001	100.1	60	120	
Tb	159	1	672703	0.22	679167	99.0	60	120	
In	115	1	237767	0.16	247939	95.9	60	120	
Kr	83	1	29	33.32	30	96.3	1	1000	
Ge	74	1	37969	0.66	38549	98.5	60	120	
Sc	45	1	256162	0.16	263470	97.2	60	120	
Li	6	1	11806	2.33	12234	96.5	60	120	

Sample Report

Sample Name	**460-31559-e-9-b@20**
Data File Name	**053SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T23:26:02-04:00**
Type	**Sample**
VialNumber	**2306**
Dilution	**20**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	49.67	993.38	ug/l	3600	
Tl	205	209	1	0.06	1.19	ug/l	720	
Ba	137	159	1	43.89	877.78	ug/l	3600	
Sb	121	115	1	0.12	2.49	ug/l	3600	
Sn	118	115	1	8.83	176.60	ug/l	3600	
Cd	111	115	1	0.07	1.30	ug/l	1800	
Ag	107	115	1	0.05	1.01	ug/l	180	
Mo	95	115	1	0.59	11.71	ug/l	3600	
Sr	88	115	1	10.58	211.65	ug/l	3600	
Se	78	74	1	0.84	16.72	ug/l	450	
As	75	74	1	2.77	55.32	ug/l	1800	
Zn	66	45	1	161.81	3236.15	ug/l	450	
Cu	63	45	1	11.59	231.90	ug/l	450	
Ni	60	45	1	5.97	119.41	ug/l	900	
Co	59	45	1	3.55	70.92	ug/l	450	
Fe	56	45	1	9765.56	195311.10	ug/l	180000	
Mn	55	45	1	179.02	3580.41	ug/l	9000	
Cr	52	45	1	56.08	1121.55	ug/l	900	
V	51	45	1	13.10	262.04	ug/l	3600	
Ti	47	45	1	185.58	3711.58	ug/l	3600	
Ca	44	6	1	1766.48	35329.64	ug/l	90000	
K	39	45	1	454.45	9089.01	ug/l	360000	
Al	27	45	1	4527.44	90548.89	ug/l	36000	
Mg	24	45	1	1241.64	24832.85	ug/l	180000	
Na	23	45	1	1174.09	23481.72	ug/l	360000	
B	11	6	1	1.46	29.16	ug/l	7200	
Be	9	6	1	0.29	5.90	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	523260	0.44	513001	102.0	60	120	
Tb	159	1	690570	0.23	679167	101.7	60	120	
In	115	1	244224	0.90	247939	98.5	60	120	
Kr	83	1	38	13.48	30	125.9	1	1000	
Ge	74	1	38634	0.14	38549	100.2	60	120	
Sc	45	1	262467	0.10	263470	99.6	60	120	
Li	6	1	12062	0.95	12234	98.6	60	120	

Sample Report

Sample Name	**460-31559-b-10-a@50**
Data File Name	**054SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T23:31:02-04:00**
Type	**Sample**
VialNumber	**2307**
Dilution	**50**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	55.28	2764.08	ug/l	3600	
Tl	205	209	1	0.03	1.55	ug/l	720	
Ba	137	159	1	28.69	1434.53	ug/l	3600	
Sb	121	115	1	0.15	7.48	ug/l	3600	
Sn	118	115	1	1.96	97.82	ug/l	3600	
Cd	111	115	1	0.08	3.85	ug/l	1800	
Ag	107	115	1	0.05	2.27	ug/l	180	
Mo	95	115	1	0.39	19.48	ug/l	3600	
Sr	88	115	1	7.89	394.49	ug/l	3600	
Se	78	74	1	0.53	26.61	ug/l	450	
As	75	74	1	2.50	124.77	ug/l	1800	
Zn	66	45	1	92.79	4639.39	ug/l	450	
Cu	63	45	1	12.53	626.65	ug/l	450	
Ni	60	45	1	3.98	199.14	ug/l	900	
Co	59	45	1	2.61	130.49	ug/l	450	
Fe	56	45	1	6910.44	345521.92	ug/l	180000	
Mn	55	45	1	111.07	5553.36	ug/l	9000	
Cr	52	45	1	412.14	20607.07	ug/l	900	
V	51	45	1	9.17	458.50	ug/l	3600	
Ti	47	45	1	95.31	4765.46	ug/l	3600	
Ca	44	6	1	1850.49	92524.53	ug/l	90000	
K	39	45	1	206.16	10308.00	ug/l	360000	
Al	27	45	1	2138.37	106918.61	ug/l	36000	
Mg	24	45	1	609.90	30494.81	ug/l	180000	
Na	23	45	1	86.43	4321.62	ug/l	360000	
B	11	6	1	0.75	37.27	ug/l	7200	
Be	9	6	1	0.06	3.17	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	519756	0.73	513001	101.3	60	120	
Tb	159	1	672834	0.42	679167	99.1	60	120	
In	115	1	239129	0.39	247939	96.4	60	120	
Kr	83	1	30	11.10	30	100.0	1	1000	
Ge	74	1	37553	0.81	38549	97.4	60	120	
Sc	45	1	252803	0.44	263470	96.0	60	120	
Li	6	1	11766	1.31	12234	96.2	60	120	

Sample Report

Sample Name	**460-31559-b-11-a@20**
Data File Name	**055SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T23:36:04-04:00**
Type	**Sample**
VialNumber	**2308**
Dilution	**50**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	93.28	4664.23	ug/l	3600	
Tl	205	209	1	0.08	4.03	ug/l	720	
Ba	137	159	1	108.58	5429.12	ug/l	3600	
Sb	121	115	1	0.21	10.48	ug/l	3600	
Sn	118	115	1	6.71	335.52	ug/l	3600	
Cd	111	115	1	0.15	7.64	ug/l	1800	
Ag	107	115	1	0.11	5.64	ug/l	180	
Mo	95	115	1	0.59	29.74	ug/l	3600	
Sr	88	115	1	16.85	842.27	ug/l	3600	
Se	78	74	1	0.87	43.65	ug/l	450	
As	75	74	1	6.01	300.47	ug/l	1800	
Zn	66	45	1	205.60	10280.01	ug/l	450	
Cu	63	45	1	21.22	1060.91	ug/l	450	
Ni	60	45	1	7.71	385.51	ug/l	900	
Co	59	45	1	4.34	217.01	ug/l	450	
Fe	56	45	1	9620.89	481044.50	ug/l	180000	
Mn	55	45	1	225.87	11293.70	ug/l	9000	
Cr	52	45	1	44.71	2235.28	ug/l	900	
V	51	45	1	16.64	831.84	ug/l	3600	
Ti	47	45	1	276.35	13817.27	ug/l	3600	
Ca	44	6	1	2838.83	141941.43	ug/l	90000	
K	39	45	1	876.21	43810.32	ug/l	360000	
Al	27	45	1	4903.17	245158.65	ug/l	36000	
Mg	24	45	1	1883.38	94168.77	ug/l	180000	
Na	23	45	1	561.69	28084.60	ug/l	360000	
B	11	6	1	2.61	130.29	ug/l	7200	
Be	9	6	1	0.42	20.85	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	520700	0.99	513001	101.5	60	120	
Tb	159	1	686410	0.48	679167	101.1	60	120	
In	115	1	242036	0.83	247939	97.6	60	120	
Kr	83	1	46	27.70	30	151.9	1	1000	
Ge	74	1	38030	1.08	38549	98.7	60	120	
Sc	45	1	259917	0.69	263470	98.7	60	120	
Li	6	1	11885	2.04	12234	97.1	60	120	

Sample Report

Sample Name	**460-31559-a-12-a@20**
Data File Name	**056SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T23:41:06-04:00**
Type	**Sample**
VialNumber	**2309**
Dilution	**50**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	216.54	10827.24	ug/l	3600	
Tl	205	209	1	0.11	5.67	ug/l	720	
Ba	137	159	1	329.30	16464.83	ug/l	3600	
Sb	121	115	1	0.29	14.70	ug/l	3600	
Sn	118	115	1	11.94	596.87	ug/l	3600	
Cd	111	115	1	0.47	23.31	ug/l	1800	
Ag	107	115	1	0.10	5.05	ug/l	180	
Mo	95	115	1	0.60	29.80	ug/l	3600	
Sr	88	115	1	16.21	810.42	ug/l	3600	
Se	78	74	1	1.11	55.27	ug/l	450	
As	75	74	1	5.77	288.27	ug/l	1800	
Zn	66	45	1	254.41	12720.75	ug/l	450	
Cu	63	45	1	32.99	1649.70	ug/l	450	
Ni	60	45	1	15.68	783.80	ug/l	900	
Co	59	45	1	5.72	285.98	ug/l	450	
Fe	56	45	1	13293.33	664666.55	ug/l	180000	
Mn	55	45	1	201.66	10083.16	ug/l	9000	
Cr	52	45	1	839.57	41978.35	ug/l	900	
V	51	45	1	56.86	2843.15	ug/l	3600	
Ti	47	45	1	375.88	18794.09	ug/l	3600	
Ca	44	6	1	2029.25	101462.67	ug/l	90000	
K	39	45	1	689.80	34490.09	ug/l	360000	
Al	27	45	1	7289.45	364472.31	ug/l	36000	
Mg	24	45	1	2382.96	119147.83	ug/l	180000	
Na	23	45	1	136.60	6830.12	ug/l	360000	
B	11	6	1	2.67	133.41	ug/l	7200	
Be	9	6	1	0.51	25.52	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	516771	0.12	513001	100.7	60	120	
Tb	159	1	685325	0.24	679167	100.9	60	120	
In	115	1	238305	0.52	247939	96.1	60	120	
Kr	83	1	33	20.00	30	111.1	1	1000	
Ge	74	1	37640	0.53	38549	97.6	60	120	
Sc	45	1	256661	0.23	263470	97.4	60	120	
Li	6	1	12001	0.67	12234	98.1	60	120	

Sample Report

Sample Name	**460-31559-a-13-a@20**
Data File Name	**057SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T23:46:05-04:00**
Type	**Sample**
VialNumber	**2310**
Dilution	**50**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	54.48	2724.12	ug/l	3600	
Tl	205	209	1	0.07	3.73	ug/l	720	
Ba	137	159	1	67.99	3399.63	ug/l	3600	
Sb	121	115	1	0.17	8.66	ug/l	3600	
Sn	118	115	1	2.18	109.09	ug/l	3600	
Cd	111	115	1	0.16	7.79	ug/l	1800	
Ag	107	115	1	0.05	2.73	ug/l	180	
Mo	95	115	1	1.22	60.76	ug/l	3600	
Sr	88	115	1	7.67	383.56	ug/l	3600	
Se	78	74	1	0.94	47.18	ug/l	450	
As	75	74	1	3.59	179.46	ug/l	1800	
Zn	66	45	1	125.92	6296.24	ug/l	450	
Cu	63	45	1	15.58	778.98	ug/l	450	
Ni	60	45	1	8.14	407.17	ug/l	900	
Co	59	45	1	4.42	220.97	ug/l	450	
Fe	56	45	1	11231.41	561570.56	ug/l	180000	
Mn	55	45	1	153.82	7691.07	ug/l	9000	
Cr	52	45	1	416.20	20809.88	ug/l	900	
V	51	45	1	20.55	1027.52	ug/l	3600	
Ti	47	45	1	227.52	11376.15	ug/l	3600	
Ca	44	6	1	1192.45	59622.63	ug/l	90000	
K	39	45	1	662.95	33147.32	ug/l	360000	
Al	27	45	1	7154.92	357745.96	ug/l	36000	
Mg	24	45	1	1550.61	77530.46	ug/l	180000	
Na	23	45	1	135.31	6765.63	ug/l	360000	
B	11	6	1	2.61	130.54	ug/l	7200	
Be	9	6	1	0.30	14.78	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	522989	0.44	513001	101.9	60	120	
Tb	159	1	691418	0.15	679167	101.8	60	120	
In	115	1	241823	0.50	247939	97.5	60	120	
Kr	83	1	51	16.42	30	170.4	1	1000	
Ge	74	1	37814	0.36	38549	98.1	60	120	
Sc	45	1	260859	0.57	263470	99.0	60	120	
Li	6	1	12048	0.83	12234	98.5	60	120	

Sample Report

Sample Name	**460-31559-a-14-a@20**
Data File Name	**058SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T23:51:06-04:00**
Type	**Sample**
VialNumber	**2311**
Dilution	**50**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	15.33	766.49	ug/l	3600	
Tl	205	209	1	0.06	3.19	ug/l	720	
Ba	137	159	1	24.18	1208.83	ug/l	3600	
Sb	121	115	1	0.06	2.91	ug/l	3600	
Sn	118	115	1	1.27	63.64	ug/l	3600	
Cd	111	115	1	0.05	2.70	ug/l	1800	
Ag	107	115	1	0.01	0.57	ug/l	180	
Mo	95	115	1	0.28	14.12	ug/l	3600	
Sr	88	115	1	3.46	173.06	ug/l	3600	
Se	78	74	1	0.53	26.59	ug/l	450	
As	75	74	1	2.27	113.32	ug/l	1800	
Zn	66	45	1	41.05	2052.29	ug/l	450	
Cu	63	45	1	6.92	345.94	ug/l	450	
Ni	60	45	1	6.59	329.64	ug/l	900	
Co	59	45	1	4.13	206.70	ug/l	450	
Fe	56	45	1	9734.23	486711.53	ug/l	180000	
Mn	55	45	1	265.15	13257.73	ug/l	9000	
Cr	52	45	1	16.65	832.31	ug/l	900	
V	51	45	1	16.67	833.60	ug/l	3600	
Ti	47	45	1	369.80	18489.89	ug/l	3600	
Ca	44	6	1	864.32	43215.79	ug/l	90000	
K	39	45	1	585.62	29281.16	ug/l	360000	
Al	27	45	1	4970.25	248512.75	ug/l	36000	
Mg	24	45	1	2135.94	106797.21	ug/l	180000	
Na	23	45	1	310.16	15508.25	ug/l	360000	
B	11	6	1	1.97	98.63	ug/l	7200	
Be	9	6	1	0.46	22.98	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	567778	9.33	513001	110.7	60	120	
Tb	159	1	758322	10.20	679167	111.7	60	120	
In	115	1	267007	10.42	247939	107.7	60	120	
Kr	83	1	30	40.05	30	100.0	1	1000	
Ge	74	1	41988	8.86	38549	108.9	60	120	
Sc	45	1	290056	10.41	263470	110.1	60	120	
Li	6	1	13118	7.85	12234	107.2	60	120	

Continuing Calibration Verification (CCV) - US EPA Method 6020

Sample Name	**CCV 1187191**
Data File Name	**0596CCV.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-07T23:56:03-04:00**
Type	**6-CCV**
VialNumber	**1301**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	%RSD	Units	CPS	CPS%RSD	Exp Value	%Rec	QC Low	QC High	QC Flag
Be	9	6	1	49.33	2.00	ug/l	3909.42	3.45	50	98.7	90	110	
B	11	6	1	97.77	2.74	ug/l	2318.02	5.19	100	97.8	90	110	
Na	23	45	1	4857.33	0.29	ug/l	3454700.44	0.51	5000	97.1	90	110	
Mg	24	45	1	4879.93	0.59	ug/l	1720745.50	0.98	5000	97.6	90	110	
Al	27	45	1	487.62	0.94	ug/l	84637.57	1.18	500	97.5	90	110	
K	39	45	1	4892.02	1.32	ug/l	1760228.46	1.57	5000	97.8	90	110	
Ca	44	6	1	4943.90	2.50	ug/l	86594.28	0.41	5000	98.9	90	110	
Ti	47	45	1	48.39	2.40	ug/l	4993.15	2.11	50	96.8	90	110	
V	51	45	1	50.20	0.69	ug/l	139932.32	0.29	50	100.4	90	110	
Cr	52	45	1	50.66	0.85	ug/l	167337.73	0.54	50	101.3	90	110	
Mn	55	45	1	500.99	1.98	ug/l	1022876.05	1.61	500	100.2	90	110	
Fe	56	45	1	5031.24	0.39	ug/l	12651410.92	0.10	5000	100.6	90	110	
Co	59	45	1	50.92	0.50	ug/l	239677.03	0.27	50	101.8	90	110	
Ni	60	45	1	49.21	0.80	ug/l	64244.07	0.44	50	98.4	90	110	
Cu	63	45	1	51.23	0.36	ug/l	172782.93	0.04	50	102.5	90	110	
Zn	66	45	1	49.61	1.18	ug/l	27899.78	1.32	50	99.2	90	110	
As	75	74	1	49.49	1.35	ug/l	22594.28	1.80	50	99.0	90	110	
Se	78	74	1	49.38	3.11	ug/l	1554.55	2.18	50	98.8	90	110	
Sr	88	115	1	49.82	1.04	ug/l	130212.90	0.16	50	99.6	90	110	
Mo	95	115	1	48.92	1.54	ug/l	81810.98	0.65	50	97.8	90	110	
Ag	107	115	1	50.61	0.46	ug/l	255211.86	0.99	50	101.2	90	110	
Cd	111	115	1	49.64	1.19	ug/l	38440.20	1.11	50	99.3	90	110	
Sn	118	115	1	49.85	0.87	ug/l	89904.23	0.38	50	99.7	90	110	
Sb	121	115	1	50.02	0.33	ug/l	124257.23	1.23	50	100.0	90	110	
Ba	137	159	1	48.77	0.76	ug/l	45361.70	0.92	50	97.5	90	110	
Tl	205	209	1	9.94	0.56	ug/l	120405.92	0.77	10	99.4	90	110	
Pb	208	209	1	50.26	0.84	ug/l	801698.60	0.59	50	100.5	90	110	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Ref CPS	%Rec	QC Low	QC High	QC Flag
Li	6	1	11798	2.49	12234	96.4	60	120	
Sc	45	1	257122	0.40	263470	97.6	60	120	
Ge	74	1	38584	1.00	38549	100.1	60	120	
Kr	83	1	14	26.66	30	48.2	1	1000	
In	115	1	240029	0.93	247939	96.8	60	120	
Tb	159	1	681134	0.49	679167	100.3	60	120	
Bi	209	1	513670	0.25	513001	100.1	60	120	

TuneStep	TuneFile
1	helium.u

Continuing Calibration Blank (CCB) - US EPA Method 6020

Sample Name	**CCB**
Data File Name	**0606CCB.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-08T00:00:59-04:00**
Type	**6-CCB**
VialNumber	**1302**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	%RSD	Units	CPS	CPS%RSD	QC High	QC Flag
Be	9	6	1	-0.02	-57.68	ug/l	1.11	86.60	0.2	
B	11	6	1	0.60	35.78	ug/l	21.11	24.12	20	
Na	23	45	1	-25.88	-10.67	ug/l	165385.53	0.84	50	
Mg	24	45	1	0.52	10.12	ug/l	370.56	5.21	50	
Al	27	45	1	0.43	36.16	ug/l	701.14	4.10	10	
K	39	45	1	-23.43	-5.76	ug/l	85018.73	0.34	50	
Ca	44	6	1	-0.33	-384.82	ug/l	222.78	11.25	50	
Ti	47	45	1	0.00	1544.38	ug/l	6.67	50.03	1	
V	51	45	1	-0.03	-50.96	ug/l	381.13	11.87	1	
Cr	52	45	1	0.00	1567.77	ug/l	1867.95	5.57	1	
Mn	55	45	1	0.07	33.87	ug/l	180.01	25.46	2	
Fe	56	45	1	0.75	2.17	ug/l	5506.03	1.08	30	
Co	59	45	1	0.01	26.95	ug/l	26.67	24.99	1	
Ni	60	45	1	-0.08	-14.95	ug/l	96.67	15.80	1	
Cu	63	45	1	-0.12	-27.63	ug/l	1713.49	6.63	1	
Zn	66	45	1	0.04	47.38	ug/l	280.01	4.29	4	
As	75	74	1	-0.03	-29.37	ug/l	27.22	12.75	0.5	
Se	78	74	1	-0.08	-208.77	ug/l	44.44	12.06	0.5	
Sr	88	115	1	0.01	26.13	ug/l	33.33	17.32	1	
Mo	95	115	1	0.01	228.91	ug/l	71.11	30.50	1	
Ag	107	115	1	0.01	24.57	ug/l	70.00	20.75	1	
Cd	111	115	1	0.01	161.78	ug/l	20.00	83.35	0.5	
Sn	118	115	1	0.03	12.10	ug/l	127.78	3.98	4	
Sb	121	115	1	0.00	129.63	ug/l	90.00	16.14	0.5	
Ba	137	159	1	0.02	13.39	ug/l	25.56	7.55	1	
Tl	205	209	1	0.01	4.59	ug/l	118.89	4.28	0.2	
Pb	208	209	1	0.02	13.60	ug/l	440.02	9.22	0.3	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Ref CPS	%Rec	QC Low	QC High	QC Flag
Li	6	1	11868	1.18	12234	97.0	60	120	
Sc	45	1	255416	0.35	263470	96.9	60	120	
Ge	74	1	37977	0.82	38549	98.5	60	120	
Kr	83	1	22	45.83	30	74.1	1	1000	
In	115	1	243648	0.95	247939	98.3	60	120	
Tb	159	1	671487	0.20	679167	98.9	60	120	
Bi	209	1	511904	0.50	513001	99.8	60	120	

TuneStep	TuneFile
1	helium.u

Sample Report

Sample Name	**460-31632-f-1-b@5**
Data File Name	**061SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-08T00:06:05-04:00**
Type	**Sample**
VialNumber	**2312**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	0.22	1.12	ug/l	3600	
Tl	205	209	1	0.02	0.10	ug/l	720	
Ba	137	159	1	4.47	22.34	ug/l	3600	
Sb	121	115	1	0.07	0.37	ug/l	3600	
Sn	118	115	1	0.17	0.87	ug/l	3600	
Cd	111	115	1	0.04	0.18	ug/l	1800	
Ag	107	115	1	0.00	0.01	ug/l	180	
Mo	95	115	1	0.18	0.91	ug/l	3600	
Sr	88	115	1	3.36	16.82	ug/l	3600	
Se	78	74	1	-0.15	-0.74	ug/l	450	
As	75	74	1	0.23	1.14	ug/l	1800	
Zn	66	45	1	13.30	66.50	ug/l	450	
Cu	63	45	1	1.15	5.75	ug/l	450	
Ni	60	45	1	1.79	8.94	ug/l	900	
Co	59	45	1	0.22	1.08	ug/l	450	
Fe	56	45	1	386.58	1932.89	ug/l	180000	
Mn	55	45	1	6.64	33.19	ug/l	9000	
Cr	52	45	1	1.43	7.17	ug/l	900	
V	51	45	1	0.54	2.68	ug/l	3600	
Ti	47	45	1	5.10	25.48	ug/l	3600	
Ca	44	6	1	1142.67	5713.33	ug/l	90000	
K	39	45	1	1531.56	7657.79	ug/l	360000	
Al	27	45	1	240.92	1204.59	ug/l	36000	
Mg	24	45	1	272.76	1363.78	ug/l	180000	
Na	23	45	1	1628.43	8142.16	ug/l	360000	
B	11	6	1	12.95	64.73	ug/l	7200	
Be	9	6	1	-0.03	-0.14	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	524874	0.68	513001	102.3	60	120	
Tb	159	1	683251	0.84	679167	100.6	60	120	
In	115	1	245316	0.54	247939	98.9	60	120	
Kr	83	1	17	87.16	30	55.6	1	1000	
Ge	74	1	38728	0.45	38549	100.5	60	120	
Sc	45	1	257436	0.39	263470	97.7	60	120	
Li	6	1	12154	1.47	12234	99.3	60	120	

Sample Report

Sample Name	**460-31646-d-2-a@5**
Data File Name	**062SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-08T00:11:06-04:00**
Type	**Sample**
VialNumber	**2401**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	0.01	0.06	ug/l	3600	
Tl	205	209	1	0.00	0.01	ug/l	720	
Ba	137	159	1	0.02	0.10	ug/l	3600	
Sb	121	115	1	0.02	0.12	ug/l	3600	
Sn	118	115	1	0.04	0.18	ug/l	3600	
Cd	111	115	1	0.01	0.04	ug/l	1800	
Ag	107	115	1	0.00	0.01	ug/l	180	
Mo	95	115	1	0.01	0.05	ug/l	3600	
Sr	88	115	1	0.01	0.03	ug/l	3600	
Se	78	74	1	-0.48	-2.41	ug/l	450	
As	75	74	1	0.01	0.04	ug/l	1800	
Zn	66	45	1	1.03	5.13	ug/l	450	
Cu	63	45	1	0.05	0.27	ug/l	450	
Ni	60	45	1	0.01	0.06	ug/l	900	
Co	59	45	1	0.00	0.01	ug/l	450	
Fe	56	45	1	2.04	10.19	ug/l	180000	
Mn	55	45	1	0.03	0.16	ug/l	9000	
Cr	52	45	1	0.07	0.34	ug/l	900	
V	51	45	1	0.08	0.39	ug/l	3600	
Ti	47	45	1	-0.03	-0.15	ug/l	3600	
Ca	44	6	1	1.54	7.72	ug/l	90000	
K	39	45	1	-24.47	-122.37	ug/l	360000	
Al	27	45	1	0.81	4.03	ug/l	36000	
Mg	24	45	1	0.09	0.44	ug/l	180000	
Na	23	45	1	-21.25	-106.26	ug/l	360000	
B	11	6	1	0.17	0.86	ug/l	7200	
Be	9	6	1	-0.02	-0.11	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	516537	0.94	513001	100.7	60	120	
Tb	159	1	673290	1.05	679167	99.1	60	120	
In	115	1	241704	0.30	247939	97.5	60	120	
Kr	83	1	23	57.15	30	77.8	1	1000	
Ge	74	1	37661	0.17	38549	97.7	60	120	
Sc	45	1	251945	0.86	263470	95.6	60	120	
Li	6	1	11913	2.21	12234	97.4	60	120	

Sample Report

Sample Name	**460-31646-d-3-a@5**
Data File Name	**063SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-08T00:16:10-04:00**
Type	**Sample**
VialNumber	**2402**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	0.02	0.08	ug/l	3600	
Tl	205	209	1	0.00	0.01	ug/l	720	
Ba	137	159	1	10.01	50.04	ug/l	3600	
Sb	121	115	1	0.02	0.10	ug/l	3600	
Sn	118	115	1	0.04	0.18	ug/l	3600	
Cd	111	115	1	0.06	0.32	ug/l	1800	
Ag	107	115	1	0.00	0.01	ug/l	180	
Mo	95	115	1	0.01	0.05	ug/l	3600	
Sr	88	115	1	2.61	13.04	ug/l	3600	
Se	78	74	1	-0.19	-0.94	ug/l	450	
As	75	74	1	0.07	0.33	ug/l	1800	
Zn	66	45	1	3.68	18.39	ug/l	450	
Cu	63	45	1	-0.02	-0.08	ug/l	450	
Ni	60	45	1	0.18	0.92	ug/l	900	
Co	59	45	1	0.55	2.74	ug/l	450	
Fe	56	45	1	633.33	3166.65	ug/l	180000	
Mn	55	45	1	6.05	30.24	ug/l	9000	
Cr	52	45	1	0.07	0.37	ug/l	900	
V	51	45	1	0.10	0.49	ug/l	3600	
Ti	47	45	1	0.01	0.06	ug/l	3600	
Ca	44	6	1	529.61	2648.06	ug/l	90000	
K	39	45	1	618.41	3092.07	ug/l	360000	
Al	27	45	1	27.39	136.93	ug/l	36000	
Mg	24	45	1	93.92	469.60	ug/l	180000	
Na	23	45	1	1050.92	5254.61	ug/l	360000	
B	11	6	1	2.66	13.28	ug/l	7200	
Be	9	6	1	-0.01	-0.04	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	526450	0.94	513001	102.6	60	120	
Tb	159	1	687088	0.36	679167	101.2	60	120	
In	115	1	246631	0.41	247939	99.5	60	120	
Kr	83	1	28	18.33	30	92.6	1	1000	
Ge	74	1	38779	0.77	38549	100.6	60	120	
Sc	45	1	257591	1.12	263470	97.8	60	120	
Li	6	1	12050	1.48	12234	98.5	60	120	

Sample Report

Sample Name	**460-31646-d-5-a@5**
Data File Name	**064SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-08T00:21:12-04:00**
Type	**Sample**
VialNumber	**2403**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	0.32	1.61	ug/l	3600	
Tl	205	209	1	0.00	0.02	ug/l	720	
Ba	137	159	1	3.70	18.52	ug/l	3600	
Sb	121	115	1	0.14	0.69	ug/l	3600	
Sn	118	115	1	0.17	0.83	ug/l	3600	
Cd	111	115	1	0.00	-0.01	ug/l	1800	
Ag	107	115	1	0.00	0.02	ug/l	180	
Mo	95	115	1	2.63	13.16	ug/l	3600	
Sr	88	115	1	24.54	122.70	ug/l	3600	
Se	78	74	1	0.10	0.51	ug/l	450	
As	75	74	1	0.42	2.09	ug/l	1800	
Zn	66	45	1	3.20	15.98	ug/l	450	
Cu	63	45	1	0.26	1.32	ug/l	450	
Ni	60	45	1	0.70	3.50	ug/l	900	
Co	59	45	1	0.13	0.65	ug/l	450	
Fe	56	45	1	344.90	1724.52	ug/l	180000	
Mn	55	45	1	16.50	82.49	ug/l	9000	
Cr	52	45	1	0.42	2.09	ug/l	900	
V	51	45	1	0.65	3.23	ug/l	3600	
Ti	47	45	1	3.07	15.37	ug/l	3600	
Ca	44	6	1	1426.60	7133.02	ug/l	90000	
K	39	45	1	950.09	4750.43	ug/l	360000	
Al	27	45	1	456.59	2282.94	ug/l	36000	
Mg	24	45	1	353.68	1768.39	ug/l	180000	
Na	23	45	1	14780.19	73900.97	ug/l	360000	
B	11	6	1	23.97	119.86	ug/l	7200	
Be	9	6	1	0.00	0.00	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	515084	0.48	513001	100.4	60	120	
Tb	159	1	677105	0.77	679167	99.7	60	120	
In	115	1	242662	0.45	247939	97.9	60	120	
Kr	83	1	21	50.75	30	70.4	1	1000	
Ge	74	1	38746	0.54	38549	100.5	60	120	
Sc	45	1	255362	0.67	263470	96.9	60	120	
Li	6	1	11689	1.26	12234	95.5	60	120	

Sample Report

Sample Name	**460-31646-d-6-a@5**
Data File Name	**065SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-08T00:26:12-04:00**
Type	**Sample**
VialNumber	**2404**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	0.02	0.09	ug/l	3600	
Tl	205	209	1	0.00	0.01	ug/l	720	
Ba	137	159	1	4.71	23.53	ug/l	3600	
Sb	121	115	1	0.02	0.11	ug/l	3600	
Sn	118	115	1	0.02	0.12	ug/l	3600	
Cd	111	115	1	0.02	0.11	ug/l	1800	
Ag	107	115	1	0.00	0.01	ug/l	180	
Mo	95	115	1	0.03	0.14	ug/l	3600	
Sr	88	115	1	5.46	27.29	ug/l	3600	
Se	78	74	1	0.03	0.15	ug/l	450	
As	75	74	1	0.04	0.22	ug/l	1800	
Zn	66	45	1	1.90	9.48	ug/l	450	
Cu	63	45	1	0.03	0.13	ug/l	450	
Ni	60	45	1	0.01	0.07	ug/l	900	
Co	59	45	1	0.14	0.71	ug/l	450	
Fe	56	45	1	4.28	21.38	ug/l	180000	
Mn	55	45	1	3.12	15.60	ug/l	9000	
Cr	52	45	1	0.09	0.45	ug/l	900	
V	51	45	1	0.14	0.69	ug/l	3600	
Ti	47	45	1	0.11	0.55	ug/l	3600	
Ca	44	6	1	3451.78	17258.91	ug/l	90000	
K	39	45	1	53.20	265.98	ug/l	360000	
Al	27	45	1	9.59	47.93	ug/l	36000	
Mg	24	45	1	1559.34	7796.68	ug/l	180000	
Na	23	45	1	2054.30	10271.52	ug/l	360000	
B	11	6	1	5.08	25.38	ug/l	7200	
Be	9	6	1	-0.01	-0.07	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	521537	0.35	513001	101.7	60	120	
Tb	159	1	688272	0.80	679167	101.3	60	120	
In	115	1	245774	0.14	247939	99.1	60	120	
Kr	83	1	18	28.64	30	59.3	1	1000	
Ge	74	1	38762	0.14	38549	100.6	60	120	
Sc	45	1	255699	0.68	263470	97.1	60	120	
Li	6	1	11899	1.07	12234	97.3	60	120	

Sample Report

Sample Name	**460-31646-d-7-a@5**
Data File Name	**066SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-08T00:31:14-04:00**
Type	**Sample**
VialNumber	**2405**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	0.02	0.10	ug/l	3600	
Tl	205	209	1	0.00	0.02	ug/l	720	
Ba	137	159	1	9.10	45.50	ug/l	3600	
Sb	121	115	1	0.03	0.16	ug/l	3600	
Sn	118	115	1	0.02	0.09	ug/l	3600	
Cd	111	115	1	0.07	0.36	ug/l	1800	
Ag	107	115	1	0.00	0.01	ug/l	180	
Mo	95	115	1	0.09	0.43	ug/l	3600	
Sr	88	115	1	7.42	37.11	ug/l	3600	
Se	78	74	1	0.05	0.26	ug/l	450	
As	75	74	1	0.07	0.37	ug/l	1800	
Zn	66	45	1	2.52	12.61	ug/l	450	
Cu	63	45	1	0.05	0.27	ug/l	450	
Ni	60	45	1	0.16	0.82	ug/l	900	
Co	59	45	1	0.12	0.59	ug/l	450	
Fe	56	45	1	3.78	18.89	ug/l	180000	
Mn	55	45	1	1.81	9.03	ug/l	9000	
Cr	52	45	1	0.35	1.77	ug/l	900	
V	51	45	1	0.20	1.00	ug/l	3600	
Ti	47	45	1	0.04	0.22	ug/l	3600	
Ca	44	6	1	1216.38	6081.92	ug/l	90000	
K	39	45	1	937.06	4685.30	ug/l	360000	
Al	27	45	1	21.74	108.68	ug/l	36000	
Mg	24	45	1	202.85	1014.27	ug/l	180000	
Na	23	45	1	1823.54	9117.68	ug/l	360000	
B	11	6	1	3.64	18.20	ug/l	7200	
Be	9	6	1	0.01	0.03	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	526627	0.45	513001	102.7	60	120	
Tb	159	1	686511	0.41	679167	101.1	60	120	
In	115	1	248159	0.80	247939	100.1	60	120	
Kr	83	1	19	79.59	30	63.0	1	1000	
Ge	74	1	39108	0.68	38549	101.4	60	120	
Sc	45	1	257112	0.32	263470	97.6	60	120	
Li	6	1	11870	2.78	12234	97.0	60	120	

Sample Report

Sample Name	**460-31646-d-8-a@5**
Data File Name	**067SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-08T00:36:16-04:00**
Type	**Sample**
VialNumber	**2406**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	0.72	3.62	ug/l	3600	
Tl	205	209	1	0.00	0.02	ug/l	720	
Ba	137	159	1	8.94	44.69	ug/l	3600	
Sb	121	115	1	0.05	0.23	ug/l	3600	
Sn	118	115	1	0.02	0.11	ug/l	3600	
Cd	111	115	1	0.09	0.44	ug/l	1800	
Ag	107	115	1	0.00	0.00	ug/l	180	
Mo	95	115	1	0.01	0.07	ug/l	3600	
Sr	88	115	1	21.54	107.71	ug/l	3600	
Se	78	74	1	0.32	1.61	ug/l	450	
As	75	74	1	0.11	0.57	ug/l	1800	
Zn	66	45	1	1.83	9.17	ug/l	450	
Cu	63	45	1	0.18	0.88	ug/l	450	
Ni	60	45	1	0.09	0.43	ug/l	900	
Co	59	45	1	0.17	0.84	ug/l	450	
Fe	56	45	1	150.23	751.13	ug/l	180000	
Mn	55	45	1	34.94	174.69	ug/l	9000	
Cr	52	45	1	0.08	0.40	ug/l	900	
V	51	45	1	0.14	0.71	ug/l	3600	
Ti	47	45	1	0.00	0.01	ug/l	3600	
Ca	44	6	1	8945.89	44729.44	ug/l	90000	
K	39	45	1	541.75	2708.73	ug/l	360000	
Al	27	45	1	38.20	191.02	ug/l	36000	
Mg	24	45	1	2974.92	14874.59	ug/l	180000	
Na	23	45	1	3857.21	19286.04	ug/l	360000	
B	11	6	1	9.81	49.06	ug/l	7200	
Be	9	6	1	0.02	0.11	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	523496	0.42	513001	102.0	60	120	
Tb	159	1	696178	0.30	679167	102.5	60	120	
In	115	1	247875	0.49	247939	100.0	60	120	
Kr	83	1	17	52.90	30	55.6	1	1000	
Ge	74	1	39511	0.78	38549	102.5	60	120	
Sc	45	1	259141	0.38	263470	98.4	60	120	
Li	6	1	11752	1.03	12234	96.1	60	120	

Sample Report

Sample Name	**460-31646-d-9-a@5**
Data File Name	**068SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-08T00:41:18-04:00**
Type	**Sample**
VialNumber	**2407**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	0.17	0.84	ug/l	3600	
Tl	205	209	1	0.00	0.01	ug/l	720	
Ba	137	159	1	10.28	51.42	ug/l	3600	
Sb	121	115	1	0.03	0.16	ug/l	3600	
Sn	118	115	1	0.02	0.09	ug/l	3600	
Cd	111	115	1	0.00	0.02	ug/l	1800	
Ag	107	115	1	0.00	0.00	ug/l	180	
Mo	95	115	1	0.05	0.25	ug/l	3600	
Sr	88	115	1	97.80	489.02	ug/l	3600	
Se	78	74	1	-0.13	-0.67	ug/l	450	
As	75	74	1	0.56	2.81	ug/l	1800	
Zn	66	45	1	1.24	6.18	ug/l	450	
Cu	63	45	1	0.07	0.37	ug/l	450	
Ni	60	45	1	0.03	0.13	ug/l	900	
Co	59	45	1	0.07	0.35	ug/l	450	
Fe	56	45	1	1577.57	7887.84	ug/l	180000	
Mn	55	45	1	41.08	205.38	ug/l	9000	
Cr	52	45	1	0.25	1.24	ug/l	900	
V	51	45	1	0.26	1.29	ug/l	3600	
Ti	47	45	1	0.01	0.06	ug/l	3600	
Ca	44	6	1	14387.86	71939.31	ug/l	90000	
K	39	45	1	663.44	3317.18	ug/l	360000	
Al	27	45	1	3.23	16.16	ug/l	36000	
Mg	24	45	1	2718.05	13590.23	ug/l	180000	
Na	23	45	1	2288.22	11441.11	ug/l	360000	
B	11	6	1	12.08	60.39	ug/l	7200	
Be	9	6	1	-0.01	-0.03	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	524280	0.66	513001	102.2	60	120	
Tb	159	1	686196	0.44	679167	101.0	60	120	
In	115	1	245102	0.57	247939	98.9	60	120	
Kr	83	1	24	20.83	30	81.5	1	1000	
Ge	74	1	38818	0.23	38549	100.7	60	120	
Sc	45	1	257182	0.35	263470	97.6	60	120	
Li	6	1	11747	1.52	12234	96.0	60	120	

Sample Report

Sample Name	**460-31646-d-10-a@5**
Data File Name	**069SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-08T00:46:18-04:00**
Type	**Sample**
VialNumber	**2408**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	0.08	0.40	ug/l	3600	
Tl	205	209	1	0.01	0.03	ug/l	720	
Ba	137	159	1	5.06	25.31	ug/l	3600	
Sb	121	115	1	0.13	0.65	ug/l	3600	
Sn	118	115	1	0.10	0.52	ug/l	3600	
Cd	111	115	1	0.02	0.11	ug/l	1800	
Ag	107	115	1	0.00	0.00	ug/l	180	
Mo	95	115	1	1.95	9.75	ug/l	3600	
Sr	88	115	1	40.63	203.17	ug/l	3600	
Se	78	74	1	0.08	0.40	ug/l	450	
As	75	74	1	0.48	2.42	ug/l	1800	
Zn	66	45	1	2.43	12.15	ug/l	450	
Cu	63	45	1	0.18	0.92	ug/l	450	
Ni	60	45	1	0.28	1.40	ug/l	900	
Co	59	45	1	0.09	0.45	ug/l	450	
Fe	56	45	1	79.02	395.11	ug/l	180000	
Mn	55	45	1	24.53	122.63	ug/l	9000	
Cr	52	45	1	0.10	0.49	ug/l	900	
V	51	45	1	0.19	0.95	ug/l	3600	
Ti	47	45	1	0.17	0.84	ug/l	3600	
Ca	44	6	1	2391.07	11955.36	ug/l	90000	
K	39	45	1	1269.13	6345.64	ug/l	360000	
Al	27	45	1	21.08	105.42	ug/l	36000	
Mg	24	45	1	624.27	3121.33	ug/l	180000	
Na	23	45	1	17098.50	85492.50	ug/l	360000	
B	11	6	1	23.23	116.13	ug/l	7200	
Be	9	6	1	-0.02	-0.10	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	518384	0.45	513001	101.0	60	120	
Tb	159	1	675867	0.26	679167	99.5	60	120	
In	115	1	242738	0.31	247939	97.9	60	120	
Kr	83	1	16	24.76	30	51.8	1	1000	
Ge	74	1	38895	0.13	38549	100.9	60	120	
Sc	45	1	253032	0.18	263470	96.0	60	120	
Li	6	1	11702	1.06	12234	95.7	60	120	

Sample Report

Sample Name	**460-31646-d-11-a@5**
Data File Name	**070SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-08T00:51:20-04:00**
Type	**Sample**
VialNumber	**2409**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	0.50	2.48	ug/l	3600	
Tl	205	209	1	0.00	0.01	ug/l	720	
Ba	137	159	1	8.76	43.82	ug/l	3600	
Sb	121	115	1	0.07	0.35	ug/l	3600	
Sn	118	115	1	0.02	0.10	ug/l	3600	
Cd	111	115	1	-0.01	-0.03	ug/l	1800	
Ag	107	115	1	0.00	0.00	ug/l	180	
Mo	95	115	1	0.05	0.27	ug/l	3600	
Sr	88	115	1	18.90	94.51	ug/l	3600	
Se	78	74	1	-0.05	-0.25	ug/l	450	
As	75	74	1	3.93	19.63	ug/l	1800	
Zn	66	45	1	2.09	10.46	ug/l	450	
Cu	63	45	1	0.02	0.08	ug/l	450	
Ni	60	45	1	0.21	1.07	ug/l	900	
Co	59	45	1	0.42	2.08	ug/l	450	
Fe	56	45	1	2998.56	14992.78	ug/l	180000	
Mn	55	45	1	36.57	182.86	ug/l	9000	
Cr	52	45	1	0.25	1.26	ug/l	900	
V	51	45	1	0.23	1.17	ug/l	3600	
Ti	47	45	1	0.45	2.24	ug/l	3600	
Ca	44	6	1	3571.82	17859.09	ug/l	90000	
K	39	45	1	415.25	2076.25	ug/l	360000	
Al	27	45	1	16.88	84.42	ug/l	36000	
Mg	24	45	1	1140.01	5700.05	ug/l	180000	
Na	23	45	1	2663.17	13315.85	ug/l	360000	
B	11	6	1	19.82	99.11	ug/l	7200	
Be	9	6	1	-0.03	-0.17	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	520098	0.24	513001	101.4	60	120	
Tb	159	1	686841	0.56	679167	101.1	60	120	
In	115	1	244454	0.64	247939	98.6	60	120	
Kr	83	1	20	28.87	30	66.7	1	1000	
Ge	74	1	39002	0.29	38549	101.2	60	120	
Sc	45	1	255350	0.12	263470	96.9	60	120	
Li	6	1	11934	1.42	12234	97.6	60	120	

Continuing Calibration Verification (CCV) - US EPA Method 6020

Sample Name	**CCV 1187191**
Data File Name	**0716CCV.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-08T00:56:22-04:00**
Type	**6-CCV**
VialNumber	**1301**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	%RSD	Units	CPS	CPS%RSD	Exp Value	%Rec	QC Low	QC High	QC Flag
Be	9	6	1	50.54	2.86	ug/l	4002.78	2.35	50	101.1	90	110	
B	11	6	1	94.44	4.74	ug/l	2236.90	4.39	100	94.4	90	110	
Na	23	45	1	4754.79	0.87	ug/l	3410538.39	0.57	5000	95.1	90	110	
Mg	24	45	1	4823.25	0.54	ug/l	1713257.34	0.56	5000	96.5	90	110	
Al	27	45	1	480.29	0.47	ug/l	83987.22	0.23	500	96.1	90	110	
K	39	45	1	4809.83	1.33	ug/l	1744915.82	1.08	5000	96.2	90	110	
Ca	44	6	1	4902.20	0.82	ug/l	85854.78	0.46	5000	98.0	90	110	
Ti	47	45	1	49.77	4.00	ug/l	5173.22	3.78	50	99.5	90	110	
V	51	45	1	49.49	0.45	ug/l	138987.01	0.19	50	99.0	90	110	
Cr	52	45	1	49.68	0.64	ug/l	165343.52	0.86	50	99.4	90	110	
Mn	55	45	1	491.62	0.21	ug/l	1011198.77	0.43	500	98.3	90	110	
Fe	56	45	1	4980.19	0.63	ug/l	12615514.95	0.79	5000	99.6	90	110	
Co	59	45	1	50.44	0.11	ug/l	239144.45	0.33	50	100.9	90	110	
Ni	60	45	1	48.69	0.23	ug/l	64041.06	0.25	50	97.4	90	110	
Cu	63	45	1	50.81	0.21	ug/l	172642.77	0.16	50	101.6	90	110	
Zn	66	45	1	50.13	2.04	ug/l	28400.78	1.78	50	100.3	90	110	
As	75	74	1	48.66	0.41	ug/l	22109.69	0.74	50	97.3	90	110	
Se	78	74	1	49.35	2.05	ug/l	1546.77	2.93	50	98.7	90	110	
Sr	88	115	1	48.74	1.20	ug/l	129045.12	0.75	50	97.5	90	110	
Mo	95	115	1	48.42	0.41	ug/l	82037.70	0.79	50	96.8	90	110	
Ag	107	115	1	49.97	0.34	ug/l	255278.41	0.33	50	99.9	90	110	
Cd	111	115	1	49.17	0.63	ug/l	38573.94	0.17	50	98.3	90	110	
Sn	118	115	1	49.18	0.36	ug/l	89858.72	0.73	50	98.4	90	110	
Sb	121	115	1	49.10	0.24	ug/l	123583.33	0.86	50	98.2	90	110	
Ba	137	159	1	48.74	0.78	ug/l	45389.46	0.64	50	97.5	90	110	
Tl	205	209	1	9.85	0.89	ug/l	119629.26	0.90	10	98.5	90	110	
Pb	208	209	1	49.86	0.40	ug/l	797255.65	0.58	50	99.7	90	110	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Ref CPS	%Rec	QC Low	QC High	QC Flag
Li	6	1	11792	0.63	12234	96.4	60	120	
Sc	45	1	259016	0.26	263470	98.3	60	120	
Ge	74	1	38403	0.99	38549	99.6	60	120	
Kr	83	1	22	62.43	30	74.1	1	1000	
In	115	1	243158	0.66	247939	98.1	60	120	
Tb	159	1	682047	0.48	679167	100.4	60	120	
Bi	209	1	514905	0.22	513001	100.4	60	120	

TuneStep	TuneFile
1	helium.u

Continuing Calibration Blank (CCB) - US EPA Method 6020

Sample Name	**CCB**
Data File Name	**0726CCB.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-08T01:01:18-04:00**
Type	**6-CCB**
VialNumber	**1302**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	%RSD	Units	CPS	CPS%RSD	QC High	QC Flag
Be	9	6	1	-0.01	-4.23	ug/l	1.67	0.00	0.2	
B	11	6	1	1.33	12.70	ug/l	38.89	13.10	20	
Na	23	45	1	-32.33	-2.49	ug/l	161082.25	0.32	50	
Mg	24	45	1	0.63	4.17	ug/l	409.45	2.24	50	
Al	27	45	1	0.33	61.97	ug/l	683.36	5.08	10	
K	39	45	1	-27.87	-8.16	ug/l	83521.06	0.90	50	
Ca	44	6	1	-0.65	-334.56	ug/l	218.34	16.43	50	
Ti	47	45	1	-0.04	-45.49	ug/l	2.22	86.60	1	
V	51	45	1	-0.02	-66.82	ug/l	414.46	8.86	1	
Cr	52	45	1	-0.01	-119.79	ug/l	1821.27	2.65	1	
Mn	55	45	1	0.09	10.78	ug/l	218.90	8.66	2	
Fe	56	45	1	0.73	8.79	ug/l	5446.58	2.91	30	
Co	59	45	1	0.01	22.87	ug/l	38.89	21.57	1	
Ni	60	45	1	-0.07	-36.21	ug/l	108.89	30.66	1	
Cu	63	45	1	-0.10	-17.37	ug/l	1783.49	3.24	1	
Zn	66	45	1	0.08	31.07	ug/l	301.12	4.61	4	
As	75	74	1	-0.02	-64.20	ug/l	31.11	17.22	0.5	
Se	78	74	1	0.21	120.62	ug/l	53.89	13.95	0.5	
Sr	88	115	1	0.01	46.32	ug/l	30.00	29.40	1	
Mo	95	115	1	0.02	55.04	ug/l	97.78	19.98	1	
Ag	107	115	1	0.01	28.94	ug/l	75.56	24.30	1	
Cd	111	115	1	0.01	33.38	ug/l	15.56	12.40	0.5	
Sn	118	115	1	0.02	89.50	ug/l	118.89	27.52	4	
Sb	121	115	1	0.00	198.51	ug/l	84.45	9.94	0.5	
Ba	137	159	1	0.02	56.86	ug/l	26.67	33.07	1	.
Tl	205	209	1	0.01	13.80	ug/l	117.78	11.44	0.2	
Pb	208	209	1	0.02	9.24	ug/l	400.02	5.83	0.3	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Ref CPS	%Rec	QC Low	QC High	QC Flag
Li	6	1	11967	2.83	12234	97.8	60	120	
Sc	45	1	255427	0.03	263470	96.9	60	120	
Ge	74	1	38456	0.75	38549	99.8	60	120	
Kr	83	1	20	16.65	30	66.7	1	1000	
In	115	1	246392	0.20	247939	99.4	60	120	
Tb	159	1	673090	0.54	679167	99.1	60	120	
Bi	209	1	517630	0.62	513001	100.9	60	120	

TuneStep	TuneFile
1	helium.u

Sample Report

Sample Name	**460-31646-d-12-a@5**
Data File Name	**073SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-08T01:06:22-04:00**
Type	**Sample**
VialNumber	**2410**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	2.29	11.46	ug/l	3600	
Tl	205	209	1	0.00	0.02	ug/l	720	
Ba	137	159	1	12.51	62.53	ug/l	3600	
Sb	121	115	1	0.08	0.41	ug/l	3600	
Sn	118	115	1	0.05	0.25	ug/l	3600	
Cd	111	115	1	0.01	0.04	ug/l	1800	
Ag	107	115	1	0.00	0.01	ug/l	180	
Mo	95	115	1	3.27	16.37	ug/l	3600	
Sr	88	115	1	96.44	482.18	ug/l	3600	
Se	78	74	1	-0.07	-0.37	ug/l	450	
As	75	74	1	2.19	10.94	ug/l	1800	
Zn	66	45	1	2.71	13.57	ug/l	450	
Cu	63	45	1	0.10	0.48	ug/l	450	
Ni	60	45	1	0.04	0.18	ug/l	900	
Co	59	45	1	0.09	0.46	ug/l	450	
Fe	56	45	1	733.37	3666.84	ug/l	180000	
Mn	55	45	1	6.00	29.99	ug/l	9000	
Cr	52	45	1	0.12	0.62	ug/l	900	
V	51	45	1	0.19	0.95	ug/l	3600	
Ti	47	45	1	0.11	0.55	ug/l	3600	
Ca	44	6	1	20522.35	102611.77	ug/l	90000	
K	39	45	1	1423.97	7119.86	ug/l	360000	
Al	27	45	1	5.30	26.52	ug/l	36000	
Mg	24	45	1	3405.91	17029.55	ug/l	180000	
Na	23	45	1	1455.93	7279.65	ug/l	360000	
B	11	6	1	7.80	39.02	ug/l	7200	
Be	9	6	1	-0.03	-0.14	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	516916	0.20	513001	100.8	60	120	
Tb	159	1	681453	0.10	679167	100.3	60	120	
In	115	1	243700	0.77	247939	98.3	60	120	
Kr	83	1	13	25.01	30	44.4	1	1000	
Ge	74	1	38649	1.58	38549	100.3	60	120	
Sc	45	1	255820	0.30	263470	97.1	60	120	
Li	6	1	11848	1.60	12234	96.9	60	120	

Sample Report

Sample Name	**460-31646-d-13-a@5**
Data File Name	**074SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-08T01:11:23-04:00**
Type	**Sample**
VialNumber	**2411**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	0.56	2.78	ug/l	3600	
Tl	205	209	1	0.00	0.01	ug/l	720	
Ba	137	159	1	7.53	37.64	ug/l	3600	
Sb	121	115	1	0.01	0.07	ug/l	3600	
Sn	118	115	1	0.03	0.14	ug/l	3600	
Cd	111	115	1	0.02	0.12	ug/l	1800	
Ag	107	115	1	0.00	0.01	ug/l	180	
Mo	95	115	1	0.01	0.07	ug/l	3600	
Sr	88	115	1	14.51	72.56	ug/l	3600	
Se	78	74	1	-0.32	-1.58	ug/l	450	
As	75	74	1	0.09	0.45	ug/l	1800	
Zn	66	45	1	3.13	15.65	ug/l	450	
Cu	63	45	1	2.14	10.72	ug/l	450	
Ni	60	45	1	0.10	0.51	ug/l	900	
Co	59	45	1	0.50	2.52	ug/l	450	
Fe	56	45	1	173.63	868.13	ug/l	180000	
Mn	55	45	1	55.26	276.28	ug/l	9000	
Cr	52	45	1	0.05	0.26	ug/l	900	
V	51	45	1	0.12	0.60	ug/l	3600	
Ti	47	45	1	-0.02	-0.10	ug/l	3600	
Ca	44	6	1	1785.92	8929.61	ug/l	90000	
K	39	45	1	242.26	1211.32	ug/l	360000	
Al	27	45	1	8.74	43.69	ug/l	36000	
Mg	24	45	1	427.43	2137.13	ug/l	180000	
Na	23	45	1	1454.60	7273.00	ug/l	360000	
B	11	6	1	15.40	77.00	ug/l	7200	
Be	9	6	1	-0.01	-0.04	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	527799	0.18	513001	102.9	60	120	
Tb	159	1	688978	0.61	679167	101.4	60	120	
In	115	1	250113	0.53	247939	100.9	60	120	
Kr	83	1	24	43.83	30	81.5	1	1000	
Ge	74	1	39344	0.94	38549	102.1	60	120	
Sc	45	1	258702	0.14	263470	98.2	60	120	
Li	6	1	12117	1.13	12234	99.1	60	120	

Sample Report

Sample Name	**460-31658-o-1-b@5**
Data File Name	**075SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-08T01:16:25-04:00**
Type	**Sample**
VialNumber	**2412**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	14.74	73.68	ug/l	3600	
Tl	205	209	1	0.02	0.08	ug/l	720	
Ba	137	159	1	28.63	143.16	ug/l	3600	
Sb	121	115	1	2.53	12.64	ug/l	3600	
Sn	118	115	1	0.14	0.70	ug/l	3600	
Cd	111	115	1	0.19	0.95	ug/l	1800	
Ag	107	115	1	0.02	0.09	ug/l	180	
Mo	95	115	1	4.28	21.42	ug/l	3600	
Sr	88	115	1	341.34	1706.68	ug/l	3600	
Se	78	74	1	0.82	4.10	ug/l	450	
As	75	74	1	2.62	13.10	ug/l	1800	
Zn	66	45	1	34.15	170.74	ug/l	450	
Cu	63	45	1	3.65	18.26	ug/l	450	
Ni	60	45	1	1.96	9.80	ug/l	900	
Co	59	45	1	1.03	5.15	ug/l	450	
Fe	56	45	1	2557.34	12786.68	ug/l	180000	
Mn	55	45	1	123.37	616.87	ug/l	9000	
Cr	52	45	1	0.52	2.59	ug/l	900	
V	51	45	1	1.20	6.02	ug/l	3600	
Ti	47	45	1	3.00	15.02	ug/l	3600	
Ca	44	6	1	41925.12	209625.60	ug/l	90000	
K	39	45	1	2128.52	10642.62	ug/l	360000	
Al	27	45	1	69.06	345.31	ug/l	36000	
Mg	24	45	1	5129.36	25646.82	ug/l	180000	
Na	23	45	1	5130.74	25653.71	ug/l	360000	
B	11	6	1	71.07	355.37	ug/l	7200	
Be	9	6	1	-0.03	-0.14	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	508708	0.41	513001	99.2	60	120	
Tb	159	1	672820	0.73	679167	99.1	60	120	
In	115	1	239983	0.77	247939	96.8	60	120	
Kr	83	1	18	10.81	30	59.3	1	1000	
Ge	74	1	38306	0.39	38549	99.4	60	120	
Sc	45	1	252981	0.60	263470	96.0	60	120	
Li	6	1	11718	1.35	12234	95.8	60	120	

Continuing Calibration Verification (CCV) - US EPA Method 6020

Sample Name	**CCV 1187191**
Data File Name	**0766CCV.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-08T01:21:24-04:00**
Type	**6-CCV**
VialNumber	**1301**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	%RSD	Units	CPS	CPS%RSD	Exp Value	%Rec	QC Low	QC High	QC Flag
Be	9	6	1	50.16	1.34	ug/l	3989.99	1.23	50	100.3	90	110	
B	11	6	1	101.29	4.08	ug/l	2409.16	3.53	100	101.3	90	110	
Na	23	45	1	4873.47	1.17	ug/l	3460239.05	0.43	5000	97.5	90	110	
Mg	24	45	1	4899.54	0.48	ug/l	1725054.14	0.73	5000	98.0	90	110	
Al	27	45	1	491.88	1.15	ug/l	85240.98	1.08	500	98.4	90	110	
K	39	45	1	4893.99	0.89	ug/l	1758176.87	0.40	5000	97.9	90	110	
Ca	44	6	1	4958.53	0.45	ug/l	87223.42	0.61	5000	99.2	90	110	
Ti	47	45	1	49.93	4.51	ug/l	5143.23	4.01	50	99.9	90	110	
V	51	45	1	50.19	0.58	ug/l	139703.18	0.19	50	100.4	90	110	
Cr	52	45	1	50.73	0.63	ug/l	167325.02	0.18	50	101.5	90	110	
Mn	55	45	1	502.55	0.84	ug/l	1024569.02	0.69	500	100.5	90	110	
Fe	56	45	1	5056.85	1.07	ug/l	12696387.45	0.33	5000	101.1	90	110	
Co	59	45	1	51.48	0.89	ug/l	241947.42	0.37	50	103.0	90	110	
Ni	60	45	1	50.29	1.03	ug/l	65560.43	1.11	50	100.6	90	110	
Cu	63	45	1	51.65	1.13	ug/l	173927.72	0.89	50	103.3	90	110	
Zn	66	45	1	50.98	2.52	ug/l	28616.69	1.76	50	102.0	90	110	
As	75	74	1	49.81	1.93	ug/l	22857.45	1.13	50	99.6	90	110	
Se	78	74	1	48.88	7.86	ug/l	1547.33	7.34	50	97.8	90	110	
Sr	88	115	1	49.73	1.53	ug/l	131522.71	0.62	50	99.5	90	110	
Mo	95	115	1	48.79	1.47	ug/l	82561.92	1.08	50	97.6	90	110	
Ag	107	115	1	50.46	1.92	ug/l	257447.13	1.02	50	100.9	90	110	
Cd	111	115	1	49.76	0.98	ug/l	38989.43	0.08	50	99.5	90	110	
Sn	118	115	1	49.92	0.84	ug/l	91109.19	0.58	50	99.8	90	110	
Sb	121	115	1	49.80	0.20	ug/l	125185.72	0.82	50	99.6	90	110	
Ba	137	159	1	49.90	0.23	ug/l	45915.54	0.67	50	99.8	90	110	
Tl	205	209	1	9.92	0.62	ug/l	120376.94	0.64	10	99.2	90	110	
Pb	208	209	1	50.27	0.26	ug/l	803669.50	0.32	50	100.5	90	110	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Ref CPS	%Rec	QC Low	QC High	QC Flag
Li	6	1	11844	0.54	12234	96.8	60	120	
Sc	45	1	256741	0.75	263470	97.4	60	120	
Ge	74	1	38786	1.02	38549	100.6	60	120	
Kr	83	1	14	58.06	30	48.1	1	1000	
In	115	1	242893	0.91	247939	98.0	60	120	
Tb	159	1	673841	0.48	679167	99.2	60	120	
Bi	209	1	514802	0.07	513001	100.4	60	120	

TuneStep	TuneFile
1	helium.u

Continuing Calibration Blank (CCB) - US EPA Method 6020

Sample Name	**CCB**
Data File Name	**0776CCB.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-08T01:26:19-04:00**
Type	**6-CCB**
VialNumber	**1302**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	%RSD	Units	CPS	CPS%RSD	QC High	QC Flag
Be	9	6	1	0.02	115.77	ug/l	4.44	43.40	0.2	
B	11	6	1	0.79	55.01	ug/l	25.56	39.85	20	
Na	23	45	1	-35.98	-1.64	ug/l	159478.38	0.39	50	
Mg	24	45	1	0.79	7.90	ug/l	469.46	4.51	50	
Al	27	45	1	0.24	75.65	ug/l	672.25	4.64	10	
K	39	45	1	-30.98	-9.05	ug/l	82897.32	0.64	50	
Ca	44	6	1	0.34	408.72	ug/l	233.90	9.98	50	
Ti	47	45	1	-0.06	0.00	ug/l	0.00	#DIV/0!	1	
V	51	45	1	-0.01	-219.48	ug/l	453.36	8.91	1	
Cr	52	45	1	0.01	165.16	ug/l	1909.07	3.41	1	
Mn	55	45	1	0.07	27.45	ug/l	193.34	21.53	2	
Fe	56	45	1	0.86	3.05	ug/l	5811.16	0.67	30	
Co	59	45	1	0.01	12.42	ug/l	53.34	12.50	1	
Ni	60	45	1	-0.07	-21.43	ug/l	113.34	16.37	1	
Cu	63	45	1	-0.09	-30.15	ug/l	1840.17	5.20	1	
Zn	66	45	1	0.06	85.69	ug/l	291.12	9.53	4	
As	75	74	1	-0.02	-98.37	ug/l	31.11	26.97	0.5	
Se	78	74	1	-0.04	-525.53	ug/l	46.67	14.28	0.5	
Sr	88	115	1	0.01	59.04	ug/l	34.44	40.30	1	
Mo	95	115	1	0.02	86.71	ug/l	91.11	27.46	1	
Ag	107	115	1	0.02	6.80	ug/l	93.33	6.19	1	
Cd	111	115	1	0.01	17.38	ug/l	21.11	9.11	0.5	
Sn	118	115	1	0.01	111.70	ug/l	107.78	26.30	4	
Sb	121	115	1	-0.01	-110.69	ug/l	66.67	22.91	0.5	
Ba	137	159	1	0.02	94.12	ug/l	25.55	52.73	1	
Tl	205	209	1	0.01	26.81	ug/l	142.23	24.05	0.2	
Pb	208	209	1	0.02	13.53	ug/l	381.13	8.58	0.3	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Ref CPS	%Rec	QC Low	QC High	QC Flag
Li	6	1	11847	0.37	12234	96.8	60	120	
Sc	45	1	256772	0.63	263470	97.5	60	120	
Ge	74	1	38715	0.38	38549	100.4	60	120	
Kr	83	1	19	36.75	30	63.0	1	1000	
In	115	1	246275	0.30	247939	99.3	60	120	
Tb	159	1	678997	1.00	679167	100.0	60	120	
Bi	209	1	519761	0.41	513001	101.3	60	120	

TuneStep	TuneFile
1	helium.u

Continuing Calibration Blank (CCB) - US EPA Method 6020

Sample Name	**mb 460-88640/1-a@5**
Data File Name	**0786CCB.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-08T01:31:23-04:00**
Type	**6-CCB**
VialNumber	**2501**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	%RSD	Units	CPS	CPS%RSD	QC High	QC Flag
Be	9	6	1	-0.01	-755.82	ug/l	1.67	99.90	0.2	
B	11	6	1	0.55	243.91	ug/l	20.00	33.35	20	
Na	23	45	1	-38.17	-10.24	ug/l	158819.95	0.12	50	
Mg	24	45	1	0.34	96.94	ug/l	313.34	7.84	50	
Al	27	45	1	0.23	333.44	ug/l	673.92	4.24	10	
K	39	45	1	-29.27	-15.46	ug/l	83914.15	0.35	50	
Ca	44	6	1	12.98	123.23	ug/l	455.57	12.00	50	
Ti	47	45	1	-0.04	-224.01	ug/l	2.22	86.60	1	
V	51	45	1	0.03	295.92	ug/l	545.58	7.34	1	
Cr	52	45	1	-0.01	-825.62	ug/l	1835.72	3.65	1	
Mn	55	45	1	0.01	54.43	ug/l	73.34	4.55	2	
Fe	56	45	1	0.00	-2067.88	ug/l	3656.03	1.41	30	
Co	59	45	1	0.00	629.12	ug/l	7.78	89.21	1	
Ni	60	45	1	-0.07	-73.35	ug/l	108.89	12.74	1	
Cu	63	45	1	-0.08	-181.58	ug/l	1863.50	5.73	1	
Zn	66	45	1	0.87	19.46	ug/l	745.60	2.87	4	
As	75	74	1	-0.03	-262.75	ug/l	27.78	22.72	0.5	
Se	78	74	1	-0.25	-731.92	ug/l	40.56	26.74	0.5	
Sr	88	115	1	0.01	71.15	ug/l	33.33	10.01	1	
Mo	95	115	1	0.01	573.07	ug/l	73.34	16.39	1	
Ag	107	115	1	0.00	729.39	ug/l	22.22	62.43	1	
Cd	111	115	1	0.00	2065.89	ug/l	11.11	45.82	0.5	
Sn	118	115	1	0.01	740.95	ug/l	100.00	26.04	4	
Sb	121	115	1	-0.01	-610.60	ug/l	66.67	25.98	0.5	
Ba	137	159	1	0.02	152.49	ug/l	27.78	18.33	1	
Tl	205	209	1	0.00	184.52	ug/l	58.89	26.15	0.2	
Pb	208	209	1	0.01	66.08	ug/l	223.34	5.38	0.3	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Ref CPS	%Rec	QC Low	QC High	QC Flag
Li	6	1	11845	2.01	12234	96.8	60	120	
Sc	45	1	258096	0.39	263470	98.0	60	120	
Ge	74	1	38937	0.55	38549	101.0	60	120	
Kr	83	1	23	51.52	30	77.8	1	1000	
In	115	1	247549	0.55	247939	99.8	60	120	
Tb	159	1	685008	0.48	679167	100.9	60	120	
Bi	209	1	524310	0.17	513001	102.2	60	120	

TuneStep	TuneFile
1	helium.u

Sample Report

Sample Name	**lcs 460-88640/2-a@5**
Data File Name	**079SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-08T01:36:28-04:00**
Type	**Sample**
VialNumber	**2502**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	5.09	25.44	ug/l	3600	
Tl	205	209	1	3.98	19.89	ug/l	720	
Ba	137	159	1	9.82	49.10	ug/l	3600	
Sb	121	115	1	5.09	25.46	ug/l	3600	
Sn	118	115	1	9.30	46.50	ug/l	3600	
Cd	111	115	1	4.90	24.49	ug/l	1800	
Ag	107	115	1	4.76	23.79	ug/l	180	
Mo	95	115	1	9.64	48.20	ug/l	3600	
Sr	88	115	1	9.76	48.81	ug/l	3600	
Se	78	74	1	10.20	51.00	ug/l	450	
As	75	74	1	9.99	49.97	ug/l	1800	
Zn	66	45	1	52.28	261.42	ug/l	450	
Cu	63	45	1	10.39	51.95	ug/l	450	
Ni	60	45	1	9.79	48.94	ug/l	900	
Co	59	45	1	5.08	25.40	ug/l	450	
Fe	56	45	1	527.89	2639.45	ug/l	180000	
Mn	55	45	1	50.41	252.05	ug/l	9000	
Cr	52	45	1	10.04	50.22	ug/l	900	
V	51	45	1	10.01	50.03	ug/l	3600	
Ti	47	45	1	10.26	51.32	ug/l	3600	
Ca	44	6	1	489.86	2449.32	ug/l	90000	
K	39	45	1	536.66	2683.31	ug/l	360000	
Al	27	45	1	493.20	2466.01	ug/l	36000	
Mg	24	45	1	506.36	2531.79	ug/l	180000	
Na	23	45	1	460.91	2304.53	ug/l	360000	
B	11	6	1	97.46	487.31	ug/l	7200	
Be	9	6	1	4.43	22.13	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	516651	0.69	513001	100.7	60	120	
Tb	159	1	679192	1.26	679167	100.0	60	120	
In	115	1	244373	0.15	247939	98.6	60	120	
Kr	83	1	23	24.74	30	77.8	1	1000	
Ge	74	1	37741	0.73	38549	97.9	60	120	
Sc	45	1	255836	0.36	263470	97.1	60	120	
Li	6	1	12015	1.03	12234	98.2	60	120	

Sample Report

Sample Name	**460-31717-a-15-b du@5**
Data File Name	**080SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-08T01:41:28-04:00**
Type	**Sample**
VialNumber	**2503**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	0.16	0.79	ug/l	3600	
Tl	205	209	1	0.01	0.07	ug/l	720	
Ba	137	159	1	19.77	98.83	ug/l	3600	
Sb	121	115	1	0.03	0.13	ug/l	3600	
Sn	118	115	1	0.06	0.29	ug/l	3600	
Cd	111	115	1	0.01	0.05	ug/l	1800	
Ag	107	115	1	0.01	0.03	ug/l	180	
Mo	95	115	1	0.09	0.44	ug/l	3600	
Sr	88	115	1	38.36	191.81	ug/l	3600	
Se	78	74	1	0.02	0.10	ug/l	450	
As	75	74	1	0.08	0.38	ug/l	1800	
Zn	66	45	1	2.45	12.25	ug/l	450	
Cu	63	45	1	0.76	3.82	ug/l	450	
Ni	60	45	1	0.71	3.56	ug/l	900	
Co	59	45	1	0.24	1.22	ug/l	450	
Fe	56	45	1	312.99	1564.93	ug/l	180000	
Mn	55	45	1	27.79	138.96	ug/l	9000	
Cr	52	45	1	0.60	3.01	ug/l	900	
V	51	45	1	0.66	3.30	ug/l	3600	
Ti	47	45	1	7.80	38.98	ug/l	3600	
Ca	44	6	1	9010.38	45051.92	ug/l	90000	
K	39	45	1	937.91	4689.56	ug/l	360000	
Al	27	45	1	247.33	1236.67	ug/l	36000	
Mg	24	45	1	2807.30	14036.52	ug/l	180000	
Na	23	45	1	15448.08	77240.39	ug/l	360000	
B	11	6	1	24.07	120.33	ug/l	7200	
Be	9	6	1	0.00	0.00	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	512795	0.58	513001	100.0	60	120	
Tb	159	1	679625	0.41	679167	100.1	60	120	
In	115	1	244556	0.48	247939	98.6	60	120	
Kr	83	1	18	10.81	30	59.3	1	1000	
Ge	74	1	38620	0.41	38549	100.2	60	120	
Sc	45	1	253994	0.48	263470	96.4	60	120	
Li	6	1	11798	0.49	12234	96.4	60	120	

Sample Report

Sample Name	**460-31717-m-15-c@5**
Data File Name	**081SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-08T01:46:30-04:00**
Type	**Sample**
VialNumber	**2504**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	0.16	0.82	ug/l	3600	
Tl	205	209	1	0.01	0.04	ug/l	720	
Ba	137	159	1	20.09	100.44	ug/l	3600	
Sb	121	115	1	0.01	0.06	ug/l	3600	
Sn	118	115	1	0.04	0.22	ug/l	3600	
Cd	111	115	1	0.00	0.01	ug/l	1800	
Ag	107	115	1	0.00	0.02	ug/l	180	
Mo	95	115	1	0.09	0.45	ug/l	3600	
Sr	88	115	1	38.42	192.10	ug/l	3600	
Se	78	74	1	-0.15	-0.77	ug/l	450	
As	75	74	1	0.11	0.56	ug/l	1800	
Zn	66	45	1	2.47	12.35	ug/l	450	
Cu	63	45	1	0.80	4.00	ug/l	450	
Ni	60	45	1	0.74	3.71	ug/l	900	
Co	59	45	1	0.24	1.18	ug/l	450	
Fe	56	45	1	324.63	1623.16	ug/l	180000	
Mn	55	45	1	27.60	138.00	ug/l	9000	
Cr	52	45	1	0.63	3.15	ug/l	900	
V	51	45	1	0.71	3.57	ug/l	3600	
Ti	47	45	1	7.93	39.67	ug/l	3600	
Ca	44	6	1	9034.17	45170.86	ug/l	90000	
K	39	45	1	930.67	4653.37	ug/l	360000	
Al	27	45	1	267.15	1335.76	ug/l	36000	
Mg	24	45	1	2744.84	13724.21	ug/l	180000	
Na	23	45	1	15281.07	76405.36	ug/l	360000	
B	11	6	1	25.78	128.88	ug/l	7200	
Be	9	6	1	0.02	0.10	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	517737	0.34	513001	100.9	60	120	
Tb	159	1	680822	0.90	679167	100.2	60	120	
In	115	1	245091	0.23	247939	98.9	60	120	
Kr	83	1	19	53.91	30	63.0	1	1000	
Ge	74	1	39330	1.02	38549	102.0	60	120	
Sc	45	1	258667	0.41	263470	98.2	60	120	
Li	6	1	11802	2.79	12234	96.5	60	120	

Sample Report

Sample Name	**SD 460-31717-m-15-c@25**
Data File Name	**082SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-08T01:51:30-04:00**
Type	**Sample**
VialNumber	**2505**
Dilution	**25**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	0.04	0.88	ug/l	3600	
Tl	205	209	1	0.00	0.07	ug/l	720	
Ba	137	159	1	3.92	98.09	ug/l	3600	
Sb	121	115	1	0.00	0.03	ug/l	3600	
Sn	118	115	1	0.01	0.20	ug/l	3600	
Cd	111	115	1	0.01	0.13	ug/l	1800	
Ag	107	115	1	0.00	0.03	ug/l	180	
Mo	95	115	1	0.03	0.69	ug/l	3600	
Sr	88	115	1	7.53	188.32	ug/l	3600	
Se	78	74	1	0.08	1.99	ug/l	450	
As	75	74	1	0.01	0.29	ug/l	1800	
Zn	66	45	1	2.26	56.39	ug/l	450	
Cu	63	45	1	0.09	2.27	ug/l	450	
Ni	60	45	1	0.10	2.41	ug/l	900	
Co	59	45	1	0.06	1.40	ug/l	450	
Fe	56	45	1	65.06	1626.48	ug/l	180000	
Mn	55	45	1	5.55	138.87	ug/l	9000	
Cr	52	45	1	0.09	2.27	ug/l	900	
V	51	45	1	0.20	5.06	ug/l	3600	
Ti	47	45	1	1.52	38.08	ug/l	3600	
Ca	44	6	1	1776.39	44409.76	ug/l	90000	
K	39	45	1	153.53	3838.17	ug/l	360000	
Al	27	45	1	54.99	1374.68	ug/l	36000	
Mg	24	45	1	555.52	13888.10	ug/l	180000	
Na	23	45	1	3065.55	76638.77	ug/l	360000	
B	11	6	1	5.28	132.11	ug/l	7200	
Be	9	6	1	-0.02	-0.53	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	536310	0.64	513001	104.5	60	120	
Tb	159	1	697446	0.60	679167	102.7	60	120	
In	115	1	253963	0.29	247939	102.4	60	120	
Kr	83	1	12	41.65	30	40.7	1	1000	
Ge	74	1	39766	0.53	38549	103.2	60	120	
Sc	45	1	264024	0.88	263470	100.2	60	120	
Li	6	1	12228	1.35	12234	100.0	60	120	

Sample Report

Sample Name	**460-31717-m-15-d ms@5**
Data File Name	**083SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-08T01:56:32-04:00**
Type	**Sample**
VialNumber	**2506**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	4.91	24.57	ug/l	3600	
Tl	205	209	1	3.73	18.67	ug/l	720	
Ba	137	159	1	29.31	146.57	ug/l	3600	
Sb	121	115	1	4.57	22.85	ug/l	3600	
Sn	118	115	1	8.45	42.23	ug/l	3600	
Cd	111	115	1	4.74	23.72	ug/l	1800	
Ag	107	115	1	4.45	22.24	ug/l	180	
Mo	95	115	1	8.97	44.85	ug/l	3600	
Sr	88	115	1	48.86	244.31	ug/l	3600	
Se	78	74	1	8.81	44.07	ug/l	450	
As	75	74	1	9.21	46.03	ug/l	1800	
Zn	66	45	1	57.97	289.87	ug/l	450	
Cu	63	45	1	10.55	52.76	ug/l	450	
Ni	60	45	1	10.03	50.13	ug/l	900	
Co	59	45	1	5.10	25.51	ug/l	450	
Fe	56	45	1	802.62	4013.11	ug/l	180000	
Mn	55	45	1	75.55	377.76	ug/l	9000	
Cr	52	45	1	9.88	49.41	ug/l	900	
V	51	45	1	10.10	50.51	ug/l	3600	
Ti	47	45	1	17.39	86.94	ug/l	3600	
Ca	44	6	1	9553.63	47768.14	ug/l	90000	
K	39	45	1	1474.13	7370.67	ug/l	360000	
Al	27	45	1	745.72	3728.62	ug/l	36000	
Mg	24	45	1	3276.62	16383.11	ug/l	180000	
Na	23	45	1	16012.47	80062.37	ug/l	360000	
B	11	6	1	118.82	594.12	ug/l	7200	
Be	9	6	1	4.56	22.80	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	526061	0.76	513001	102.5	60	120	
Tb	159	1	699210	0.73	679167	103.0	60	120	
In	115	1	249298	0.84	247939	100.5	60	120	
Kr	83	1	22	31.22	30	74.1	1	1000	
Ge	74	1	40273	1.05	38549	104.5	60	120	
Sc	45	1	262200	1.02	263470	99.5	60	120	
Li	6	1	12099	2.01	12234	98.9	60	120	

Sample Report

Sample Name	**PDS 460-31717-m-15-c@5**
Data File Name	**084SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-08T02:01:32-04:00**
Type	**Sample**
VialNumber	**2507**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	5.19	25.94	ug/l	3600	
Tl	205	209	1	3.91	19.55	ug/l	720	
Ba	137	159	1	29.70	148.52	ug/l	3600	
Sb	121	115	1	4.90	24.49	ug/l	3600	
Sn	118	115	1	9.05	45.23	ug/l	3600	
Cd	111	115	1	4.78	23.89	ug/l	1800	
Ag	107	115	1	4.95	24.76	ug/l	180	
Mo	95	115	1	9.53	47.66	ug/l	3600	
Sr	88	115	1	48.45	242.23	ug/l	3600	
Se	78	74	1	9.13	45.65	ug/l	450	
As	75	74	1	9.63	48.17	ug/l	1800	
Zn	66	45	1	57.71	288.55	ug/l	450	
Cu	63	45	1	10.88	54.39	ug/l	450	
Ni	60	45	1	10.37	51.87	ug/l	900	
Co	59	45	1	5.29	26.45	ug/l	450	
Fe	56	45	1	824.91	4124.53	ug/l	180000	
Mn	55	45	1	77.44	387.21	ug/l	9000	
Cr	52	45	1	10.45	52.23	ug/l	900	
V	51	45	1	10.69	53.45	ug/l	3600	
Ti	47	45	1	17.29	86.47	ug/l	3600	
Ca	44	6	1	9485.22	47426.10	ug/l	90000	
K	39	45	1	1491.45	7457.23	ug/l	360000	
Al	27	45	1	762.63	3813.16	ug/l	36000	
Mg	24	45	1	3270.92	16354.58	ug/l	180000	
Na	23	45	1	15835.96	79179.82	ug/l	360000	
B	11	6	1	124.08	620.40	ug/l	7200	
Be	9	6	1	4.98	24.88	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	514586	0.63	513001	100.3	60	120	
Tb	159	1	680211	0.50	679167	100.2	60	120	
In	115	1	243365	0.31	247939	98.2	60	120	
Kr	83	1	18	65.83	30	59.3	1	1000	
Ge	74	1	38692	0.66	38549	100.4	60	120	
Sc	45	1	255301	0.53	263470	96.9	60	120	
Li	6	1	11824	2.38	12234	96.7	60	120	

Sample Report

Sample Name	**460-31691-l-6-a@5**
Data File Name	**085SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-08T02:06:31-04:00**
Type	**Sample**
VialNumber	**2508**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	0.01	0.04	ug/l	3600	
Tl	205	209	1	0.01	0.04	ug/l	720	
Ba	137	159	1	4.22	21.08	ug/l	3600	
Sb	121	115	1	0.06	0.31	ug/l	3600	
Sn	118	115	1	0.04	0.18	ug/l	3600	
Cd	111	115	1	0.01	0.04	ug/l	1800	
Ag	107	115	1	0.00	0.01	ug/l	180	
Mo	95	115	1	0.08	0.41	ug/l	3600	
Sr	88	115	1	35.61	178.04	ug/l	3600	
Se	78	74	1	-0.18	-0.89	ug/l	450	
As	75	74	1	0.05	0.26	ug/l	1800	
Zn	66	45	1	2.86	14.32	ug/l	450	
Cu	63	45	1	0.32	1.59	ug/l	450	
Ni	60	45	1	0.34	1.68	ug/l	900	
Co	59	45	1	0.06	0.31	ug/l	450	
Fe	56	45	1	2.58	12.92	ug/l	180000	
Mn	55	45	1	9.86	49.28	ug/l	9000	
Cr	52	45	1	0.10	0.50	ug/l	900	
V	51	45	1	0.27	1.35	ug/l	3600	
Ti	47	45	1	-0.03	-0.16	ug/l	3600	
Ca	44	6	1	5428.89	27144.45	ug/l	90000	
K	39	45	1	1193.68	5968.41	ug/l	360000	
Al	27	45	1	0.59	2.94	ug/l	36000	
Mg	24	45	1	3241.00	16205.02	ug/l	180000	
Na	23	45	1	22183.29	110916.45	ug/l	360000	
B	11	6	1	13.73	68.67	ug/l	7200	
Be	9	6	1	-0.03	-0.14	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	510319	0.67	513001	99.5	60	120	
Tb	159	1	684269	0.94	679167	100.8	60	120	
In	115	1	245362	0.24	247939	99.0	60	120	
Kr	83	1	16	98.94	30	51.9	1	1000	
Ge	74	1	39508	0.63	38549	102.5	60	120	
Sc	45	1	260904	0.38	263470	99.0	60	120	
Li	6	1	11924	1.63	12234	97.5	60	120	

Sample Report

Sample Name	**460-31691-l-6-b ms@5**
Data File Name	**086SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-08T02:11:32-04:00**
Type	**Sample**
VialNumber	**2509**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	5.05	25.24	ug/l	3600	
Tl	205	209	1	3.92	19.61	ug/l	720	
Ba	137	159	1	13.95	69.76	ug/l	3600	
Sb	121	115	1	5.15	25.75	ug/l	3600	
Sn	118	115	1	9.37	46.83	ug/l	3600	
Cd	111	115	1	4.74	23.68	ug/l	1800	
Ag	107	115	1	4.66	23.31	ug/l	180	
Mo	95	115	1	9.72	48.62	ug/l	3600	
Sr	88	115	1	45.63	228.14	ug/l	3600	
Se	78	74	1	10.05	50.24	ug/l	450	
As	75	74	1	9.89	49.46	ug/l	1800	
Zn	66	45	1	52.05	260.27	ug/l	450	
Cu	63	45	1	10.46	52.32	ug/l	450	
Ni	60	45	1	10.20	51.00	ug/l	900	
Co	59	45	1	5.08	25.42	ug/l	450	
Fe	56	45	1	519.54	2597.70	ug/l	180000	
Mn	55	45	1	59.67	298.33	ug/l	9000	
Cr	52	45	1	9.77	48.83	ug/l	900	
V	51	45	1	10.22	51.12	ug/l	3600	
Ti	47	45	1	10.36	51.79	ug/l	3600	
Ca	44	6	1	5882.22	29411.12	ug/l	90000	
K	39	45	1	1750.71	8753.57	ug/l	360000	
Al	27	45	1	488.38	2441.92	ug/l	36000	
Mg	24	45	1	3696.74	18483.70	ug/l	180000	
Na	23	45	1	22575.08	112875.39	ug/l	360000	
B	11	6	1	109.03	545.13	ug/l	7200	
Be	9	6	1	5.15	25.75	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	518895	0.41	513001	101.1	60	120	
Tb	159	1	691336	0.29	679167	101.8	60	120	
In	115	1	247212	0.54	247939	99.7	60	120	
Kr	83	1	22	37.76	30	74.1	1	1000	
Ge	74	1	39320	0.37	38549	102.0	60	120	
Sc	45	1	261984	0.40	263470	99.4	60	120	
Li	6	1	12129	0.62	12234	99.1	60	120	

Sample Report

Sample Name	**460-31691-e-3-a@5**
Data File Name	**087SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-08T02:16:32-04:00**
Type	**Sample**
VialNumber	**2510**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	2.18	10.92	ug/l	3600	
Tl	205	209	1	0.03	0.15	ug/l	720	
Ba	137	159	1	12.31	61.57	ug/l	3600	
Sb	121	115	1	0.08	0.39	ug/l	3600	
Sn	118	115	1	0.24	1.19	ug/l	3600	
Cd	111	115	1	0.02	0.12	ug/l	1800	
Ag	107	115	1	0.01	0.06	ug/l	180	
Mo	95	115	1	0.51	2.55	ug/l	3600	
Sr	88	115	1	55.93	279.63	ug/l	3600	
Se	78	74	1	0.00	-0.02	ug/l	450	
As	75	74	1	1.14	5.69	ug/l	1800	
Zn	66	45	1	10.01	50.04	ug/l	450	
Cu	63	45	1	4.57	22.85	ug/l	450	
Ni	60	45	1	3.34	16.71	ug/l	900	
Co	59	45	1	1.07	5.33	ug/l	450	
Fe	56	45	1	7229.51	36147.57	ug/l	180000	
Mn	55	45	1	133.41	667.04	ug/l	9000	
Cr	52	45	1	4.10	20.48	ug/l	900	
V	51	45	1	2.76	13.79	ug/l	3600	
Ti	47	45	1	15.56	77.81	ug/l	3600	
Ca	44	6	1	6464.88	32324.39	ug/l	90000	
K	39	45	1	2108.84	10544.20	ug/l	360000	
Al	27	45	1	1177.20	5886.01	ug/l	36000	
Mg	24	45	1	6550.85	32754.26	ug/l	180000	
Na	23	45	1	46516.05	232580.27	ug/l	360000	
B	11	6	1	24.39	121.95	ug/l	7200	
Be	9	6	1	0.04	0.22	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	510431	0.36	513001	99.5	60	120	
Tb	159	1	684798	0.37	679167	100.8	60	120	
In	115	1	242884	0.78	247939	98.0	60	120	
Kr	83	1	19	40.75	30	63.0	1	1000	
Ge	74	1	39162	0.93	38549	101.6	60	120	
Sc	45	1	259164	0.36	263470	98.4	60	120	
Li	6	1	11667	0.15	12234	95.4	60	120	

Continuing Calibration Verification (CCV) - US EPA Method 6020

Sample Name	**CCV 1187191**
Data File Name	**0886CCV.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-08T02:21:30-04:00**
Type	**6-CCV**
VialNumber	**1301**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	%RSD	Units	CPS	CPS%RSD	Exp Value	%Rec	QC Low	QC High	QC Flag
Be	9	6	1	50.08	3.36	ug/l	4050.56	2.85	50	100.2	90	110	
B	11	6	1	95.84	7.91	ug/l	2319.13	8.34	100	95.8	90	110	
Na	23	45	1	4839.77	0.61	ug/l	3518644.88	0.52	5000	96.8	90	110	
Mg	24	45	1	4850.98	0.50	ug/l	1748146.69	0.10	5000	97.0	90	110	
Al	27	45	1	489.44	1.21	ug/l	86816.97	0.79	500	97.9	90	110	
K	39	45	1	4840.92	0.91	ug/l	1781106.87	0.50	5000	96.8	90	110	
Ca	44	6	1	4942.50	1.24	ug/l	88396.78	0.72	5000	98.9	90	110	
Ti	47	45	1	49.37	1.73	ug/l	5206.57	1.32	50	98.7	90	110	
V	51	45	1	49.78	1.14	ug/l	141823.60	0.74	50	99.6	90	110	
Cr	52	45	1	50.16	0.76	ug/l	169346.47	0.34	50	100.3	90	110	
Mn	55	45	1	496.52	0.57	ug/l	1036124.10	0.86	500	99.3	90	110	
Fe	56	45	1	4991.46	0.71	ug/l	12827750.92	0.59	5000	99.8	90	110	
Co	59	45	1	50.63	0.46	ug/l	243574.26	0.78	50	101.3	90	110	
Ni	60	45	1	49.04	0.25	ug/l	65437.85	0.66	50	98.1	90	110	
Cu	63	45	1	51.02	0.75	ug/l	175869.19	1.03	50	102.0	90	110	
Zn	66	45	1	50.45	0.79	ug/l	28996.25	0.66	50	100.9	90	110	
As	75	74	1	50.08	0.23	ug/l	23215.20	0.77	50	100.2	90	110	
Se	78	74	1	51.88	0.80	ug/l	1656.23	0.51	50	103.8	90	110	
Sr	88	115	1	49.57	0.35	ug/l	132891.58	0.22	50	99.1	90	110	
Mo	95	115	1	48.86	0.60	ug/l	83821.67	0.40	50	97.7	90	110	
Ag	107	115	1	50.18	0.37	ug/l	259584.12	0.57	50	100.4	90	110	
Cd	111	115	1	49.48	1.12	ug/l	39304.70	1.25	50	99.0	90	110	
Sn	118	115	1	50.07	0.45	ug/l	92642.00	0.27	50	100.1	90	110	
Sb	121	115	1	49.79	1.51	ug/l	126882.09	1.42	50	99.6	90	110	
Ba	137	159	1	50.02	2.54	ug/l	46986.74	2.01	50	100.0	90	110	
Tl	205	209	1	9.85	0.20	ug/l	121390.93	0.32	10	98.5	90	110	
Pb	208	209	1	50.11	0.82	ug/l	813009.17	0.70	50	100.2	90	110	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Ref CPS	%Rec	QC Low	QC High	QC Flag
Li	6	1	12042	0.53	12234	98.4	60	120	
Sc	45	1	262783	0.42	263470	99.7	60	120	
Ge	74	1	39181	0.54	38549	101.6	60	120	
Kr	83	1	20	33.35	30	66.7	1	1000	
In	115	1	246223	0.22	247939	99.3	60	120	
Tb	159	1	687999	0.53	679167	101.3	60	120	
Bi	209	1	522425	0.45	513001	101.8	60	120	

TuneStep	TuneFile
1	helium.u

Continuing Calibration Blank (CCB) - US EPA Method 6020

Sample Name	**CCB**
Data File Name	**0896CCB.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-08T02:26:26-04:00**
Type	**6-CCB**
VialNumber	**1302**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	%RSD	Units	CPS	CPS%RSD	QC High	QC Flag
Be	9	6	1	0.00	-747.48	ug/l	2.78	34.52	0.2	
B	11	6	1	0.34	102.01	ug/l	15.56	53.90	20	
Na	23	45	1	-46.04	-2.13	ug/l	158815.92	0.08	50	
Mg	24	45	1	0.90	1.01	ug/l	526.13	0.18	50	
Al	27	45	1	0.33	51.22	ug/l	713.92	4.49	10	
K	39	45	1	-39.30	-1.56	ug/l	83273.67	0.20	50	
Ca	44	6	1	-0.15	-910.93	ug/l	235.56	9.02	50	
Ti	47	45	1	-0.01	-583.50	ug/l	5.55	124.93	1	
V	51	45	1	0.01	219.50	ug/l	518.91	11.50	1	
Cr	52	45	1	-0.04	-51.36	ug/l	1815.72	3.22	1	
Mn	55	45	1	0.10	1.85	ug/l	258.90	1.97	2	
Fe	56	45	1	0.92	7.11	ug/l	6204.64	2.58	30	
Co	59	45	1	0.01	50.35	ug/l	38.89	47.21	1	
Ni	60	45	1	-0.08	-4.08	ug/l	105.56	3.64	1	
Cu	63	45	1	-0.11	-17.01	ug/l	1827.95	3.84	1	
Zn	66	45	1	0.08	32.40	ug/l	315.57	5.21	4	
As	75	74	1	-0.01	-163.90	ug/l	33.89	32.01	0.5	
Se	78	74	1	-0.47	-61.50	ug/l	34.44	26.65	0.5	
Sr	88	115	1	0.01	39.99	ug/l	33.33	26.47	1	
Mo	95	115	1	0.02	21.54	ug/l	97.78	7.10	1	
Ag	107	115	1	0.01	34.54	ug/l	73.33	28.39	1	
Cd	111	115	1	0.02	82.59	ug/l	24.44	47.91	0.5	
Sn	118	115	1	0.03	20.61	ug/l	141.12	8.30	4	
Sb	121	115	1	0.00	208.26	ug/l	92.23	19.91	0.5	
Ba	137	159	1	0.01	35.84	ug/l	25.56	19.92	1	
Tl	205	209	1	0.01	19.20	ug/l	177.78	17.72	0.2	
Pb	208	209	1	0.01	17.79	ug/l	375.57	11.24	0.3	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Ref CPS	%Rec	QC Low	QC High	QC Flag
Li	6	1	12390	1.35	12234	101.3	60	120	
Sc	45	1	267043	0.46	263470	101.4	60	120	
Ge	74	1	39652	0.60	38549	102.9	60	120	
Kr	83	1	18	28.64	30	59.3	1	1000	
In	115	1	256177	0.21	247939	103.3	60	120	
Tb	159	1	703223	0.20	679167	103.5	60	120	
Bi	209	1	541556	0.47	513001	105.6	60	120	

TuneStep	TuneFile
1	helium.u

Sample Report

Sample Name	**460-31691-i-4-a@5**
Data File Name	**090SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-08T02:31:31-04:00**
Type	**Sample**
VialNumber	**2511**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	0.04	0.22	ug/l	3600	
Tl	205	209	1	0.01	0.03	ug/l	720	
Ba	137	159	1	4.23	21.14	ug/l	3600	
Sb	121	115	1	0.11	0.53	ug/l	3600	
Sn	118	115	1	0.04	0.21	ug/l	3600	
Cd	111	115	1	0.01	0.05	ug/l	1800	
Ag	107	115	1	0.00	0.01	ug/l	180	
Mo	95	115	1	0.10	0.51	ug/l	3600	
Sr	88	115	1	36.07	180.33	ug/l	3600	
Se	78	74	1	-0.33	-1.67	ug/l	450	
As	75	74	1	0.07	0.37	ug/l	1800	
Zn	66	45	1	13.17	65.87	ug/l	450	
Cu	63	45	1	0.38	1.90	ug/l	450	
Ni	60	45	1	0.38	1.88	ug/l	900	
Co	59	45	1	0.08	0.40	ug/l	450	
Fe	56	45	1	219.84	1099.19	ug/l	180000	
Mn	55	45	1	10.41	52.05	ug/l	9000	
Cr	52	45	1	0.15	0.73	ug/l	900	
V	51	45	1	0.27	1.35	ug/l	3600	
Ti	47	45	1	0.33	1.65	ug/l	3600	
Ca	44	6	1	5543.28	27716.40	ug/l	90000	
K	39	45	1	1224.14	6120.68	ug/l	360000	
Al	27	45	1	16.48	82.39	ug/l	36000	
Mg	24	45	1	3284.47	16422.37	ug/l	180000	
Na	23	45	1	22343.33	111716.67	ug/l	360000	
B	11	6	1	12.77	63.83	ug/l	7200	
Be	9	6	1	-0.03	-0.17	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	517314	0.92	513001	100.8	60	120	
Tb	159	1	687620	0.51	679167	101.2	60	120	
In	115	1	247102	0.16	247939	99.7	60	120	
Kr	83	1	18	57.27	30	59.3	1	1000	
Ge	74	1	39428	0.68	38549	102.3	60	120	
Sc	45	1	261505	0.10	263470	99.3	60	120	
Li	6	1	11802	1.88	12234	96.5	60	120	

Sample Report

Sample Name	**460-31691-l-5-a@5**
Data File Name	**091SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-08T02:36:33-04:00**
Type	**Sample**
VialNumber	**2512**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	0.03	0.13	ug/l	3600	
Tl	205	209	1	0.00	0.01	ug/l	720	
Ba	137	159	1	4.17	20.85	ug/l	3600	
Sb	121	115	1	0.03	0.17	ug/l	3600	
Sn	118	115	1	0.03	0.14	ug/l	3600	
Cd	111	115	1	0.00	0.02	ug/l	1800	
Ag	107	115	1	0.00	0.01	ug/l	180	
Mo	95	115	1	0.09	0.47	ug/l	3600	
Sr	88	115	1	36.05	180.23	ug/l	3600	
Se	78	74	1	-0.35	-1.73	ug/l	450	
As	75	74	1	0.04	0.22	ug/l	1800	
Zn	66	45	1	3.57	17.83	ug/l	450	
Cu	63	45	1	0.31	1.54	ug/l	450	
Ni	60	45	1	0.41	2.05	ug/l	900	
Co	59	45	1	0.07	0.34	ug/l	450	
Fe	56	45	1	1.24	6.22	ug/l	180000	
Mn	55	45	1	10.00	49.99	ug/l	9000	
Cr	52	45	1	0.06	0.28	ug/l	900	
V	51	45	1	0.25	1.27	ug/l	3600	
Ti	47	45	1	-0.03	-0.16	ug/l	3600	
Ca	44	6	1	5461.41	27307.05	ug/l	90000	
K	39	45	1	1210.99	6054.93	ug/l	360000	
Al	27	45	1	0.81	4.03	ug/l	36000	
Mg	24	45	1	3254.91	16274.55	ug/l	180000	
Na	23	45	1	22405.74	112028.72	ug/l	360000	
B	11	6	1	11.60	57.99	ug/l	7200	
Be	9	6	1	0.00	-0.01	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	524118	0.45	513001	102.2	60	120	
Tb	159	1	698847	0.31	679167	102.9	60	120	
In	115	1	250670	0.61	247939	101.1	60	120	
Kr	83	1	10	66.70	30	33.3	1	1000	
Ge	74	1	39746	0.57	38549	103.1	60	120	
Sc	45	1	264113	0.86	263470	100.2	60	120	
Li	6	1	12278	1.11	12234	100.4	60	120	

Sample Report

Sample Name	**460-31691-i-7-a@5**
Data File Name	**092SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-08T02:41:35-04:00**
Type	**Sample**
VialNumber	**3101**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	0.01	0.05	ug/l	3600	
Tl	205	209	1	0.00	0.02	ug/l	720	
Ba	137	159	1	0.02	0.08	ug/l	3600	
Sb	121	115	1	0.01	0.05	ug/l	3600	
Sn	118	115	1	0.03	0.15	ug/l	3600	
Cd	111	115	1	0.00	0.01	ug/l	1800	
Ag	107	115	1	0.00	0.01	ug/l	180	
Mo	95	115	1	0.02	0.08	ug/l	3600	
Sr	88	115	1	0.06	0.30	ug/l	3600	
Se	78	74	1	-0.05	-0.26	ug/l	450	
As	75	74	1	0.04	0.18	ug/l	1800	
Zn	66	45	1	2.54	12.69	ug/l	450	
Cu	63	45	1	0.08	0.40	ug/l	450	
Ni	60	45	1	-0.05	-0.25	ug/l	900	
Co	59	45	1	0.00	0.02	ug/l	450	
Fe	56	45	1	0.87	4.37	ug/l	180000	
Mn	55	45	1	0.05	0.27	ug/l	9000	
Cr	52	45	1	0.04	0.21	ug/l	900	
V	51	45	1	0.22	1.10	ug/l	3600	
Ti	47	45	1	-0.05	-0.26	ug/l	3600	
Ca	44	6	1	11.58	57.89	ug/l	90000	
K	39	45	1	5.22	26.10	ug/l	360000	
Al	27	45	1	0.93	4.65	ug/l	36000	
Mg	24	45	1	5.08	25.42	ug/l	180000	
Na	23	45	1	593.94	2969.71	ug/l	360000	
B	11	6	1	6.96	34.80	ug/l	7200	
Be	9	6	1	-0.02	-0.11	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	527684	0.58	513001	102.9	60	120	
Tb	159	1	688757	1.01	679167	101.4	60	120	
In	115	1	249879	0.75	247939	100.8	60	120	
Kr	83	1	20	0.00	30	66.7	1	1000	
Ge	74	1	39029	0.63	38549	101.2	60	120	
Sc	45	1	263157	0.73	263470	99.9	60	120	
Li	6	1	12241	0.19	12234	100.1	60	120	

Sample Report

Sample Name	**460-31691-r-16-a@5**
Data File Name	**093SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-08T02:46:40-04:00**
Type	**Sample**
VialNumber	**3102**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	0.01	0.03	ug/l	3600	
Tl	205	209	1	0.00	0.01	ug/l	720	
Ba	137	159	1	4.18	20.90	ug/l	3600	
Sb	121	115	1	0.03	0.17	ug/l	3600	
Sn	118	115	1	0.02	0.09	ug/l	3600	
Cd	111	115	1	0.00	-0.01	ug/l	1800	
Ag	107	115	1	0.00	0.01	ug/l	180	
Mo	95	115	1	0.09	0.43	ug/l	3600	
Sr	88	115	1	36.05	180.26	ug/l	3600	
Se	78	74	1	0.09	0.45	ug/l	450	
As	75	74	1	0.04	0.21	ug/l	1800	
Zn	66	45	1	2.89	14.46	ug/l	450	
Cu	63	45	1	0.29	1.46	ug/l	450	
Ni	60	45	1	0.35	1.77	ug/l	900	
Co	59	45	1	0.06	0.32	ug/l	450	
Fe	56	45	1	1.29	6.43	ug/l	180000	
Mn	55	45	1	9.73	48.66	ug/l	9000	
Cr	52	45	1	0.10	0.51	ug/l	900	
V	51	45	1	0.23	1.17	ug/l	3600	
Ti	47	45	1	-0.01	-0.05	ug/l	3600	
Ca	44	6	1	5473.93	27369.66	ug/l	90000	
K	39	45	1	1213.72	6068.59	ug/l	360000	
Al	27	45	1	4.08	20.40	ug/l	36000	
Mg	24	45	1	3290.13	16450.63	ug/l	180000	
Na	23	45	1	22627.15	113135.73	ug/l	360000	
B	11	6	1	12.78	63.90	ug/l	7200	
Be	9	6	1	-0.03	-0.17	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	514476	0.13	513001	100.3	60	120	
Tb	159	1	686061	0.59	679167	101.0	60	120	
In	115	1	245677	0.12	247939	99.1	60	120	
Kr	83	1	23	24.74	30	77.8	1	1000	
Ge	74	1	38675	0.20	38549	100.3	60	120	
Sc	45	1	260942	0.33	263470	99.0	60	120	
Li	6	1	11953	2.25	12234	97.7	60	120	

Sample Report

Sample Name	**460-31691-ac-17-c@5**
Data File Name	**094SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-08T02:51:42-04:00**
Type	**Sample**
VialNumber	**3103**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	0.01	0.06	ug/l	3600	
Tl	205	209	1	0.01	0.04	ug/l	720	
Ba	137	159	1	29.19	145.96	ug/l	3600	
Sb	121	115	1	0.15	0.75	ug/l	3600	
Sn	118	115	1	0.01	0.07	ug/l	3600	
Cd	111	115	1	0.02	0.09	ug/l	1800	
Ag	107	115	1	0.00	0.00	ug/l	180	
Mo	95	115	1	0.59	2.95	ug/l	3600	
Sr	88	115	1	254.67	1273.33	ug/l	3600	
Se	78	74	1	0.17	0.83	ug/l	450	
As	75	74	1	0.16	0.82	ug/l	1800	
Zn	66	45	1	4.67	23.37	ug/l	450	
Cu	63	45	1	2.04	10.21	ug/l	450	
Ni	60	45	1	2.54	12.71	ug/l	900	
Co	59	45	1	0.44	2.22	ug/l	450	
Fe	56	45	1	5.57	27.84	ug/l	180000	
Mn	55	45	1	66.65	333.23	ug/l	9000	
Cr	52	45	1	0.13	0.67	ug/l	900	
V	51	45	1	0.30	1.48	ug/l	3600	
Ti	47	45	1	0.00	-0.01	ug/l	3600	
Ca	44	6	1	40472.34	202361.68	ug/l	90000	
K	39	45	1	7106.84	35534.20	ug/l	360000	
Al	27	45	1	1.62	8.12	ug/l	36000	
Mg	24	45	1	21388.19	106940.96	ug/l	180000	
Na	23	45	1	148224.49	741122.47	ug/l	360000	
B	11	6	1	39.52	197.62	ug/l	7200	
Be	9	6	1	-0.01	-0.03	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	504374	0.30	513001	98.3	60	120	
Tb	159	1	692931	0.16	679167	102.0	60	120	
In	115	1	246746	0.84	247939	99.5	60	120	
Kr	83	1	12	56.76	30	40.7	1	1000	
Ge	74	1	40185	0.71	38549	104.2	60	120	
Sc	45	1	272081	1.67	263470	103.3	60	120	
Li	6	1	11622	0.81	12234	95.0	60	120	

Sample Report

Sample Name	**460-31691-b-19-a@5**
Data File Name	**095SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-08T02:56:40-04:00**
Type	**Sample**
VialNumber	**3104**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	2.81	14.05	ug/l	3600	
Tl	205	209	1	0.02	0.08	ug/l	720	
Ba	137	159	1	12.55	62.75	ug/l	3600	
Sb	121	115	1	0.11	0.54	ug/l	3600	
Sn	118	115	1	0.20	1.02	ug/l	3600	
Cd	111	115	1	0.04	0.19	ug/l	1800	
Ag	107	115	1	0.02	0.09	ug/l	180	
Mo	95	115	1	0.40	2.00	ug/l	3600	
Sr	88	115	1	35.94	179.71	ug/l	3600	
Se	78	74	1	0.03	0.17	ug/l	450	
As	75	74	1	1.31	6.55	ug/l	1800	
Zn	66	45	1	15.48	77.39	ug/l	450	
Cu	63	45	1	5.27	26.35	ug/l	450	
Ni	60	45	1	3.47	17.37	ug/l	900	
Co	59	45	1	1.23	6.13	ug/l	450	
Fe	56	45	1	8209.68	41048.41	ug/l	180000	
Mn	55	45	1	85.85	429.23	ug/l	9000	
Cr	52	45	1	4.41	22.03	ug/l	900	
V	51	45	1	3.25	16.24	ug/l	3600	
Ti	47	45	1	18.86	94.29	ug/l	3600	
Ca	44	6	1	5363.22	26816.09	ug/l	90000	
K	39	45	1	1356.76	6783.78	ug/l	360000	
Al	27	45	1	1444.31	7221.53	ug/l	36000	
Mg	24	45	1	3471.78	17358.88	ug/l	180000	
Na	23	45	1	20178.21	100891.06	ug/l	360000	
B	11	6	1	13.22	66.12	ug/l	7200	
Be	9	6	1	0.03	0.13	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	523310	0.05	513001	102.0	60	120	
Tb	159	1	701598	0.50	679167	103.3	60	120	
In	115	1	249860	0.05	247939	100.8	60	120	
Kr	83	1	18	21.66	30	59.3	1	1000	
Ge	74	1	40021	0.18	38549	103.8	60	120	
Sc	45	1	268113	0.69	263470	101.8	60	120	
Li	6	1	12273	1.67	12234	100.3	60	120	

Sample Report

Sample Name	**460-31717-m-16-b@5**
Data File Name	**096SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-08T03:01:40-04:00**
Type	**Sample**
VialNumber	**3105**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	0.76	3.82	ug/l	3600	
Tl	205	209	1	0.01	0.05	ug/l	720	
Ba	137	159	1	21.56	107.79	ug/l	3600	
Sb	121	115	1	0.03	0.14	ug/l	3600	
Sn	118	115	1	0.10	0.51	ug/l	3600	
Cd	111	115	1	0.02	0.12	ug/l	1800	
Ag	107	115	1	0.00	0.02	ug/l	180	
Mo	95	115	1	0.50	2.52	ug/l	3600	
Sr	88	115	1	31.38	156.92	ug/l	3600	
Se	78	74	1	-0.10	-0.49	ug/l	450	
As	75	74	1	0.19	0.94	ug/l	1800	
Zn	66	45	1	5.26	26.32	ug/l	450	
Cu	63	45	1	2.67	13.37	ug/l	450	
Ni	60	45	1	2.19	10.96	ug/l	900	
Co	59	45	1	0.82	4.10	ug/l	450	
Fe	56	45	1	1037.94	5189.71	ug/l	180000	
Mn	55	45	1	101.17	505.84	ug/l	9000	
Cr	52	45	1	1.79	8.95	ug/l	900	
V	51	45	1	1.70	8.52	ug/l	3600	
Ti	47	45	1	24.12	120.62	ug/l	3600	
Ca	44	6	1	7143.51	35717.56	ug/l	90000	
K	39	45	1	1353.99	6769.97	ug/l	360000	
Al	27	45	1	858.86	4294.32	ug/l	36000	
Mg	24	45	1	2395.46	11977.29	ug/l	180000	
Na	23	45	1	16104.61	80523.05	ug/l	360000	
B	11	6	1	28.34	141.72	ug/l	7200	
Be	9	6	1	0.05	0.27	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	529760	0.16	513001	103.3	60	120	
Tb	159	1	701637	0.45	679167	103.3	60	120	
In	115	1	251473	0.28	247939	101.4	60	120	
Kr	83	1	22	37.76	30	74.1	1	1000	
Ge	74	1	40234	0.66	38549	104.4	60	120	
Sc	45	1	269053	0.41	263470	102.1	60	120	
Li	6	1	12203	0.62	12234	99.7	60	120	

Sample Report

Sample Name	**460-31717-m-17-b@5**
Data File Name	**097SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-08T03:06:39-04:00**
Type	**Sample**
VialNumber	**3106**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	0.07	0.35	ug/l	3600	
Tl	205	209	1	0.00	0.02	ug/l	720	
Ba	137	159	1	17.70	88.51	ug/l	3600	
Sb	121	115	1	0.01	0.04	ug/l	3600	
Sn	118	115	1	0.02	0.10	ug/l	3600	
Cd	111	115	1	0.00	0.00	ug/l	1800	
Ag	107	115	1	0.00	0.02	ug/l	180	
Mo	95	115	1	0.06	0.29	ug/l	3600	
Sr	88	115	1	44.38	221.92	ug/l	3600	
Se	78	74	1	0.07	0.35	ug/l	450	
As	75	74	1	0.07	0.35	ug/l	1800	
Zn	66	45	1	1.55	7.77	ug/l	450	
Cu	63	45	1	0.40	2.02	ug/l	450	
Ni	60	45	1	0.46	2.31	ug/l	900	
Co	59	45	1	0.10	0.49	ug/l	450	
Fe	56	45	1	122.34	611.69	ug/l	180000	
Mn	55	45	1	12.60	63.01	ug/l	9000	
Cr	52	45	1	0.30	1.49	ug/l	900	
V	51	45	1	0.52	2.60	ug/l	3600	
Ti	47	45	1	3.24	16.20	ug/l	3600	
Ca	44	6	1	11083.04	55415.19	ug/l	90000	
K	39	45	1	837.08	4185.42	ug/l	360000	
Al	27	45	1	106.10	530.50	ug/l	36000	
Mg	24	45	1	2914.38	14571.90	ug/l	180000	
Na	23	45	1	10285.98	51429.92	ug/l	360000	
B	11	6	1	22.41	112.04	ug/l	7200	
Be	9	6	1	-0.03	-0.17	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	527765	0.46	513001	102.9	60	120	
Tb	159	1	700136	0.06	679167	103.1	60	120	
In	115	1	251900	0.16	247939	101.6	60	120	
Kr	83	1	27	43.30	30	88.9	1	1000	
Ge	74	1	39994	0.56	38549	103.7	60	120	
Sc	45	1	265312	0.81	263470	100.7	60	120	
Li	6	1	12412	1.98	12234	101.5	60	120	

Sample Report

Sample Name	**460-31717-m-18-b@5**
Data File Name	**098SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-08T03:11:40-04:00**
Type	**Sample**
VialNumber	**3107**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	0.10	0.51	ug/l	3600	
Tl	205	209	1	0.00	0.01	ug/l	720	
Ba	137	159	1	14.83	74.15	ug/l	3600	
Sb	121	115	1	0.01	0.05	ug/l	3600	
Sn	118	115	1	0.03	0.13	ug/l	3600	
Cd	111	115	1	0.01	0.03	ug/l	1800	
Ag	107	115	1	0.00	0.01	ug/l	180	
Mo	95	115	1	0.32	1.59	ug/l	3600	
Sr	88	115	1	30.64	153.22	ug/l	3600	
Se	78	74	1	0.25	1.23	ug/l	450	
As	75	74	1	0.09	0.45	ug/l	1800	
Zn	66	45	1	1.93	9.64	ug/l	450	
Cu	63	45	1	0.53	2.67	ug/l	450	
Ni	60	45	1	0.87	4.34	ug/l	900	
Co	59	45	1	0.16	0.82	ug/l	450	
Fe	56	45	1	146.70	733.48	ug/l	180000	
Mn	55	45	1	44.43	222.16	ug/l	9000	
Cr	52	45	1	0.34	1.70	ug/l	900	
V	51	45	1	0.57	2.84	ug/l	3600	
Ti	47	45	1	4.28	21.40	ug/l	3600	
Ca	44	6	1	6831.85	34159.23	ug/l	90000	
K	39	45	1	1110.74	5553.72	ug/l	360000	
Al	27	45	1	123.19	615.95	ug/l	36000	
Mg	24	45	1	2071.42	10357.10	ug/l	180000	
Na	23	45	1	16495.91	82479.56	ug/l	360000	
B	11	6	1	28.52	142.61	ug/l	7200	
Be	9	6	1	-0.01	-0.07	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	527818	0.32	513001	102.9	60	120	
Tb	159	1	695334	0.50	679167	102.4	60	120	
In	115	1	248996	0.57	247939	100.4	60	120	
Kr	83	1	20	33.35	30	66.7	1	1000	
Ge	74	1	40006	1.05	38549	103.8	60	120	
Sc	45	1	264891	0.28	263470	100.5	60	120	
Li	6	1	12272	0.73	12234	100.3	60	120	

Sample Report

Sample Name	**460-31717-m-20-b@5**
Data File Name	**099SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-08T03:16:42-04:00**
Type	**Sample**
VialNumber	**3108**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	0.00	0.02	ug/l	3600	
Tl	205	209	1	0.00	0.01	ug/l	720	
Ba	137	159	1	0.02	0.08	ug/l	3600	
Sb	121	115	1	0.02	0.10	ug/l	3600	
Sn	118	115	1	0.01	0.03	ug/l	3600	
Cd	111	115	1	0.01	0.03	ug/l	1800	
Ag	107	115	1	0.00	0.00	ug/l	180	
Mo	95	115	1	0.00	0.01	ug/l	3600	
Sr	88	115	1	0.01	0.03	ug/l	3600	
Se	78	74	1	-0.33	-1.63	ug/l	450	
As	75	74	1	0.01	0.05	ug/l	1800	
Zn	66	45	1	2.65	13.26	ug/l	450	
Cu	63	45	1	-0.04	-0.20	ug/l	450	
Ni	60	45	1	-0.05	-0.26	ug/l	900	
Co	59	45	1	0.00	0.01	ug/l	450	
Fe	56	45	1	0.28	1.41	ug/l	180000	
Mn	55	45	1	0.02	0.08	ug/l	9000	
Cr	52	45	1	0.04	0.22	ug/l	900	
V	51	45	1	0.26	1.30	ug/l	3600	
Ti	47	45	1	-0.05	-0.26	ug/l	3600	
Ca	44	6	1	1.88	9.40	ug/l	90000	
K	39	45	1	-32.20	-161.02	ug/l	360000	
Al	27	45	1	0.98	4.88	ug/l	36000	
Mg	24	45	1	0.32	1.58	ug/l	180000	
Na	23	45	1	-24.49	-122.45	ug/l	360000	
B	11	6	1	18.24	91.21	ug/l	7200	
Be	9	6	1	-0.03	-0.14	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	516498	0.34	513001	100.7	60	120	
Tb	159	1	675232	0.88	679167	99.4	60	120	
In	115	1	243894	0.59	247939	98.4	60	120	
Kr	83	1	14	81.07	30	48.1	1	1000	
Ge	74	1	38032	0.26	38549	98.7	60	120	
Sc	45	1	257724	0.79	263470	97.8	60	120	
Li	6	1	12185	0.81	12234	99.6	60	120	

Continuing Calibration Verification (CCV) - US EPA Method 6020

Sample Name	**CCV 1187191**
Data File Name	**1006CCV.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-08T03:21:47-04:00**
Type	**6-CCV**
VialNumber	**1301**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	%RSD	Units	CPS	CPS%RSD	Exp Value	%Rec	QC Low	QC High	QC Flag
Be	9	6	1	49.00	4.33	ug/l	3930.53	4.49	50	98.0	90	110	
B	11	6	1	97.81	4.08	ug/l	2345.80	3.55	100	97.8	90	110	
Na	23	45	1	4829.84	1.07	ug/l	3453356.13	0.52	5000	96.6	90	110	
Mg	24	45	1	4889.22	0.77	ug/l	1732619.75	0.20	5000	97.8	90	110	
Al	27	45	1	489.52	1.27	ug/l	85386.80	0.44	500	97.9	90	110	
K	39	45	1	4875.68	1.41	ug/l	1763373.20	0.91	5000	97.5	90	110	
Ca	44	6	1	4917.61	0.71	ug/l	87217.12	0.38	5000	98.4	90	110	
Ti	47	45	1	49.12	2.18	ug/l	5094.32	2.39	50	98.2	90	110	
V	51	45	1	49.80	0.68	ug/l	139521.79	0.51	50	99.6	90	110	
Cr	52	45	1	49.97	1.42	ug/l	165899.36	0.50	50	99.9	90	110	
Mn	55	45	1	499.43	0.94	ug/l	1024826.27	0.30	500	99.9	90	110	
Fe	56	45	1	4979.22	1.41	ug/l	12583071.76	0.79	5000	99.6	90	110	
Co	59	45	1	50.24	0.90	ug/l	237670.59	0.07	50	100.5	90	110	
Ni	60	45	1	48.49	0.87	ug/l	63632.79	0.64	50	97.0	90	110	
Cu	63	45	1	50.58	0.95	ug/l	171482.22	0.43	50	101.2	90	110	
Zn	66	45	1	49.73	1.81	ug/l	28109.09	1.02	50	99.5	90	110	
As	75	74	1	49.09	0.63	ug/l	22313.32	0.56	50	98.2	90	110	
Se	78	74	1	52.02	0.86	ug/l	1628.45	1.34	50	104.0	90	110	
Sr	88	115	1	49.50	0.62	ug/l	129904.84	0.46	50	99.0	90	110	
Mo	95	115	1	48.52	0.91	ug/l	81483.96	0.55	50	97.0	90	110	
Ag	107	115	1	50.11	0.12	ug/l	253747.67	0.68	50	100.2	90	110	
Cd	111	115	1	49.86	1.39	ug/l	38768.92	1.28	50	99.7	90	110	
Sn	118	115	1	49.87	1.86	ug/l	90327.24	1.69	50	99.7	90	110	
Sb	121	115	1	49.75	0.99	ug/l	124116.53	1.08	50	99.5	90	110	
Ba	137	159	1	49.48	1.72	ug/l	45529.92	1.68	50	99.0	90	110	
Tl	205	209	1	9.86	1.12	ug/l	118737.26	1.08	10	98.6	90	110	
Pb	208	209	1	50.04	0.73	ug/l	793380.75	0.07	50	100.1	90	110	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Ref CPS	%Rec	QC Low	QC High	QC Flag
Li	6	1	11942	0.83	12234	97.6	60	120	
Sc	45	1	258421	0.90	263470	98.1	60	120	
Ge	74	1	38419	0.56	38549	99.7	60	120	
Kr	83	1	21	71.19	30	70.4	1	1000	
In	115	1	241042	0.56	247939	97.2	60	120	
Tb	159	1	673841	0.92	679167	99.2	60	120	
Bi	209	1	510552	0.73	513001	99.5	60	120	

TuneStep	TuneFile
1	helium.u

Continuing Calibration Blank (CCB) - US EPA Method 6020

Sample Name	**CCB**
Data File Name	**1016CCB.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-08T03:26:43-04:00**
Type	**6-CCB**
VialNumber	**1302**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	%RSD	Units	CPS	CPS%RSD	QC High	QC Flag
Be	9	6	1	-0.01	-152.53	ug/l	1.67	99.90	0.2	
B	11	6	1	1.20	33.37	ug/l	35.56	27.07	20	
Na	23	45	1	-33.16	-8.24	ug/l	160565.72	0.81	50	
Mg	24	45	1	0.97	8.32	ug/l	530.57	5.80	50	
Al	27	45	1	0.34	138.21	ug/l	685.58	11.74	10	
K	39	45	1	-32.39	-5.81	ug/l	82009.00	0.45	50	
Ca	44	6	1	0.62	123.66	ug/l	240.01	5.93	50	
Ti	47	45	1	-0.04	-45.62	ug/l	2.22	86.60	1	
V	51	45	1	0.01	164.27	ug/l	504.47	11.26	1	
Cr	52	45	1	-0.02	-112.74	ug/l	1799.06	4.25	1	
Mn	55	45	1	0.10	25.72	ug/l	255.57	21.60	2	
Fe	56	45	1	0.99	1.80	ug/l	6102.38	1.09	30	
Co	59	45	1	0.01	22.26	ug/l	47.78	21.31	1	
Ni	60	45	1	-0.07	-48.53	ug/l	108.89	41.33	1	
Cu	63	45	1	-0.11	-8.15	ug/l	1761.27	1.54	1	
Zn	66	45	1	0.04	195.96	ug/l	276.68	14.66	4	
As	75	74	1	-0.01	-110.07	ug/l	34.44	14.78	0.5	
Se	78	74	1	0.14	291.63	ug/l	51.11	22.90	0.5	
Sr	88	115	1	0.01	45.75	ug/l	47.78	35.12	1	
Mo	95	115	1	0.02	51.45	ug/l	92.22	17.08	1	
Ag	107	115	1	0.01	23.77	ug/l	72.23	19.22	1	
Cd	111	115	1	0.02	82.59	ug/l	22.22	45.85	0.5	
Sn	118	115	1	0.03	27.04	ug/l	128.89	9.79	4	
Sb	121	115	1	0.00	-647.66	ug/l	78.89	6.45	0.5	
Ba	137	159	1	0.02	34.05	ug/l	31.11	22.32	1	
Tl	205	209	1	0.01	17.21	ug/l	135.56	14.82	0.2	
Pb	208	209	1	0.02	9.53	ug/l	422.24	5.98	0.3	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Ref CPS	%Rec	QC Low	QC High	QC Flag
Li	6	1	11901	0.87	12234	97.3	60	120	
Sc	45	1	255490	0.46	263470	97.0	60	120	
Ge	74	1	38042	0.55	38549	98.7	60	120	
Kr	83	1	11	91.66	30	37.0	1	1000	
In	115	1	244323	0.68	247939	98.5	60	120	
Tb	159	1	674396	0.38	679167	99.3	60	120	
Bi	209	1	517412	0.69	513001	100.9	60	120	

TuneStep	TuneFile
1	helium.u

Sample Report

Sample Name	**460-31717-m-21-b@5**
Data File Name	**102SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-08T03:31:49-04:00**
Type	**Sample**
VialNumber	**3109**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	0.01	0.03	ug/l	3600	
Tl	205	209	1	0.00	0.02	ug/l	720	
Ba	137	159	1	0.01	0.07	ug/l	3600	
Sb	121	115	1	0.01	0.05	ug/l	3600	
Sn	118	115	1	0.04	0.19	ug/l	3600	
Cd	111	115	1	0.01	0.05	ug/l	1800	
Ag	107	115	1	0.00	0.01	ug/l	180	
Mo	95	115	1	0.01	0.03	ug/l	3600	
Sr	88	115	1	0.01	0.04	ug/l	3600	
Se	78	74	1	-0.20	-0.98	ug/l	450	
As	75	74	1	0.02	0.09	ug/l	1800	
Zn	66	45	1	1.36	6.82	ug/l	450	
Cu	63	45	1	-0.02	-0.12	ug/l	450	
Ni	60	45	1	0.01	0.06	ug/l	900	
Co	59	45	1	0.00	0.01	ug/l	450	
Fe	56	45	1	0.15	0.77	ug/l	180000	
Mn	55	45	1	0.02	0.12	ug/l	9000	
Cr	52	45	1	0.07	0.36	ug/l	900	
V	51	45	1	0.14	0.72	ug/l	3600	
Ti	47	45	1	-0.02	-0.10	ug/l	3600	
Ca	44	6	1	0.76	3.78	ug/l	90000	
K	39	45	1	-28.80	-143.98	ug/l	360000	
Al	27	45	1	0.34	1.69	ug/l	36000	
Mg	24	45	1	0.25	1.24	ug/l	180000	
Na	23	45	1	-28.24	-141.22	ug/l	360000	
B	11	6	1	13.93	69.67	ug/l	7200	
Be	9	6	1	0.00	0.00	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	522581	0.51	513001	101.9	60	120	
Tb	159	1	683075	0.55	679167	100.6	60	120	
In	115	1	247883	0.66	247939	100.0	60	120	
Kr	83	1	19	26.96	30	63.0	1	1000	
Ge	74	1	38483	0.73	38549	99.8	60	120	
Sc	45	1	258441	0.22	263470	98.1	60	120	
Li	6	1	12172	0.94	12234	99.5	60	120	

Sample Report

Sample Name	**460-31762-b-1-a@5**
Data File Name	**103SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-08T03:36:53-04:00**
Type	**Sample**
VialNumber	**3110**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	2.19	10.97	ug/l	3600	
Tl	205	209	1	0.00	0.02	ug/l	720	
Ba	137	159	1	45.17	225.83	ug/l	3600	
Sb	121	115	1	1.02	5.10	ug/l	3600	
Sn	118	115	1	0.10	0.51	ug/l	3600	
Cd	111	115	1	0.26	1.30	ug/l	1800	
Ag	107	115	1	0.02	0.08	ug/l	180	
Mo	95	115	1	0.77	3.84	ug/l	3600	
Sr	88	115	1	157.95	789.75	ug/l	3600	
Se	78	74	1	0.41	2.04	ug/l	450	
As	75	74	1	0.37	1.84	ug/l	1800	
Zn	66	45	1	31.69	158.46	ug/l	450	
Cu	63	45	1	3.75	18.74	ug/l	450	
Ni	60	45	1	2.24	11.20	ug/l	900	
Co	59	45	1	0.13	0.64	ug/l	450	
Fe	56	45	1	27.10	135.51	ug/l	180000	
Mn	55	45	1	3.46	17.32	ug/l	9000	
Cr	52	45	1	0.39	1.95	ug/l	900	
V	51	45	1	1.28	6.40	ug/l	3600	
Ti	47	45	1	0.59	2.95	ug/l	3600	
Ca	44	6	1	44485.69	222428.43	ug/l	90000	
K	39	45	1	8280.03	41400.17	ug/l	360000	
Al	27	45	1	27.58	137.91	ug/l	36000	
Mg	24	45	1	10790.06	53950.31	ug/l	180000	
Na	23	45	1	20915.07	104575.35	ug/l	360000	
B	11	6	1	34.89	174.44	ug/l	7200	
Be	9	6	1	-0.03	-0.14	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	511112	0.75	513001	99.6	60	120	
Tb	159	1	689305	0.73	679167	101.5	60	120	
In	115	1	244875	0.68	247939	98.8	60	120	
Kr	83	1	23	51.52	30	77.8	1	1000	
Ge	74	1	39165	1.78	38549	101.6	60	120	
Sc	45	1	259057	0.99	263470	98.3	60	120	
Li	6	1	11883	1.85	12234	97.1	60	120	

Sample Report

Sample Name	**460-31936-d-1-a@5**
Data File Name	**104SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-08T03:41:53-04:00**
Type	**Sample**
VialNumber	**3111**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	0.09	0.45	ug/l	3600	
Tl	205	209	1	0.00	0.01	ug/l	720	
Ba	137	159	1	26.87	134.34	ug/l	3600	
Sb	121	115	1	0.07	0.37	ug/l	3600	
Sn	118	115	1	0.02	0.11	ug/l	3600	
Cd	111	115	1	0.03	0.17	ug/l	1800	
Ag	107	115	1	0.00	0.01	ug/l	180	
Mo	95	115	1	0.20	0.99	ug/l	3600	
Sr	88	115	1	57.10	285.50	ug/l	3600	
Se	78	74	1	-0.09	-0.45	ug/l	450	
As	75	74	1	0.22	1.09	ug/l	1800	
Zn	66	45	1	10.03	50.15	ug/l	450	
Cu	63	45	1	0.40	2.00	ug/l	450	
Ni	60	45	1	0.28	1.38	ug/l	900	
Co	59	45	1	0.05	0.27	ug/l	450	
Fe	56	45	1	191.94	959.69	ug/l	180000	
Mn	55	45	1	40.72	203.61	ug/l	9000	
Cr	52	45	1	0.04	0.21	ug/l	900	
V	51	45	1	0.47	2.33	ug/l	3600	
Ti	47	45	1	0.00	0.00	ug/l	3600	
Ca	44	6	1	15458.08	77290.41	ug/l	90000	
K	39	45	1	766.70	3833.49	ug/l	360000	
Al	27	45	1	3.54	17.72	ug/l	36000	
Mg	24	45	1	2977.44	14887.18	ug/l	180000	
Na	23	45	1	10409.98	52049.90	ug/l	360000	
B	11	6	1	16.36	81.81	ug/l	7200	
Be	9	6	1	-0.02	-0.11	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	521133	0.72	513001	101.6	60	120	
Tb	159	1	691575	0.61	679167	101.8	60	120	
In	115	1	249215	1.14	247939	100.5	60	120	
Kr	83	1	20	16.65	30	66.7	1	1000	
Ge	74	1	39052	0.86	38549	101.3	60	120	
Sc	45	1	260819	0.29	263470	99.0	60	120	
Li	6	1	12098	0.80	12234	98.9	60	120	

Sample Report

Sample Name	**460-31936-d-2-a@5**
Data File Name	**105SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-08T03:46:56-04:00**
Type	**Sample**
VialNumber	**3112**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	0.79	3.93	ug/l	3600	
Tl	205	209	1	0.00	0.01	ug/l	720	
Ba	137	159	1	17.43	87.14	ug/l	3600	
Sb	121	115	1	0.15	0.74	ug/l	3600	
Sn	118	115	1	0.03	0.14	ug/l	3600	
Cd	111	115	1	0.01	0.06	ug/l	1800	
Ag	107	115	1	0.00	0.01	ug/l	180	
Mo	95	115	1	0.31	1.55	ug/l	3600	
Sr	88	115	1	40.30	201.48	ug/l	3600	
Se	78	74	1	-0.09	-0.47	ug/l	450	
As	75	74	1	0.21	1.05	ug/l	1800	
Zn	66	45	1	2.58	12.88	ug/l	450	
Cu	63	45	1	1.01	5.06	ug/l	450	
Ni	60	45	1	0.32	1.60	ug/l	900	
Co	59	45	1	0.03	0.16	ug/l	450	
Fe	56	45	1	127.29	636.43	ug/l	180000	
Mn	55	45	1	22.85	114.25	ug/l	9000	
Cr	52	45	1	0.06	0.31	ug/l	900	
V	51	45	1	0.62	3.09	ug/l	3600	
Ti	47	45	1	0.39	1.94	ug/l	3600	
Ca	44	6	1	10161.28	50806.42	ug/l	90000	
K	39	45	1	600.94	3004.71	ug/l	360000	
Al	27	45	1	14.71	73.53	ug/l	36000	
Mg	24	45	1	2008.12	10040.60	ug/l	180000	
Na	23	45	1	7210.63	36053.16	ug/l	360000	
B	11	6	1	11.17	55.87	ug/l	7200	
Be	9	6	1	-0.02	-0.11	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	520888	0.52	513001	101.5	60	120	
Tb	159	1	689153	0.72	679167	101.5	60	120	
In	115	1	247707	1.01	247939	99.9	60	120	
Kr	83	1	19	53.91	30	63.0	1	1000	
Ge	74	1	39194	0.93	38549	101.7	60	120	
Sc	45	1	258180	0.76	263470	98.0	60	120	
Li	6	1	12443	0.93	12234	101.7	60	120	

Sample Report

Sample Name	**460-32006-c-3-b@5**
Data File Name	**106SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-08T03:51:58-04:00**
Type	**Sample**
VialNumber	**3201**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	0.71	3.54	ug/l	3600	
Tl	205	209	1	0.00	0.01	ug/l	720	
Ba	137	159	1	13.74	68.68	ug/l	3600	
Sb	121	115	1	0.02	0.11	ug/l	3600	
Sn	118	115	1	0.11	0.56	ug/l	3600	
Cd	111	115	1	0.01	0.07	ug/l	1800	
Ag	107	115	1	0.01	0.03	ug/l	180	
Mo	95	115	1	0.04	0.20	ug/l	3600	
Sr	88	115	1	12.64	63.20	ug/l	3600	
Se	78	74	1	-0.08	-0.41	ug/l	450	
As	75	74	1	0.09	0.46	ug/l	1800	
Zn	66	45	1	13.31	66.56	ug/l	450	
Cu	63	45	1	171.98	859.89	ug/l	450	
Ni	60	45	1	2.23	11.13	ug/l	900	
Co	59	45	1	0.02	0.11	ug/l	450	
Fe	56	45	1	16.52	82.58	ug/l	180000	
Mn	55	45	1	0.37	1.85	ug/l	9000	
Cr	52	45	1	0.23	1.17	ug/l	900	
V	51	45	1	0.58	2.88	ug/l	3600	
Ti	47	45	1	3.00	15.00	ug/l	3600	
Ca	44	6	1	1229.67	6148.33	ug/l	90000	
K	39	45	1	4216.26	21081.29	ug/l	360000	
Al	27	45	1	24.80	123.99	ug/l	36000	
Mg	24	45	1	664.28	3321.41	ug/l	180000	
Na	23	45	1	14625.25	73126.26	ug/l	360000	
B	11	6	1	3.46	17.32	ug/l	7200	
Be	9	6	1	0.01	0.03	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	530303	0.33	513001	103.4	60	120	
Tb	159	1	696939	0.54	679167	102.6	60	120	
In	115	1	248843	0.38	247939	100.4	60	120	
Kr	83	1	18	84.57	30	59.3	1	1000	
Ge	74	1	39390	0.77	38549	102.2	60	120	
Sc	45	1	261708	0.47	263470	99.3	60	120	
Li	6	1	12408	1.25	12234	101.4	60	120	

Sample Report

Sample Name	**460-31796-d-14-b@5**
Data File Name	**107SMPL.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-08T03:57:00-04:00**
Type	**Sample**
VialNumber	**3202**
Dilution	**5**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	QC Flag
Pb	208	209	1	0.00	0.02	ug/l	3600	
Tl	205	209	1	0.00	0.00	ug/l	720	
Ba	137	159	1	0.04	0.20	ug/l	3600	
Sb	121	115	1	0.01	0.07	ug/l	3600	
Sn	118	115	1	0.02	0.10	ug/l	3600	
Cd	111	115	1	0.00	-0.02	ug/l	1800	
Ag	107	115	1	0.00	0.01	ug/l	180	
Mo	95	115	1	0.01	0.04	ug/l	3600	
Sr	88	115	1	0.00	0.01	ug/l	3600	
Se	78	74	1	-0.34	-1.69	ug/l	450	
As	75	74	1	0.04	0.22	ug/l	1800	
Zn	66	45	1	1.73	8.67	ug/l	450	
Cu	63	45	1	-0.01	-0.05	ug/l	450	
Ni	60	45	1	-0.02	-0.11	ug/l	900	
Co	59	45	1	0.00	0.01	ug/l	450	
Fe	56	45	1	0.38	1.90	ug/l	180000	
Mn	55	45	1	0.02	0.10	ug/l	9000	
Cr	52	45	1	-0.03	-0.13	ug/l	900	
V	51	45	1	0.44	2.22	ug/l	3600	
Ti	47	45	1	-0.03	-0.16	ug/l	3600	
Ca	44	6	1	2.54	12.72	ug/l	90000	
K	39	45	1	-34.24	-171.20	ug/l	360000	
Al	27	45	1	1.00	4.98	ug/l	36000	
Mg	24	45	1	0.32	1.61	ug/l	180000	
Na	23	45	1	-33.64	-168.20	ug/l	360000	
B	11	6	1	10.98	54.90	ug/l	7200	
Be	9	6	1	-0.03	-0.14	ug/l	3600	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	QC Flag
Bi	209	1	532772	0.31	513001	103.9	60	120	
Tb	159	1	695246	0.12	679167	102.4	60	120	
In	115	1	250854	0.12	247939	101.2	60	120	
Kr	83	1	26	7.55	30	85.2	1	1000	
Ge	74	1	38978	0.45	38549	101.1	60	120	
Sc	45	1	261721	0.36	263470	99.3	60	120	
Li	6	1	12408	2.70	12234	101.4	60	120	

Continuing Calibration Verification (CCV) - US EPA Method 6020

Sample Name	**CCV 1187191**
Data File Name	**1086CCV.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-08T04:02:05-04:00**
Type	**6-CCV**
VialNumber	**1301**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	%RSD	Units	CPS	CPS%RSD	Exp Value	%Rec	QC Low	QC High	QC Flag
Be	9	6	1	49.33	2.25	ug/l	4016.66	1.82	50	98.7	90	110	
B	11	6	1	97.61	6.05	ug/l	2376.93	6.00	100	97.6	90	110	
Na	23	45	1	4763.44	0.50	ug/l	3452459.39	0.45	5000	95.3	90	110	
Mg	24	45	1	4777.34	0.56	ug/l	1714830.36	0.36	5000	95.5	90	110	
Al	27	45	1	483.86	0.57	ug/l	85497.78	0.39	500	96.8	90	110	
K	39	45	1	4808.12	0.67	ug/l	1762761.55	0.86	5000	96.2	90	110	
Ca	44	6	1	4848.89	0.97	ug/l	87312.64	0.60	5000	97.0	90	110	
Ti	47	45	1	49.06	2.79	ug/l	5153.23	2.67	50	98.1	90	110	
V	51	45	1	49.58	0.63	ug/l	140708.79	0.83	50	99.2	90	110	
Cr	52	45	1	49.63	0.57	ug/l	166906.01	0.83	50	99.3	90	110	
Mn	55	45	1	492.00	0.59	ug/l	1022645.87	0.67	500	98.4	90	110	
Fe	56	45	1	4956.02	1.01	ug/l	12686765.23	1.23	5000	99.1	90	110	
Co	59	45	1	50.19	0.25	ug/l	240491.46	0.32	50	100.4	90	110	
Ni	60	45	1	48.57	0.65	ug/l	64552.23	0.66	50	97.1	90	110	
Cu	63	45	1	50.67	0.46	ug/l	173977.79	0.22	50	101.3	90	110	
Zn	66	45	1	49.21	0.82	ug/l	28175.83	0.78	50	98.4	90	110	
As	75	74	1	48.67	1.92	ug/l	22529.72	1.87	50	97.3	90	110	
Se	78	74	1	51.58	1.10	ug/l	1644.56	1.02	50	103.2	90	110	
Sr	88	115	1	48.44	0.37	ug/l	131075.29	0.59	50	96.9	90	110	
Mo	95	115	1	47.91	1.07	ug/l	82970.53	1.34	50	95.8	90	110	
Ag	107	115	1	49.40	0.14	ug/l	257898.56	0.28	50	98.8	90	110	
Cd	111	115	1	48.63	1.34	ug/l	38990.62	1.10	50	97.3	90	110	
Sn	118	115	1	49.02	0.49	ug/l	91537.51	0.67	50	98.0	90	110	
Sb	121	115	1	49.07	0.57	ug/l	126228.27	0.66	50	98.1	90	110	
Ba	137	159	1	49.04	1.33	ug/l	46360.22	2.14	50	98.1	90	110	
Tl	205	209	1	9.72	0.35	ug/l	120883.74	0.61	10	97.2	90	110	
Pb	208	209	1	49.50	0.45	ug/l	811067.12	0.76	50	99.0	90	110	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Ref CPS	%Rec	QC Low	QC High	QC Flag
Li	6	1	12123	0.44	12234	99.1	60	120	
Sc	45	1	261747	0.26	263470	99.3	60	120	
Ge	74	1	39123	0.25	38549	101.5	60	120	
Kr	83	1	23	42.86	30	77.8	1	1000	
In	115	1	248513	0.28	247939	100.2	60	120	
Tb	159	1	692220	0.81	679167	101.9	60	120	
Bi	209	1	527594	0.75	513001	102.8	60	120	

TuneStep	TuneFile
1	helium.u

Continuing Calibration Blank (CCB) - US EPA Method 6020

Sample Name	**CCB**
Data File Name	**1096CCB.D**
DataPath	**C:\ICPMH\1\DATA\11J07t00.B**
Acq Date Time	**2011-10-08T04:07:01-04:00**
Type	**6-CCB**
VialNumber	**1302**
Dilution	**1**
Comment	
Operator	**MP**
ISTDRefDataFileName	**004CALB.D**
SamplePassFail	**Pass**
ISTD PassFail	**Pass**

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	%RSD	Units	CPS	CPS%RSD	QC High	QC Flag
Be	9	6	1	-0.01	-148.07	ug/l	2.22	43.11	0.2	
B	11	6	1	0.57	48.75	ug/l	21.11	32.88	20	
Na	23	45	1	-40.37	-3.02	ug/l	157961.00	0.08	50	
Mg	24	45	1	1.15	13.48	ug/l	599.47	8.78	50	
Al	27	45	1	0.35	58.28	ug/l	697.25	5.63	10	
K	39	45	1	-37.06	-0.21	ug/l	81575.82	0.53	50	
Ca	44	6	1	0.84	70.24	ug/l	251.12	4.42	50	
Ti	47	45	1	-0.01	-398.93	ug/l	5.55	69.34	1	
V	51	45	1	0.16	19.87	ug/l	913.39	9.55	1	
Cr	52	45	1	-0.03	-40.95	ug/l	1781.27	3.00	1	
Mn	55	45	1	0.12	10.50	ug/l	293.35	8.88	2	
Fe	56	45	1	1.29	1.61	ug/l	6939.40	1.17	30	
Co	59	45	1	0.01	59.65	ug/l	58.89	56.98	1	
Ni	60	45	1	-0.06	-20.01	ug/l	122.23	13.73	1	
Cu	63	45	1	-0.14	-2.04	ug/l	1677.92	0.50	1	
Zn	66	45	1	0.02	273.70	ug/l	273.34	12.85	4	
As	75	74	1	0.02	68.17	ug/l	46.67	9.44	0.5	
Se	78	74	1	-0.13	-154.83	ug/l	43.89	13.34	0.5	
Sr	88	115	1	0.01	41.13	ug/l	47.78	31.47	1	
Mo	95	115	1	0.01	6.44	ug/l	87.78	2.19	1	
Ag	107	115	1	0.01	21.66	ug/l	90.00	18.52	1	
Cd	111	115	1	0.01	57.42	ug/l	18.89	26.96	0.5	
Sn	118	115	1	0.02	27.45	ug/l	125.56	9.32	4	
Sb	121	115	1	0.00	87.81	ug/l	92.23	10.44	0.5	
Ba	137	159	1	0.02	70.90	ug/l	27.78	42.13	1	
Tl	205	209	1	0.01	27.70	ug/l	156.67	25.09	0.2	
Pb	208	209	1	0.02	14.23	ug/l	438.91	9.68	0.3	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Ref CPS	%Rec	QC Low	QC High	QC Flag
Li	6	1	12253	0.85	12234	100.2	60	120	
Sc	45	1	259134	0.54	263470	98.4	60	120	
Ge	74	1	38745	1.01	38549	100.5	60	120	
Kr	83	1	12	41.65	30	40.7	1	1000	
In	115	1	248714	0.36	247939	100.3	60	120	
Tb	159	1	683718	0.62	679167	100.7	60	120	
Bi	209	1	527129	0.42	513001	102.8	60	120	

TuneStep	TuneFile
1	helium.u

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Standard: 1 Rep: 1				Seq: 10	21:03:20 03 Oct 11	HG		
Hg	.000	ppb	-82					
*** Standard: 2 Rep: 1				Seq: 11	21:05:06 03 Oct 11	HG		
Hg	.100	ppb	8797					
*** Standard: 3 Rep: 1				Seq: 12	21:06:52 03 Oct 11	HG		
Hg	1.00	ppb	42987					
*** Standard: 4 Rep: 1				Seq: 13	21:08:39 03 Oct 11	HG		
Hg	2.00	ppb	81405					
*** Standard: 5 Rep: 1				Seq: 14	21:10:29 03 Oct 11	HG		
Hg	5.00	ppb	192289					
*** Standard: 6 Rep: 1				Seq: 15	21:12:16 03 Oct 11	HG		
Hg	10.0	ppb	376877					
*** Check Standard: 3 Ck3AICV				Seq: 16	21:14:03 03 Oct 11	HG		

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Hg		98.0	4.90	5.00	ppb	.000

*** Check Standard: 1 Ck1ICB/CCB				Seq: 17	21:15:47 03 Oct 11	HG

Line	Flag	Found	Range(+/-)	Units	SD/RSD
Hg		-.081	.200	ppb	.000

*** Sample ID: mb 460-88100/10-a				Seq: 18	21:17:31 03 Oct 11	HG
Hg	-.056	ppb	.000	-.056		
*** Sample ID: lcssrm 460-88100/11-a@10				Seq: 19	21:19:15 03 Oct 11	HG
Hg	5.15	ppb	.000	5.15		
*** Sample ID: 460-31882-f-16-a				Seq: 20	21:21:00 03 Oct 11	HG
Hg	.223	ppb	.000	.223		

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Protocol: SW846
POST-RUN REPORT

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: 460-31882-f-16-b du				Seq: 21	21:23:09 03 Oct 11	HG		
Hg	.342	ppb	.000	.342				
*** Sample ID: 460-31882-f-16-c ms				Seq: 22	21:25:38 03 Oct 11	HG		

```
Hg    1.95    ppb       .000      1.95
                                                                                 =
*** Sample ID:                         Seq:  23     21:27:38 03 Oct 11   HG
                          460-31791-a-1-a
Hg    .002    ppb       .000      .002
                                                                                 =
*** Sample ID:                         Seq:  24     21:29:21 03 Oct 11   HG
                          460-31791-a-2-a
Hg    .206    ppb       .000      .206
                                                                                 =
*** Sample ID:                         Seq:  25     21:31:27 03 Oct 11   HG
                          460-31791-a-3-a
Hg    2.79    ppb       .000      2.79
                                                                                 =
*** Sample ID:                         Seq:  26     21:33:24 03 Oct 11   HG
                          460-31850-b-4-e
Hg   -.006    ppb       .000     -.006
                                                                                 =
*** Sample ID:                         Seq:  27     21:35:20 03 Oct 11   HG
                          460-31654-d-1-c
Hg   -.038    ppb       .000     -.038
                                                                                 =
*** Check Standard: 2  Ck2ACCV      Seq:  28      21:37:16 03 Oct 11   HG
Line  Flag  %Rcv.   Found    True  Units      SD/RSD
Hg          105.     5.27    5.00   ppb        .000
                                                                                 =
*** Check Standard: 1  Ck1ICB/CCB   Seq:  29      21:39:01 03 Oct 11   HG
Line  Flag  Found Range(+/-) Units      SD/RSD
Hg         -.124     .200     ppb        .000
                                                                                 =
*** Sample ID:                         Seq:  30     21:40:56 03 Oct 11   HG
                          460-31654-c-2-c
Hg    .004    ppb       .000      .004
                                                                                 =
*** Sample ID:                         Seq:  31     21:42:55 03 Oct 11   HG
                          460-31896-a-7-b
Hg    1.84    ppb       .000      1.84
                                                                                 =
*** Sample ID:                         Seq:  32     21:44:40 03 Oct 11   HG
                          460-31896-a-14-b
Hg    2.10    ppb       .000      2.10
                                                                                 =
                              Folder:   88100HG1                    Page 1999
                              Protocol: SW846A
                             ***POST-RUN REPORT***
Line   Conc.  Units     SD/RSD      1       2       3       4       5
--------------------------------------------------------------------------------

*** Sample ID:                         Seq:  33     21:46:24 03 Oct 11   HG
                          460-31530-a-17-c
Hg    4.14    ppb       .000      4.14
                                                                                 =
*** Sample ID:                         Seq:  34     21:48:40 03 Oct 11   HG
                          460-31530-a-18-c
Hg    .196    ppb       .000      .196
                                                                                 =
*** Sample ID:                         Seq:  35     21:50:24 03 Oct 11   HG
                          460-31866-g-1-a
Hg    .129    ppb       .000      .129
                                                                                 =
*** Sample ID:                         Seq:  36     21:52:10 03 Oct 11   HG
                          460-31876-a-1-a
Hg    .055    ppb       .000      .055
                                                                                 =
```

```
*** Sample ID:                          Seq:  37     21:54:01 03 Oct 11   HG
                          460-31876-a-2-a
Hg    .041    ppb       .000      .041                                          =
*** Sample ID:                          Seq:  38     21:55:46 03 Oct 11   HG
                          460-31876-a-3-a
Hg    .009    ppb       .000      .009                                          =
*** Sample ID:                          Seq:  39     21:57:42 03 Oct 11   HG
                          460-31882-e-15-a
Hg   3.29    ppb       .000      3.29                                          =
*** Check Standard: 2  Ck2ACCV      Seq:  40      21:59:37 03 Oct 11   HG
Line  Flag  %Rcv.   Found    True  Units      SD/RSD
Hg          106.     5.31    5.00   ppb         .000                          =
*** Check Standard: 1  Ck1ICB/CCB   Seq:  41      22:01:21 03 Oct 11   HG
Line  Flag  Found Range(+/-) Units      SD/RSD
Hg         -.068     .200     ppb         .000                                 =
*** Sample ID:                          Seq:  42     22:03:11 03 Oct 11   HG
                          460-31882-f-17-a
Hg    .196    ppb       .000      .196                                          =
*** Sample ID:                          Seq:  43     22:05:09 03 Oct 11   HG
                          460-31882-d-18-a
Hg    .207    ppb       .000      .207                                          =
*** Sample ID:                          Seq:  44     22:06:54 03 Oct 11   HG
                          460-31882-d-33-a
Hg    .161    ppb       .000      .161                                          =
                              Folder:   88100HG1                      Page 1999
                              Protocol: SW846A
                             ***POST-RUN REPORT***
Line   Conc.  Units     SD/RSD      1       2       3       4       5
--------------------------------------------------------------------------------

*** Sample ID:                          Seq:  45     22:08:43 03 Oct 11   HG
                          460-31882-d-34-a
Hg    .198    ppb       .000      .198                                          =
*** Sample ID:                          Seq:  46     22:10:27 03 Oct 11   HG
                          SD 460-31882-f-16-a@
Hg   -.131    ppb       .000     -.131                                          =
*** Sample ID:                          Seq:  47     22:12:12 03 Oct 11   HG
                          SD 460-31882-f-16-a@
Hg   -.116    ppb       .000     -.116                                          =
*** Check Standard: 2  Ck2ACCV      Seq:  48      22:13:58 03 Oct 11   HG
Line  Flag  %Rcv.   Found    True  Units      SD/RSD
Hg          106.     5.28    5.00   ppb         .000                          =
*** Check Standard: 1  Ck1ICB/CCB   Seq:  49      22:15:43 03 Oct 11   HG
Line  Flag  Found Range(+/-) Units      SD/RSD
Hg         -.030     .200     ppb         .000                                 =
*** Sample ID:                          Seq:  50     22:17:33 03 Oct 11   HG
                          mb 460-88101/10-a
Hg   -.018    ppb       .000     -.018                                          =
================================================================================
*** Sample ID: lcssrm 460               Seq:  51     22:19:18 03 Oct 11   HG
```

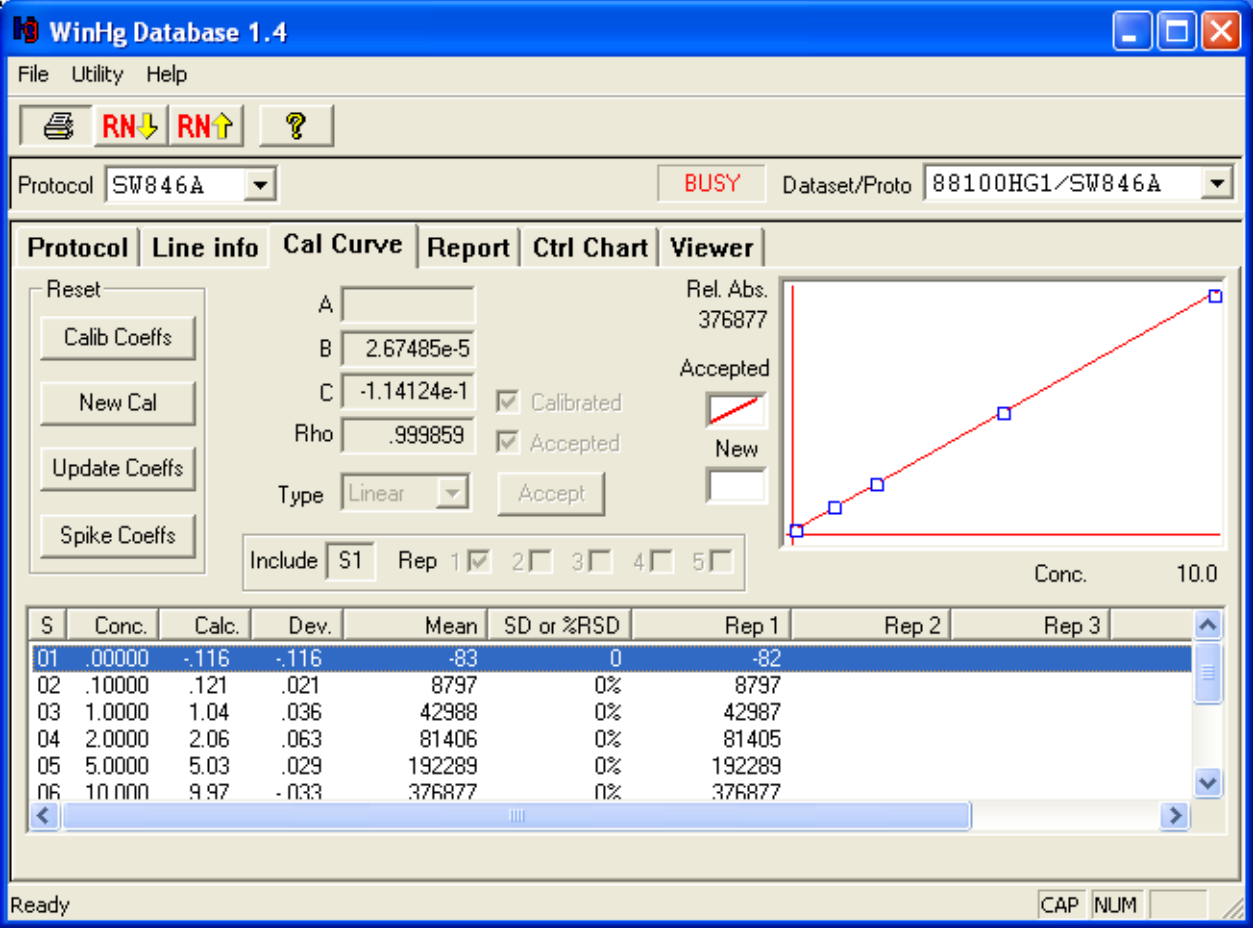
-88101/11-a@10
Hg 5.25 ppb .000 5.25
=
==========
*** Sample ID: Seq: 52 22:21:05 03 Oct 11 HG
460-31882-h-72-a
Hg -.019 ppb .000 -.019
=
*** Sample ID: Seq: 53 22:22:50 03 Oct 11 HG
460-31882-h-72-b du
Hg -.011 ppb .000 -.011
=
*** Sample ID: Seq: 54 22:24:35 03 Oct 11 HG
460-31882-h-72-c ms
Hg 1.05 ppb .000 1.05
=
*** Sample ID: Seq: 55 22:26:35 03 Oct 11 HG
460-31882-g-35-a
Hg .126 ppb .000 .126
=

Line Conc. Units SD/RSD 1 2 3 4 5

*** Sample ID: Seq: 56 22:28:36 03 Oct 11 HG
460-31882-e-36-a
Hg -.030 ppb .000 -.030
=
*** Sample ID: Seq: 57 22:30:36 03 Oct 11 HG
460-31882-i-51-a
Hg .526 ppb .000 .526
=
*** Sample ID: Seq: 58 22:32:28 03 Oct 11 HG
460-31882-g-52-a
Hg .881 ppb .000 .881
=
*** Sample ID: Seq: 59 22:34:14 03 Oct 11 HG
460-31882-e-53-a
Hg -.047 ppb .000 -.047
=
*** Check Standard: 2 Ck2ACCV Seq: 60 22:36:26 03 Oct 11 HG
Line Flag %Rcv. Found True Units SD/RSD
Hg 105. 5.24 5.00 ppb .000
=
*** Check Standard: 1 Ck1ICB/CCB Seq: 61 22:38:12 03 Oct 11 HG
Line Flag Found Range(+/-) Units SD/RSD
Hg -.076 .200 ppb .000
=
*** Sample ID: Seq: 62 22:39:59 03 Oct 11 HG
460-31882-h-54-a
Hg .008 ppb .000 .008
=
*** Sample ID: Seq: 63 22:41:45 03 Oct 11 HG
460-31882-f-69-a
Hg 1.13 ppb .000 1.13
=
*** Sample ID: Seq: 64 22:43:32 03 Oct 11 HG
460-31882-g-70-a
Hg .024 ppb .000 .024
=
*** Sample ID: Seq: 65 22:45:18 03 Oct 11 HG
460-31882-f-71-a

```
Hg   -.041    ppb       .000     -.041
                                                                              =
*** Sample ID:                        Seq:  66     22:47:03 03 Oct 11   HG
                           SD 460-31882-h-72-a@
Hg   -.037    ppb       .000     -.037
                                                                              =
*** Check Standard: 2  Ck2ACCV      Seq:  67     22:48:51 03 Oct 11   HG
Line  Flag  %Rcv.   Found    True  Units      SD/RSD
Hg          104.     5.20    5.00   ppb        .000
                                                                              =
                                Folder:   88100HG1                    Page 1999
                                Protocol: SW846A
                               ***POST-RUN REPORT***
Line   Conc.  Units     SD/RSD      1       2       3       4       5
--------------------------------------------------------------------------------

*** Check Standard: 1  Ck1ICB/CCB   Seq:  68     22:50:34 03 Oct 11   HG
Line  Flag  Found Range(+/-) Units      SD/RSD
Hg         -.094     .200     ppb        .000
                                                                              =
```


WinHg Database 1.4
File Utility Help
RN RN
Protocol SW846A
BUSY
Dataset/Proto 88100HG1/SW846A
Protocol Line info Cal Curve Report Ctrl Chart Viewer
Reset
Calib Coeffs
New Cal
Update Coeffs
Spike Coeffs
A
B 2.67485e-5
C -1.14124e-1
Rho .999859
Type Linear
Calibrated
Accepted
Accept
Rel. Abs. 376877
Accepted
New
Include S1 Rep 1 2 3 4 5
Conc. 10.0
S Conc. Calc. Dev. Mean SD or %RSD Rep 1 Rep 2 Rep 3
01 .00000 -.116 -.116 -83 0 -82
02 .10000 .121 .021 8797 0% 8797
03 1.0000 1.04 .036 42988 0% 42987
04 2.0000 2.06 .063 81406 0% 81405
05 5.0000 5.03 .029 192289 0% 192289
06 10.000 9.97 -.033 376877 0% 376877
Ready
CAP NUM

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Standard: 1 Rep: 1				Seq: 10	21:03:20 03 Oct 11	HG		
Hg	.000	ppb	-82					
		Bkgd 1	6316336					
*** Standard: 2 Rep: 1				Seq: 11	21:05:06 03 Oct 11	HG		
Hg	.100	ppb	8797					
		Bkgd 1	6318665					
*** Standard: 3 Rep: 1				Seq: 12	21:06:52 03 Oct 11	HG		
Hg	1.00	ppb	42987					
		Bkgd 1	6314553					
*** Standard: 4 Rep: 1				Seq: 13	21:08:39 03 Oct 11	HG		
Hg	2.00	ppb	81405					
		Bkgd 1	6310507					
*** Standard: 5 Rep: 1				Seq: 14	21:10:29 03 Oct 11	HG		
Hg	5.00	ppb	192289					
		Bkgd 1	6308625					
*** Standard: 6 Rep: 1				Seq: 15	21:12:16 03 Oct 11	HG		
Hg	10.0	ppb	376877					
		Bkgd 1	6304331					
*** Check Standard: 3			Ck3AICV	Seq: 16	21:14:03 03 Oct 11	HG		
Line	Flag		Intensities					
Hg			187463					
		Bkgd 1	6301199					
*** Check Standard: 1			Ck1ICB/CCB	Seq: 17	21:15:47 03 Oct 11	HG		
Line	Flag		Intensities					
Hg			1250					
		Bkgd 1	6299848					
*** Sample ID: mb 460-88100/10-a				Seq: 18	21:17:31 03 Oct 11	HG		
Hg	-.056	ppb	2184					
		Bkgd 1	6300955					

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Protocol: SW846
POST-RUN REPORT

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: lcssrm 460-88100/11-a@10				Seq: 19	21:19:15 03 Oct 11	HG		
Hg	5.15	ppb	196747					
		Bkgd 1	6301124					

```
*** Sample ID:                        Seq:  20     21:21:00 03 Oct 11   HG
                        460-31882-f-16-a
Hg    .223    ppb      12621
              Bkgd 1   6304665                                              =
                                                                             =
*** Sample ID:                        Seq:  21     21:23:09 03 Oct 11   HG
                        460-31882-f-16-b du
Hg    .342    ppb      17050
              Bkgd 1   6315018                                              =
                                                                             =
*** Sample ID:                        Seq:  22     21:25:38 03 Oct 11   HG
                        460-31882-f-16-c ms
Hg    1.95    ppb      77307
              Bkgd 1   6315851                                              =
                                                                             =
*** Sample ID:                        Seq:  23     21:27:38 03 Oct 11   HG
                        460-31791-a-1-a
Hg    .002    ppb      4346
              Bkgd 1   6311439                                              =
                                                                             =
*** Sample ID:                        Seq:  24     21:29:21 03 Oct 11   HG
                        460-31791-a-2-a
Hg    .206    ppb      11983
              Bkgd 1   6308138                                              =
                                                                             =
*** Sample ID:                        Seq:  25     21:31:27 03 Oct 11   HG
                        460-31791-a-3-a
Hg    2.79    ppb      108603
              Bkgd 1   6305807                                              =
                                                                             =
*** Sample ID:                        Seq:  26     21:33:24 03 Oct 11   HG
                        460-31850-b-4-e
Hg   -.006    ppb      4038
              Bkgd 1   6303995                                              =
                                                                             =
*** Sample ID:                        Seq:  27     21:35:20 03 Oct 11   HG
                        460-31654-d-1-c
Hg   -.038    ppb      2836
              Bkgd 1   6303717                                              =
                                                                             =
                              Folder:   88100HG1                  Page 1999
                              Protocol: SW846A
                             ***POST-RUN REPORT***
Line   Conc.  Units     SD/RSD      1       2       3       4       5
-------------------------------------------------------------------------------

*** Check Standard: 2  Ck2ACCV      Seq:  28      21:37:16 03 Oct 11   HG
Line  Flag             Intensities
Hg                     201343
              Bkgd 1   6302241                                              =
                                                                             =
*** Check Standard: 1  Ck1ICB/CCB   Seq:  29      21:39:01 03 Oct 11   HG
Line  Flag             Intensities
Hg                     -361
              Bkgd 1   6300813                                              =
                                                                             =
*** Sample ID:                        Seq:  30     21:40:56 03 Oct 11   HG
                        460-31654-c-2-c
Hg    .004    ppb      4429
              Bkgd 1   6301581                                              =
                                                                             =
*** Sample ID:                        Seq:  31     21:42:55 03 Oct 11   HG
                        460-31896-a-7-b
Hg    1.84    ppb      72899
```

```
             Bkgd 1   6301583                                                =
                                                                             =
*** Sample ID:                        Seq:  32     21:44:40 03 Oct 11   HG
                         460-31896-a-14-b
Hg    2.10    ppb      82643
             Bkgd 1   6300703                                                =
                                                                             =
*** Sample ID:                        Seq:  33     21:46:24 03 Oct 11   HG
                         460-31530-a-17-c
Hg    4.14    ppb      159004
             Bkgd 1   6309105                                                =
                                                                             =
*** Sample ID:                        Seq:  34     21:48:40 03 Oct 11   HG
                         460-31530-a-18-c
Hg    .196    ppb      11587
             Bkgd 1   6314676                                                =
                                                                             =
*** Sample ID:                        Seq:  35     21:50:24 03 Oct 11   HG
                         460-31866-g-1-a
Hg    .129    ppb      9082
             Bkgd 1   6314299                                                =
                                                                             =
*** Sample ID:                        Seq:  36     21:52:10 03 Oct 11   HG
                         460-31876-a-1-a
Hg    .055    ppb      6307
             Bkgd 1   6311719                                                =
                                                                             =
                              Folder:   88100HG1                    Page 1999
                              Protocol: SW846A
                             ***POST-RUN REPORT***
Line   Conc.  Units     SD/RSD      1       2       3       4       5
-------------------------------------------------------------------------------

*** Sample ID:                        Seq:  37     21:54:01 03 Oct 11   HG
                         460-31876-a-2-a
Hg    .041    ppb      5782
             Bkgd 1   6309086                                                =
                                                                             =
*** Sample ID:                        Seq:  38     21:55:46 03 Oct 11   HG
                         460-31876-a-3-a
Hg    .009    ppb      4588
             Bkgd 1   6305896                                                =
                                                                             =
*** Sample ID:                        Seq:  39     21:57:42 03 Oct 11   HG
                         460-31882-e-15-a
Hg    3.29    ppb      127268
             Bkgd 1   6305004                                                =
                                                                             =
*** Check Standard: 2  Ck2ACCV      Seq:  40      21:59:37 03 Oct 11   HG
Line  Flag             Intensities
Hg                     202802
             Bkgd 1   6303162                                                =
                                                                             =
*** Check Standard: 1  Ck1ICB/CCB   Seq:  41      22:01:21 03 Oct 11   HG
Line  Flag             Intensities
Hg                     1728
             Bkgd 1   6301201                                                =
                                                                             =
*** Sample ID:                        Seq:  42     22:03:11 03 Oct 11   HG
                         460-31882-f-17-a
Hg    .196    ppb      11584
             Bkgd 1   6301295                                                =
                                                                             =
*** Sample ID:                        Seq:  43     22:05:09 03 Oct 11   HG
```

```
                          460-31882-d-18-a
Hg    .207    ppb       12007
              Bkgd 1    6301270                                                =
                                                                               =
*** Sample ID:                        Seq:  44     22:06:54 03 Oct 11   HG
                          460-31882-d-33-a
Hg    .161    ppb       10303
              Bkgd 1    6300433                                                =
                                                                               =
*** Sample ID:                        Seq:  45     22:08:43 03 Oct 11   HG
                          460-31882-d-34-a
Hg    .198    ppb       11680
              Bkgd 1    6300992                                                =
                                                                               =
                               Folder:   88100HG1                    Page 1999
                               Protocol: SW846A
                              ***POST-RUN REPORT***
Line   Conc.  Units     SD/RSD      1       2       3       4       5
-------------------------------------------------------------------------------

*** Sample ID:                        Seq:  46     22:10:27 03 Oct 11   HG
                          SD 460-31882-f-16-a@
Hg   -.131    ppb       -624
              Bkgd 1    6304796                                                =
                                                                               =
*** Sample ID:                        Seq:  47     22:12:12 03 Oct 11   HG
                          SD 460-31882-f-16-a@
Hg   -.116    ppb       -52
              Bkgd 1    6310743                                                =
                                                                               =
*** Check Standard: 2  Ck2ACCV      Seq:  48     22:13:58 03 Oct 11   HG
Line  Flag             Intensities
Hg                     201838
              Bkgd 1    6314920                                                =
                                                                               =
*** Check Standard: 1  Ck1ICB/CCB   Seq:  49     22:15:43 03 Oct 11   HG
Line  Flag             Intensities
Hg                     3138
              Bkgd 1    6310571                                                =
                                                                               =
*** Sample ID:                        Seq:  50     22:17:33 03 Oct 11   HG
                          mb 460-88101/10-a
Hg   -.018    ppb       3609
              Bkgd 1    6308292                                                =
                                                                               =
===============================================================================
*** Sample ID: lcssrm 460             Seq:  51     22:19:18 03 Oct 11   HG
                          -88101/11-a@10
Hg    5.25    ppb       200376
              Bkgd 1    6306899                                                =
                                                                               =
===============================================================================
*** Sample ID:                        Seq:  52     22:21:05 03 Oct 11   HG
                          460-31882-h-72-a
Hg   -.019    ppb       3549
              Bkgd 1    6302453                                                =
                                                                               =
*** Sample ID:                        Seq:  53     22:22:50 03 Oct 11   HG
                          460-31882-h-72-b du
Hg   -.011    ppb       3867
              Bkgd 1    6301832                                                =
                                                                               =
*** Sample ID:                        Seq:  54     22:24:35 03 Oct 11   HG
                          460-31882-h-72-c ms
```

```
Hg    1.05    ppb      43416
              Bkgd 1   6301796                                                     =
                                                                                   =
                                    Folder:   88100HG1                    Page 1999
                                    Protocol: SW846A
                                   ***POST-RUN REPORT***
Line   Conc.  Units     SD/RSD      1       2       3       4       5
--------------------------------------------------------------------------------

*** Sample ID:                         Seq:  55     22:26:35 03 Oct 11   HG
                           460-31882-g-35-a
Hg    .126    ppb      8991
              Bkgd 1   6300098                                                     =
                                                                                   =
*** Sample ID:                         Seq:  56     22:28:36 03 Oct 11   HG
                           460-31882-e-36-a
Hg   -.030    ppb      3157
              Bkgd 1   6301499                                                     =
                                                                                   =
*** Sample ID:                         Seq:  57     22:30:36 03 Oct 11   HG
                           460-31882-i-51-a
Hg    .526    ppb      23922
              Bkgd 1   6301949                                                     =
                                                                                   =
*** Sample ID:                         Seq:  58     22:32:28 03 Oct 11   HG
                           460-31882-g-52-a
Hg    .881    ppb      37210
              Bkgd 1   6309926                                                     =
                                                                                   =
*** Sample ID:                         Seq:  59     22:34:14 03 Oct 11   HG
                           460-31882-e-53-a
Hg   -.047    ppb      2503
              Bkgd 1   6313478                                                     =
                                                                                   =
*** Check Standard: 2  Ck2ACCV      Seq:  60     22:36:26 03 Oct 11   HG
Line  Flag             Intensities
Hg                     200198
              Bkgd 1   6313924                                                     =
                                                                                   =
*** Check Standard: 1  Ck1ICB/CCB   Seq:  61     22:38:12 03 Oct 11   HG
Line  Flag             Intensities
Hg                     1436
              Bkgd 1   6307745                                                     =
                                                                                   =
*** Sample ID:                         Seq:  62     22:39:59 03 Oct 11   HG
                           460-31882-h-54-a
Hg    .008    ppb      4552
              Bkgd 1   6307180                                                     =
                                                                                   =
*** Sample ID:                         Seq:  63     22:41:45 03 Oct 11   HG
                           460-31882-f-69-a
Hg    1.13    ppb      46407
              Bkgd 1   6305393                                                     =
                                                                                   =
                                    Folder:   88100HG1                    Page 1999
                                    Protocol: SW846A
                                   ***POST-RUN REPORT***
Line   Conc.  Units     SD/RSD      1       2       3       4       5
--------------------------------------------------------------------------------

*** Sample ID:                         Seq:  64     22:43:32 03 Oct 11   HG
                           460-31882-g-70-a
Hg    .024    ppb      5146
              Bkgd 1   6302808                                                     =
```

```
                                                                      =
*** Sample ID:                      Seq:  65     22:45:18 03 Oct 11   HG
                        460-31882-f-71-a
Hg   -.041    ppb       2748
              Bkgd 1    6300962                                       =
                                                                      =
*** Sample ID:                      Seq:  66     22:47:03 03 Oct 11   HG
                        SD 460-31882-h-72-a@
Hg   -.037    ppb       2875
              Bkgd 1    6301273                                       =
                                                                      =
*** Check Standard: 2  Ck2ACCV      Seq:  67     22:48:51 03 Oct 11   HG
Line  Flag             Intensities
Hg                     198745
              Bkgd 1    6300119                                       =
                                                                      =
*** Check Standard: 1  Ck1ICB/CCB   Seq:  68     22:50:34 03 Oct 11   HG
Line  Flag             Intensities
Hg                     737
              Bkgd 1    6297128                                       =
                                                                      =
```

METALS BATCH WORKSHEET

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

Batch Number: 88293 Batch Start Date: 10/05/11 08:22 Batch Analyst: Chen, Mandi

Batch Method: 3050B Batch End Date: 10/05/11 14:00

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	ME_ipmsSPK 00006	ME_LCSS_62 00013		
MB 460-88293/1		3050B, 6020		1.00 g	50 mL				
LCSSRM 460-88293/2		3050B, 6020		1.00 g	50 mL		1 g		
460-31791-A-3	NTB-B2-2.0	3050B, 6020	T	1.02 g	50 mL				
460-31791-A-3 DU	NTB-B2-2.0	3050B, 6020	T	1.03 g	50 mL				
460-31791-A-3 MS	NTB-B2-2.0	3050B, 6020	T	1.03 g	50 mL	1 mL			
460-31791-A-1	NTB-C2-12.0	3050B, 6020	T	1.01 g	50 mL				
460-31791-A-2	NTB-C1-11.0	3050B, 6020	T	1.09 g	50 mL				

Batch Notes	
Balance ID	35
Hydrogen peroxide lot number	1
Lot # of hydrochloric acid	K14068
Logbook ID for diluted Nitric	8
Lot # of Nitric Acid	K15028
Hood ID or number	8
Hot Block ID number	1
Pipette ID	25
Temperature	95 Degrees C
ID number of the thermometer	ICP-3

Basis	Basis Description
T	Total/NA

METALS BATCH WORKSHEET

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

Batch Number: 88100 Batch Start Date: 10/03/11 18:00 Batch Analyst: Staib, Thomas

Batch Method: 7471A Batch End Date: 10/03/11 20:00

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	ME_DCAL-IN 00639	ME_DQCS-INT 00332	ME_LCSS_62 00013	
ICV 460-88100/7		7471A, 7471A		0.60 g	100 mL		5 mL		
CCV 460-88100/8		7471A, 7471A		0.60 g	100 mL		5 mL		
MB 460-88100/10		7471A, 7471A		0.60 g	100 mL				
LCSSRM 460-88100/11		7471A, 7471A		0.60 g	100 mL			0.6 g	
460-31882-F-16 DU		7471A, 7471A	T	0.60 g	100 mL				
460-31882-F-16 MS		7471A, 7471A	T	0.60 g	100 mL	1 mL			
460-31791-A-1	NTB-C2-12.0	7471A, 7471A	T	0.62 g	100 mL				
460-31791-A-2	NTB-C1-11.0	7471A, 7471A	T	0.60 g	100 mL				
460-31791-A-3	NTB-B2-2.0	7471A, 7471A	T	0.61 g	100 mL				

Batch Notes	
Hydroxylamine Hydrochloride Lot	HgR01370
Balance ID	#35
Batch Comment	Autoclave Pressure 15 LBS
Sulfuric Acid Lot Number	K03051
Lot # of hydrochloric acid	HgR01380
Lot # of Nitric Acid	K15028
Hood ID or number	#1
Potassium Permanganate Lot Number	HgR01379
NaCL Lot #	HgR01370
Oven, Bath or Block Temperature 1	Autoclave Temperature 121 Degrees Celcius
Pipette ID	#25
Stannous Chloride Lot Number	HgR01368
ID number of the thermometer	Prep-1

Basis	Basis Description
T	Total/NA

GENERAL CHEMISTRY

COVER PAGE
GENERAL CHEMISTRY

Lab Name: TestAmerica Edison Job Number: 460-31791-1

SDG No.:

Project: PPG Northern Transects

Client Sample ID	Lab Sample ID
NTB-C2-12.0	460-31791-1
NTB-C1-11.0	460-31791-2
NTB-B2-2.0	460-31791-3

Comments:

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: NTB-C2-12.0 Lab Sample ID: 460-31791-1

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG ID.:

Matrix: Solid Date Sampled: 09/28/2011 12:00

Reporting Basis: DRY Date Received: 09/28/2011 17:40

% Solids: 64.1

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
18540-29-9	Cr (VI)	3.2	3.2	0.80	mg/Kg	U		1	7196A

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: NTB-C2-12.0 Lab Sample ID: 460-31791-1

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG ID.:

Matrix: Solid Date Sampled: 09/28/2011 12:00

Reporting Basis: WET Date Received: 09/28/2011 17:40

CAS No.	Analyte	Result			Units	C	Q	DIL	Method
	pH	9.48			SU		HF	1	9045C

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY - SOLUBLE

Client Sample ID: NTB-C2-12.0 Lab Sample ID: 460-31791-1

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG ID.:

Matrix: Solid Date Sampled: 09/28/2011 12:00

Reporting Basis: WET Date Received: 09/28/2011 17:40

CAS No.	Analyte	Result			Units	C	Q	DIL	Method
	Oxidation Reduction Potential	390			millivolts			1	SM 2580B

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: NTB-C1-11.0 Lab Sample ID: 460-31791-2

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG ID.:

Matrix: Solid Date Sampled: 09/28/2011 12:40

Reporting Basis: DRY Date Received: 09/28/2011 17:40

% Solids: 81.4

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
18540-29-9	Cr (VI)	2.5	2.5	0.61	mg/Kg	U		1	7196A

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: NTB-C1-11.0 Lab Sample ID: 460-31791-2

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG ID.:

Matrix: Solid Date Sampled: 09/28/2011 12:40

Reporting Basis: WET Date Received: 09/28/2011 17:40

CAS No.	Analyte	Result			Units	C	Q	DIL	Method
	pH	7.93			SU		HF	1	9045C

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY - SOLUBLE

Client Sample ID: NTB-C1-11.0 Lab Sample ID: 460-31791-2

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG ID.:

Matrix: Solid Date Sampled: 09/28/2011 12:40

Reporting Basis: WET Date Received: 09/28/2011 17:40

CAS No.	Analyte	Result			Units	C	Q	DIL	Method
	Oxidation Reduction Potential	430			millivolts			1	SM 2580B

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: NTB-B2-2.0 Lab Sample ID: 460-31791-3

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG ID.:

Matrix: Solid Date Sampled: 09/28/2011 14:40

Reporting Basis: DRY Date Received: 09/28/2011 17:40

% Solids: 86.9

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
18540-29-9	Cr (VI)	2.2	2.2	0.56	mg/Kg	U		1	7196A

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: NTB-B2-2.0 Lab Sample ID: 460-31791-3

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG ID.:

Matrix: Solid Date Sampled: 09/28/2011 14:40

Reporting Basis: WET Date Received: 09/28/2011 17:40

CAS No.	Analyte	Result			Units	C	Q	DIL	Method
	pH	7.46			SU		HF	1	9045C

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY - SOLUBLE

Client Sample ID: NTB-B2-2.0 Lab Sample ID: 460-31791-3

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG ID.:

Matrix: Solid Date Sampled: 09/28/2011 14:40

Reporting Basis: WET Date Received: 09/28/2011 17:40

CAS No.	Analyte	Result			Units	C	Q	DIL	Method
	Oxidation Reduction Potential	444			millivolts			1	SM 2580B

2-IN
CALIBRATION QUALITY CONTROL
GENERAL CHEMISTRY

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

Analyst: JC Batch Start Date: 10/21/2011

Reporting Units: ug/L Analytical Batch No.: 90310

Sample Number	QC Type	Time	Analyte	Result	Spike Amount	(%) Recovery	Limits	Qual	Reagent
7	ICV	10:42	Cr (VI)	497.6	500	100	90-110		WThcrIM3_00014
8	ICB	10:42	Cr (VI)	10.0				U	
19	CCV	10:42	Cr (VI)	497.6	500	100	90-110		WThcrIM3_00014
20	CCB	10:42	Cr (VI)	10.0				U	

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM II-IN

2-IN
CALIBRATION QUALITY CONTROL
GENERAL CHEMISTRY

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

Analyst: MB Batch Start Date: 10/06/2011

Reporting Units: SU Analytical Batch No.: 88553

Sample Number	QC Type	Time	Analyte	Result	Spike Amount	(%) Recovery	Limits	Qual	Reagent
1	CCV	11:19	pH	7.020	7.00	100	99-101		WTpHCCV_00011
12	CCV	11:38	pH	7.000	7.00	100	99-101		WTpHCCV_00011
23	CCV	11:50	pH	7.010	7.00	100	99-101		WTpHCCV_00011
26	CCV	11:53	pH	7.010	7.00	100	99-101		WTpHCCV_00011

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM II-IN

2-IN
CALIBRATION QUALITY CONTROL
GENERAL CHEMISTRY

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

Analyst: MB Batch Start Date: 10/06/2011

Reporting Units: millivolts Analytical Batch No.: 88558

Sample Number	QC Type	Time	Analyte	Result	Spike Amount	(%) Recovery	Limits	Qual	Reagent
1	ICV	13:00	Oxidation Reduction Potential	675.0	679	99	98-102		WTredoxLCS_00010
12	CCV	13:21	Oxidation Reduction Potential	672.0	679	99	98-102		WTredoxLCS_00010
23	CCV	13:46	Oxidation Reduction Potential	673.0	679	99	98-102		WTredoxLCS_00010

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM II-IN

3-IN
METHOD BLANK
GENERAL CHEMISTRY

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

Method	Lab Sample ID	Analyte	Result	Qual	Units	RL	Dil
Batch ID: 90310	Date: 10/21/2011 10:42	Prep Batch: 90228	Date: 10/20/2011 13:00				
7196A	MB 460-90228/1-A	Cr (VI)	2.0	U	mg/Kg	2.0	1
Batch ID: 88553	Date: 10/06/2011 11:29						
9045C	MB 460-88553/2	pH	5.720		SU		1

5-IN
MATRIX SPIKE SOLUBLE SAMPLE RECOVERY
GENERAL CHEMISTRY

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

Matrix: Solid

Method	Lab Sample ID	Analyte	Result	C	Unit	Spike Amount	Pct. Rec.	Limits	RPD	RPD Limit	Q
Batch ID: 90310	Date: 10/21/2011 10:42		Prep Batch: 90228			Date: 10/20/2011 13:00					
7196A	460-31791-2	Cr (VI)	2.5	U	mg/Kg						
7196A	460-31791-2 MSS	Cr (VI)	38.75		mg/Kg	49.1	79	75-125			
Batch ID: 90310	Date: 10/21/2011 10:42		Prep Batch: 90228			Date: 10/20/2011 13:00					
7196A	460-31791-2	Cr (VI)	2.5	U	mg/Kg						
7196A	460-31791-2 MSI	Cr (VI)	774.5		mg/Kg	870	89	75-125			
Batch ID: 90310	Date: 10/21/2011 10:42		Prep Batch: 90228			Date: 10/20/2011 13:00					
7196A	460-31791-2	Cr (VI)	2.5	U	mg/Kg						
7196A	460-31791-2 PDS	Cr (VI)	55.01		mg/Kg	49.1	112	85-115			

Calculations are performed before rounding to avoid round-off errors in calculated results.
Note - Results and Reporting Limits have been adjusted for dry weight.

FORM V-IN

6-IN
DUPLICATE
GENERAL CHEMISTRY

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

Matrix: Solid

Method	Client Sample ID	Lab Sample ID	Analyte	Result	Unit	RPD	RPD Limit	Qual
Batch ID: 90310	Date: 10/21/2011 10:42	Prep Batch: 90228	Date: 10/20/2011 13:00					
7196A	NTB-C1-11.0	460-31791-2	Cr (VI)	2.5	mg/Kg			U
7196A	NTB-C1-11.0	460-31791-2 DU	Cr (VI)	2.5	mg/Kg	NC	20	U
Batch ID: 88553	Date: 10/06/2011 11:32							
9045C		460-31882-J-16	pH	8.51	SU			
9045C		460-31882-J-16 DU	pH	8.450	SU	0.7	10	
Batch ID: 88558	Date: 10/06/2011 13:07							
SM 2580B		460-31882-J-16-B	Oxidation Reduction Potential	470	millivolts			
SM 2580B		460-31882-J-16-B DU	Oxidation Reduction Potential	468.0	millivolts	0.4	10	

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VI-IN

7A-IN
LAB CONTROL SAMPLE
GENERAL CHEMISTRY

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

Matrix: Solid

Method	Lab Sample ID	Analyte	Result	C	Unit	Spike Amount	Pct. Rec.	Limits	RPD	RPD Limit	Q
Batch ID: 88553		Date: 10/06/2011 11:30									
						LCS Source:	WTpHLCS_00013				
9045C	LCS 460-88553/3	pH	5.490		SU	5.50	100	95-105			

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIIA-IN

7A-IN
LAB CONTROL SAMPLE SOLUBLE
GENERAL CHEMISTRY

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

Matrix: Solid

Method	Lab Sample ID	Analyte	Result	C	Unit	Spike Amount	Pct. Rec.	Limits	RPD	RPD Limit	Q
Batch ID: 90310	Date: 10/21/2011 10:42		Prep Batch: 90228			Date: 10/20/2011 13:00					
						LCS Source: WThcrsLCS_00048					
7196A	LCSS 460-90228/2-A	Cr (VI)	14.71		mg/Kg	14.2	103	85-115			
Batch ID: 90310	Date: 10/21/2011 10:42		Prep Batch: 90228			Date: 10/20/2011 13:00					
						LCS Source: WThcrPbCr_00004					
7196A	LCSI 460-90228/3-A	Cr (VI)	702.9		mg/Kg	708	99	80-120			

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIIA-IN

9-IN
DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: TestAmerica Edison Job Number: 460-31791-1

SDG Number:

Matrix: Solid Instrument ID: WetHexSpec

Method: 7196A MDL Date: 12/22/2008 10:47

Prep Method: 3060A

Analyte	Wavelength/ Mass	RL (mg/Kg)	MDL (mg/Kg)
Cr (VI)		2	0.495

9-IN
CALIBRATION BLANK DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: TestAmerica Edison Job Number: 460-31791-1

SDG Number:

Matrix: Solid Instrument ID: WetHexSpec

Method: 7196A XMDL Date: 12/22/2008 10:48

Analyte	Wavelength/ Mass	XRL (ug/L)	XMDL (ug/L)
Cr (VI)		10	1.51

9-IN
DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: TestAmerica Edison Job Number: 460-31791-1

SDG Number:

Matrix: Solid Instrument ID: NOEQUIP

Method: Moisture RL Date: 02/15/2007 17:07

Analyte	Wavelength/ Mass	RL (%)	
Percent Moisture		1	
Percent Solids		1	

9-IN
CALIBRATION BLANK DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: TestAmerica Edison Job Number: 460-31791-1

SDG Number:

Matrix: Solid Instrument ID: NOEQUIP

Method: Moisture XRL Date: 01/01/2007 16:49

Analyte	Wavelength/ Mass	XRL (%)	
Percent Moisture		1	
Percent Solids		1	

11-IN
LINEAR RANGES
GENERAL CHEMISTRY

Lab Name: TestAmerica Edison Job No: 460-31791-1

SDG No.:

Instrument ID: WetHexSpec Date: 01/01/2009 10:43

Analyte	Integ. Time (Sec.)	Concentration (mg/L)	Method
Cr (VI)		1.25	7196A

12-IN
PREPARATION LOG
GENERAL CHEMISTRY

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

Prep Method: 3060A

Lab Sample ID	Preparation Date	Prep Batch	Initial Weight (g)	Initial Volume	Final Volume (mL)
MB 460-90228/1-A	10/20/2011 13:00	90228	2.50		100
LCSS 460-90228/2-A	10/20/2011 13:00	90228	2.50		100
LCSI 460-90228/3-A	10/20/2011 13:00	90228	2.50		100
460-31791-2	10/20/2011 13:00	90228	2.50		100
460-31791-2 DU	10/20/2011 13:00	90228	2.50		100
460-31791-2 MSS	10/20/2011 13:00	90228	2.50		100
460-31791-2 MSI	10/20/2011 13:00	90228	2.50		100
460-31791-1	10/20/2011 13:00	90228	2.40		100
460-31791-3	10/20/2011 13:00	90228	2.56		100

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

Instrument ID: WetHexSpec Method: 7196A

Start Date: 10/21/2011 09:07 End Date: 10/21/2011 14:25

Lab Sample ID	D/F	Type	Time	Analytes																			
				Cr6																			
IC 460-90310/1			09:07	X																			
IC 460-90310/2			09:07	X																			
IC 460-90310/3			09:07	X																			
IC 460-90310/4			09:07	X																			
IC 460-90310/5			09:07	X																			
IC 460-90310/6			09:07	X																			
ZZZZZZ			09:16																				
ZZZZZZ			09:16																				
ZZZZZZ			09:16																				
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ZZZZZZ			09:16																				
ZZZZZZ			09:16																				
ZZZZZZ			09:16																				
ICV 460-90310/7	1		10:42	X																			
ICB 460-90310/8	1		10:42	X																			
MB 460-90228/1-A	1	T	10:42	X																			
LCSS 460-90228/2-A	1	T	10:42	X																			
LCSI 460-90228/3-A	50	T	10:42	X																			
460-31791-2	1	T	10:42	X																			
460-31791-2 DU	1	T	10:42	X																			
460-31791-2 MSS	1	T	10:42	X																			
460-31791-2 MSI	50	T	10:42	X																			
460-31791-2 PDS	1	T	10:42	X																			
460-31791-1	1	T	10:42	X																			
460-31791-3	1	T	10:42	X																			
CCV 460-90310/19	1		10:42	X																			
CCB 460-90310/20	1		10:42	X																			
ZZZZZZ			14:25																				
ZZZZZZ			14:25																				
ZZZZZZ			14:25																				
ZZZZZZ			14:25																				

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

Instrument ID: WetHexSpec Method: 7196A

Start Date: 10/21/2011 09:07 End Date: 10/21/2011 14:25

Lab Sample ID	D / F	Type	Time	Analytes																			
				Cr6																			
ZZZZZZ			14:25																				
ZZZZZZ			14:25																				
ZZZZZZ			14:25																				
ZZZZZZ			14:25																				
ZZZZZZ			14:25																				
ZZZZZZ			14:25																				
CCV 460-90310/31			14:25																				
CCB 460-90310/32			14:25																				

Prep Types

T = Total/NA

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

Instrument ID: NOEQUIP Method: 9045C

Start Date: 10/06/2011 11:19 End Date: 10/06/2011 11:53

Lab Sample ID	D / F	Type	Time	Analytes																				
				pH																				
CCV 460-88553/1	1		11:19	X																				
MB 460-88553/2	1	T	11:29	X																				
LCS 460-88553/3	1	T	11:30	X																				
ZZZZZZ			11:31																					
460-31882-J-16 DU	1	T	11:32	X																				
ZZZZZZ			11:33																					
ZZZZZZ			11:34																					
ZZZZZZ			11:35																					
ZZZZZZ			11:36																					
ZZZZZZ			11:37																					
ZZZZZZ			11:37																					
CCV 460-88553/12	1		11:38	X																				
ZZZZZZ			11:39																					
ZZZZZZ			11:40																					
ZZZZZZ			11:41																					
ZZZZZZ			11:42																					
ZZZZZZ			11:43																					
ZZZZZZ			11:44																					
ZZZZZZ			11:45																					
ZZZZZZ			11:46																					
ZZZZZZ			11:48																					
460-31791-1	1	T	11:49	X																				
CCV 460-88553/23	1		11:50	X																				
460-31791-2	1	T	11:51	X																				
460-31791-3	1	T	11:52	X																				
CCV 460-88553/26	1		11:53	X																				

Prep Types

T = Total/NA

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: TestAmerica Edison   Job No.: 460-31791-1

SDG No.:

Instrument ID: NOEQUIP   Method: Moisture

Start Date: 10/04/2011 13:14   End Date: 10/05/2011 00:31

Lab Sample ID	D/F	Type	Time	Analytes: % Sol	Moist
ZZZZZZ			13:14		
ZZZZZZ			13:14		
ZZZZZZ			13:14		
ZZZZZZ			13:14		
ZZZZZZ			13:14		
ZZZZZZ			13:14		
ZZZZZZ			13:14		
ZZZZZZ			13:14		
ZZZZZZ			13:14		
ZZZZZZ			13:14		
ZZZZZZ			13:14		
ZZZZZZ			13:14		
ZZZZZZ			13:14		
460-31791-1	1	T	13:14	X	X
460-31791-2	1	T	13:14	X	X
460-31791-3	1	T	13:14	X	X
ZZZZZZ			13:14		
ZZZZZZ			13:14		
ZZZZZZ			13:14		
ZZZZZZ			13:14		
460-31864-A-3 DU	1	T	13:14	X	X
ZZZZZZ			13:14		
ZZZZZZ			13:14		
ZZZZZZ			13:14		
ZZZZZZ			13:14		
ZZZZZZ			13:57		
ZZZZZZ			13:57		
ZZZZZZ			13:57		
ZZZZZZ			13:57		
ZZZZZZ			13:57		
ZZZZZZ			13:57		
ZZZZZZ			13:57		
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ZZZZZZ			13:57		
ZZZZZZ			13:57		
ZZZZZZ			13:57		

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: TestAmerica Edison   Job No.: 460-31791-1

SDG No.:

Instrument ID: NOEQUIP   Method: Moisture

Start Date: 10/04/2011 13:14   End Date: 10/05/2011 00:31

Lab Sample ID	D/F	Type	Time	Analytes																			
				%Sol	Moist																		
ZZZZZZ			13:57																				
ZZZZZZ			13:57																				
ZZZZZZ			13:57																				
ZZZZZZ			13:57																				
ZZZZZZ			13:57																				
ZZZZZZ			13:57																				
ZZZZZZ			13:57																				
ZZZZZZ			14:41																				
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13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: TestAmerica Edison   Job No.: 460-31791-1

SDG No.:

Instrument ID: NOEQUIP   Method: Moisture

Start Date: 10/04/2011 13:14   End Date: 10/05/2011 00:31

Lab Sample ID	D/F	Type	Time	Analytes																			
				% Sol	Moist																		
ZZZZZZ			16:21																				
ZZZZZZ			16:21																				
ZZZZZZ			16:21																				
ZZZZZZ			16:21																				
ZZZZZZ			16:21																				
ZZZZZZ			16:21																				
ZZZZZZ			00:31																				
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13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: TestAmerica Edison   Job No.: 460-31791-1

SDG No.:

Instrument ID: NOEQUIP   Method: Moisture

Start Date: 10/04/2011 13:14   End Date: 10/05/2011 00:31

Lab Sample ID	D/F	Type	Time	Analytes: %Sol	Moist																		
ZZZZZZ			00:31																				
ZZZZZZ			00:31																				
ZZZZZZ			00:31																				
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ZZZZZZ			00:31																				

Prep Types

T = Total/NA

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

Instrument ID: NOEQUIP Method: SM 2580B

Start Date: 10/06/2011 13:00 End Date: 10/06/2011 13:46

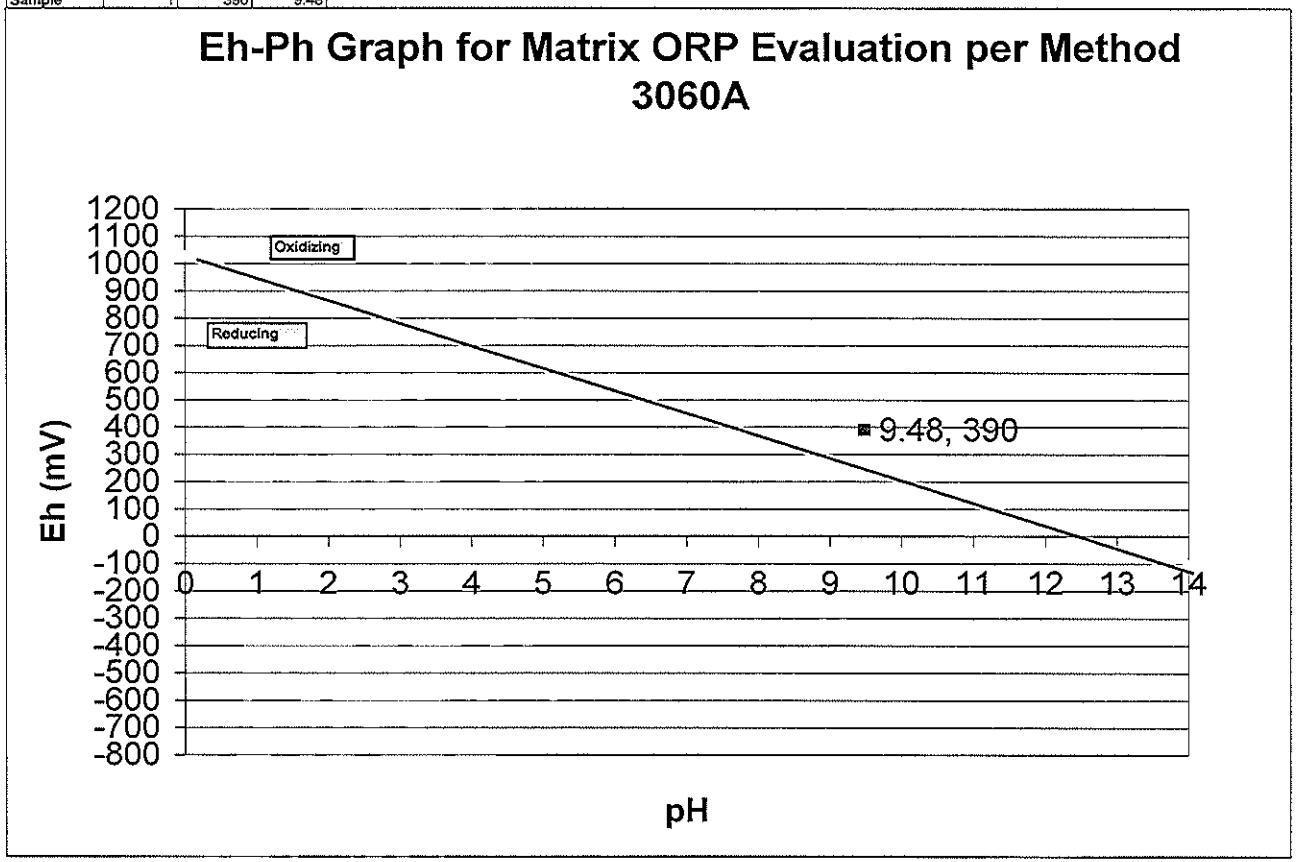
Lab Sample ID	D / F	Type	Time	Analytes																			
				ORP																			
ICV 460-88558/1	1		13:00	X																			
460-31882-J-16-B DU	1	S	13:07	X																			
CCV 460-88558/12	1		13:21	X																			
460-31791-1	1	S	13:40	X																			
460-31791-2	1	S	13:42	X																			
460-31791-3	1	S	13:45	X																			
CCV 460-88558/23	1		13:46	X																			

Prep Types

S = Soluble

Eh-pH Graph
Method SW-846 Method 3060A

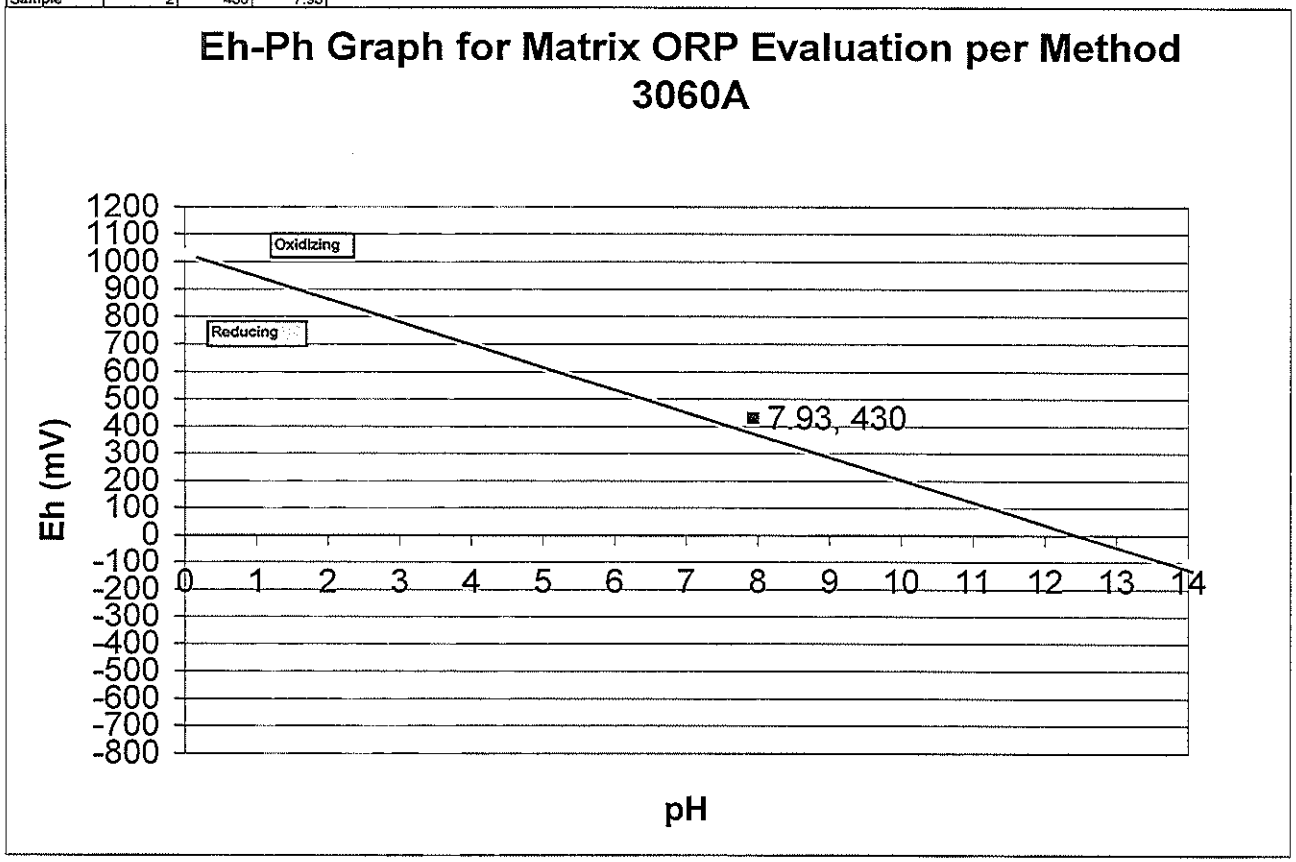
Job	31791	Eh	pH
Sample	1	390	9.48



Eh values plotted on this diagram are corrected for the reference electrode voltage.
Using a combination Platinum electrode, the Eh readings at 20 deg C are adjusted by adding 204 mv.

Eh-pH Graph
Method SW-846 Method 3060A

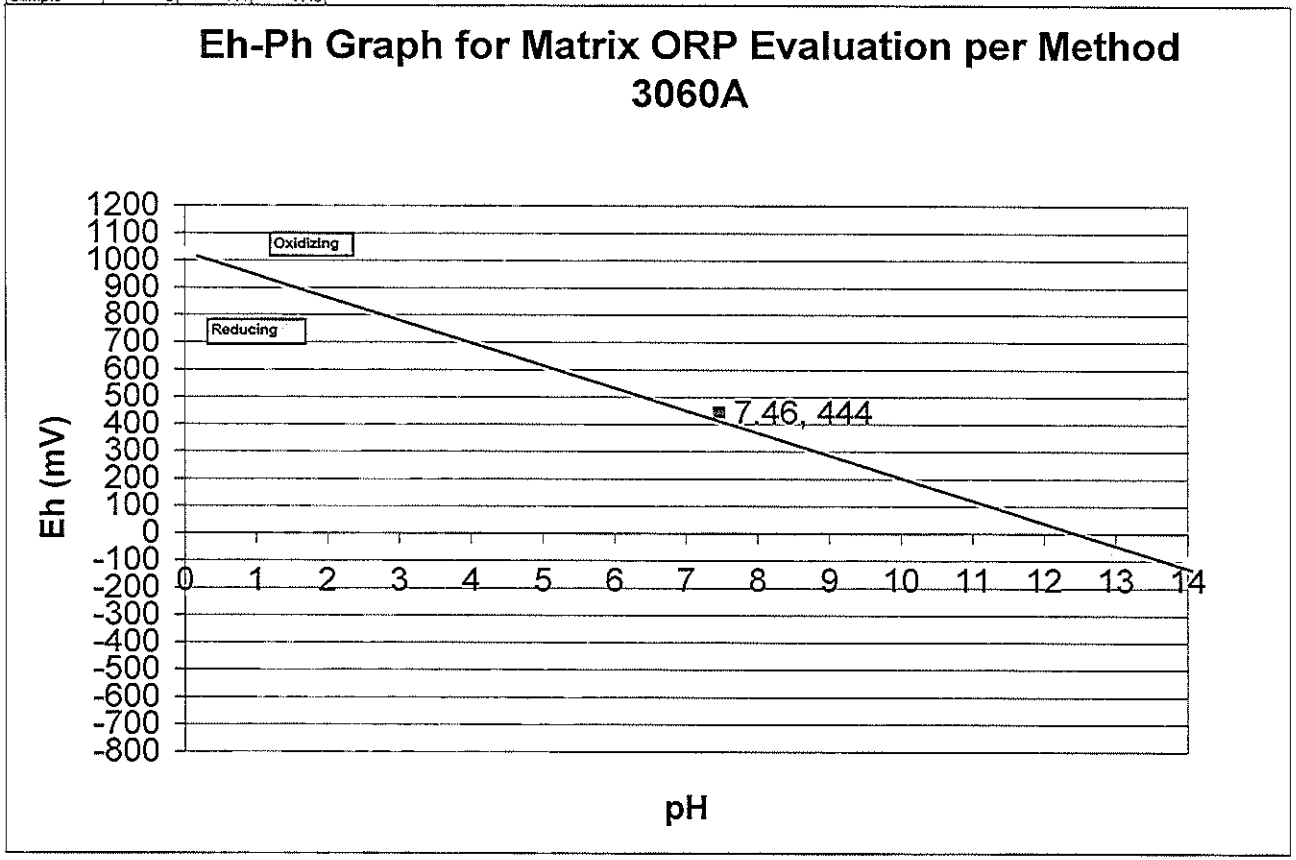
Job	31791	Eh	pH
Sample	2	430	7.93



Eh values plotted on this diagram are corrected for the reference electrode voltage.
Using a combination Platinum electrode, the Eh readings at 20 deg C are adjusted by adding 204 mv.

Eh-pH Graph
Method SW-846 Method 3060A

Job	31791	Eh	pH
Sample	3	444	7.46



Eh values plotted on this diagram are corrected for the reference electrode voltage.
Using a combination Platinum electrode, the Eh readings at 20 deg C are adjusted by adding 204 mv.

PROJECT Cr+6 Prep Log Book

Notebook No. 06203
Continued From Page

Job #			Batch # 90228		Matrix Solid
Sample	Sample Wt(g)	Color	Initial pH		Time
0.0 ppm			7.36	845A	
0.05 ppm			7.54		
0.10 ppm			7.62		
0.50 ppm			7.25		
0.75 ppm			7.39		
1.25 ppm			7.20	851	
ICV			7.80	945	
ICB			7.70		
PB			7.95		
LCS Sol			7.25		
LCS InSol			7.61		
31791-2			7.74		
31791-2 DUP			7.13		
31791-2 Sol			7.38		
31791-2 InSol			7.65		
31791-1			7.24		
31791-3			7.37		
CCS			7.80		
CCB			7.70	1000	
32440-1			7.02	1330	
32441-1			7.44		
32483-1			7.83		
32500-1			7.69		
32505-2			7.40		
32505-3			7.02		
32505-4			7.05		
32505-5			7.11		
32510-1			7.41		
32510-2			7.06		
CCS			7.80		
CCB			7.20	1346	

Continued on Page

Read and Understood By

Signed [signature] Date 10/21/11

Signed Date

10/21/2011

PROJECT Cr+6 Run Log Book

Continued From Page

Job # | Batch # 90310 | Matrix Solid

Sample	dil	ABS	Bg/pH	Tph/Tread		Final pH	Spk
0.0 ppm		0.000		845A	903	~~736~~ 1.70	
0.05 ppm		0.048				~~754~~ 1.69	
0.10 ppm		0.084				~~762~~ 1.63	
0.50 ppm		0.416				~~775~~ 1.60	
0.75 ppm		0.612				~~734~~ 1.61	
1.25 ppm		1.003		858	907	~~710~~ 1.68	
ICV		0.406		1015A	1024	1.67	
ICB		0.000				1.65	
PB		0.000				1.48	
LCS Sol		0.302				1.62	
LCS Insol	1/10	0.289				1.60	
31791-2		~~0.002~~ 0.009	0.004 / 1.63			1.68	
31791-2 DUP		~~0.001~~ 0.008	0.003 / 1.64			1.74	
31791-2 Sol		0.645	0.006 / 1.69			1.64	
31791-2 Insol	1/50	0.260	0.000 / 1.65			1.69	
31791-2 PS		0.408	0.004 / 1.63			1.70	
31791-1		0.025	0.021 / 1.64			1.66	
31791-3		0.054	0.052 / 1.75			1.71	
CCS		0.406				1.67	
CCB		0.000		1019	1042	1.65	
32446-1		0.036	0.018 / 1.79	1400	1412	1.62	
32441-1		0.012	0.004 / 1.65			1.65	
32483-1		0.060	0.000 / 1.63			1.67	
32505-1		0.026	0.009 / 1.60			1.77	
32505-2		0.021	0.016 / 1.66			1.69	
32505-3		0.014	0.005 / 1.68			1.74	
32505-4		0.017	0.008 / 1.71			1.70	
32505-5		0.006	0.001 / 1.67			1.65	
32510-1		0.006	0.001 / 1.60			1.60	
32510-2		0.023	0.009 / 1.61			1.44	
CCS		0.404				1.67	
CCB		0.000		1407	1425	1.65	

JC 10/21/11

Continued on Page

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Signed JC Date 10/21/11 Signed Date

Dilution Form
Wet Chemistry

Method No.: Cr+6 3060A/7196 Analyst: John Cheron

Prep Batch: 90228 Analysis Date: 10/21/11

Analytical Batch: 90310

Job/Sample Number	Dilution Factor	Sample Volume (ml)	Final Volume (ml)	Diluent
31791-2 Filt	10x	1ml	10ml	DI H2O

EDS-WI-101, Rev 0
05/24/11

Calibration

Calib 90310-0 / Cr (VI)

Curve Type:	Linear
Weighting:	None
Origin:	None
Dependency:	Concentration
Calib Mode:	ESTD
RF Rounding:	0

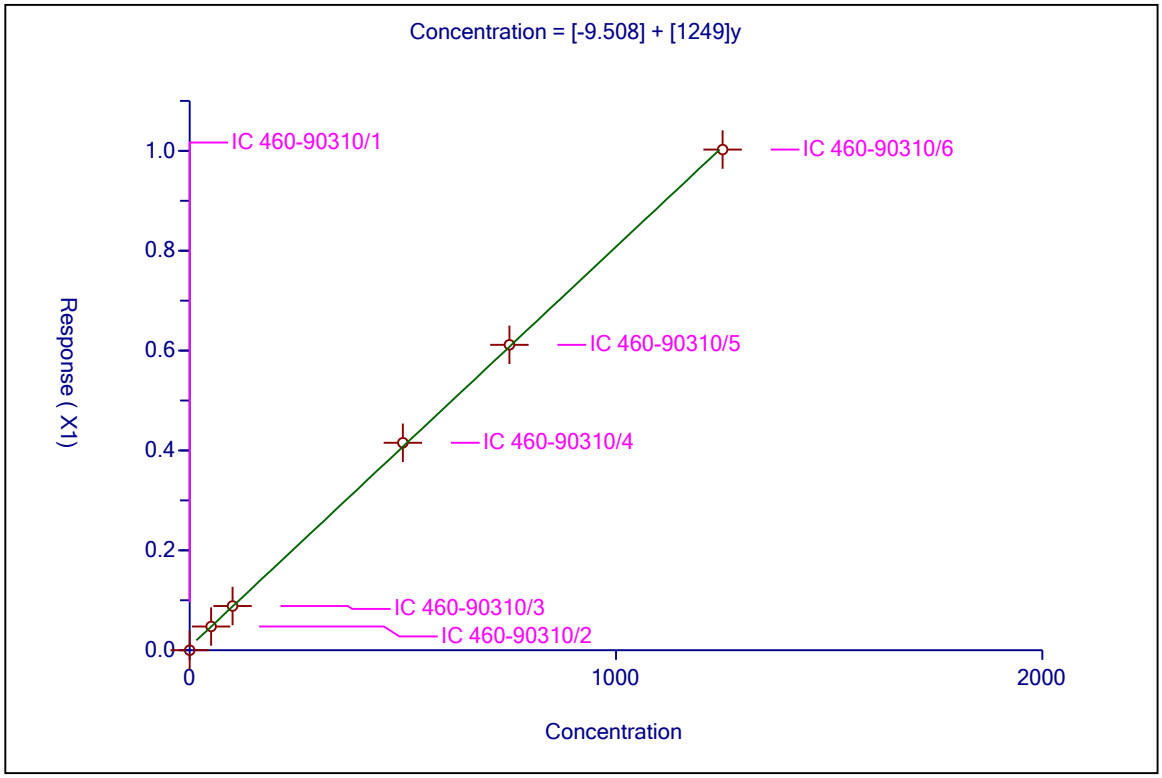
Curve Coefficients

Intercept:	-9.508
Slope:	1249

Error Coefficients

Standard Error:	8.13
Relative Standard Error:	NC
Correlation Coefficient:	1.000
Coefficient of Determination (Adjusted):	1.000 (1.000)

ID	Level	Concentration	Response	IS Amount	IS Response	RF	Used
1	IC 460-90310/1	0.0	0.0			NaN	Y
2	IC 460-90310/2	50.0	0.048			0.00096	Y
3	IC 460-90310/3	100.0	0.089			0.00089	Y
4	IC 460-90310/4	500.0	0.416			0.000832	Y
5	IC 460-90310/5	750.0	0.612			0.000816	Y
6	IC 460-90310/6	1250.0	1.003			0.000802	Y



PROJECT pH / corrosivity

Continued From Page

Buffer	Bottle	Job	Sample	Matrix	D.I	pH1	pH2	Temp C	Time
7.03			CCV			7.03	7.02	21.5	11:19
4.02			MB			5.74	5.72	22.1	11:29
10.05			LCS			5.50	5.49	22.0	11:30
	28553	31882	16J	Solid		8.51		22.8	11:31
			16dup			8.45		22.9	11:32
			15I			10.64		22.8	11:33
			17G			8.61		22.4	11:34
			18G			11.17		22.7	11:35
			33H			11.29		22.8	11:36
			34H			8.29		22.7	11:37
			35I			8.18		22.7	11:37
			CCV			7.01	7.00	21.9	11:38
			36I			7.88		23.2	11:39
			51G			10.39		22.4	11:40
			52H			8.10		23.1	11:41
			53E			7.73		22.9	11:42
			54E			6.23		22.6	11:43
			69H			10.02		22.1	11:44
			70F			7.46		21.8	11:45
			71F			7.93		22.1	11:46
			72I			7.08		22.0	11:48
	31791		1			9.48		21.5	11:49
			CCV			7.00	7.01	22.0	11:50
			2			7.93		22.1	11:51
			3			7.46		21.9	11:52
			CCV			7.00	7.01	21.9	11:53

(PH meter: B)

Reagents in THIS

Continued on Page

Read and Understood By

Signed 10/06/11 Signed Date

PROJECT Redox/EH

Notebook No. 06156

Continued From Page

Batch	JOB	Sample	Matrix	D.L	Analyte #1 Result	Analyte #2 Result	Result	Temp	Time
		ICV			468	471	675	22.5	1:00
88558	31882	16I	Solid		269	266	470	22.1	1:05
		16dup			266	264	468	22.0	1:07
		15I			144	141	345	22.1	1:09
		17G			220	224	428	22.2	1:10
		18G			119	112	316	22.4	1:11
		33H			90	88	292	22.2	1:13
		34H			225	231	435	22.2	1:15
		35I			235	238	442	22.5	1:16
		36I			241	248	452	22.5	1:18
		51G			140	139	343	22.9	1:20
		CCV			465	468	672	22.6	1:21
		52H			288	288	492	22.4	1:26
		53E			293	295	499	22.6	1:28
		54E			370	376	580	22.6	1:30
		69H			195	188	392	23.1	1:33
		70F			285	290	494	22.7	1:35
		71F			271	277	481	22.4	1:36
		72I			305	311	515	22.6	1:38
	31791	1			190	186	390	22.2	1:40
		2			221	226	430	22.8	1:42
		3			236	240	444	22.6	1:45
		CCV			466	469	673	22.7	1:46

Reagents in HALS

Continued on Page

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Signed

10/06/11
Date

Signed

Date 10/21/2011

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

Batch Number: 90228 Batch Start Date: 10/20/11 13:00 Batch Analyst: Acierno, Mark

Batch Method: 3060A Batch End Date: 10/20/11 14:00

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	Initial pH	Final pH	WThcrIM 00028	WThcrPbCr 00004
MB 460-90228/1		3060A, 7196A		2.50 g	100 mL	7.95 SU	1.92 SU		
LCSS 460-90228/2		3060A, 7196A		2.50 g	100 mL	7.25 SU	1.62 SU		
LCSI 460-90228/3		3060A, 7196A		2.50 g	100 mL	7.61 SU	1.60 SU		0.011 g
460-31791-A-2	NTB-C1-11.0	3060A, 7196A	T	2.50 g	100 mL	7.74 SU	1.68 SU		
460-31791-A-2 DU	NTB-C1-11.0	3060A, 7196A	T	2.50 g	100 mL	7.13 SU	1.74 SU		
460-31791-A-2 MSS	NTB-C1-11.0	3060A, 7196A	T	2.50 g	100 mL	7.38 SU	1.64 SU	1 mL	
460-31791-A-2 MSI	NTB-C1-11.0	3060A, 7196A	T	2.50 g	100 mL	7.65 SU	1.69 SU		0.011 g
460-31791-A-1	NTB-C2-12.0	3060A, 7196A	T	2.40 g	100 mL	7.24 SU	1.66 SU		
460-31791-A-3	NTB-B2-2.0	3060A, 7196A	T	2.56 g	100 mL	7.37 SU	1.71 SU		

Lab Sample ID	Client Sample ID	Method Chain	Basis	WThcrsLCS 00048	AnalysisComment				
MB 460-90228/1		3060A, 7196A							
LCSS 460-90228/2		3060A, 7196A		5 mL					
LCSI 460-90228/3		3060A, 7196A							
460-31791-A-2	NTB-C1-11.0	3060A, 7196A	T		lt brn				
460-31791-A-2 DU	NTB-C1-11.0	3060A, 7196A	T		lt brn				
460-31791-A-2 MSS	NTB-C1-11.0	3060A, 7196A	T		lt brn				
460-31791-A-2 MSI	NTB-C1-11.0	3060A, 7196A	T		yellow				
460-31791-A-1	NTB-C2-12.0	3060A, 7196A	T		colorless				
460-31791-A-3	NTB-B2-2.0	3060A, 7196A	T		med brn				

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

Batch Number: 90228 Batch Start Date: 10/20/11 13:00 Batch Analyst: Acierno, Mark

Batch Method: 3060A Batch End Date: 10/20/11 14:00

Batch Notes	
Alkaline Digestion Solution Reagent ID	C-7525-11 exp: 11/5/11
Batch Comment	Temp after 30 minutes = 94.0C
First End time	14:00
Potassium Phosphate Buffer Reagent ID	C-7439-11 exp: 3/6/12
Lead Chromate Lot #	BCBC2419
Lead Chromate Vendor ID	Aldrich
Magnesium Chloride Lot Number	K13R006
Magnesium Chloride Vendor	Aesar
First Start time	13:00
Ending Temperature	94.0C Celsius
Starting Temperature	92.0C Celsius

Basis	Basis Description
T	Total/NA

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

Batch Number: 90310 Batch Start Date: 10/21/11 09:16 Batch Analyst: Carlone, John

Batch Method: 7196A Batch End Date: 10/21/11 14:25

Lab Sample ID	Client Sample ID	Method Chain	Basis	FinalAmount	ColorBlk	UnCorResp	CalcMsg	WThcrIM 00029	WThcrIM3 00014
IC 460-90310/1		7196A		100 mL			Color Resp. is Blank		
IC 460-90310/2		7196A		100 mL			Color Resp. is Blank	0.05 mL	
IC 460-90310/3		7196A		100 mL			Color Resp. is Blank	0.1 mL	
IC 460-90310/4		7196A		100 mL			Color Resp. is Blank	0.5 mL	
IC 460-90310/5		7196A		100 mL			Color Resp. is Blank	0.75 mL	
IC 460-90310/6		7196A		100 mL			Color Resp. is Blank	1.25 mL	
ICV 460-90310/7		7196A		100 mL		0.406 Absorbance	OK w/o Correction		0.5 mL
ICB 460-90310/8		7196A		100 mL		0.000 Absorbance	OK w/o Correction		
MB 460-90228/1-A		7196A		100 mL		0.000 Absorbance	OK w/o Correction		
LCSS 460-90228/2-A		7196A		100 mL		0.302 Absorbance	OK w/o Correction		
LCSI 460-90228/3-A		7196A		100 mL		0.289 Absorbance	OK w/o Correction		
460-31791-A-2-J	NTB-C1-11.0	7196A	T	100 mL	0.004 Absorbance	0.009 Absorbance	OK		
460-31791-A-2-K DU	NTB-C1-11.0	7196A	T	100 mL	0.003 Absorbance	0.008 Absorbance	OK		
460-31791-A-2-L MSS	NTB-C1-11.0	7196A	T	100 mL	0.006 Absorbance	0.645 Absorbance	OK		
460-31791-A-2-M MSI	NTB-C1-11.0	7196A	T	100 mL	0.000 Absorbance	0.260 Absorbance	OK		
460-31791-A-2-J PDS	NTB-C1-11.0	7196A	T	50 mL	0.004 Absorbance	0.908 Absorbance	OK	0.5 mL	
460-31791-A-1-G	NTB-C2-12.0	7196A	T	100 mL	0.021 Absorbance	0.025 Absorbance	OK		
460-31791-A-3-I	NTB-B2-2.0	7196A	T	100 mL	0.052 Absorbance	0.054 Absorbance	OK		
CCV 460-90310/19		7196A		100 mL		0.406 Absorbance	OK w/o Correction		0.5 mL
CCB 460-90310/20		7196A		100 mL		0.000 Absorbance	OK w/o Correction		

Lab Sample ID	Client Sample ID	Method Chain	Basis	AnalysisComment					
IC 460-90310/1		7196A							
IC 460-90310/2		7196A							

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

Batch Number: 90310 Batch Start Date: 10/21/11 09:16 Batch Analyst: Carlone, John

Batch Method: 7196A Batch End Date: 10/21/11 14:25

Lab Sample ID	Client Sample ID	Method Chain	Basis	AnalysisComment					
IC 460-90310/3		7196A							
IC 460-90310/4		7196A							
IC 460-90310/5		7196A							
IC 460-90310/6		7196A							
ICV 460-90310/7		7196A							
ICB 460-90310/8		7196A							
MB 460-90228/1-A		7196A							
LCSS 460-90228/2-A		7196A							
LCSI 460-90228/3-A		7196A							
460-31791-A-2-J	NTB-C1-11.0	7196A	T	1.63					
460-31791-A-2-K DU	NTB-C1-11.0	7196A	T	1.64					
460-31791-A-2-L MSS	NTB-C1-11.0	7196A	T	1.69					
460-31791-A-2-M MSI	NTB-C1-11.0	7196A	T	1.65					
460-31791-A-2-J PDS	NTB-C1-11.0	7196A	T	1.63					
460-31791-A-1-G	NTB-C2-12.0	7196A	T	1.64					
460-31791-A-3-I	NTB-B2-2.0	7196A	T	1.75					
CCV 460-90310/19		7196A							
CCB 460-90310/20		7196A							

Batch Notes	
Spectrophotometer Cell Path Length	1 cm
Color Reagent ID Number	C-7552-11 EXP 11/14/11
Nitric Acid Reagent ID Number	C-7543-11 EXP 4/12/12
Sulfuric Acid Reagent ID Number	C-7548-11 EXP 4/13/12

Basis	Basis Description
T	Total/NA

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

Batch Number: 88553 Batch Start Date: 10/06/11 11:19 Batch Analyst: Cabanganan, Maria

Batch Method: 9045C Batch End Date: 10/06/11 11:53

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	SampleTemp	WTpHCCV 00011	WTpHLCS 00013	
CCV 460-88553/1		9045C		20 mL	20 mL	21.5 Celsius	20 mL		
MB 460-88553/2		9045C		20 mL	20 mL	22.1 Celsius			
LCS 460-88553/3		9045C		20 mL	20 mL	22.0 Celsius		20 mL	
460-31882-J-16 DU		9045C	T	20 g	20 mL	22.9 Celsius			
CCV 460-88553/12		9045C		20 mL	20 mL	21.9 Celsius	20 mL		
460-31791-A-1	NTB-C2-12.0	9045C	T	20 g	20 mL	21.5 Celsius			
CCV 460-88553/23		9045C		20 mL	20 mL	22.0 Celsius	20 mL		
460-31791-A-2	NTB-C1-11.0	9045C	T	20 g	20 mL	22.1 Celsius			
460-31791-A-3	NTB-B2-2.0	9045C	T	20 g	20 mL	21.9 Celsius			
CCV 460-88553/26		9045C		20 mL	20 mL	21.9 Celsius	20 mL		

Batch Notes	
pH Buffer 1 ID	7.00: Fisher/108231 exp. 1/2013
pH Buffer 2 ID	4.00: Thermo/910104 exp. 9/2012
pH Buffer 3 ID	10.00: Fisher/108086 exp. 1/2013
Instrument ID	pH meter B

Basis	Basis Description
T	Total/NA

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

Batch Number: 88198 Batch Start Date: 10/04/11 13:14 Batch Analyst: Armbruster, Chris

Batch Method: Moisture Batch End Date:

Lab Sample ID	Client Sample ID	Method Chain	Basis	DISH#	DishWeight	SampleMassWet	SampleMassDry		
460-31791-A-1	NTB-C2-12.0	Moisture	T	14	1.02 g	6.26 g	4.38 g		
460-31791-A-2	NTB-C1-11.0	Moisture	T	15	1.01 g	6.55 g	5.52 g		
460-31791-A-3	NTB-B2-2.0	Moisture	T	16	1.00 g	6.28 g	5.59 g		
460-31864-A-3 DU		Moisture	T	21	1.01 g	6.69 g	5.32 g		

Batch Notes	
Balance ID	104 No Unit
Date samples were placed in the oven	10/4/11
Oven Temp when samples are put in oven	105, 105 Degrees C
Date samples were removed from oven	10/5/11
Oven Temp when samples removed from oven	101, 99 Degrees C
Time Samples were removed from oven	10:00
Oven ID	1, 2
ID number of the thermometer	1895, 1840

Basis	Basis Description
T	Total/NA

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

Batch Number: 88556 Batch Start Date: 10/06/11 14:17 Batch Analyst: Cabanganan, Maria

Batch Method: DI Leach Batch End Date:

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount				
460-31791-A-1	NTB-C2-12.0	DI Leach, SM 2580B	S	20 g	20 mL				
460-31791-A-2	NTB-C1-11.0	DI Leach, SM 2580B	S	20 g	20 mL				
460-31791-A-3	NTB-B2-2.0	DI Leach, SM 2580B	S	20 g	20 mL				

Batch Notes	

Basis	Basis Description
S	Soluble

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: TestAmerica Edison Job No.: 460-31791-1

SDG No.:

Batch Number: 88558 Batch Start Date: 10/06/11 13:00 Batch Analyst: Cabanganan, Maria

Batch Method: SM 2580B Batch End Date: 10/06/11 13:46

Lab Sample ID	Client Sample ID	Method Chain	Basis	FinalAmount	WTredoxLCS 00010				
ICV 460-88558/1		SM 2580B		20 mL	20 mL				
CCV 460-88558/12		SM 2580B		20 mL	20 mL				
CCV 460-88558/23		SM 2580B		20 mL	20 mL				

Batch Notes	
Batch Comment	Results adjusted by + 204 mV
Quinhydrone Reference Solution Lot #	Orion: 900011
Fe2/Fe3 Standard Lot #	Light Solution: 475 mV +/- 10 mV

Basis	Basis Description

Shipping and Receiving Documents

777 New Durham Road
Edison, New Jersey 08817
Phone: (732) 549-3900 Fax: (732) 549-3679

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

CHAIN OF CUSTODY / ANALYSIS REQUEST

Name (for report and invoice) Bob Cataldo	Samplers Name (Printed) M. Merdinger	Site/Project Identification PPG Northern Transects
Company AECOM - Environment	P. O. # 60213772	State (Location of site): NJ: X NY: Other:
		Regulatory Program:
Address 250 Apollo Drive	Analysis Turnaround Time: Standard X	
City Chelmsford State MA	Rush Charges Authorized For: 2 Week ☐ 1 Week ☐ Other ☐	
Phone 978-905-2100 Fax 978-905-2101		

Sample Identification	Date	Time	Matrix	No. of Cont.	XCR, ehlpH	TAL Metals	HOLD	Sample Numbers
NTB-C2-12.0	9/28/11	1200	SO	1	X	X	X	1
NTB-C1-11.0	9/28/11	1240	SO	1	X	X	X	2
NTB-B2-2.0	9/28/11	1440	SO	1	X	X	X	3

LAB USE ONLY
Project No:
Job No: 31091

ANALYSIS REQUESTED (ENTER "X" BELOW TO INDICATE REQUEST)

Preservation Used: 1 = ICE, 2 = HCl, 3 = H_2SO_4, 4 = HNO_3, 5 = NaOH
6 = Other _____, 7 = Other _____

	XCR, ehlpH	TAL Metals	HOLD
Soil:	1	1	1
Water:			

Special Instructions Please hold analysis until further notice

Water Metals Filtered (Yes/No)? _____

Relinquished by	Company	Date / Time	Received by	Company
1)	AECOM	9/29/11 1530	1) Lusha Smith	TestAmerica
Relinquished by 2) Lusha Smith	TestAmerica	9/28/11 1740	Received by 2)	Test
Relinquished by 3)	Company	Date / Time	Received by 3)	Company
Relinquished by 4)	Company	Date / Time	Received by 4)	Company

Laboratory Certifications: New Jersey (12028), New York (11452), Pennsylvania (68-522), Connecticut (PH-0200), Rhode Island (132).
Massachusetts (M-NJ312), North Carolina (No. 578) #50 3.6

TAL - 0016 (0408)

Login Sample Receipt Checklist

Client: AECOM, Inc.

Job Number: 460-31791-1

Login Number: 31791

List Source: TestAmerica Edison

List Number: 1

Creator: Villadarez, Gerson Timothy S

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	N/A	Not present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.6° C IR 50
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	