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Data Validation Report

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

Introduction

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

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

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

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

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

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

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

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

Sample Information

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

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

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

General Comments

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

Hexavalent Chromium

MS Results

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

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

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

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

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

Laboratory Duplicate Precision

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

Field Duplicate Results

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

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

Data Quality and Usability

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

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

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

ATTACHMENTS

Attachment A: Target Analyte Summary Hitlist(s)

Attachment B: Data Validation Report Form

Attachment A

Target Analyte Summary Hitlist(s)

Soil Target Analyte Summary Hit List (Hexavalent Chromium)

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

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

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

NJDEP Laboratory Footnote

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Attachment B

Data Validation Report Form

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

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

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

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

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

Matrix Spikes

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

Lab Duplicates

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

Field Duplicates

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

Percent Solids

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

SDG#: JB50090	x - concentration	y - response
Batch: GN93231		
Cr+6 ICAL 10/15/13	0	0
Soil	0.01	0.009
(p. 49 of data pkg)	0.05	0.044
	0.1	0.089
	0.3	0.268
	0.5	0.446
	0.8	0.709
	1	0.898

(p. 49 of data pkg)

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

LCS calculation	**GP75260-B1 pgs. 49**			
Background Absorbance	0			
Total absorbance	0.787			
Total absorbance - background	0.787			
Instrument Concentration	0.881			
Sample weight (mg/kg)	0.0025			
Final Volume (L)	0.1			
Dilution Factor	1			
AECOM Calculated LCS Result (mg/Kg)	35.2	OK	Reported Result (mg/Kg)	35.2

%R = Found/True*100	**p. 24**			
True Value (mg/kg)	40			
AECOM Calculated %R	88.1	OK rounding	Reported %R	88.0

MS calculation	**JB50090-4 [186-MFHT1-2-2.0-2.5] pg. 46**
Background reading	0
Total absorbance	0.413
Total absorbance - background	0.413
Instrument Concentration	0.4626
Sample weight (mg/kg)	0.00249
Final Volume (L)	0.1
Percent solids	0.908
Dilution Factor	50

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

%R = Found/True*100	**JB50090-4 [186-MFHT1-2-2.0-2.5] pg. 46**			
True Value (mg/kg)	1020			
Native concentration (mg/Kg)	1.1			
AECOM%R	100.2	OK rounding	Reported %R	99.4

Percent Solids	**JB50090-4 [186-MFHT1-2-2.0-2.5] pg. 27**			
Empty dish weight=	24.26			
Wet weight=	30.89			
Dry weight=	30.28			
AECOM%solids =	90.8	OK	reported %solids=	90.8

Reporting Limit	**JB50090-4 [186-MFHT1-2-2.0-2.5] pg. 46**			
Low Standard	0.01			
Initial weight (mg/kg)	0.00247			
Final volume (L)	0.1			
Percent solids	0.908			
Dilution Factor	1			
Reporting Limit	0.45	OK rounding	Reported RL (mg/Kg)=	0.44

Sample Calculations

	JB50090-4 [186-MFHT1-2-2.0-2.5] pg. 46			
Background reading	0.009			
Total absorbance	0.031			
Total absorbance - background	0.022			
Instrument Response	0.025			
Sample weight (mg/kg)	0.00247			
Final Volume (L)	0.1			
Percent solids	0.908			
Dilution Factor	1			
AECOM Calculated Result (mg/Kg)	1.1	OK	Reported Result (mg/Kg)	1.1

SDG#: JB50090R	x - concentration	y - response
Batch: GN93304		
Cr+6 ICAL 10/16/13	0	0
Soil	0.01	0.009
(p. 53 of data pkg)	0.05	0.044
	0.1	0.091
	0.3	0.267
	0.5	0.448
	0.8	0.701
	1	0.901

(p. 53 of data pkg)

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

LCS calculation	**GP75278-B1 pgs. 53**			
Background Absorbance	0			
Total absorbance	0.852			
Total absorbance - background	0.852			
Instrument Concentration	0.955			
Sample weight (mg/kg)	0.0025			
Final Volume (L)	0.1			
Dilution Factor	1			
AECOM Calculated LCS Result (mg/Kg)	38.2	OK	Reported Result (mg/Kg)	38.2

%R = Found/True*100	**p. 24**			
True Value (mg/kg)	40			
AECOM Calculated %R	95.5	OK	Reported %R	95.5

MS calculation	**JB50090-4R [186-MFHT1-2-2.0-2.5] pg. 53**			
Background reading	0			
Total absorbance	0.511			
Total absorbance - background	0.511			
Instrument Concentration	0.5729			
Sample weight (mg/kg)	0.00247			
Final Volume (L)	0.1			
Percent solids	0.908			
Dilution Factor	50			
AECOM Calculated MS Result (mg/Kg)	1277	OK rounding	Reported Result (mg/Kg)	1280

%R = Found/True*100	**JB50090-4R [186-MFHT1-2-2.0-2.5] pg. 24**			
True Value (mg/kg)	968			
Native concentration (mg/Kg)	1.4			
AECOM%R	131.8	OK rounding	Reported %R	132.0

Percent Solids	**JB50090-4R [186-MFHT1-2-2.0-2.5] pg. 30**			
Empty dish weight=	24.26			
Wet weight=	30.89			
Dry weight=	30.28			
AECOM%solids =	90.8	OK	reported %solids=	90.8

Reporting Limit	**JB50090-4R [186-MFHT1-2-2.0-2.5] pg. 53**			
Low Standard	0.01			
Initial weight (mg/kg)	0.00247			
Final volume (L)	0.1			
Percent solids	0.908			
Dilution Factor	1			
Reporting Limit	0.45	OK rounding	Reported RL (mg/Kg)=	0.44

Sample Calculations

	JB50090-4R [186-MFHT1-2-2.0-2.5] pg. 53			
Background reading	0.011			
Total absorbance	0.038			
Total absorbance - background	0.027			
Instrument Response	0.030			
Sample weight (mg/kg)	0.00247			
Final Volume (L)	0.1			
Percent solids	0.908			
Dilution Factor	1			
AECOM Calculated Result (mg/Kg)	1.4	OK	Reported Result (mg/Kg)	1.4

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Data Validation Report

Project:	Metropolitan Family Health Network Property - Site 186 Borings	
Laboratory:	Accutest, Dayton, NJ	
Laboratory Job No.:	JB45361 and JB45361R	
Analysis/Method:	Hexavalent Chromium SW846 3060A/7196	
Validation Level:	Full	
Site Location/Address:	947 Garfield Avenue, Jersey City, NJ	
AECOM Project No:	60238842.NGA.186.RAM	
Prepared by:	Dion Lewis/AECOM	Completed on: 10/30/2013
Reviewed by:	Mary Kozik/AECOM	File Name: 2013-10-30 DV Report_JB45361_R-F

Introduction

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

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

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

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

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

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

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

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

Sample Information

The samples listed below were collected by AECOM on August 21, 2013 as part of the Metropolitan Family Health Network property, Site 186, 947 Garfield Avenue, Jersey City, New Jersey. Only the samples that were validated are listed below:

Field ID	Laboratory ID	Matrix	Fraction
186-FB20130821 (Equipment Blank)	JB45361-1	Aqueous	Hexavalent Chromium
186-Z1B-3.0-3.5	JB45361-3	Soil	Hexavalent Chromium
186-Z1B-3.0-3.5	JB45361-3R	Soil	Hexavalent Chromium
186-Z1S-2.0-2.5	JB45361-2	Soil	Hexavalent Chromium
186-Z1S-2.0-2.5	JB45361-2R	Soil	Hexavalent Chromium
186-Z2B-4.0-4.5	JB45361-4	Soil	Hexavalent Chromium
186-Z2B-4.0-4.5	JB45361-4R	Soil	Hexavalent Chromium
186-Z2S-NW-2.0-2.5	JB45361-5	Soil	Hexavalent Chromium
186-Z2S-NW-2.0-2.5	JB45361-5R	Soil	Hexavalent Chromium
186-Z2S-NW-2.0-2.5X (Field Duplicate)	JB45361-6	Soil	Hexavalent Chromium
186-Z2S-NW-2.0-2.5X (Field Duplicate)	JB45361-6R	Soil	Hexavalent Chromium
186-Z2S-SW-2.0-2.5	JB45361-7	Soil	Hexavalent Chromium
186-Z2S-SW-2.0-2.5	JB45361-7R	Soil	Hexavalent Chromium
186-Z2S-W-3.0-3.5	JB45361-8	Soil	Hexavalent Chromium
186-Z2S-W-3.0-3.5	JB45361-8R	Soil	Hexavalent Chromium

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

RESULTS

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.

MS Results

Method 7196

Sample 186-Z2B-4.0-4.5 was selected for the soil matrix spike analysis and used for supporting data quality recommendations. The soluble and insoluble matrix spike (MS) recoveries from the initial batch were 66.7% and 165%, respectively and did not meet quality control criteria of 75-125%R. The post digestion spike (PDS) recovery was 87.3%, which met the PDS criteria of 85-115%.

Based on poor MS recoveries, the MS and associated samples were re-digested and re-analyzed using Method 7196. The soluble and insoluble matrix spike recoveries from the re-analysis were 91.8% and 96.3%, respectively and met the quality control criteria of 75-125%R. The post spike result for the re-analysis batch was recovered at 97.3%, which met the PDS criteria of 85-115%.

Since the soluble and/or insoluble MS recoveries were initially outside the acceptable QC limit of 75-125%, additional parameters were analyzed to determine if possible matrix interferences could be the cause for the poor matrix spike recoveries. All the soil samples were tested for pH and oxidation reduction potential (ORP) and plotted on an Eh/pH phase diagram chart. From this chart, the source sample for the matrix spike analysis was plotted on 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 also performed on the MS source sample to confirm the oxidizing/reducing potential within the sample matrix. The sulfide screen was reported as negative, indicating no reducing agents within the sample matrix; however, the ferrous iron (0.41%) and the TOC results (8,450 mg/Kg) were positive, indicating potential reducing agents within the sample matrix.

Since the insoluble MS recovery from the initial batch indicated a potential high bias, and the reanalysis (batch JB45361R) results were improved and within the QC criteria of 75-125%R, the soil hexavalent chromium results for all soil samples in this SDG were reported from the re-digested/re-analyzed batch.

Field Duplicate Results

The field duplicate pair associated with the samples in this SDG was 186-Z2S-NW-2.0-2.5X and 186-Z2S-NW-2.0-2.5X.

The reportable hexavalent chromium results in the initial and re-digested sample sets were greater than 4X the RL in the parent and field duplicate subsamples, while the relative percent difference was 35.1% and 36.5% for the initial and re-digested batches, respectively. The precision criteria (<20% RPD) was not met for these sample sets, and all associated hexavalent chromium data have been J-qualified as estimated.

Data Quality and Usability

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

The soil hexavalent chromium data are usable as estimated values, with unknown directional bias due to the poor field duplicate precision.

ATTACHMENTS

Attachment A: Target Analyte Summary Hitlist(s)

Attachment B: Data Validation Report Form

Attachment A

Target Analyte Summary Hitlist(s)

Soil Target Analyte Summary Hit List (Hexavalent Chromium)

Site Name Metropolitan Family Health Network Property, Site 186 Borings
Sampling Date August 21, 2013
Lab Name/ID Accutest, Dayton, NJ
SDG No JB45361 and JB45361R
Sample Matrix Soil
Trip Blank ID NA
Field Blank ID 186-FB20130821

Field Sample ID	Lab Sample ID	Analyte	Method Blank (mg/kg)	Laboratory Sample Result (mg/kg)	Validation Sample Result (mg/kg)	RL (mg/kg)	Quality Assurance Decision	NJDEP Validation Footnote
186-Z1B-3.0-3.5	JB45361-3R	CHROMIUM (HEXAVALENT)	U	1.1	1.1 J	0.47	Qualify	29
186-Z1S-2.0-2.5	JB45361-2R	CHROMIUM (HEXAVALENT)	U	0.57	0.57 J	0.44	Qualify	29
186-Z2B-4.0-4.5	JB45361-4R	CHROMIUM (HEXAVALENT)	U	2.2	2.2 J	0.51	Qualify	29
186-Z2S-NW-2.0-2.5	JB45361-5R	CHROMIUM (HEXAVALENT)	U	7.4	7.4 J	0.49	Qualify	29
186-Z2S-NW-2.0-2.5X	JB45361-6R	CHROMIUM (HEXAVALENT)	U	10.7	10.7 J	0.50	Qualify	29
186-Z2S-SW-2.0-2.5	JB45361-7R	CHROMIUM (HEXAVALENT)	U	1.7	1.7 J	0.45	Qualify	29
186-Z2S-W-3.0-3.5	JB45361-8R	CHROMIUM (HEXAVALENT)	U	6.6	6.6 J	0.49	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 + 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 soluble predigestion spike recovery was less than 75 %, but greater than 50%.

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

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

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

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

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

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

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

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

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

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

29. In the Field Duplicate Sample Analysis, Hexavalent Chromium fell outside the control limits of ≤ 20% for sample results > 4xRL.

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%.

Soil Target Analyte Summary Hit List (Hexavalent Chromium)

Site Name Metropolitan Family Health Network Property, Site 186 Borings
Sampling Date August 21, 2013
Lab Name/ID Accutest, Dayton, NJ
SDG No JB45361 and JB45361R
Sample Matrix Aqueous
Trip Blank ID NA
Field Blank ID 186-FB20130821

Field Sample ID	Lab Sample ID	Analyte	Method Blank (mg/L)	Laboratory Sample Result (mg/L)	Validation Sample Result (mg/L)	RL (mgL)	Quality Assurance Decision	NJDEP Validation Footnote
186-FB20130821 (Equipment Blank)	JB45361-1	CHROMIUM (HEXAVALENT)	U	0.010 U	0.010 U	0.010	Accept	

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.

Attachment B

Data Validation Report Form

Client Name: PPG Industries	**Project Number:** 60238842.NGA.186.RAM
Site Location: Metropolitan Family Health Network Property Site 186 Borings, Jersey City, NJ	**Project Manager:** Al LoPilato
Laboratory: Accutest, Dayton, NJ	**Type of Validation:** Full
Laboratory Job No: JB45361 and JB45361R	**Date Checked:** NA
Validator: Dion Lewis	**Peer:** Mary Kozik

ITEM	YES	NO	N/A	COMMENTS
Sample results included?	X			
Reporting Limits met project requirements?	X			
Field I.D. included?	X			
Laboratory I.D. included?	X			
Sample matrix included?	X			
Sample receipt temperature 2-6C?	x			
Signed COCs included?	x			Initial receipt date/time not recorded. NO IMPACT: samples hand delivered for immediate lab analysis, bypassing lab login department to reduce time delays and meet critical 1 d TAT
Date of sample collection included?	X			
Date of sample digestion included?	~			Batch ID not recorded on sample digestion log for initial (JB45361) batch. NO IMPACT: Re-digested batch fully documented
Holding time to digestion met criteria? (Soils -30 days from collection to digestion.)	X			
Date of analysis included?	X			
Holding time to analysis met criteria? (Soils -168 hours from digestion to analysis; Aqueous - 24 hours from collection to analysis.	X			
Method reference included?	X			
Laboratory Case Narrative included?	X			

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

ITEM	YES	NO	N/A	COMMENTS
Initial calibration documentation included in lab package?				
1) Blank plus 4 standards (7196A) or blank plus 3 standards (7199)	X			
2) Correlation coefficient of =0.995 (7196A) or =0.999 (7199)	X			
3) Calibrate daily or each time instrument is set up.	X			
Calibration Check Standard (CCS) for 7196A and Quality Control Sample (QCS) for 7199 Included in Lab Package?	X			
1) %R criteria met? (90 - 110%)	X			
2) Correct frequency of one per every 10 samples	X			
3) CCS and QCS from independent source and at mid level of calibration curve	X			
Calibration Blanks				
1) Analyzed prior to initial calibration standards and after each CCS/QCS?	X			
2) Absolute value should not exceed MDL.	X			
Method Blank, Field Blanks and/or Equipment Blanks Included in Lab Package?	X			
1) Method blank analyzed with each preparation batch?	X			
2) Absolute value should not exceed MDL.	X			
Eh and pH Data				
1) Eh and pH data was included and plotted for all samples?	X			
Soluble Matrix Spike Data Included in Lab Package?	X			
1) Soluble Matrix %R criteria met? (75-125%R).	x	x		Initial soluble recovery 66.7; Re-digested sample spike recovery 91.8%
2) Was the spike concentration 40 mg/Kg or twice the sample concentration?	~			Initial batch spike 49.6 mg/Kg; Re-digested batch spike 50 mg/Kg
3) Was a sample spiked at the frequency of 1 per batch or 20 samples?	x			
Insoluble Matrix Spike Data Included in Lab Package?				
1) Insoluble Matrix %R criteria met? (75-125%R).	x	x		Initial insoluble recovery 165; Re-digested sample spike recovery 96.3%
2) Was the spike concentration around 400 to 800 mg/Kg?	x	x		Initial batch spike 814 mg/Kg; Re-digested batch spike 1560 mg/Kg NO IMPACT
3) Was a sample spiked at the frequency of 1 per batch or 20	x			

samples?				
Post Digestion Spike				
1) Post Digestion Spike %R criteria met? (85-115%R).	x			
2) Was the spike concentration 40 mg/Kg or twice the sample concentration?	X			
3) Was a sample spiked at the frequency of 1 per batch or 20 samples?	X			
Sample Duplicate Data Included in Lab Package?				
1) RPD criteria met? (RPD < 20%) if both results are =4x RL or control limit of RL if both results are <4x	X			
2) Was a sample replicated at the frequency of 1 per batch or 20 samples?	X			
Was a Laboratory Control Sample (LCS) Included in Lab Package?	X			
1) %R criteria met? (80-120%R).	X			
2) Was an LCS analyzed at the frequency of 1/batch or 20 samples?	X			
Were any Field Duplicate samples submitted with this SDG?	X			
1) Were Field duplicate RPD criteria met ? (RPD,20% for sample results >4x the RL.		x		Initial batch RPD 35.1; Re-digested batch (-R) RPD 36.5
Were all sample quantitation and reporting requirements met?	X			
1) Were all solid samples reported with percent solids > 50% ?	X			
2) Were any samples analyzed or reported with dilutions?		X		
Miscellaneous Items				
1) For soils by 7196A, was the pH within a range of 7.0-8.0?	x			
2) For soils by 7199, was the pH within a range of 9.0-9.5?			x	
3) For aqueous by 7196A, was the pH with a range of 1.5-2,5?	x			
4) For soils (3060A), was the digestion temperature 90-95C for at least 60 minutes?	x			
5) For 7199, was each sample injected twice and was the RPD =20?			x	

Matrix Spikes

Sample ID	Compound	Analysis Batch	Matrix Spike	% Recovery	Lower Limit	Upper Limit	PDS	PDS Limit
186-Z2B-4.0-4.5	CHROMIUM (HEXAVALENT)	GP74140/GN90427	soluble	66.7	75	125	87.3	85-115
186-Z2B-4.0-4.5	CHROMIUM (HEXAVALENT)	GP74140/GN90427	Insoluble	165	75	125	-	-
186-Z2B-4.0-4.5	CHROMIUM (HEXAVALENT)	GP74231/GN90915	soluble	91.8	75	125	97.3	85-115
186-Z2B-4.0-4.5	CHROMIUM (HEXAVALENT)	GP74231/GN90915	Insoluble	96.3	75	125	-	-

Field Duplicates

Sample ID	Duplicate ID	Compound	Sample Result	Qual	Duplicate Result	Qual	QL	Units	RPD
186-Z2S-NW-2.0-2.5	186-Z2S-NW-2.0-2.5X	CHROMIUM (HEXAVALENT)	15.4		10.8		0.50	mg/kg	35.1
186-Z2S-NW-2.0-2.5	186-Z2S-NW-2.0-2.5X	CHROMIUM (HEXAVALENT)	7.4		10.7		0.49	mg/kg	36.5

Percent Solids

Sample ID	Percent Solids (%)	Status
186-Z1B-3.0-3.5	85.6	ok @50%
186-Z1B-3.0-3.5	85.6	ok @50%
186-Z1S-2.0-2.5	90.5	ok @50%
186-Z1S-2.0-2.5	90.5	ok @50%
186-Z2B-4.0-4.5	78.1	ok @50%
186-Z2B-4.0-4.5	78.1	ok @50%
186-Z2S-NW-2.0-2.5	81.6	ok @50%
186-Z2S-NW-2.0-2.5	81.6	ok @50%
186-Z2S-NW-2.0-2.5X	80.3	ok @50%
186-Z2S-NW-2.0-2.5X	80.3	ok @50%
186-Z2S-SW-2.0-2.5	89.1	ok @50%
186-Z2S-SW-2.0-2.5	89.1	ok @50%
186-Z2S-W-3.0-3.5	82.1	ok @50%
186-Z2S-W-3.0-3.5	82.1	ok @50%

Batch 1 Soils

SDG#: JB45361, Method 7196	x - concentration	y - response
Batch: GP74140/GN90427		
Cr+6 ICAL - 8/24/2013	0	0
Soils	0.01	0.009
(p 45 of data pkg)	0.05	0.042
	0.1	0.092
	0.3	0.268
	0.5	0.45
	0.8	0.712
	1	0.879

				(p 45 of data pkg)
AECOM Calculated Intercept	0.0016	OK	Reported intercept	0.0016
AECOM Slope	0.8837	OK	Reported Slope	0.8837
AECOM Calculated r	0.99993	OK	Reported r	0.99993

LCS calculation	**GP74140-B1**	**p 26, 45**		
Background absorbance	0			
Sample absorbance	0.852			
LCS Soluble Instrument Response	0.852			
Instrument Concentration (mg/L)	0.962			
Sample weight (kg)	0.0025			
Percent solids	1			
Dilution Factor	1			
AECOM Calculated LCS Result (mg/kg)	38.5	OK	Reported Result (mg/kg)	38.5

%R = Found/True*100	**GP74140-B1**	**p 26, 45**		
True Value (mg/kg)	40.0			
AECOM Calculated %R	96.2	OK, rounding	Reported %R	96.3

MS calculation	**GP74140-S1**	**p 28, 29, 45**	**JB45361-4**	
Background reading	0.075			
Total absorbance	0.77			
Total absorbance - background	0.695			
Instrument Concentration (mg/L)	0.7846			
Sample weight (kg)	0.00258			
Percent solids	0.781			
Dilution Factor	1			
AECOM Calculated MS Result (mg/kg)	38.9	OK	Reported Result (mg/kg)	38.9

%R = Found/True*100	**GP73458-S1**	**p 28, 29, 45**	**JB45361-4**	
True Value (mg/kg)	49.6			
Native concentration (mg/kg)	5.84			
AECOM Calculated MS Result %R	66.7	OK, rounding	Reported %R	66.7

Percent Solids	**JB45361-4**	**p 28**		
Empty dish weight (g)=	24.47			
Wet weight (g)=	30.83			
Dry weight (g)=	29.44			
AECOM % solids =	78.1	OK	Reported %solids=	78.1

Reporting Limit	**JB45361-4**		**p 12, 28, 45**		
Low Standard		0.01			
Initial weight (kg)		0.00254			
Final volume (L)		0.1			
Percent solids		0.781			
Dilution Factor		1			
AECOM Calculated Reporting Limit		0.50	OK, rounding	Reported RL (mg/kg)=	0.51

Sample Calculations	**JB45361-5**		**p 13, 28, 45**		
Background reading		0.071			
Total absorbance		0.349			
Total absorbance - background		0.278			
Instrument Response (mg/L)		0.313			
Sample weight (kg)		0.00249			
Final Volume (L)		0.1			
Percent solids		0.816			
Dilution Factor		1			
AECOM Calculated Result (mg/kg)		15.4	OK	Reported Result (mg/kg)	15.4

SDG#: JB45361R, Method 7196	x - concentration	y - response
Batch: GP74231/GN90915		
Cr+6 ICAL - 8/27/2013	0	0
Soils	0.01	0.009
(p 58 of data pkg)	0.05	0.044
	0.1	0.091
	0.3	0.271
	0.5	0.449
	0.8	0.698
	1	0.897

				(p 58 of data pkg)
AECOM Calculated Intercept	0.0009	OK	Reported intercept	0.0009
AECOM Slope	0.8883	OK	Reported Slope	0.8883
AECOM Calculated r	0.99983	OK	Reported r	0.99983

LCS calculation	**GP74231-B1**	**p 22, 58**		
Background absorbance	0			
Sample absorbance	0.884			
LCS Soluble Instrument Response	0.884			
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	**GP74231-B1**	**p 22, 58**		
True Value (mg/kg)	40.0			
AECOM Calculated %R	99.5	OK	Reported %R	99.5

MS calculation	**GP74231-S1**	**p 24, 30, 58**	**JB45361-4R**	
Background reading	0.002			
Total absorbance	0.857			
Total absorbance - background	0.855			
Instrument Concentration (mg/L)	0.9615			
Sample weight (kg)	0.00256			
Percent solids	0.781			
Dilution Factor	1			
AECOM Calculated MS Result (mg/kg)	48.1	OK	Reported Result (mg/kg)	48.1

%R = Found/True*100	**GP73289-S1**	**p 24, 30, 58**	**JB45361-4R**	
True Value (mg/kg)	50			
Native concentration (mg/kg)	2.16			
AECOM Calculated MS Result %R	91.8	OK, rounding	Reported %R	91.8

Percent Solids	**JB45361-4R**	**p 30**		
Empty dish weight (g)=	24.47			
Wet weight (g)=	30.83			
Dry weight (g)=	29.44			
AECOM%solids =	78.1	OK	Reported %solids=	78.1

Reporting Limit	**JB45361-4R**	**p 10, 30, 58**
Low Standard	0.01	
Initial weight (kg)	0.00241	

Final volume (L)	0.1			
Percent solids	0.781			
Dilution Factor	1			
AECOM Calculated Reporting Limit	0.53	OK, rounding	Reported RL (mg/kg)=	0.51

Sample Calculations	**JB45361-6R**	**p 12, 30, 58**		
Background reading	0.015			
Total absorbance	0.203			
Total absorbance - background	0.188			
Instrument Response (mg/L)	0.211			
Sample weight (kg)	0.00246			
Final Volume (L)	0.1			
Percent solids	0.803			
Dilution Factor	1			
AECOM Calculated Result (mg/kg)	10.7	OK	Reported Result (mg/kg)	10.7

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Data Validation Report

Project:	Metropolitan Family Health Network Property - Site 186 Borings	
Laboratory:	Accutest, Dayton, NJ	
Laboratory Job No.:	JB45445 and JB45445R	
Analysis/Method:	Hexavalent Chromium SW846 3060A/7196	
Validation Level:	Full	
Site Location/Address:	947 Garfield Avenue, Jersey City, NJ	
AECOM Project No:	60238842.NGA.186.RAM	
Prepared by:	Dion Lewis/AECOM	Completed on: 11/4/2013
Reviewed by:	Mary Kozik/AECOM	File Name: 2013-11-4 DV Report_JB45445_R-F

Introduction

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

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

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

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

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

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

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

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

Sample Information

The samples listed below were collected by AECOM on August 22, 2013 as part of the Metropolitan Family Health Network property, Site 186, 947 Garfield Avenue, Jersey City, New Jersey. Only the samples that were validated are listed below:

Field ID	Laboratory ID	Matrix	Fraction
186-FB20130822	JB45445-1	Aqueous	Hexavalent Chromium
186-Z1S-W-2.0-2.5	JB45445-2	Soil	Hexavalent Chromium
186-Z1S-W-2.0-2.5	JB45445-2R	Soil	Hexavalent Chromium

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

RESULTS

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.

MS Results

Method 7196

Sample 186-Z1S-W-2.0-2.5 was selected for the soil matrix spike analysis and used for supporting data quality recommendations. The soluble and insoluble matrix spike (MS) recoveries from the initial batch were 65.5% and 70.1%, respectively and did not meet quality control criteria of 75-125%R. The post digestion spike (PDS) recovery was 78.3%, which did not meet the PDS criteria of 85-115%.

Based on poor MS recoveries, the MS and associated samples were re-digested and re-analyzed using Method 7196. The soluble and insoluble matrix spike recoveries from the re-analysis were 64.7% and 85.9%, respectively and the soluble spike did not meet the quality control criteria of 75-125%R. The post spike result for the re-analysis batch was recovered at 91.1%, which met the PDS criteria of 85-115%.

Since the soluble and insoluble MS recoveries were initially outside the acceptable QC limit of 75-125%, additional parameters were analyzed to determine if possible matrix interferences could be the cause for the poor matrix spike recoveries. All the soil samples were tested for pH and oxidation reduction potential (ORP) and plotted on an Eh/pH phase diagram chart. From this chart, the source sample for the matrix spike analysis was plotted above the phase change line, indicating oxidizing potential within the sample matrix capable of supporting hexavalent chromium. Analyses for ferrous iron, sulfide screen, and total organic carbon (TOC) were also performed on the MS source sample to obtain further evidence of the oxidizing/reducing potential within the sample matrix. The sulfide screen was reported as negative, indicating no reducing agents within the sample matrix; however, the ferrous iron (0.71%) and the TOC results (49,000 mg/Kg) were positive, indicating potential reducing agents within the sample matrix.

Since the MS recoveries from the initial batch were below the acceptable QC recovery range of 75-125%, and the soluble spike associated with the re-digested sample set (batch JB45445R) was also

recovered below the acceptable range, the soil hexavalent chromium results for all soil samples in this SDG were reported as estimated with a potential low bias. The highest hexavalent chromium value between the two analytical sample batches was reported.

Data Quality and Usability

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

The soil hexavalent chromium data are usable as estimated values, with potential low bias due to the low matrix spike recovery.

ATTACHMENTS

Attachment A: Target Analyte Summary Hitlist(s)

Attachment B: Data Validation Report Form

Attachment A

Target Analyte Summary Hitlist(s)

Soil Target Analyte Summary Hit List (Hexavalent Chromium)

Site Name Metropolitan Family Health Network Property, Site 186 Borings
Sampling Date August 22, 2013
Lab Name/ID Accutest, Dayton, NJ
SDG No JB45445 and JB45445R
Sample Matrix Soil
Trip Blank ID NA
Field Blank ID 186-FB20130822

Field Sample ID	Lab Sample ID	Analyte	Method Blank (mg/kg)	Laboratory Sample Result (mg/kg)	Validation Sample Result (mg/kg)	RL (mg/kg)	Quality Assurance Decision	NJDEP Validation Footnote
186-Z1S-W-2.0-2.5	JB45445-2	186-Z1S-W-2.0-2.5	U	9.4	9.4 J	0.46	Qualify	18

Note: A “U” under Method Blank column indicates a nondetect result.

A “U” under the Laboratory Sample Result and Validation Sample Result columns indicates a nondetect result at the RL.

NJDEP Laboratory Footnote

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

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

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

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

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

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

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

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

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

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

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

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

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

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

15. This analyte is 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 soluble predigestion spike recovery was less than 75 %, but greater than 50%.

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

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

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

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

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

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

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

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

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

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

29. In the Field Duplicate Sample Analysis, Hexavalent Chromium fell outside the control limits of = 20% for sample results > 4xRL.

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

Soil Target Analyte Summary Hit List (Hexavalent Chromium)

Site Name Metropolitan Family Health Network Property, Site 186 Borings
Sampling Date August 22, 2013
Lab Name/ID Accutest, Dayton, NJ
SDG No JB45445 and JB45445R
Sample Matrix Aqueous
Trip Blank ID NA
Field Blank ID 186-FB20130822

Field Sample ID	Lab Sample ID	Analyte	Method Blank (mg/L)	Laboratory Sample Result (mg/L)	Validation Sample Result (mg/L)	RL (mgL)	Quality Assurance Decision	NJDEP Validation Footnote
186-FB20130822 (Equipment Blank)	JB45445-1	CHROMIUM (HEXAVALENT)	U	0.010 U	0.010 U	0.010	Accept	

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.

Attachment B

Data Validation Report Form

Client Name: PPG Industries	**Project Number:** 60238842.NGA.186.RAM
Site Location: Metropolitan Family Health Network Property Site 186 Borings, Jersey City, NJ	**Project Manager:** Al LoPilato
Laboratory: Accutest, Dayton, NJ	**Type of Validation:** Full
Laboratory Job No: JB45445 and JB45445R	**Date Checked:** NA
Validator: Dion Lewis	**Peer:** Mary Kozik

ITEM	YES	NO	N/A	COMMENTS
Sample results included?	X			
Reporting Limits met project requirements?	X			
Field I.D. included?	X			
Laboratory I.D. included?	X			
Sample matrix included?	X			
Sample receipt temperature 2-6C?	x			
Signed COCs included?	x			Initial receipt date/time not recorded. NO IMPACT: samples hand delivered for immediate lab analysis, bypassing lab login department to reduce time delays and meet critical 1 d TAT
Date of sample collection included?	X			
Date of sample digestion included?	X			
Holding time to digestion met criteria? (Soils -30 days from collection to digestion.)	X			
Date of analysis included?	X			
Holding time to analysis met criteria? (Soils -168 hours from digestion to analysis; Aqueous - 24 hours from collection to analysis.	X			
Method reference included?	X			
Laboratory Case Narrative included?	X			

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

ITEM	YES	NO	N/A	COMMENTS
Initial calibration documentation included in lab package?				
1) Blank plus 4 standards (7196A) or blank plus 3 standards (7199)	X			
2) Correlation coefficient of =0.995 (7196A) or =0.999 (7199)	X			
3) Calibrate daily or each time instrument is set up.	X			
Calibration Check Standard (CCS) for 7196A and Quality Control Sample (QCS) for 7199 Included in Lab Package?	X			
1) %R criteria met? (90 - 110%)	X			
2) Correct frequency of one per every 10 samples	X			
3) CCS and QCS from independent source and at mid level of calibration curve	X			
Calibration Blanks				
1) Analyzed prior to initial calibration standards and after each CCS/QCS?	X			
2) Absolute value should not exceed MDL.	X			
Method Blank, Field Blanks and/or Equipment Blanks Included in Lab Package?	X			
1) Method blank analyzed with each preparation batch?	X			
2) Absolute value should not exceed MDL.	X			
Eh and pH Data				
1) Eh and pH data was included and plotted for all samples?	X			
Soluble Matrix Spike Data Included in Lab Package?	X			
1) Soluble Matrix %R criteria met? (75-125%R).		x		Initial soluble recovery 65.5; Re-digested sample spike recovery 64.7%
2) Was the spike concentration 40 mg/Kg or twice the sample concentration?	~			Initial batch spike 48 mg/Kg; Re-digested batch spike 47 mg/Kg
3) Was a sample spiked at the frequency of 1 per batch or 20 samples?	x			
Insoluble Matrix Spike Data Included in Lab Package?				
1) Insoluble Matrix %R criteria met? (75-125%R).	x	x		Initial insoluble recovery 70.1; Re-digested sample spike recovery 85.9%
2) Was the spike concentration around 400 to 800 mg/Kg?	x	x		Initial batch spike 1430 mg/Kg; Re-digested batch spike 825 mg/Kg NO IMPACT
3) Was a sample spiked at the frequency of 1 per batch or 20	x			

samples?				
Post Digestion Spike				
1) Post Digestion Spike %R criteria met? (85-115%R).	x	x		Initial PDS recovery 78.3; Re-digested PDS recovery 91.1%
2) Was the spike concentration 40 mg/Kg or twice the sample concentration?	X			
3) Was a sample spiked at the frequency of 1 per batch or 20 samples?	X			
Sample Duplicate Data Included in Lab Package?				
1) RPD criteria met? (RPD < 20%) if both results are =4x RL or control limit of RL if both results are <4x	X			
2) Was a sample replicated at the frequency of 1 per batch or 20 samples?	X			
Was a Laboratory Control Sample (LCS) Included in Lab Package?	X			
1) %R criteria met? (80-120%R).	X			
2) Was an LCS analyzed at the frequency of 1/batch or 20 samples?	X			
Were any Field Duplicate samples submitted with this SDG?	X			
1) Were Field duplicate RPD criteria met ? (RPD,20% for sample results >4x the RL.			X	
Were all sample quantitation and reporting requirements met?	X			
1) Were all solid samples reported with percent solids > 50% ?	X			
2) Were any samples analyzed or reported with dilutions?		X		
Miscellaneous Items				
1) For soils by 7196A, was the pH within a range of 7.0-8.0?	x			
2) For soils by 7199, was the pH within a range of 9.0-9.5?			x	
3) For aqueous by 7196A, was the pH with a range of 1.5-2,5?	x			
4) For soils (3060A), was the digestion temperature 90-95C for at least 60 minutes?	x			
5) For 7199, was each sample injected twice and was the RPD =20?			x	

Matrix Spikes

Sample ID	Compound	Analysis Batch	Matrix Spike	% Recovery	Lower Limit	Upper Limit	PDS	PDS Limit
186-Z1S-W-2.0-2.5	CHROMIUM (HEXAVALENT)	GP74347/GN90887	soluble	65.5	75	125	78.3	85-115
186-Z1S-W-2.0-2.5	CHROMIUM (HEXAVALENT)	GP74347/GN90887	Insoluble	70.1	75	125	-	-
186-Z1S-W-2.0-2.5	CHROMIUM (HEXAVALENT)	GP74382/GN90938	soluble	64.7	75	125	91.1	85-115
186-Z1S-W-2.0-2.5	CHROMIUM (HEXAVALENT)	GP74382/GN90938	Insoluble	85.9	75	125	-	-

Percent Solids

Sample ID	Percent Solids (%)	Status
186-Z1S-W-2.0-2.5	86.9	ok @50%

SDG#: JB45445, Method 7196	x - concentration	y - response
Batch: GP74347/GN90887		
Cr+6 ICAL - 9/3/2013	0	0
Soils	0.01	0.009
(p 35 of data pkg)	0.05	0.044
	0.1	0.091
	0.3	0.269
	0.5	0.448
	0.8	0.699
	1	0.888

				(p 35 of data pkg)
AECOM Calculated Intercept	0.0013	OK	Reported intercept	0.0013
AECOM Slope	0.8831	OK	Reported Slope	0.8831
AECOM Calculated r	0.99992	OK	Reported r	0.99992

LCS calculation	**GP74347-B1**	**p 17, 35**		
Background absorbance	0			
Sample absorbance	0.841			
LCS Soluble Instrument Response	0.841			
Instrument Concentration (mg/L)	0.951			
Sample weight (kg)	0.0025			
Percent solids	1			
Dilution Factor	1			
AECOM Calculated LCS Result (mg/kg)	38.0	OK	Reported Result (mg/kg)	38.0

%R = Found/True*100	**GP74347-B1**	**p 17, 35**		
True Value (mg/kg)	40.0			
AECOM Calculated %R	95.1	OK, rounding	Reported %R	95.0

MS calculation	**GP74347-S1**	**p 19, 20, 35**	**JB45445-2**	
Background reading	0.031			
Total absorbance	0.783			
Total absorbance - background	0.752			
Instrument Concentration (mg/L)	0.8501			
Sample weight (kg)	0.0024			
Percent solids	0.869			
Dilution Factor	1			
AECOM Calculated MS Result (mg/kg)	40.8	OK	Reported Result (mg/kg)	40.8

%R = Found/True*100	**GP73458-S1**	**p 19, 20, 35**	**JB45445-2**	
True Value (mg/kg)	48			
Native concentration (mg/kg)	9.42			
AECOM Calculated MS Result %R	65.3	OK, rounding	Reported %R	65.5

Percent Solids	**JB45445-2**	**p 20**		
Empty dish weight (g)=	27.46			
Wet weight (g)=	34.00			
Dry weight (g)=	33.14			
AECOM%solids =	86.9	OK	Reported %solids=	86.9

Reporting Limit	**JB45445-2**		**p 9, 20, 35**		
Low Standard		0.01			
Initial weight (kg)		0.00246			
Final volume (L)		0.1			
Percent solids		0.869			
Dilution Factor		1			
AECOM Calculated Reporting Limit		0.47	OK, rounding	Reported RL (mg/kg)=	0.46

Sample Calculations	**JB45445-2**		**p 9, 20, 35**		
Background reading		0.071			
Total absorbance		0.349			
Total absorbance - background		0.278			
Instrument Response (mg/L)		0.313			
Sample weight (kg)		0.00249			
Final Volume (L)		0.1			
Percent solids		0.816			
Dilution Factor		1			
AECOM Calculated Result (mg/kg)		9.4	OK	Reported Result (mg/kg)	9.4

SDG#: JB45445R, Method 7196 **Batch: GP74382/GN90934**	x - concentration	y - response
Cr+6 ICAL - 9/4/2013	0	0
Soils	0.01	0.009
(p 61 of data pkg)	0.05	0.044
	0.1	0.089
	0.3	0.271
	0.5	0.448
	0.8	0.699
	1	0.886

					(p 61 of data pkg)
AECOM Calculated Intercept		0.0014	OK	Reported intercept	0.0014
AECOM Slope		0.8822	OK	Reported Slope	0.8822
AECOM Calculated r		0.99992	OK	Reported r	0.99992

LCS calculation	**GP74382-B1**		**p 16, 61**		
Background absorbance		0			
Sample absorbance		0.789			
LCS Soluble Instrument Response		0.789			
Instrument Concentration (mg/L)		0.893			
Sample weight (kg)		0.0025			
Percent solids		1			
Dilution Factor		1			
AECOM Calculated LCS Result (mg/kg)		35.7	OK	Reported Result (mg/kg)	35.7

%R = Found/True*100	**GP74382-B1**	**p 16, 61**		
True Value (mg/kg)	40.0			
AECOM Calculated %R	89.3	OK	Reported %R	89.3

MS calculation	**GP74382-S1**	**p 18, 24, 61**	**JB45445-2R**	
Background reading	0.007			
Total absorbance	0.699			
Total absorbance - background	0.692			
Instrument Concentration (mg/L)	0.7828			
Sample weight (kg)	0.00245			
Percent solids	0.869			
Dilution Factor	1			
AECOM Calculated MS Result (mg/kg)	36.8	OK	Reported Result (mg/kg)	36.8

%R = Found/True*100	**GP73289-S1**	**p 18, 24, 61**	**JB45445-2R**	
True Value (mg/kg)	47			
Native concentration (mg/kg)	6.40			
AECOM Calculated MS Result %R	64.7	OK, rounding	Reported %R	64.7

Percent Solids	**JB45445-2R**	**p 24**		
Empty dish weight (g)=	27.46			
Wet weight (g)=	34.00			
Dry weight (g)=	33.14			
AECOM %solids =	86.9	OK	Reported %solids=	86.9

Reporting Limit	**JB45445-2R**	**p 8, 24, 61**		
Low Standard	0.01			
Initial weight (kg)	0.00252			
Final volume (L)	0.1			
Percent solids	0.869			
Dilution Factor	1			
AECOM Calculated Reporting Limit	0.46	OK, rounding	Reported RL (mg/kg)=	0.46

Sample Calculations	**JB45445-2R**	**p 8, 24, 61**		
Background reading	0.01			
Total absorbance	0.135			
Total absorbance - background	0.125			
Instrument Response (mg/L)	0.140			
Sample weight (kg)	0.00252			
Final Volume (L)	0.1			
Percent solids	0.869			
Dilution Factor	1			
AECOM Calculated Result (mg/kg)	6.4	OK	Reported Result (mg/kg)	6.4

AECOM
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Chelmsford, MA 01886-3140

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Data Validation Report

Project:	Metropolitan Family Health Network Property - Site 186 Borings	
Laboratory:	Accutest, Dayton, NJ	
Laboratory Job No.:	JB45245	
Analysis/Method:	Hexavalent Chromium SW846 3060A/7196	
Validation Level:	Full	
Site Location/Address:	947 Garfield Avenue, Jersey City, NJ	
AECOM Project No:	60238842.NGA.186.RAM	
Prepared by:	Dion Lewis/AECOM	Completed on: 11/7/2013
Reviewed by:	Mary Kozik/AECOM	File Name: 2013-11-7 DV Report_JB45245-F

Introduction

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

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

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

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

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

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

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

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

Sample Information

The samples listed below were collected by AECOM on August 20, 2013 as part of the Metropolitan Family Health Network property, Site 186, 947 Garfield Avenue, Jersey City, New Jersey. Only the samples that were validated are listed below:

Field ID	Laboratory ID	Matrix	Fraction
186-FB20130820 (Equipment Blank)	JB45245-7	Aqueous	Hexavalent Chromium
186-Z2S-E-2.0-2.5C	JB45245-5	Solid/Concrete	Hexavalent Chromium
186-Z2S-E-4.0-4.5	JB45245-2	Soil	Hexavalent Chromium
186-Z2S-E-4.0-4.5X (Field Duplicate)	JB45245-3	Soil	Hexavalent Chromium
186-Z2S-NE-2.0-2.5	JB45245-6	Soil	Hexavalent Chromium
186-Z2S-SE-2.0-2.5	JB45245-1	Soil	Hexavalent Chromium
186-Z2S-SE-2.0-2.5C	JB45245-4	Solid/Concrete	Hexavalent Chromium

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

RESULTS

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.

Lab Duplicate Precision

Sample 186-Z2S-SE-2.0-2.5 was analyzed in duplicate to support a laboratory precision assessment. The reporting limit for these replicates was 0.46 mg/Kg and the replicate data were 1.4 and 2.6 mg/Kg.

The relative percent difference (RPD) was 60%, which did not meet the RPD criteria of less than 20% for sample results greater than or equal to four times the reporting limit (RL). The replicate results also did not meet the ± RL criteria in cases where one or more sample results are less than four times the RL. Thus, the detected soil hexavalent chromium samples in this SDG were qualified as estimated (J) with the potential for bias in an unknown direction due to poor laboratory precision.

Field Duplicate Precision

Sample 186-Z2S-E-4.0-4.5X was collected in duplicate to support a field precision assessment. The reporting limit for these replicates was 0.52 mg/Kg and the replicate data were 3.9 and 2.0 mg/Kg.

The RPD was 64.4%, which did not meet the RPD criteria of less than 20% for sample results greater than or equal to four times the RL. The replicate results also did not meet the ± RL criteria in cases where one or more sample results are less than four times the RL. Thus, the detected soil hexavalent chromium samples in this SDG were qualified as estimated (J) with the potential for bias in an unknown direction due to poor field precision.

Data Quality and Usability

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

The soil hexavalent chromium samples in this SDG are usable as estimated values, with unknown directional bias due to the poor laboratory and field precision.

ATTACHMENTS

Attachment A: Target Analyte Summary Hitlist(s)

Attachment B: Data Validation Report Form

Attachment A

Target Analyte Summary Hitlist(s)

Soil Target Analyte Summary Hit List (Hexavalent Chromium)

Site Name Metropolitan Family Health Network Property, Site 186 Borings
Sampling Date August 20, 2013
Lab Name/ID Accutest, Dayton, NJ
SDG No JB45245
Sample Matrix Soil
Trip Blank ID NA
Field Blank ID 186-FB20130820.

Field Sample ID	Lab Sample ID	Analyte	Method Blank (mg/kg)	Laboratory Sample Result (mg/kg)	Validation Sample Result (mg/kg)	RL (mg/kg)	Quality Assurance Decision	NJDEP Validation Footnote
186-Z2S-E-2.0-2.5C	JB45245-5	CHROMIUM (HEXAVALENT)	U	1.0	1.0 J	0.47	Qualify	8, 29
186-Z2S-E-4.0-4.5	JB45245-2	CHROMIUM (HEXAVALENT)	U	3.9	3.9 J	0.52	Qualify	8, 29
186-Z2S-E-4.0-4.5X	JB45245-3	CHROMIUM (HEXAVALENT)	U	2.0	2.0 J	0.52	Qualify	8, 29
186-Z2S-NE-2.0-2.5	JB45245-6	CHROMIUM (HEXAVALENT)	U	1.5	1.5 J	0.47	Qualify	8, 29
186-Z2S-SE-2.0-2.5	JB45245-1	CHROMIUM (HEXAVALENT)	U	1.4	1.4 J	0.46	Qualify	8, 29
186-Z2S-SE-2.0-2.5C	JB45245-4	CHROMIUM (HEXAVALENT)	U	0.85	0.85 J	0.47	Qualify	8, 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 ≤ 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 soluble predigestion spike recovery was less than 75 %, but greater than 50%.

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

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

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

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

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

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

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

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

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

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

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

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

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

low MS recoveries.

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

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

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

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

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

Soil Target Analyte Summary Hit List (Hexavalent Chromium)

Site Name Metropolitan Family Health Network Property, Site 186 Borings
Sampling Date August 20, 2013
Lab Name/ID Accutest, Dayton, NJ
SDG No JB45245
Sample Matrix Aqueous
Trip Blank ID NA
Field Blank ID 186-FB20130820

Field Sample ID	Lab Sample ID	Analyte	Method Blank (mg/L)	Laboratory Sample Result (mg/L)	Validation Sample Result (mg/L)	RL (mgL)	Quality Assurance Decision	NJDEP Validation Footnote
186-FB20130820	JB45245-7	CHROMIUM (HEXAVALENT)	U	0.010 U	0.010 U	0.010	Accept	

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.

Attachment B

Data Validation Report Form

Client Name: PPG Industries	**Project Number:** 60238842.NGA.186.RAM
Site Location: Metropolitan Family Health Network Property Site 186 Borings, Jersey City, NJ	**Project Manager:** Al LoPilato
Laboratory: Accutest, Dayton, NJ	**Type of Validation:** Full
Laboratory Job No: JB45245	**Date Checked:** NA
Validator: Dion Lewis	**Peer:** Mary Kozik

ITEM	YES	NO	N/A	COMMENTS
Sample results included?	X			
Reporting Limits met project requirements?	X			
Field I.D. included?	X			
Laboratory I.D. included?	X			
Sample matrix included?	X			
Sample receipt temperature 2-6C?	x			
Signed COCs included?	~			Initial receipt date/time not recorded. NO IMPACT: samples hand delivered for immediate lab analysis, bypassing lab login department to reduce time delays and meet critical TAT
Date of sample collection included?	X			
Date of sample digestion included?	X			
Holding time to digestion met criteria? (Soils -30 days from collection to digestion.)	X			
Date of analysis included?	X			
Holding time to analysis met criteria? (Soils -168 hours from digestion to analysis; Aqueous - 24 hours from collection to analysis.	X			
Method reference included?	X			
Laboratory Case Narrative included?	X			

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

ITEM	YES	NO	N/A	COMMENTS
Initial calibration documentation included in lab package?				
1) Blank plus 4 standards (7196A) or blank plus 3 standards (7199)	X			
2) Correlation coefficient of =0.995 (7196A) or =0.999 (7199)	X			
3) Calibrate daily or each time instrument is set up.	X			
Calibration Check Standard (CCS) for 7196A and Quality Control Sample (QCS) for 7199 Included in Lab Package?	X			
1) %R criteria met? (90 - 110%)	X			
2) Correct frequency of one per every 10 samples	X			
3) CCS and QCS from independent source and at mid level of calibration curve	X			
Calibration Blanks				
1) Analyzed prior to initial calibration standards and after each CCS/QCS?	X			
2) Absolute value should not exceed MDL.	X			
Method Blank, Field Blanks and/or Equipment Blanks Included in Lab Package?	X			
1) Method blank analyzed with each preparation batch?	X			
2) Absolute value should not exceed MDL.	X			
Eh and pH Data				
1) Eh and pH data was included and plotted for all samples?	X			
Soluble Matrix Spike Data Included in Lab Package?	X			
1) Soluble Matrix %R criteria met? (75-125%R).	X			
2) Was the spike concentration 40 mg/Kg or twice the sample concentration?	~			Matrix spike 46.7 mg/Kg
3) Was a sample spiked at the frequency of 1 per batch or 20 samples?	x			
Insoluble Matrix Spike Data Included in Lab Package?				
1) Insoluble Matrix %R criteria met? (75-125%R).	x			
2) Was the spike concentration around 400 to 800 mg/Kg?	x			
3) Was a sample spiked at the frequency of 1 per batch or 20 samples?	x			
Post Digestion Spike				

1) Post Digestion Spike %R criteria met? (85-115%R).	X			
2) Was the spike concentration 40 mg/Kg or twice the sample concentration?	X			
3) Was a sample spiked at the frequency of 1 per batch or 20 samples?	X			
Sample Duplicate Data Included in Lab Package?	X			
1) RPD criteria met? (RPD < 20%) if both results are =4x RL or control limit of RL if both results are <4x		X		RPD 60%; samples J-qualified
2) Was a sample replicated at the frequency of 1 per batch or 20 samples?	X			
Was a Laboratory Control Sample (LCS) Included in Lab Package?	X			
1) %R criteria met? (80-120%R).	X			
2) Was an LCS analyzed at the frequency of 1/batch or 20 samples?	X			
Were any Field Duplicate samples submitted with this SDG?	X			
1) Were Field duplicate RPD criteria met ? (RPD,20% for sample results >4x the RL.		X		RPD 64.4%; samples J-qualified
Were all sample quantitation and reporting requirements met?	X			
1) Were all solid samples reported with percent solids > 50% ?	X			
2) Were any samples analyzed or reported with dilutions?		X		
Miscellaneous Items				
1) For soils by 7196A, was the pH within a range of 7.0-8.0?	x			
2) For soils by 7199, was the pH within a range of 9.0-9.5?			x	
3) For aqueous by 7196A, was the pH with a range of 1.5-2,5?	x			
4) For soils (3060A), was the digestion temperature 90-95C for at least 60 minutes?	x			
5) For 7199, was each sample injected twice and was the RPD =20?			x	

Lab Duplicates

Sample ID	Compound	Sample Result	Qual	Duplicate Result	Qual	QL	Units	RPD
186-Z2S-SE-2.0-2.5	CHROMIUM (HEXAVALENT)	1.4		2.6		0.46	mg/kg	60

Field Duplicates

Sample ID	Duplicate ID	Compound	Sample Result	Qual	Duplicate Result	Qual	QL	Units	RPD
186-Z2S-E-4.0-4.5	186-Z2S-E-4.0-4.5X	CHROMIUM (HEXAVALENT)	3.9		2		0.52	mg/kg	64.4

Percent Solids

Sample ID	Percent Solids (%)	Status
186-Z2S-E-2.0-2.5C	85.8	ok @50%
186-Z2S-E-4.0-4.5	76.9	ok @50%
186-Z2S-E-4.0-4.5X	77	ok @50%
186-Z2S-NE-2.0-2.5	85.3	ok @50%
186-Z2S-SE-2.0-2.5	87.5	ok @50%
186-Z2S-SE-2.0-2.5C	85.7	ok @50%

SDG#: JB45245, Method 7196	x - concentration	y - response
Batch: GP74117/GN90210		
Cr+6 ICAL - 8/21/2013	0	0
Soils	0.01	0.009
(p 41 of data pkg)	0.05	0.045
	0.1	0.09
	0.3	0.267
	0.5	0.446
	0.8	0.698
	1	0.909

				(p 41 of data pkg)
AECOM Calculated Intercept	-0.0010	OK	Reported intercept	-0.0010
AECOM Slope	0.8956	OK	Reported Slope	0.8956
AECOM Calculated r	0.99969	OK	Reported r	0.99969

LCS calculation	**GP74117-B1**	**p 23, 41**		
Background absorbance	0			
Sample absorbance	0.792			
LCS Soluble Instrument Response	0.792			
Instrument Concentration (mg/L)	0.885			
Sample weight (kg)	0.0025			
Percent solids	1			
Dilution Factor	1			
AECOM Calculated LCS Result (mg/kg)	35.4	OK	Reported Result (mg/kg)	35.4

%R = Found/True*100	**GP74117-B1**	**p 23, 41**		
True Value (mg/kg)	40.0			
AECOM Calculated %R	88.5	OK	Reported %R	88.5

MS calculation	**GP74117-S1**	**p 25, 26, 41**	**JB45245-1**	
Background reading	0			
Total absorbance	0.734			
Total absorbance - background	0.734			
Instrument Concentration (mg/L)	0.8207			
Sample weight (kg)	0.00245			
Percent solids	0.875			
Dilution Factor	1			
AECOM Calculated MS Result (mg/kg)	38.3	OK	Reported Result (mg/kg)	38.3

%R = Found/True*100	**GP74117-S1**	**p 25, 26, 41**	**JB45245-1**	
True Value (mg/kg)	46.7			
Native concentration (mg/kg)	1.39			
AECOM Calculated MS Result %R	78.9	OK, rounding	Reported %R	79.1

Percent Solids	**JB45245-1**	**p 26**		
Empty dish weight (g)=	18.39			
Wet weight (g)=	24.01			
Dry weight (g)=	23.31			
AECOM%solids =	87.5	OK	Reported %solids=	87.5

Reporting Limit	**JB45245-1**	**p 8, 26, 41**		
Low Standard	0.01			
Initial weight (kg)	0.00247			
Final volume (L)	0.1			
Percent solids	0.875			
Dilution Factor	1			
AECOM Calculated Reporting Limit	0.46	OK, rounding	Reported RL (mg/kg)=	0.46

Sample Calculations	**JB45245-3**	**p 10, 26, 41**		
Background reading	0			
Total absorbance	0.032			
Total absorbance - background	0.032			
Instrument Response (mg/L)	0.037			
Sample weight (kg)	0.00245			
Final Volume (L)	0.1			
Percent solids	0.770			
Dilution Factor	1			
AECOM Calculated Result (mg/kg)	2.0	OK	Reported Result (mg/kg)	2.0

AECOM
250 Apollo Drive
Chelmsford, MA 01886-3140

978.905.2100 tel
978.905.2101 fax

Data Validation Report

Project:	Metropolitan Family Health Network Property - Site 186 Borings	
Laboratory:	Accutest, Dayton, NJ	
Laboratory Job No.:	JB47619 and JB47619R	
Analysis/Method:	Hexavalent Chromium SW846 3060A/7196	
Validation Level:	Full	
Site Location/Address:	947 Garfield Avenue, Jersey City, NJ	
AECOM Project No:	60238842.NGA.186.RAM	
Prepared by:	Dion Lewis/AECOM	Completed on: 11/6/2013
Reviewed by:	Mary Kozik/AECOM	File Name: 2013-11-6 DV Report_JB47619_R-F

Introduction

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

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

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

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

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

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

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

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

Sample Information

The samples listed below were collected by AECOM on September 17, 2013 as part of the Metropolitan Family Health Network property, Site 186, 947 Garfield Avenue, Jersey City, New Jersey. Only the samples that were validated are listed below:

Field ID	Laboratory ID	Matrix	Fraction
186-FB20130917 (Equipment Blank)	JB47619-2	Aqueous	Hexavalent Chromium
186-Z3B-6.0-6.5	JB47619-1	Soil	Hexavalent Chromium
186-Z3B-6.0-6.5	JB47619-1R	Soil	Hexavalent Chromium
186-Z3S-E-2.0-2.5	JB47619-3	Soil	Hexavalent Chromium
186-Z3S-E-2.0-2.5	JB47619-3R	Soil	Hexavalent Chromium
186-Z3S-E-2.0-2.5X (Field Duplicate)	JB47619-4	Soil	Hexavalent Chromium
186-Z3S-E-2.0-2.5X (Field Duplicate)	JB47619-4R	Soil	Hexavalent Chromium

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

RESULTS

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.

MS Results

Method 7196

Sample186-Z3B-6.0-6.5 was selected for the soil matrix spike analysis and used for supporting data quality recommendations. The soluble and insoluble matrix spike (MS) recoveries from the initial batch were 69% and 99.1%, respectively and the soluble spike result did not meet quality control recovery criteria of 75-125%. The post digestion spike (PDS) recovery was 84.4% which did not meet the PDS criteria of 85-115%.

Based on the low soluble MS recovery, the MS and associated samples were re-digested and re-analyzed using Method 7196. The soluble and insoluble matrix spike recoveries from the re-analysis were 66.2% and 88.6%, respectively, and the soluble spike again did not meet the quality control criteria of 75-125%R. The post spike result for the re-analysis batch was recovered at 82%, which again did not meet the PDS criteria of 85-115%.

Since the soluble MS recovery was outside the acceptable QC range of 75-125%, additional parameters were analyzed to determine if possible matrix interferences could be the cause for the poor matrix spike recoveries. All the soil samples were tested for pH and oxidation reduction potential (ORP) and plotted on an Eh/pH phase diagram chart. From this chart, the source sample for the matrix spike analysis was plotted below the phase change line, indicating reducing potential within the

sample matrix incapable of supporting hexavalent chromium. Analyses for ferrous iron, sulfide screen, and total organic carbon (TOC) were also performed on the MS source sample to obtain further evidence of the oxidizing/reducing potential within the sample matrix. The sulfide screen was reported as negative, indicating an absence of reduced sulfur/reducing agents within the sample matrix; however, the ferrous iron (0.6%) and the TOC results (20,200 mg/Kg) were positive, indicating potential reducing agents within the sample matrix.

Since the soluble MS recoveries from the initial and re-digested batches were below the acceptable QC recovery range of 75-125%, the soil hexavalent chromium results for all soil samples in this SDG were reported as estimates with a potential low bias. The highest hexavalent chromium data between the initial and re-digested sample batches have been reported.

Field Duplicate

Sample 186-Z3S-E-2.0-2.5 was collected in duplicate to support a field precision assessment. The reporting limit for all replicates (initial and re-digested) was 0.47 mg/Kg. The initial result pair was 6.4 and 1.3 mg/Kg and the re-digested pair was 1.8 and 1.2 mg/Kg. Three of four replicate results were at concentrations that preclude a duplicate precision assessment (i.e., < 4x the RL), and no further assessment is warranted.

Data Quality and Usability

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

The soil hexavalent chromium data are usable as estimated values, with potential low bias due to the low matrix spike recovery.

ATTACHMENTS

Attachment A: Target Analyte Summary Hitlist(s)

Attachment B: Data Validation Report Form

Attachment A

Target Analyte Summary Hitlist(s)

Soil Target Analyte Summary Hit List (Hexavalent Chromium)

Site Name Metropolitan Family Health Network Property, Site 186 Borings
Sampling Date September 17, 2013
Lab Name/ID Accutest, Dayton, NJ
SDG No JB47619 and JB47619R
Sample Matrix Soil
Trip Blank ID NA
Field Blank ID 186-FB20130917

Field Sample ID	Lab Sample ID	Analyte	Method Blank (mg/kg)	Laboratory Sample Result (mg/kg)	Validation Sample Result (mg/kg)	RL (mg/kg)	Quality Assurance Decision	NJDEP Validation Footnote
186-Z3B-6.0-6.5	JB47619-1R	CHROMIUM (HEXAVALENT)	U	1.8	1.8 J	0.48	Qualify	18
186-Z3S-E-2.0-2.5	JB47619-3	CHROMIUM (HEXAVALENT)	U	6.4	6.4 J	0.47	Qualify	18
186-Z3S-E-2.0-2.5X	JB47619-4	CHROMIUM (HEXAVALENT)	U	1.3	1.3 J	0.47	Qualify	18

Note: A “U” under Method Blank column indicates a nondetect result.

A “U” under the Laboratory Sample Result and Validation Sample Result columns indicates a nondetect result at the RL.

NJDEP Laboratory Footnote

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

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

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

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

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

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

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

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

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

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

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

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

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

15. This analyte is 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 soluble predigestion spike recovery was less than 75 %, but greater than 50%.

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

Soil Target Analyte Summary Hit List (Hexavalent Chromium)

Site Name Metropolitan Family Health Network Property, Site 186 Borings
Sampling Date September 17, 2013
Lab Name/ID Accutest, Dayton, NJ
SDG No JB47619 and JB47619R
Sample Matrix Aqueous
Trip Blank ID NA
Field Blank ID 186-FB20130917

Field Sample ID	Lab Sample ID	Analyte	Method Blank (mg/L)	Laboratory Sample Result (mg/L)	Validation Sample Result (mg/L)	RL (mgL)	Quality Assurance Decision	NJDEP Validation Footnote
186-FB20130917 (Equipment Blank)	JB47619-2	CHROMIUM (HEXAVALENT)	U	0.010 U	0.010 U	0.010	Accept	

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.

Attachment B

Data Validation Report Form

Client Name: PPG Industries	**Project Number:** 60238842.NGA.186.RAM
Site Location: Metropolitan Family Health Network Property Site 186 Borings, Jersey City, NJ	**Project Manager:** Al LoPilato
Laboratory: Accutest, Dayton, NJ	**Type of Validation:** Full
Laboratory Job No: JB47619 and JB47619R	**Date Checked:** NA
Validator: Dion Lewis	**Peer:** Mary Kozik

ITEM	YES	NO	N/A	COMMENTS
Sample results included?	X			
Reporting Limits met project requirements?	X			
Field I.D. included?	X			
Laboratory I.D. included?	X			
Sample matrix included?	X			
Sample receipt temperature 2-6C?	x			
Signed COCs included?	x			Initial receipt date/time not recorded. NO IMPACT: samples hand delivered for immediate lab analysis, bypassing lab login department to reduce time delays and meet critical 1 d TAT
Date of sample collection included?	X			
Date of sample digestion included?	X			
Holding time to digestion met criteria? (Soils -30 days from collection to digestion.)	X			
Date of analysis included?	X			
Holding time to analysis met criteria? (Soils -168 hours from digestion to analysis; Aqueous - 24 hours from collection to analysis.	X			
Method reference included?	X			
Laboratory Case Narrative included?	X			

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

ITEM	YES	NO	N/A	COMMENTS
Initial calibration documentation included in lab package?				
1) Blank plus 4 standards (7196A) or blank plus 3 standards (7199)	X			
2) Correlation coefficient of =0.995 (7196A) or =0.999 (7199)	X			
3) Calibrate daily or each time instrument is set up.	X			
Calibration Check Standard (CCS) for 7196A and Quality Control Sample (QCS) for 7199 Included in Lab Package?	X			
1) %R criteria met? (90 - 110%)	X			
2) Correct frequency of one per every 10 samples	X			
3) CCS and QCS from independent source and at mid level of calibration curve	X			
Calibration Blanks				
1) Analyzed prior to initial calibration standards and after each CCS/QCS?	X			
2) Absolute value should not exceed MDL.	X			
Method Blank, Field Blanks and/or Equipment Blanks Included in Lab Package?	X			
1) Method blank analyzed with each preparation batch?	X			
2) Absolute value should not exceed MDL.	X			
Eh and pH Data				
1) Eh and pH data was included and plotted for all samples?	X			
Soluble Matrix Spike Data Included in Lab Package?	X			
1) Soluble Matrix %R criteria met? (75-125%R).		x		Initial soluble recovery 69; Re-digested sample spike recovery 66.2%
2) Was the spike concentration 40 mg/Kg or twice the sample concentration?	~			Initial batch spike 46.8 mg/Kg; Re-digested batch spike 47 mg/Kg
3) Was a sample spiked at the frequency of 1 per batch or 20 samples?	x			
Insoluble Matrix Spike Data Included in Lab Package?				
1) Insoluble Matrix %R criteria met? (75-125%R).	x			
2) Was the spike concentration around 400 to 800 mg/Kg?	~			Initial batch spike 913 mg/Kg; Re-digested batch spike 907mg/Kg NO IMPACT
3) Was a sample spiked at the frequency of 1 per batch or 20 samples?	x			

Post Digestion Spike				
1) Post Digestion Spike %R criteria met? (85-115%R).		x		Initial PDS recovery 84.4; Re-digested PDS recovery 82%
2) Was the spike concentration 40 mg/Kg or twice the sample concentration?	X			
3) Was a sample spiked at the frequency of 1 per batch or 20 samples?	X			
Sample Duplicate Data Included in Lab Package?				
1) RPD criteria met? (RPD < 20%) if both results are =4x RL or control limit of RL if both results are <4x	X			
2) Was a sample replicated at the frequency of 1 per batch or 20 samples?	X			
Was a Laboratory Control Sample (LCS) Included in Lab Package?	X			
1) %R criteria met? (80-120%R).	X			
2) Was an LCS analyzed at the frequency of 1/batch or 20 samples?	X			
Were any Field Duplicate samples submitted with this SDG?	X			
1) Were Field duplicate RPD criteria met ? (RPD,20% for sample results >4x the RL.	X			
Were all sample quantitation and reporting requirements met?	X			
1) Were all solid samples reported with percent solids > 50% ?	X			
2) Were any samples analyzed or reported with dilutions?		X		
Miscellaneous Items				
1) For soils by 7196A, was the pH within a range of 7.0-8.0?	x			
2) For soils by 7199, was the pH within a range of 9.0-9.5?			x	
3) For aqueous by 7196A, was the pH with a range of 1.5-2,5?	x			
4) For soils (3060A), was the digestion temperature 90-95C for at least 60 minutes?	x			
5) For 7199, was each sample injected twice and was the RPD =20?			x	

Matrix Spikes

Sample ID	Compound	Analysis Batch	Matrix Spike	% Recovery	Lower Limit	Upper Limit	Qual
186-Z3B-6.0-6.5	CHROMIUM (HEXAVALENT)	GP74678/GN91724	Soluble	69	75	125	J
186-Z3B-6.0-6.5	CHROMIUM (HEXAVALENT)	GP74678/GN91724	Insoluble	99.1	75	125	
186-Z3B-6.0-6.5	CHROMIUM (HEXAVALENT)	GP74698/GN91811	Soluble	66.2	75	125	J
186-Z3B-6.0-6.5	CHROMIUM (HEXAVALENT)	GP74698/GN91811	Insoluble	88.6	75	125	

Field Duplicates

Sample ID	Duplicate ID	Compound	Sample Result	Qual	Duplicate Result	Qual	QL	Units	RPD
186-Z3S-E-2.0-2.5	186-Z3S-E-2.0-2.5X	CHROMIUM (HEXAVALENT)	6.4		1.3		0.47	mg/kg	132.5
186-Z3S-E-2.0-2.5	186-Z3S-E-2.0-2.5X	CHROMIUM (HEXAVALENT)	1.8		1.2		0.47	mg/kg	40

Percent Solids

Sample ID	Percent Solids (%)	Status
186-Z3B-6.0-6.5	84.1	ok @50%
186-Z3S-E-2.0-2.5	84.5	ok @50%
186-Z3S-E-2.0-2.5X	84.7	ok @50%

SDG#: JB47619, Method 7196	x - concentration	y - response
Batch: GP74678/GN91724		
Cr+6 ICAL - 9/18/2013	0	0
Soils	0.01	0.009
(p 35 of data pkg)	0.05	0.044
	0.1	0.087
	0.3	0.268
	0.5	0.449
	0.8	0.694
	1	0.895

				(p 35 of data pkg)
AECOM Calculated Intercept	-0.00006	OK, Rounding	Reported intercept	-0.00005
AECOM Slope	0.8864	OK	Reported Slope	0.8864
AECOM Calculated r	0.99979	OK	Reported r	0.99979

LCS calculation	**GP74678-B1**	**p 19, 35**		
Background absorbance	0			
Sample absorbance	0.845			
LCS Soluble Instrument Response	0.845			
Instrument Concentration (mg/L)	0.953			
Sample weight (kg)	0.0025			
Percent solids	1			
Dilution Factor	1			
AECOM Calculated LCS Result (mg/kg)	38.1	OK	Reported Result (mg/kg)	38.1

.

%R = Found/True*100	**GP74678-B1**	**p 19, 35**		
True Value (mg/kg)	40.0			
AECOM Calculated %R	95.3	OK, rounding	Reported %R	95.3

MS calculation	**GP74678-S1**	**p 21, 22, 35**	**JB47619-1**	
Background reading	0.039			
Total absorbance	0.656			
Total absorbance - background	0.617			
Instrument Concentration (mg/L)	0.6961			
Sample weight (kg)	0.00254			
Percent solids	0.841			
Dilution Factor	1			
AECOM Calculated MS Result (mg/kg)	32.6	OK	Reported Result (mg/kg)	32.6

%R = Found/True*100	**GP73458-S1**	**p 21, 22, 35**	**JB47619-1**	
True Value (mg/kg)	46.8			
Native concentration (mg/kg)	0.27			
AECOM Calculated MS Result %R	69.1	OK, rounding	Reported %R	69.0

Percent Solids	**JB47619-1**		**p 22**		
Empty dish weight (g)=		23.57			
Wet weight (g)=		31.80			
Dry weight (g)=		30.49			
AECOM%solids =		84.1	OK	Reported %solids=	84.1

Reporting Limit	**JB47619-1**		**p 8, 22, 35**		
Low Standard		0.01			
Initial weight (kg)		0.00251			
Final volume (L)		0.1			
Percent solids		0.841			
Dilution Factor		1			
AECOM Calculated Reporting Limit		0.47	OK, rounding	Reported RL (mg/kg)=	0.48

Sample Calculations	**JB47619-3**		**p 10, 22, 35**		
Background reading		0.007			
Total absorbance		0.124			
Total absorbance - background		0.117			
Instrument Response (mg/L)		0.132			
Sample weight (kg)		0.00246			
Final Volume (L)		0.1			
Percent solids		0.845			
Dilution Factor		1			
AECOM Calculated Result (mg/kg)		6.4	OK	Reported Result (mg/kg)	6.4

SDG#: JB47619R, Method 7196	x - concentration	y - response
Batch: GP74698/GN91811		
Cr+6 ICAL - 9/19/2013	0	0
Soils	0.01	0.009
(p 55 of data pkg)	0.05	0.044
	0.1	0.092
	0.3	0.271
	0.5	0.449
	0.8	0.697
	1	0.895

				(p 55 of data pkg)
AECOM Calculated Intercept	0.0013	OK, rounding	Reported intercept	0.0013
AECOM Slope	0.8864	OK	Reported Slope	0.8864
AECOM Calculated r	0.99983	OK	Reported r	0.99983

LCS calculation	**GP74698-B1**	**p 18, 55**		
Background absorbance	0			
Sample absorbance	0.859			
LCS Soluble Instrument Response	0.859			
Instrument Concentration (mg/L)	0.968			
Sample weight (kg)	0.0025			
Percent solids	1			
Dilution Factor	1			
AECOM Calculated LCS Result (mg/kg)	38.7	OK	Reported Result (mg/kg)	38.7

%R = Found/True*100	**GP74698-B1**	**p 18, 55**		
True Value (mg/kg)	40.0			
AECOM Calculated %R	96.8	OK	Reported %R	96.8

MS calculation	**GP74698-S1**	**p 20, 26, 55**	**JB47619-1R**	
Background reading	0.019			
Total absorbance	0.641			
Total absorbance - background	0.622			
Instrument Concentration (mg/L)	0.7002			
Sample weight (kg)	0.00253			
Percent solids	0.841			
Dilution Factor	1			
AECOM Calculated MS Result (mg/kg)	32.9	OK	Reported Result (mg/kg)	32.9

%R = Found/True*100	**GP73289-S1**	**p 20, 26, 55**	**JB47619-1R**	
True Value (mg/kg)	47			
Native concentration (mg/kg)	1.76			
AECOM Calculated MS Result %R	66.3	OK, rounding	Reported %R	66.2

Percent Solids	**JB47619-1R**	**p 26**		
Empty dish weight (g)=	23.57			
Wet weight (g)=	31.80			
Dry weight (g)=	30.49			
AECOM%solids =	84.1	OK	Reported %solids=	84.1

Reporting Limit	**JB47619-1R**	**p 8, 26, 55**		
Low Standard	0.01			
Initial weight (kg)	0.00242			
Final volume (L)	0.1			
Percent solids	0.841			
Dilution Factor	1			
AECOM Calculated Reporting Limit	0.49	OK, rounding	Reported RL (mg/kg)=	0.48

Sample Calculations	**JB47619-4R**	**p 10, 26, 55**		
Background reading	0.002			
Total absorbance	0.026			
Total absorbance - background	0.024			
Instrument Response (mg/L)	0.026			
Sample weight (kg)	0.00255			
Final Volume (L)	0.1			
Percent solids	0.847			
Dilution Factor	1			
AECOM Calculated Result (mg/kg)	1.2	OK	Reported Result (mg/kg)	1.2

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Data Validation Report

Project:	Metropolitan Family Health Network Property - Site 186 Borings	
Laboratory:	Accutest, Dayton, NJ	
Laboratory Job No.:	JB47736 and JB47736R	
Analysis/Method:	Hexavalent Chromium SW846 3060A/7196	
Validation Level:	Full	
Site Location/Address:	947 Garfield Avenue, Jersey City, NJ	
AECOM Project No:	60238842.NGA.186.RAM	
Prepared by:	Dion Lewis/AECOM	Completed on: 11/6/2013
Reviewed by:	Mary Kozik/AECOM	File Name: 2013-11-6 DV Report_JB47736_R-F

Introduction

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

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

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

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

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

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

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

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

Sample Information

The samples listed below were collected by AECOM on September 18, 2013 as part of the Metropolitan Family Health Network property, Site 186, 947 Garfield Avenue, Jersey City, New Jersey. Only the samples that were validated are listed below:

Field ID	Laboratory ID	Matrix	Fraction
186-FB20130918 (Equipment Blank)	JB47736-2	Aqueous	Hexavalent Chromium
186-Z1B-W-6.0-6.5	JB47736-6	Soil	Hexavalent Chromium
186-Z1B-W-6.0-6.5	JB47736-6R	Soil	Hexavalent Chromium
186-Z3B-C1-6.0-6.5	JB47736-3	Soil	Hexavalent Chromium
186-Z3B-C1-6.0-6.5	JB47736-3R	Soil	Hexavalent Chromium
186-Z3B-N1-6.0-6.5	JB47736-1	Soil	Hexavalent Chromium
186-Z3B-N1-6.0-6.5	JB47736-1R	Soil	Hexavalent Chromium
186-Z3S-N-2.0-2.5C	JB47736-4	Soil	Hexavalent Chromium
186-Z3S-N-2.0-2.5C	JB47736-4R	Soil	Hexavalent Chromium
186-Z3S-N-6.0-6.5	JB47736-5	Soil	Hexavalent Chromium
186-Z3S-N-6.0-6.5	JB47736-5R	Soil	Hexavalent Chromium

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

RESULTS

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.

MS Results

Method 7196

Sample186-Z3B-N1-6.0-6.5 was selected for the soil matrix spike analysis and used for supporting data quality assessments. The soluble and insoluble matrix spike (MS) recoveries from the initial batch were 74.4% and 85.2%, respectively, and the soluble spike result did not meet quality control recovery criteria of 75-125%. The post digestion spike (PDS) recovery was 88.4% which met the PDS criteria of 85-115%.

Based on the low soluble MS recovery, the MS and associated samples were re-digested and re-analyzed using Method 7196. The soluble and insoluble matrix spike recoveries from the re-analysis were 59.4% and 101.9%, respectively, and the soluble spike again did not meet the quality control criteria of 75-125%R. The post spike result for the re-analysis batch was recovered at 96.7%, which again met the PDS criteria of 85-115%.

Since the soluble MS recovery was outside the acceptable QC range of 75-125%, additional parameters were analyzed to determine if possible matrix interferences could be the cause for the

poor matrix spike recoveries. All of the soil samples were tested for pH and oxidation reduction potential (ORP) and plotted on an Eh/pH phase diagram chart. From this chart, the source sample for the matrix spike analysis was plotted below the phase change line, indicating reducing potential within the sample matrix incapable of supporting hexavalent chromium. Analyses for ferrous iron, sulfide screen, and total organic carbon (TOC) were also performed on the MS source sample to obtain further evidence of the oxidizing/reducing potential within the sample matrix. The sulfide screen was reported as negative, indicating an absence of reduced sulfur/reducing agents within the sample matrix; however, the ferrous iron (0.54%) and the TOC results (2,440 mg/Kg) were positive, indicating potential reducing agents within the sample matrix.

Since the soluble MS recoveries from the initial and re-digested batches were below the acceptable QC recovery range of 75-125%, the soil hexavalent chromium results for all soil samples in this SDG were reported as estimates with a potential low bias. The highest hexavalent chromium data between the initial and re-digested sample batches have been reported.

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 estimates (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 presented in Attachments A and B below.

The soil hexavalent chromium data are usable as estimated values, with potential low bias due to the low matrix spike recovery.

ATTACHMENTS

Attachment A: Target Analyte Summary Hitlist(s)

Attachment B: Data Validation Report Form

Attachment A

Target Analyte Summary Hitlist(s)

Soil Target Analyte Summary Hit List (Hexavalent Chromium)

Site Name Metropolitan Family Health Network Property, Site 186 Borings
Sampling Date September 18, 2013
Lab Name/ID Accutest, Dayton, NJ
SDG No JB47736 and JB47736R
Sample Matrix Soil
Trip Blank ID NA
Field Blank ID 186-FB20130918

Field Sample ID	Lab Sample ID	Analyte	Method Blank (mg/kg)	Laboratory Sample Result (mg/kg)	Validation Sample Result (mg/kg)	RL (mg/kg)	Quality Assurance Decision	NJDEP Validation Footnote
186-Z1B-W-6.0-6.5	JB47736-6R	CHROMIUM (HEXAVALENT)	U	0.37B	0.37 J	0.46	Qualify	18, 31
186-Z3B-C1-6.0-6.5	JB47736-3R	CHROMIUM (HEXAVALENT)	U	0.37B	0.37 J	0.45	Qualify	18, 31
186-Z3B-N1-6.0-6.5	JB47736-1R	CHROMIUM (HEXAVALENT)	U	0.54	0.54 J	0.47	Qualify	18
186-Z3S-N-2.0-2.5C	JB47736-4R	CHROMIUM (HEXAVALENT)	U	0.53	0.53 J	0.42	Qualify	18
186-Z3S-N-6.0-6.5	JB47736-5R	CHROMIUM (HEXAVALENT)	U	0.27B	0.27 J	0.47	Qualify	18, 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 + 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 soluble predigestion spike recovery was less than 75 %, but greater than 50%.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Soil Target Analyte Summary Hit List (Hexavalent Chromium)

Site Name Metropolitan Family Health Network Property, Site 186 Borings
Sampling Date September 18, 2013
Lab Name/ID Accutest, Dayton, NJ
SDG No JB47736 and JB47736R
Sample Matrix Aqueous
Trip Blank ID NA
Field Blank ID 186-FB20130918

Field Sample ID	Lab Sample ID	Analyte	Method Blank (mg/L)	Laboratory Sample Result (mg/L)	Validation Sample Result (mg/L)	RL (mgL)	Quality Assurance Decision	NJDEP Validation Footnote
186-FB20130918	JB47736-2	CHROMIUM (HEXAVALENT)	U	0.003 B	0.003 J	0.010	Accept	1

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.

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

Attachment B

Data Validation Report Form

Client Name: PPG Industries	**Project Number:** 60238842.NGA.186.RAM
Site Location: Metropolitan Family Health Network Property Site 186 Borings, Jersey City, NJ	**Project Manager:** Al LoPilato
Laboratory: Accutest, Dayton, NJ	**Type of Validation:** Full
Laboratory Job No: JB47736 and JB47736R	**Date Checked:** NA
Validator: Dion Lewis	**Peer:** Mary Kozik

ITEM	YES	NO	N/A	COMMENTS
Sample results included?	X			
Reporting Limits met project requirements?	X			
Field I.D. included?	X			
Laboratory I.D. included?	X			
Sample matrix included?	X			
Sample receipt temperature 2-6C?	x			
Signed COCs included?	x			Initial receipt date/time not recorded. NO IMPACT: samples hand delivered for immediate lab analysis, bypassing lab login department to reduce time delays and meet critical TAT
Date of sample collection included?	X			
Date of sample digestion included?	X			
Holding time to digestion met criteria? (Soils -30 days from collection to digestion.)	X			
Date of analysis included?	X			
Holding time to analysis met criteria? (Soils -168 hours from digestion to analysis; Aqueous - 24 hours from collection to analysis.	X			
Method reference included?	X			
Laboratory Case Narrative included?	X			

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

ITEM	YES	NO	N/A	COMMENTS
Initial calibration documentation included in lab package?				
1) Blank plus 4 standards (7196A) or blank plus 3 standards (7199)	X			
2) Correlation coefficient of =0.995 (7196A) or =0.999 (7199)	X			
3) Calibrate daily or each time instrument is set up.	X			
Calibration Check Standard (CCS) for 7196A and Quality Control Sample (QCS) for 7199 Included in Lab Package?	X			
1) %R criteria met? (90 - 110%)	X			
2) Correct frequency of one per every 10 samples	X			
3) CCS and QCS from independent source and at mid level of calibration curve	X			
Calibration Blanks				
1) Analyzed prior to initial calibration standards and after each CCS/QCS?	X			
2) Absolute value should not exceed MDL.	X			
Method Blank, Field Blanks and/or Equipment Blanks Included in Lab Package?	X			
1) Method blank analyzed with each preparation batch?	X			
2) Absolute value should not exceed MDL.	X			
Eh and pH Data				
1) Eh and pH data was included and plotted for all samples?	X			
Soluble Matrix Spike Data Included in Lab Package?	X			
1) Soluble Matrix %R criteria met? (75-125%R).		x		Initial soluble recovery 74.4%; Re-digested sample spike recovery 59.4%
2) Was the spike concentration 40 mg/Kg or twice the sample concentration?	~			Initial batch spike 48.2 mg/Kg; Re-digested batch spike 48.1 mg/Kg
3) Was a sample spiked at the frequency of 1 per batch or 20 samples?	x			
Insoluble Matrix Spike Data Included in Lab Package?				
1) Insoluble Matrix %R criteria met? (75-125%R).	x			
2) Was the spike concentration around 400 to 800 mg/Kg?	~			Initial batch spike 820 mg/Kg; Re-digested batch spike 1050 mg/Kg NO IMPACT
3) Was a sample spiked at the frequency of 1 per batch or 20 samples?	x			

Post Digestion Spike				
1) Post Digestion Spike %R criteria met? (85-115%R).	X			
2) Was the spike concentration 40 mg/Kg or twice the sample concentration?	X			
3) Was a sample spiked at the frequency of 1 per batch or 20 samples?	X			
Sample Duplicate Data Included in Lab Package?				
1) RPD criteria met? (RPD < 20%) if both results are =4x RL or control limit of RL if both results are <4x	X			
2) Was a sample replicated at the frequency of 1 per batch or 20 samples?	X			
Was a Laboratory Control Sample (LCS) Included in Lab Package?	X			
1) %R criteria met? (80-120%R).	X			
2) Was an LCS analyzed at the frequency of 1/batch or 20 samples?	X			
Were any Field Duplicate samples submitted with this SDG?		X		
1) Were Field duplicate RPD criteria met ? (RPD,20% for sample results >4x the RL.			X	
Were all sample quantitation and reporting requirements met?	X			
1) Were all solid samples reported with percent solids > 50% ?	X			
2) Were any samples analyzed or reported with dilutions?		X		
Miscellaneous Items				
1) For soils by 7196A, was the pH within a range of 7.0-8.0?	x			
2) For soils by 7199, was the pH within a range of 9.0-9.5?			x	
3) For aqueous by 7196A, was the pH with a range of 1.5-2,5?	x			
4) For soils (3060A), was the digestion temperature 90-95C for at least 60 minutes?	x			
5) For 7199, was each sample injected twice and was the RPD =20?			x	

Matrix Spikes

Sample ID	Compound	Analysis Batch	Matrix Spike	% Recovery	Lower Limit	Upper Limit	Qual
186-Z3B-N1-6.0-6.5	CHROMIUM (HEXAVALENT)	GP74697/GN91832	Soluble	74.4	75	125	J
186-Z3B-N1-6.0-6.5	CHROMIUM (HEXAVALENT)	GP74697/GN91832	Insoluble	85.2	75	125	
186-Z3B-N1-6.0-6.5	CHROMIUM (HEXAVALENT)	GP74750/GN91929	Soluble	59.4	75	125	J
186-Z3B-N1-6.0-6.5	CHROMIUM (HEXAVALENT)	GP74750/GN91929	Insoluble	101.9	75	125	

Percent Solids

Sample ID	Percent Solids (%)	Status
186-Z1B-W-6.0-6.5	87.6	ok @50%
186-Z3B-C1-6.0-6.5	88.1	ok @50%
186-Z3B-N1-6.0-6.5	84.6	ok @50%
186-Z3S-N-2.0-2.5C	94.8	ok @50%
186-Z3S-N-6.0-6.5	85.7	ok @50%

SDG#: JB47736, Method 7196	x - concentration	y - response
Batch: GP74697/GN91832		
Cr+6 ICAL - 9/19/2013	0	0
Soils	0.01	0.009
(p 41 of data pkg)	0.05	0.045
	0.1	0.091
	0.3	0.27
	0.5	0.449
	0.8	0.698
	1	0.889

				(p 41 of data pkg)
AECOM Calculated Intercept	0.0017	OK	Reported intercept	0.0017
AECOM Slope	0.8831	OK	Reported Slope	0.8831
AECOM Calculated r	0.99989	OK	Reported r	0.99989

LCS calculation	**GP74697-B1**	**p 22, 41**		
Background absorbance	0			
Sample absorbance	0.753			
LCS Soluble Instrument Response	0.753			
Instrument Concentration (mg/L)	0.851			
Sample weight (kg)	0.0025			
Percent solids	1			
Dilution Factor	1			
AECOM Calculated LCS Result (mg/kg)	34.0	OK	Reported Result (mg/kg)	34.0

.

%R = Found/True*100	**GP74697-B1**	**p 22, 41**		
True Value (mg/kg)	40.0			
AECOM Calculated %R	85.1	OK, rounding	Reported %R	85.0

MS calculation	**GP74697-S1**	**p 24, 25, 41**	**JB47736-1**	
Background reading	0.001			
Total absorbance	0.668			
Total absorbance - background	0.667			
Instrument Concentration (mg/L)	0.7534			
Sample weight (kg)	0.00245			
Percent solids	0.846			
Dilution Factor	1			
AECOM Calculated MS Result (mg/kg)	36.3	OK	Reported Result (mg/kg)	36.3

%R = Found/True*100	**GP73458-S1**	**p 24, 25, 41**	**JB47736-1**	
True Value (mg/kg)	48.2			
Native concentration (mg/kg)	0.39			
AECOM Calculated MS Result %R	74.6	OK, rounding	Reported %R	74.4

Percent Solids	**JB47736-1**	**p 25**		
Empty dish weight (g)=	25.96			
Wet weight (g)=	34.23			
Dry weight (g)=	32.96			
AECOM%solids =	84.6	OK	Reported %solids=	84.6

Reporting Limit	**JB47736-1**		**p 8, 25, 41**		
Low Standard		0.01			
Initial weight (kg)		0.0025			
Final volume (L)		0.1			
Percent solids		0.846			
Dilution Factor		1			
AECOM Calculated Reporting Limit		0.47	OK	Reported RL (mg/kg)=	0.47

Sample Calculations	**JB47736-6**		**p 13, 25, 41**		
Background reading		0.001			
Total absorbance		0.009			
Total absorbance - background		0.008			
Instrument Response (mg/L)		0.007			
Sample weight (kg)		0.00247			
Final Volume (L)		0.1			
Percent solids		0.876			
Dilution Factor		1			
AECOM Calculated Result (mg/kg)		0.33	OK	Reported Result (mg/kg)	0.33

SDG#: JB47736R, Method 7196	x - concentration	y - response
Batch: GP74750/GN91929		
Cr+6 ICAL - 9/21/2013	0	0
Soils	0.01	0.009
(p 43 of data pkg)	0.05	0.042
	0.1	0.091
	0.3	0.264
	0.5	0.444
	0.8	0.692
	1	0.889

				(p 43 of data pkg)
AECOM Calculated Intercept	-0.000005	OK	Reported intercept	-5.E-06
AECOM Slope	0.8808	OK	Reported Slope	0.8808
AECOM Calculated r	0.99984	OK	Reported r	0.99984

LCS calculation	**GP74750-B1**	**p 20, 43**		
Background absorbance	0			
Sample absorbance	0.831			
LCS Soluble Instrument Response	0.831			
Instrument Concentration (mg/L)	0.943			
Sample weight (kg)	0.0025			
Percent solids	1			
Dilution Factor	1			
AECOM Calculated LCS Result (mg/kg)	37.7	OK	Reported Result (mg/kg)	37.7

%R = Found/True*100	**GP74750-B1**	**p 20, 43**		
True Value (mg/kg)	40.0			
AECOM Calculated %R	94.3	OK	Reported %R	94.3

MS calculation	**GP74750-S1**	**p 22, 28, 43**	**JB47736-1R**	
Background reading	0.004			
Total absorbance	0.538			
Total absorbance - background	0.534			
Instrument Concentration (mg/L)	0.6063			
Sample weight (kg)	0.00246			
Percent solids	0.846			
Dilution Factor	1			
AECOM Calculated MS Result (mg/kg)	29.1	OK	Reported Result (mg/kg)	29.1

%R = Found/True*100	**GP73289-S1**	**p 22, 28, 43**	**JB47736-1R**	
True Value (mg/kg)	48.1			
Native concentration (mg/kg)	0.54			
AECOM Calculated MS Result %R	59.4	OK	Reported %R	59.4

Percent Solids	**JB47736-1R**	**p 28**		
Empty dish weight (g)=	25.96			
Wet weight (g)=	34.23			
Dry weight (g)=	32.96			
AECOM%solids =	84.6	OK	Reported %solids=	84.6

Reporting Limit	**JB47736-1R**	**p 8, 26, 55**		
Low Standard	0.01			
Initial weight (kg)	0.00248			
Final volume (L)	0.1			
Percent solids	0.846			
Dilution Factor	1			
AECOM Calculated Reporting Limit	0.48	OK, rounding	Reported RL (mg/kg)=	0.47

Sample Calculations	**JB47736-4R**	**p 10, 28, 43**		
Background reading	0			
Total absorbance	0.011			
Total absorbance - background	0.011			
Instrument Response (mg/L)	0.012			
Sample weight (kg)	0.00247			
Final Volume (L)	0.1			
Percent solids	0.948			
Dilution Factor	1			
AECOM Calculated Result (mg/kg)	0.53	OK	Reported Result (mg/kg)	0.53

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Data Validation Report

Project:	Metropolitan Family Health Network Property - Site 186 Borings	
Laboratory:	Accutest, Dayton, NJ	
Laboratory Job No.:	JB48160	
Analysis/Method:	Hexavalent Chromium SW846 3060A/7196	
Validation Level:	Full	
Site Location/Address:	947 Garfield Avenue, Jersey City, NJ	
AECOM Project No:	60238842.NGA.186.RAM	
Prepared by:	Dion Lewis/AECOM	Completed on: 11/6/2013
Reviewed by:	Mary Kozik/AECOM	File Name: 2013-11-6 DV Report_JB48160-F

Introduction

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

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

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

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

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

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

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

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

Sample Information

The samples listed below were collected by AECOM on September 23, 2013 as part of the Metropolitan Family Health Network property, Site 186, 947 Garfield Avenue, Jersey City, New Jersey. Only the samples that were validated are listed below:

Field ID	Laboratory ID	Matrix	Fraction
186-FB20130923 (Equipment Blank)	JB48160-2	Aqueous	Hexavalent Chromium
186-Z3S-NE-2.0-2.5	JB48160-1	Soil	Hexavalent Chromium
186-Z3S-NE-6.0-6.5	JB48160-3	Soil	Hexavalent Chromium
186-Z3S-NE-6.0-6.5X (Field Duplicate)	JB48160-4	Soil	Hexavalent Chromium

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

RESULTS

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.

Data Quality and Usability

In general, these data appear to be valid and may be used for decision-making purposes. No data were rejected or qualified as a result of the validation process. Validation findings are presented in Attachments A and B below.

ATTACHMENTS

Attachment A: Target Analyte Summary Hitlist(s)

Attachment B: Data Validation Report Form

Attachment A

Target Analyte Summary Hitlist(s)

Soil Target Analyte Summary Hit List (Hexavalent Chromium)

Site Name Metropolitan Family Health Network Property, Site 186 Borings
Sampling Date September 23, 2013
Lab Name/ID Accutest, Dayton, NJ
SDG No JB48160
Sample Matrix Soil
Trip Blank ID NA
Field Blank ID 186-FB20130923.

Field Sample ID	Lab Sample ID	Analyte	Method Blank (mg/kg)	Laboratory Sample Result (mg/kg)	Validation Sample Result (mg/kg)	RL (mg/kg)	Quality Assurance Decision	NJDEP Validation Footnote
186-Z3S-NE-2.0-2.5	JB48160-1	CHROMIUM (HEXAVALENT)	U	2.7	2.7	0.48	Accept	
186-Z3S-NE-6.0-6.5	JB48160-3	CHROMIUM (HEXAVALENT)	U	1.0	1.0	0.47	Accept	
186-Z3S-NE-6.0-6.5X	JB48160-4	CHROMIUM (HEXAVALENT)	U	0.85	0.85	0.48	Accept	

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 soluble predigestion spike recovery was less than 75 %, but greater than 50%.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Soil Target Analyte Summary Hit List (Hexavalent Chromium)

Site Name Metropolitan Family Health Network Property, Site 186 Borings
Sampling Date September 23, 2013
Lab Name/ID Accutest, Dayton, NJ
SDG No JB48160
Sample Matrix Aqueous
Trip Blank ID NA
Field Blank ID 186-FB20130923

Field Sample ID	Lab Sample ID	Analyte	Method Blank (mg/L)	Laboratory Sample Result (mg/L)	Validation Sample Result (mg/L)	RL (mgL)	Quality Assurance Decision	NJDEP Validation Footnote
186-FB20130923	JB48160-2	CHROMIUM (HEXAVALENT)	U	0.010 U	0.010 U	0.010	Accept	

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.

Attachment B

Data Validation Report Form

Client Name: PPG Industries	**Project Number:** 60238842.NGA.186.RAM
Site Location: Metropolitan Family Health Network Property Site 186 Borings, Jersey City, NJ	**Project Manager:** Al LoPilato
Laboratory: Accutest, Dayton, NJ	**Type of Validation:** Full
Laboratory Job No: JB48160	**Date Checked:** NA
Validator: Dion Lewis	**Peer:** Mary Kozik

ITEM	YES	NO	N/A	COMMENTS
Sample results included?	X			
Reporting Limits met project requirements?	X			
Field I.D. included?	X			
Laboratory I.D. included?	X			
Sample matrix included?	X			
Sample receipt temperature 2-6C?	x			
Signed COCs included?	x			Initial relinquish time not recorded. NO IMPACT: samples hand delivered for immediate lab analysis, bypassing lab login department to reduce time delays and meet critical TAT
Date of sample collection included?	X			
Date of sample digestion included?	X			
Holding time to digestion met criteria? (Soils -30 days from collection to digestion.)	X			
Date of analysis included?	X			
Holding time to analysis met criteria? (Soils -168 hours from digestion to analysis; Aqueous - 24 hours from collection to analysis.	X			
Method reference included?	X			
Laboratory Case Narrative included?	X			

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

ITEM	YES	NO	N/A	COMMENTS
Initial calibration documentation included in lab package?				
1) Blank plus 4 standards (7196A) or blank plus 3 standards (7199)	X			
2) Correlation coefficient of =0.995 (7196A) or =0.999 (7199)	X			
3) Calibrate daily or each time instrument is set up.	X			
Calibration Check Standard (CCS) for 7196A and Quality Control Sample (QCS) for 7199 Included in Lab Package?	X			
1) %R criteria met? (90 - 110%)	X			
2) Correct frequency of one per every 10 samples	X			
3) CCS and QCS from independent source and at mid level of calibration curve	X			
Calibration Blanks				
1) Analyzed prior to initial calibration standards and after each CCS/QCS?	X			
2) Absolute value should not exceed MDL.	X			
Method Blank, Field Blanks and/or Equipment Blanks Included in Lab Package?	X			
1) Method blank analyzed with each preparation batch?	X			
2) Absolute value should not exceed MDL.	X			
Eh and pH Data				
1) Eh and pH data was included and plotted for all samples?	X			
Soluble Matrix Spike Data Included in Lab Package?	X			
1) Soluble Matrix %R criteria met? (75-125%R).	X			
2) Was the spike concentration 40 mg/Kg or twice the sample concentration?	~			Matrix spike 48.7 mg/Kg
3) Was a sample spiked at the frequency of 1 per batch or 20 samples?	x			
Insoluble Matrix Spike Data Included in Lab Package?				
1) Insoluble Matrix %R criteria met? (75-125%R).	x			
2) Was the spike concentration around 400 to 800 mg/Kg?	x			
3) Was a sample spiked at the frequency of 1 per batch or 20 samples?	x			
Post Digestion Spike				

1) Post Digestion Spike %R criteria met? (85-115%R).	X			
2) Was the spike concentration 40 mg/Kg or twice the sample concentration?	X			
3) Was a sample spiked at the frequency of 1 per batch or 20 samples?	X			
Sample Duplicate Data Included in Lab Package?				
1) RPD criteria met? (RPD < 20%) if both results are =4x RL or control limit of RL if both results are <4x	X			
2) Was a sample replicated at the frequency of 1 per batch or 20 samples?	X			
Was a Laboratory Control Sample (LCS) Included in Lab Package?	X			
1) %R criteria met? (80-120%R).	X			
2) Was an LCS analyzed at the frequency of 1/batch or 20 samples?	X			
Were any Field Duplicate samples submitted with this SDG?	X			
1) Were Field duplicate RPD criteria met ? (RPD,20% for sample results >4x the RL.	X			
Were all sample quantitation and reporting requirements met?	X			
1) Were all solid samples reported with percent solids > 50% ?	X			
2) Were any samples analyzed or reported with dilutions?		X		
Miscellaneous Items				
1) For soils by 7196A, was the pH within a range of 7.0-8.0?	x			
2) For soils by 7199, was the pH within a range of 9.0-9.5?			x	
3) For aqueous by 7196A, was the pH with a range of 1.5-2,5?	x			
4) For soils (3060A), was the digestion temperature 90-95C for at least 60 minutes?	x			
5) For 7199, was each sample injected twice and was the RPD =20?			x	

Matrix Spikes

Sample ID	Compound	Analysis Batch	Matrix Spike	% Recovery	Lower Limit	Upper Limit	Qual
186-Z3S-NE-2.0-2.5	CHROMIUM (HEXAVALENT)	GP74792/GN920472	Soluble	81.7	75	125	
186-Z3S-NE-2.0-2.5	CHROMIUM (HEXAVALENT)	GP74792/GN920472	Insoluble	102.4	75	125	

Percent Solids

Sample ID	Percent Solids (%)	Status
186-Z3S-NE-2.0-2.5	84.1	ok @50%
186-Z3S-NE-6.0-6.5	85	ok @50%
186-Z3S-NE-6.0-6.5X	83.8	ok @50%

SDG#: JB48160, Method 7196	x - concentration	y - response
Batch: GP74792/GN920472		
Cr+6 ICAL - 9/24/2013	0	0
Soils	0.01	0.009
(p 39 of data pkg)	0.05	0.044
	0.1	0.089
	0.3	0.269
	0.5	0.445
	0.8	0.697
	1	0.887

				(p 39 of data pkg)
AECOM Calculated Intercept	0.0009	OK	Reported intercept	0.0009
AECOM Slope	0.8816	OK	Reported Slope	0.8816
AECOM Calculated r	0.99992	OK	Reported r	0.99992

LCS calculation	**GP74792-B1**	**p 18, 39**		
Background absorbance	0			
Sample absorbance	0.871			
LCS Soluble Instrument Response	0.871			
Instrument Concentration (mg/L)	0.987			
Sample weight (kg)	0.0025			
Percent solids	1			
Dilution Factor	1			
AECOM Calculated LCS Result (mg/kg)	39.5	OK	Reported Result (mg/kg)	39.5

%R = Found/True*100	**GP74792-B1**	**p 18, 39**		
True Value (mg/kg)	40.0			
AECOM Calculated %R	98.7	OK, rounding	Reported %R	98.8

MS calculation	**GP74792-S1**	**p 20, 21, 39**	**JB48160-1**	
Background reading	0.025			
Total absorbance	0.794			
Total absorbance - background	0.769			
Instrument Concentration (mg/L)	0.8713			
Sample weight (kg)	0.00244			
Percent solids	0.841			
Dilution Factor	1			
AECOM Calculated MS Result (mg/kg)	42.5	OK	Reported Result (mg/kg)	42.5

%R = Found/True*100	**GP74792-S1**	**p 20, 21, 39**	**JB48160-1**	
True Value (mg/kg)	48.7			
Native concentration (mg/kg)	2.68			
AECOM Calculated MS Result %R	81.7	OK	Reported %R	81.7

Percent Solids	**JB48160-1**	**p 21**		
Empty dish weight (g)=	21.67			
Wet weight (g)=	27.13			
Dry weight (g)=	26.26			
AECOM%solids =	84.1	OK	Reported %solids=	84.1

Reporting Limit	**JB48160-1**		**p 8, 21, 39**		
Low Standard		0.01			
Initial weight (kg)		0.00242			
Final volume (L)		0.1			
Percent solids		0.841			
Dilution Factor		1			
AECOM Calculated Reporting Limit		0.49	OK, rounding	Reported RL (mg/kg)=	0.48

Sample Calculations	**JB48160-3**		**p 10, 21, 39**		
Background reading		0.068			
Total absorbance		0.087			
Total absorbance - background		0.019			
Instrument Response (mg/L)		0.021			
Sample weight (kg)		0.00243			
Final Volume (L)		0.1			
Percent solids		0.850			
Dilution Factor		1			
AECOM Calculated Result (mg/kg)		1.0	OK	Reported Result (mg/kg)	1.0

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Data Validation Report

Project:	Metropolitan Family Health Network Property - Site 186 Borings	
Laboratory:	Accutest, Dayton, NJ	
Laboratory Job No.:	JB48264	
Analysis/Method:	Hexavalent Chromium SW846 3060A/7196	
Validation Level:	Full	
Site Location/Address:	947 Garfield Avenue, Jersey City, NJ	
AECOM Project No:	60238842.NGA.186.RAM	
Prepared by:	Dion Lewis/AECOM	Completed on: 11/7/2013
Reviewed by:	Mary Kozik/AECOM	File Name: 2013-11-7 DV Report_JB48264-F

Introduction

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

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

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

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

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

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

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

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

Sample Information

The samples listed below were collected by AECOM on September 24, 2013 as part of the Metropolitan Family Health Network property, Site 186, 947 Garfield Avenue, Jersey City, New Jersey. Only the samples that were validated are listed below:

Field ID	Laboratory ID	Matrix	Fraction
186-FB20130924 (Equipment Blank)	JB48264-2	Aqueous	Hexavalent Chromium
186-Z3B-NC-7.0-7.5	JB48264-5	Soil	Hexavalent Chromium
186-Z3S-NW-2.0-2.5	JB48264-1	Soil	Hexavalent Chromium
186-Z3S-NW-2.0-2.5X (Field Duplicate)	JB48264-3	Soil	Hexavalent Chromium
186-Z3S-NWS-6.0-6.5	JB48264-4	Soil	Hexavalent Chromium

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

RESULTS

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.

Field Duplicate Precision

Sample 186-Z3S-NW-2.0-2.5X was collected in duplicate to support a field precision assessment. The reporting limit for these replicates was 0.45 mg/Kg and the replicate data were 2.3 and 5.1 mg/Kg.

The relative percent difference (RPD) was 75.7%, which did not met the RPD criteria of less than 20% for sample results greater than or equal to four times the reporting limit (RL). Thus, the detected soil hexavalent chromium samples in this SDG were qualified as estimated (J) with the potential for bias in an unknown direction due to poor field precision.

Data Quality and Usability

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

The soil hexavalent chromium samples in this SDG are usable as estimated values, with unknown directional bias due to the poor field duplicate precision.

ATTACHMENTS

Attachment A: Target Analyte Summary Hitlist(s)

Attachment B: Data Validation Report Form

Attachment A

Target Analyte Summary Hitlist(s)

Soil Target Analyte Summary Hit List (Hexavalent Chromium)

Site Name Metropolitan Family Health Network Property, Site 186 Borings
Sampling Date September 24, 2013
Lab Name/ID Accutest, Dayton, NJ
SDG No JB48264
Sample Matrix Soil
Trip Blank ID NA
Field Blank ID 186-FB20130924.

Field Sample ID	Lab Sample ID	Analyte	Method Blank (mg/kg)	Laboratory Sample Result (mg/kg)	Validation Sample Result (mg/kg)	RL (mg/kg)	Quality Assurance Decision	NJDEP Validation Footnote
186-Z3B-NC-7.0-7.5	JB48264-5	CHROMIUM (HEXAVALENT)	U	0.89	0.89 J	0.46	Qualify	29
186-Z3S-NW-2.0-2.5	JB48264-1	CHROMIUM (HEXAVALENT)	U	2.3	2.3 J	0.45	Qualify	29
186-Z3S-NW-2.0-2.5X	JB48264-3	CHROMIUM (HEXAVALENT)	U	5.1	5.1 J	0.45	Qualify	29
186-Z3S-NWS-6.0-6.5	JB48264-4	CHROMIUM (HEXAVALENT)	U	0.52	0.52 J	0.49	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 + 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 soluble predigestion spike recovery was less than 75 %, but greater than 50%.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Soil Target Analyte Summary Hit List (Hexavalent Chromium)

Site Name Metropolitan Family Health Network Property, Site 186 Borings
Sampling Date September 24, 2013
Lab Name/ID Accutest, Dayton, NJ
SDG No JB48264
Sample Matrix Aqueous
Trip Blank ID NA
Field Blank ID 186-FB20130924

Field Sample ID	Lab Sample ID	Analyte	Method Blank (mg/L)	Laboratory Sample Result (mg/L)	Validation Sample Result (mg/L)	RL (mgL)	Quality Assurance Decision	NJDEP Validation Footnote
186-FB20130924	JB48264-2	CHROMIUM (HEXAVALENT)	U	0.010 U	0.010 U	0.010	Accept	

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.

Attachment B

Data Validation Report Form

Client Name: PPG Industries	**Project Number:** 60238842.NGA.186.RAM
Site Location: Metropolitan Family Health Network Property Site 186 Borings, Jersey City, NJ	**Project Manager:** Al LoPilato
Laboratory: Accutest, Dayton, NJ	**Type of Validation:** Full
Laboratory Job No: JB48264	**Date Checked:** NA
Validator: Dion Lewis	**Peer:** Mary Kozik

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

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

ITEM	YES	NO	N/A	COMMENTS
Initial calibration documentation included in lab package?				
1) Blank plus 4 standards (7196A) or blank plus 3 standards (7199)	X			
2) Correlation coefficient of =0.995 (7196A) or =0.999 (7199)	X			
3) Calibrate daily or each time instrument is set up.	X			
Calibration Check Standard (CCS) for 7196A and Quality Control Sample (QCS) for 7199 Included in Lab Package?	X			
1) %R criteria met? (90 - 110%)	X			
2) Correct frequency of one per every 10 samples	X			
3) CCS and QCS from independent source and at mid level of calibration curve	X			
Calibration Blanks				
1) Analyzed prior to initial calibration standards and after each CCS/QCS?	X			
2) Absolute value should not exceed MDL.	X			
Method Blank, Field Blanks and/or Equipment Blanks Included in Lab Package?	X			
1) Method blank analyzed with each preparation batch?	X			
2) Absolute value should not exceed MDL.	X			
Eh and pH Data				
1) Eh and pH data was included and plotted for all samples?	X			
Soluble Matrix Spike Data Included in Lab Package?	X			
1) Soluble Matrix %R criteria met? (75-125%R).	X			
2) Was the spike concentration 40 mg/Kg or twice the sample concentration?	~			Matrix spike 45.6 mg/Kg
3) Was a sample spiked at the frequency of 1 per batch or 20 samples?	x			
Insoluble Matrix Spike Data Included in Lab Package?				
1) Insoluble Matrix %R criteria met? (75-125%R).	x			
2) Was the spike concentration around 400 to 800 mg/Kg?	~			Matrix spike 916 mg/Kg
3) Was a sample spiked at the frequency of 1 per batch or 20 samples?	x			
Post Digestion Spike				

1) Post Digestion Spike %R criteria met? (85-115%R).	X			
2) Was the spike concentration 40 mg/Kg or twice the sample concentration?	X			
3) Was a sample spiked at the frequency of 1 per batch or 20 samples?	X			
Sample Duplicate Data Included in Lab Package?				
1) RPD criteria met? (RPD < 20%) if both results are =4x RL or control limit of RL if both results are <4x	X			
2) Was a sample replicated at the frequency of 1 per batch or 20 samples?	X			
Was a Laboratory Control Sample (LCS) Included in Lab Package?	X			
1) %R criteria met? (80-120%R).	X			
2) Was an LCS analyzed at the frequency of 1/batch or 20 samples?	X			
Were any Field Duplicate samples submitted with this SDG?	X			
1) Were Field duplicate RPD criteria met ? (RPD,20% for sample results >4x the RL.		X		RPD 75.7%, samples J-qualified
Were all sample quantitation and reporting requirements met?	X			
1) Were all solid samples reported with percent solids > 50% ?	X			
2) Were any samples analyzed or reported with dilutions?		X		
Miscellaneous Items				
1) For soils by 7196A, was the pH within a range of 7.0-8.0?	x			
2) For soils by 7199, was the pH within a range of 9.0-9.5?			x	
3) For aqueous by 7196A, was the pH with a range of 1.5-2,5?	x			
4) For soils (3060A), was the digestion temperature 90-95C for at least 60 minutes?	x			
5) For 7199, was each sample injected twice and was the RPD =20?			x	

Field Duplicates

Sample ID	Duplicate ID	Compound	Sample Result	Qual	Duplicate Result	Qual	QL	Units	RPD
186-Z3S-NW-2.0-2.5	186-Z3S-NW-2.0-2.5X	CHROMIUM (HEXAVALENT)	2.3		5.1		0.45	mg/kg	75.7

Percent Solids

Sample ID	Percent Solids (%)	Status
186-Z3B-NC-7.0-7.5	87.8	ok @50%
186-Z3S-NW-2.0-2.5	89.2	ok @50%
186-Z3S-NW-2.0-2.5X	89	ok @50%
186-Z3S-NWS-6.0-6.5	81.6	ok @50%

SDG#: JB48264, Method 7196	x - concentration	y - response
Batch: GP74792/GN920472		
Cr+6 ICAL - 9/25/2013	0	0
Soils	0.01	0.009
(p 41 of data pkg)	0.05	0.044
	0.1	0.089
	0.3	0.271
	0.5	0.451
	0.8	0.697
	1	0.886

				(p 41 of data pkg)
AECOM Calculated Intercept	0.0017	OK	Reported intercept	0.0017
AECOM Slope	0.8818	OK	Reported Slope	0.8818
AECOM Calculated r	0.99987	OK	Reported r	0.99987

LCS calculation	**GP74792-B1**	**p 19, 41**		
Background absorbance	0			
Sample absorbance	0.868			
LCS Soluble Instrument Response	0.868			
Instrument Concentration (mg/L)	0.983			
Sample weight (kg)	0.0025			
Percent solids	1			
Dilution Factor	1			
AECOM Calculated LCS Result (mg/kg)	39.3	OK	Reported Result (mg/kg)	39.3

%R = Found/True*100	**GP74792-B1**	**p 19, 41**		
True Value (mg/kg)	40.0			
AECOM Calculated %R	98.3	OK	Reported %R	98.3

MS calculation	**GP74792-S1**	**p 21, 22, 41**	**JB48264-5**	
Background reading	0.001			
Total absorbance	0.766			
Total absorbance - background	0.765			
Instrument Concentration (mg/L)	0.8657			
Sample weight (kg)	0.0025			
Percent solids	0.878			
Dilution Factor	1			
AECOM Calculated MS Result (mg/kg)	39.5	OK, rounding	Reported Result (mg/kg)	39.4

%R = Found/True*100	**GP74792-S1**	**p 21, 22, 41**	**JB48264-5**	
True Value (mg/kg)	45.6			
Native concentration (mg/kg)	0.89			
AECOM Calculated MS Result %R	84.6	OK, rounding	Reported %R	84.5

Percent Solids	**JB48264-5**	**p 22**		
Empty dish weight (g)=	24.11			
Wet weight (g)=	32.78			
Dry weight (g)=	31.72			
AECOM%solids =	87.8	OK	Reported %solids=	87.8

Reporting Limit	**JB48264-5**	**p 12, 22, 41**		
Low Standard	0.01			
Initial weight (kg)	0.00251			
Final volume (L)	0.1			
Percent solids	0.878			
Dilution Factor	1			
AECOM Calculated Reporting Limit	0.45	OK, rounding	Reported RL (mg/kg)=	0.46

Sample Calculations	**JB48264-3**	**p 10, 22, 41**		
Background reading	0.007			
Total absorbance	0.11			
Total absorbance - background	0.103			
Instrument Response (mg/L)	0.115			
Sample weight (kg)	0.00251			
Final Volume (L)	0.1			
Percent solids	0.890			
Dilution Factor	1			
AECOM Calculated Result (mg/kg)	5.1	OK	Reported Result (mg/kg)	5.1

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Chelmsford, MA 01886-3140

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Data Validation Report

Project:	Metropolitan Family Health Network Property - Site 186 Borings	
Laboratory:	Accutest, Dayton, NJ	
Laboratory Job No.:	JB48411 and JB48411R	
Analysis/Method:	Hexavalent Chromium SW846 3060A/7196	
Validation Level:	Full	
Site Location/Address:	947 Garfield Avenue, Jersey City, NJ	
AECOM Project No:	60238842.NGA.186.RAM	
Prepared by:	Dion Lewis/AECOM	Completed on: 11/8/2013
Reviewed by:	Mary Kozik/AECOM	File Name: 2013-11-8 DV Report_JB48411_R-F

Introduction

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

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

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

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

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

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

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

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

Sample Information

The samples listed below were collected by AECOM on September 25, 2013 as part of the Metropolitan Family Health Network property, Site 186, 947 Garfield Avenue, Jersey City, New Jersey. Only the samples that were validated are listed below:

Field ID	Laboratory ID	Matrix	Fraction
186-FB20130925 (Equipment Blank)	JB48411-2	Aqueous	Hexavalent Chromium
186-NTW1-1.0-1.5	JB48411-5	Soil	Hexavalent Chromium
186-NTW1-1.0-1.5	JB48411-5R	Soil	Hexavalent Chromium
186-NTW2-1.0-1.5	JB48411-4	Soil	Hexavalent Chromium
186-NTW2-1.0-1.5	JB48411-4R	Soil	Hexavalent Chromium
186-Z1S-W1-2.0-2.5	JB48411-8	Soil	Hexavalent Chromium
186-Z1S-W1-2.0-2.5	JB48411-8R	Soil	Hexavalent Chromium
186-Z1S-W1S-6.0-6.5	JB48411-9	Soil	Hexavalent Chromium
186-Z1S-W1S-6.0-6.5	JB48411-9R	Soil	Hexavalent Chromium
186-Z1S-W2-2.0-2.5	JB48411-6	Soil	Hexavalent Chromium
186-Z1S-W2-2.0-2.5	JB48411-6R	Soil	Hexavalent Chromium
186-Z1S-W2S-6.0-6.5	JB48411-7	Soil	Hexavalent Chromium
186-Z1S-W2S-6.0-6.5	JB48411-7R	Soil	Hexavalent Chromium
186-Z3SB-NW-6.0-6.5	JB48411-3	Soil	Hexavalent Chromium
186-Z3SB-NW-6.0-6.5	JB48411-3R	Soil	Hexavalent Chromium
186-Z3S-NW-2.0-2.5C	JB48411-1	Solid/Concrete	Hexavalent Chromium
186-Z3S-NW-2.0-2.5C	JB48411-1R	Solid/Concrete	Hexavalent Chromium

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

RESULTS

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.

MS Results

Method 7196

Sample186-Z1S-W1S-6.0-6.5 was selected for the soil matrix spike analysis and used for supporting data quality assessments. The soluble and insoluble matrix spike (MS) recoveries from the initial batch were 74% and 100.1%, respectively; the soluble spike result did not meet quality control recovery criteria of 75-125%. The post digestion spike (PDS) recovery was 92.5% which met the PDS criteria of 85-115%.

Based on the low soluble MS recovery, the MS and associated samples were re-digested and re-analyzed using Method 7196. The soluble and insoluble matrix spike recoveries from the re-analysis were 88% and 99.3%, respectively, which met the quality control criteria of 75-125%R. The post digestion spike result for the re-analysis batch was recovered at 91.3%, which again met the PDS criteria of 85-115%.

Since the initial soluble MS recovery was outside the acceptable QC range of 75-125%, additional parameters were analyzed to determine if possible matrix interferences could be the cause for the poor matrix spike recovery. All of the soil samples were tested for pH and oxidation reduction potential (ORP) and plotted on an Eh/pH phase diagram chart. From this chart, the source sample for the matrix spike analysis was plotted below the phase change line, indicating reducing potential within the sample matrix incapable of supporting hexavalent chromium. Analyses for ferrous iron, sulfide screen, and total organic carbon (TOC) were also performed on the MS source sample to obtain further evidence of the oxidizing/reducing potential within the sample matrix. The sulfide screen was reported as negative, indicating an absence of reduced sulfur/reducing agents within the sample matrix; however, the ferrous iron (0.75%) and the TOC results (28,100 mg/Kg) were positive, indicating potential reducing agents within the sample matrix.

For reporting purposes, the highest hexavalent chromium data between the initial and re-digested sample batches have been reported. Since the soluble MS recoveries from the initial batch was below the acceptable QC recovery range of 75-125%, the soil hexavalent chromium results associated with this initial batch were reported as estimates with a potential low bias.

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 estimates (J).

Laboratory Duplicate Precision

Sample 186-Z1S-W1S-6.0-6.5 was analyzed in duplicate to support a laboratory precision assessment. The reporting limit for these (initial and re-digested) measurements was 0.44 mg/Kg and the results from the initial batch were 3.3 and 4.2 mg/Kg. The replicate data from the re-digested batch were 2.9 and 3.4 mg/Kg.

The relative percent difference (RPD) associated with the first and second/re-digested batches were 24 and 15.9%, respectively. The replicate data associated with the initial batch did not meet the RPD criteria of less than 20%; the replicate data from the re-digested batch met the 20% criteria. Thus, any hexavalent chromium data reported from the first batch were qualified as estimated (J) with the potential for bias in an unknown direction due to poor laboratory precision.

Data Quality and Usability

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

The soil hexavalent chromium data reported from the initial batch are usable as estimated values, as a result of matrix spike and laboratory precision QC data that did not meet project criteria.

In addition, sample results detected between the MDL and RL 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 Metropolitan Family Health Network Property, Site 186 Borings
Sampling Date September 25, 2013
Lab Name/ID Accutest, Dayton, NJ
SDG No JB48411 and JB48411R
Sample Matrix Soil
Trip Blank ID NA
Field Blank ID 186-FB20130925

Field Sample ID	Lab Sample ID	Analyte	Method Blank (mg/kg)	Laboratory Sample Result (mg/kg)	Validation Sample Result (mg/kg)	RL (mg/kg)	Quality Assurance Decision	NJDEP Validation Footnote
186-NTW1-1.0-1.5	JB48411-5R	CHROMIUM (HEXAVALENT)	U	1.3	1.3	0.44	Accept	
186-NTW2-1.0-1.5	JB48411-4	CHROMIUM (HEXAVALENT)	U	2.3	2.3 J	0.45	Qualify	8, 18
186-Z1S-W1-2.0-2.5	JB48411-8	CHROMIUM (HEXAVALENT)	U	4.2	4.2 J	0.44	Qualify	8, 18
186-Z1S-W1S-6.0-6.5	JB48411-9	CHROMIUM (HEXAVALENT)	U	3.3	3.3 J	0.44	Qualify	8, 18
186-Z1S-W2-2.0-2.5	JB48411-6R	CHROMIUM (HEXAVALENT)	U	5.4	5.4	0.45	Accept	
186-Z1S-W2S-6.0-6.5	JB48411-7R	CHROMIUM (HEXAVALENT)	U	0.70	0.70	0.51	Accept	
186-Z3SB-NW-6.0-6.5	JB48411-3R	CHROMIUM (HEXAVALENT)	U	0.19B	0.19 J	0.45	Qualify	31
186-Z3S-NW-2.0-2.5C	JB48411-1R	CHROMIUM (HEXAVALENT)	U	1.1	1.1	0.43	Accept	

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 soluble predigestion spike recovery was less than 75 %, but greater than 50%.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Soil Target Analyte Summary Hit List (Hexavalent Chromium)

Site Name Metropolitan Family Health Network Property, Site 186 Borings
Sampling Date September 25, 2013
Lab Name/ID Accutest, Dayton, NJ
SDG No JB48411 and JB48411R
Sample Matrix Aqueous
Trip Blank ID NA
Field Blank ID 186-FB20130925

Field Sample ID	Lab Sample ID	Analyte	Method Blank (mg/L)	Laboratory Sample Result (mg/L)	Validation Sample Result (mg/L)	RL (mg/L)	Quality Assurance Decision	NJDEP Validation Footnote
186-FB20130925	JB48411-2	CHROMIUM (HEXAVALENT)	U	0.010 U	0.010 U	0.010	Accept	

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.

Attachment B

Data Validation Report Form

Client Name: PPG Industries	**Project Number:** 60238842.NGA.186.RAM
Site Location: Metropolitan Family Health Network Property Site 186 Borings, Jersey City, NJ	**Project Manager:** Al LoPilato
Laboratory: Accutest, Dayton, NJ	**Type of Validation:** Full
Laboratory Job No: JB48411 and JB48411R	**Date Checked:** NA
Validator: Dion Lewis	**Peer:** Mary Kozik

ITEM	YES	NO	N/A	COMMENTS
Sample results included?	X			
Reporting Limits met project requirements?	X			
Field I.D. included?	X			
Laboratory I.D. included?	X			
Sample matrix included?	X			
Sample receipt temperature 2-6C?	x			
Signed COCs included?	x			Initial receipt 30 min time lapse apparent. NO IMPACT: samples hand delivered for immediate lab analysis, bypassing lab login department to reduce time delays and meet critical TAT
Date of sample collection included?	X			
Date of sample digestion included?	X			
Holding time to digestion met criteria? (Soils -30 days from collection to digestion.)	X			
Date of analysis included?	X			
Holding time to analysis met criteria? (Soils -168 hours from digestion to analysis; Aqueous - 24 hours from collection to analysis.	X			
Method reference included?	X			
Laboratory Case Narrative included?	X			

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

ITEM	YES	NO	N/A	COMMENTS
Initial calibration documentation included in lab package?				
1) Blank plus 4 standards (7196A) or blank plus 3 standards (7199)	X			
2) Correlation coefficient of =0.995 (7196A) or =0.999 (7199)	X			
3) Calibrate daily or each time instrument is set up.	X			
Calibration Check Standard (CCS) for 7196A and Quality Control Sample (QCS) for 7199 Included in Lab Package?	X			
1) %R criteria met? (90 - 110%)	X			
2) Correct frequency of one per every 10 samples	X			
3) CCS and QCS from independent source and at mid level of calibration curve	X			
Calibration Blanks				
1) Analyzed prior to initial calibration standards and after each CCS/QCS?	X			
2) Absolute value should not exceed MDL.	X			
Method Blank, Field Blanks and/or Equipment Blanks Included in Lab Package?	X			
1) Method blank analyzed with each preparation batch?	X			
2) Absolute value should not exceed MDL.	X			
Eh and pH Data				
1) Eh and pH data was included and plotted for all samples?	X			
Soluble Matrix Spike Data Included in Lab Package?	X			
1) Soluble Matrix %R criteria met? (75-125%R).	x	x		Initial soluble recovery 74%; Re-digested sample spike recovery 88%
2) Was the spike concentration 40 mg/Kg or twice the sample concentration?	~			Initial batch spike 44.9 mg/Kg; Re-digested batch spike 44.5 mg/Kg
3) Was a sample spiked at the frequency of 1 per batch or 20 samples?	x			
Insoluble Matrix Spike Data Included in Lab Package?				
1) Insoluble Matrix %R criteria met? (75-125%R).	x			
2) Was the spike concentration around 400 to 800 mg/Kg?	~			Initial batch spike 809 mg/Kg; Re-digested batch spike 971 mg/Kg NO IMPACT
3) Was a sample spiked at the frequency of 1 per batch or 20 samples?	x			

Post Digestion Spike				
1) Post Digestion Spike %R criteria met? (85-115%R).	X			
2) Was the spike concentration 40 mg/Kg or twice the sample concentration?	X			
3) Was a sample spiked at the frequency of 1 per batch or 20 samples?	X			
Sample Duplicate Data Included in Lab Package?				
1) RPD criteria met? (RPD < 20%) if both results are =4x RL or control limit of RL if both results are <4x	X	x		Initial batch RPD 24; Re-digested batch RPD 15.9
2) Was a sample replicated at the frequency of 1 per batch or 20 samples?	X			
Was a Laboratory Control Sample (LCS) Included in Lab Package?	X			
1) %R criteria met? (80-120%R).	X			
2) Was an LCS analyzed at the frequency of 1/batch or 20 samples?	X			
Were any Field Duplicate samples submitted with this SDG?		X		
1) Were Field duplicate RPD criteria met ? (RPD,20% for sample results >4x the RL.			X	
Were all sample quantitation and reporting requirements met?	X			
1) Were all solid samples reported with percent solids > 50% ?	X			
2) Were any samples analyzed or reported with dilutions?		X		
Miscellaneous Items				
1) For soils by 7196A, was the pH within a range of 7.0-8.0?	x			
2) For soils by 7199, was the pH within a range of 9.0-9.5?			x	
3) For aqueous by 7196A, was the pH with a range of 1.5-2,5?	x			
4) For soils (3060A), was the digestion temperature 90-95C for at least 60 minutes?	x			
5) For 7199, was each sample injected twice and was the RPD =20?			x	

Matrix Spikes

Sample ID	Compound	Analysis Batch	Matrix Spike	% Recovery	Lower Limit	Upper Limit	Qual
186-Z1S-W1S-6.0-6.5	CHROMIUM (HEXAVALENT)	GP74834/GN92170	Soluble	74	75	125	J
186-Z1S-W1S-6.0-6.5	CHROMIUM (HEXAVALENT)	GP74834/GN92170	Insoluble	100.1	75	125	
186-Z1S-W1S-6.0-6.5	CHROMIUM (HEXAVALENT)	GP74864/GN92244	Soluble	88	75	125	
186-Z1S-W1S-6.0-6.5	CHROMIUM (HEXAVALENT)	GP74864/GN92244	Insoluble	99.3	75	125	

Lab Duplicates

Sample ID	Compound	Sample Result	Qual	Duplicate Result	Qual	QL	Units	RPD
186-Z1S-W1S-6.0-6.5	CHROMIUM (HEXAVALENT)	3.3		4.2		0.44	mg/kg	24
186-Z1S-W1S-6.0-6.5 (Re-digested)	CHROMIUM (HEXAVALENT)	2.9		3.4		0.44	mg/kg	15.9

Percent Solids

Sample ID	Percent Solids (%)	Status
186-Z1S-W1S-6.0-6.5	90.9	ok @50%
186-Z1S-W2-2.0-2.5	89.7	ok @50%
186-Z1S-W2S-6.0-6.5	77.8	ok @50%
186-Z3S-NW-2.0-2.5C	92.8	ok @50%
186-Z3SB-NW-6.0-6.5	89.5	ok @50%
186-NTW1-1.0-1.5	91.2	ok @50%
186-NTW2-1.0-1.5	89.7	ok @50%
186-Z1S-W1-2.0-2.5	90.7	ok @50%

SDG#: JB48411, Method 7196	x - concentration	y - response
Batch: GP74834/GN92170		
Cr+6 ICAL - 9/26/2013	0	0
Soils	0.01	0.009
(p 44 of data pkg)	0.05	0.043
	0.1	0.091
	0.3	0.269
	0.5	0.449
	0.8	0.698
	1	0.889

				(p 44 of data pkg)
AECOM Calculated Intercept	0.0011	OK	Reported intercept	0.0011
AECOM Slope	0.8837	OK	Reported Slope	0.8837
AECOM Calculated r	0.99989	OK	Reported r	0.99989

LCS calculation	**GP74834-B1**	**p 27, 44**		
Background absorbance	0			
Sample absorbance	0.815			
LCS Soluble Instrument Response	0.815			
Instrument Concentration (mg/L)	0.921			
Sample weight (kg)	0.0025			
Percent solids	1			
Dilution Factor	1			
AECOM Calculated LCS Result (mg/kg)	36.8	OK	Reported Result (mg/kg)	36.8

%R = Found/True*100	**GP74834-B1**	**p 27, 44**		
True Value (mg/kg)	40.0			
AECOM Calculated %R	92.1	OK, rounding	Reported %R	92.0

MS calculation	**GP74834-S1**	**p 29, 31, 44**	**JB48411-9**	
Background reading	0.007			
Total absorbance	0.727			
Total absorbance - background	0.72			
Instrument Concentration (mg/L)	0.8135			
Sample weight (kg)	0.00245			
Percent solids	0.909			
Dilution Factor	1			
AECOM Calculated MS Result (mg/kg)	36.5	OK	Reported Result (mg/kg)	36.5

%R = Found/True*100	**GP74834-S1**	**p 29, 31, 44**	**JB48411-9**	
True Value (mg/kg)	44.9			
Native concentration (mg/kg)	3.27			
AECOM Calculated MS Result %R	74.0	OK	Reported %R	74.0

Percent Solids	**JB48411-9**	**p 31**		
Empty dish weight (g)=	20.71			
Wet weight (g)=	26.56			
Dry weight (g)=	26.03			
AECOM%solids =	90.9	OK	Reported %solids=	90.9

Reporting Limit	**JB48411-9**		**p 17, 31, 44**		
Low Standard		0.01			
Initial weight (kg)		0.00251			
Final volume (L)		0.1			
Percent solids		0.909			
Dilution Factor		1			
AECOM Calculated Reporting Limit		0.44	OK	Reported RL (mg/kg)=	0.44

Sample Calculations	**JB48411-8**		**p 16, 31, 44**		
Background reading		0.012			
Total absorbance		0.096			
Total absorbance - background		0.084			
Instrument Response (mg/L)		0.094			
Sample weight (kg)		0.00244			
Final Volume (L)		0.1			
Percent solids		0.907			
Dilution Factor		1			
AECOM Calculated Result (mg/kg)		4.2	OK	Reported Result (mg/kg)	4.2

SDG#: JB48411R, Method 7196	x - concentration	y - response
Batch: GP74864/GN92244		
Cr+6 ICAL - 9/27/2013	0	0
Soils	0.01	0.009
(p 75 of data pkg)	0.05	0.043
	0.1	0.087
	0.3	0.268
	0.5	0.446
	0.8	0.695
	1	0.886

				(p 74 of data pkg)
AECOM Calculated Intercept	0.0003	OK	Reported intercept	0.0003
AECOM Slope	0.8810	OK	Reported Slope	0.8810
AECOM Calculated r	0.99990	OK	Reported r	0.99990

LCS calculation	**GP74864-B1**	**p 25, 74**		
Background absorbance	0			
Sample absorbance	0.832			
LCS Soluble Instrument Response	0.832			
Instrument Concentration (mg/L)	0.944			
Sample weight (kg)	0.0025			
Percent solids	1			
Dilution Factor	1			
AECOM Calculated LCS Result (mg/kg)	37.8	OK	Reported Result (mg/kg)	37.8

%R = Found/True*100	**GP74864-B1**	**p 25, 74**		
True Value (mg/kg)	40.0			
AECOM Calculated %R	94.4	OK, Rounding	Reported %R	94.5

MS calculation	**GP74864-S1**	**p 27, 34, 74**	**JB48411-9R**	
Background reading	0.003			
Total absorbance	0.836			
Total absorbance - background	0.833			
Instrument Concentration (mg/L)	0.9452			
Sample weight (kg)	0.00247			
Percent solids	0.909			
Dilution Factor	1			
AECOM Calculated MS Result (mg/kg)	42.1	OK	Reported Result (mg/kg)	42.1

%R = Found/True*100	**GP74864-S1**	**p 27, 34, 74**	**JB48411-9R**	
True Value (mg/kg)	44.5			
Native concentration (mg/kg)	2.87			
AECOM Calculated MS Result %R	88.1	OK, rounding	Reported %R	88.0

Percent Solids	**JB48411-9R**	**p 34**		
Empty dish weight (g)=	20.71			
Wet weight (g)=	26.56			
Dry weight (g)=	26.03			
AECOM%solids =	90.9	OK	Reported %solids=	90.9

Reporting Limit	**JB48411-9R**	**p 15, 34, 74**		
Low Standard	0.01			
Initial weight (kg)	0.00255			
Final volume (L)	0.1			
Percent solids	0.909			
Dilution Factor	1			
AECOM Calculated Reporting Limit	0.43	OK, rounding	Reported RL (mg/kg)=	0.44

Sample Calculations	**JB48411-8R**	**p 14, 34, 74**		
Background reading	0.006			
Total absorbance	0.062			
Total absorbance - background	0.056			
Instrument Response (mg/L)	0.063			
Sample weight (kg)	0.00256			
Final Volume (L)	0.1			
Percent solids	0.907			
Dilution Factor	1			
AECOM Calculated Result (mg/kg)	2.7	OK	Reported Result (mg/kg)	2.7

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Data Validation Report

Project:	Metropolitan Family Health Network Property - Site 186 Borings	
Laboratory:	Accutest, Dayton, NJ	
Laboratory Job No.:	JB51615 and JB51615R	
Analysis/Method:	Hexavalent Chromium SW846 3060A/7196	
Validation Level:	Full	
Site Location/Address:	947 Garfield Avenue, Jersey City, NJ	
AECOM Project No:	60238842.NGA.186.RAM	
Prepared by:	Dion Lewis/AECOM	Completed on: 11/13/2013
Reviewed by:	Mary Kozik/AECOM	File Name: 2013-11-13 DV Report_JB51615_R-F

Introduction

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

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

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

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

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

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

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

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

Sample Information

The samples listed below were collected by AECOM on October 30, 2013 as part of the Metropolitan Family Health Network property, Site 186, 947 Garfield Avenue, Jersey City, New Jersey. Only the samples that were validated are listed below:

Field ID	Laboratory ID	Matrix	Fraction
186-FB20131030 (Equipment Blank)	JB51615-4	Aqueous	Hexavalent Chromium
186-Z2S2-E-2.0-2.5	JB51615-1	Soil	Hexavalent Chromium
186-Z2S2-E-2.0-2.5	JB51615-1R	Soil	Hexavalent Chromium
186-Z3S2-E-C-2.0-2.5	JB51615-2	Concrete	Hexavalent Chromium
186-Z3S2-E-C-2.0-2.5	JB51615-2R	Concrete	Hexavalent Chromium
186-Z3S2-E-C-2.0-2.5X (Field Duplicate)	JB51615-3	Concrete	Hexavalent Chromium
186-Z3S2-E-C-2.0-2.5X (Field Duplicate)	JB51615-3R	Concrete	Hexavalent Chromium

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

RESULTS

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.

MS Results

Method 7196

Sample 186-Z2S2-E-2.0-2.5 was selected for the soil matrix spike analysis and used for supporting data quality assessments. The soluble and insoluble matrix spike (MS) recoveries from the initial batch were 66.6% and 113.1%, respectively, and the soluble spike result did not meet quality control recovery criteria of 75-125%. The post digestion spike (PDS) recovery was 92.9% which met the PDS criteria of 85-115%.

Based on the low soluble MS recovery, the MS and associated samples were re-digested and re-analyzed using Method 7196. The soluble and insoluble matrix spike recoveries from the re-analysis were 63.1% and 106%, respectively, and the soluble spike result again did not meet the quality control criteria of 75-125%R. The post digestion spike result for the re-analysis batch was recovered at 91.3%, which again met the PDS criteria of 85-115%.

Since the soluble MS recoveries were outside the acceptable QC range of 75-125%, additional parameters were analyzed to determine if possible matrix interferences could be the cause for the poor matrix spike recovery. All of the soil samples were tested for pH and oxidation reduction potential (ORP) and plotted on an Eh/pH phase diagram chart. From this chart, the source sample for the matrix spike analysis was plotted below the phase change line, indicating reducing potential within

the sample matrix incapable of supporting hexavalent chromium. Analyses for ferrous iron, sulfide screen, and total organic carbon (TOC) were also performed on the MS source sample to obtain further evidence of the oxidizing/reducing potential within the sample matrix. The sulfide screen was reported as negative, indicating an absence of reduced sulfur/reducing agents within the sample matrix; however, the ferrous iron (0.7%) and the TOC results (74,100 mg/Kg) were positive, indicating potential reducing agents within the sample matrix.

For reporting purposes, the highest hexavalent chromium data between the initial and re-digested sample batches have been reported. Since the soluble MS recoveries from the initial and re-digested batches were below the acceptable QC recovery range of 75-125%, the soil hexavalent chromium results have been reported as estimates with a potential low bias.

Laboratory Duplicate Precision

Sample 186-Z2S2-E-2.0-2.5 was analyzed in duplicate to support a laboratory precision assessment. The reporting limit for these (initial and re-digested) measurements was 0.43 mg/Kg and the results from the initial batch were 0.78 and 0.81 mg/Kg. The replicate data from the re-digested batch were 0.87 and 3.9 mg/Kg.

The relative percent difference (RPD) associated with the first and second/re-digested batches were 3.8 and 127%, respectively. The replicate data associated with the initial batch met the RPD criteria of less than 20%; the replicate data from the re-digested batch did not meet the 20% criteria. Thus, any hexavalent chromium data reported from the second batch were qualified as estimated (J) with the potential for bias in an unknown direction due to poor laboratory precision.

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 presented in Attachments A and B below.

All soil hexavalent chromium data are usable as estimated values, as a result of the initial and re-digested matrix spike QC results that did not meet project criteria.

In addition, hexavalent chromium results associated with the re-digested batch are usable as estimated values with the potential for bias in an unknown direction due to poor laboratory precision, and sample results detected between the MDL and RL are also 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 Metropolitan Family Health Network Property, Site 186 Borings
Sampling Date October 30, 2013
Lab Name/ID Accutest, Dayton, NJ
SDG No JB51615 and JB51615R
Sample Matrix Soil
Trip Blank ID NA
Field Blank ID 186-FB20131030

Field Sample ID	Lab Sample ID	Analyte	Method Blank (mg/kg)	Laboratory Sample Result (mg/kg)	Validation Sample Result (mg/kg)	RL (mg/kg)	Quality Assurance Decision	NJDEP Validation Footnote
186-Z2S2-E-2.0-2.5	JB51615-1R	CHROMIUM (HEXAVALENT)	U	0.87	0.87 J	0.48	Qualify	8, 18
186-Z3S2-E-C-2.0-2.5	JB51615-2	CHROMIUM (HEXAVALENT)	U	0.40 B	0.40 J	0.45	Qualify	18, 31
186-Z3S2-E-C-2.0-2.5X	JB51615-3	CHROMIUM (HEXAVALENT)	U	0.50	0.50 J	0.44	Qualify	18

Note: A “U” under Method Blank column indicates a nondetect result.

A “U” under the Laboratory Sample Result and Validation Sample Result columns indicates a nondetect result at the RL.

NJDEP Laboratory Footnote

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

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

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

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

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

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

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

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

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

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

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

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

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

15. This analyte is 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 soluble predigestion spike recovery was less than 75 %, but greater than 50%.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Soil Target Analyte Summary Hit List (Hexavalent Chromium)

Site Name Metropolitan Family Health Network Property, Site 186 Borings
Sampling Date October 30, 2013
Lab Name/ID Accutest, Dayton, NJ
SDG No JB51615 and JB51615R
Sample Matrix Aqueous
Trip Blank ID NA
Field Blank ID 186-FB20131030

Field Sample ID	Lab Sample ID	Analyte	Method Blank (mg/L)	Laboratory Sample Result (mg/L)	Validation Sample Result (mg/L)	RL (mg/L)	Quality Assurance Decision	NJDEP Validation Footnote
186-FB20131030	JB51615-1	CHROMIUM (HEXAVALENT)	U	0.010 U	0.010 U	0.010	Accept	

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.

Attachment B

Data Validation Report Form

Client Name: PPG Industries	**Project Number:** 60238842.NGA.186.RAM
Site Location: Metropolitan Family Health Network Property Site 186 Borings, Jersey City, NJ	**Project Manager:** Al LoPilato
Laboratory: Accutest, Dayton, NJ	**Type of Validation:** Full
Laboratory Job No: JB51615 and JB51615R	**Date Checked:** NA
Validator: Dion Lewis	**Peer:** Mary Kozik

ITEM	YES	NO	N/A	COMMENTS
Sample results included?	X			
Reporting Limits met project requirements?	X			
Field I.D. included?	X			
Laboratory I.D. included?	X			
Sample matrix included?	X			
Sample receipt temperature 2-6C?	x			
Signed COCs included?	x			Initial receipt date and time not recorded. NO IMPACT: samples hand delivered for immediate lab analysis, bypassing lab login department to reduce time delays and meet critical TAT
Date of sample collection included?	X			
Date of sample digestion included?	X			
Holding time to digestion met criteria? (Soils -30 days from collection to digestion.)	X			
Date of analysis included?	X			
Holding time to analysis met criteria? (Soils -168 hours from digestion to analysis; Aqueous - 24 hours from collection to analysis.	X			
Method reference included?	X			
Laboratory Case Narrative included?	X			

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

ITEM	YES	NO	N/A	COMMENTS
Initial calibration documentation included in lab package?				
1) Blank plus 4 standards (7196A) or blank plus 3 standards (7199)	X			
2) Correlation coefficient of =0.995 (7196A) or =0.999 (7199)	X			
3) Calibrate daily or each time instrument is set up.	X			
Calibration Check Standard (CCS) for 7196A and Quality Control Sample (QCS) for 7199 Included in Lab Package?	X			
1) %R criteria met? (90 - 110%)	X			
2) Correct frequency of one per every 10 samples	X			
3) CCS and QCS from independent source and at mid level of calibration curve	X			
Calibration Blanks				
1) Analyzed prior to initial calibration standards and after each CCS/QCS?	X			
2) Absolute value should not exceed MDL.	X			
Method Blank, Field Blanks and/or Equipment Blanks Included in Lab Package?	X			
1) Method blank analyzed with each preparation batch?	X			
2) Absolute value should not exceed MDL.	X			
Eh and pH Data				
1) Eh and pH data was included and plotted for all samples?	X			
Soluble Matrix Spike Data Included in Lab Package?	X			
1) Soluble Matrix %R criteria met? (75-125%R).		x		Initial soluble recovery 66.6%; Re-digested sample spike recovery 63.1%
2) Was the spike concentration 40 mg/Kg or twice the sample concentration?	~			Initial spike 47.8 mg/Kg; Re-digested batch spike 47.6 mg/Kg (NO IMPACT)
3) Was a sample spiked at the frequency of 1 per batch or 20 samples?	x			
Insoluble Matrix Spike Data Included in Lab Package?				
1) Insoluble Matrix %R criteria met? (75-125%R).	x			
2) Was the spike concentration around 400 to 800 mg/Kg?	~			Initial batch spike 981 mg/Kg; Re-digested batch spike 942 mg/Kg NO IMPACT
3) Was a sample spiked at the frequency of 1 per batch or 20 samples?	x			

Post Digestion Spike				
1) Post Digestion Spike %R criteria met? (85-115%R).	X			
2) Was the spike concentration 40 mg/Kg or twice the sample concentration?	X			
3) Was a sample spiked at the frequency of 1 per batch or 20 samples?	X			
Sample Duplicate Data Included in Lab Package?				
1) RPD criteria met? (RPD < 20%) if both results are =4x RL or control limit of RL if both results are <4x	X	X		Initial batch RPD 3.8; Re-digested batch RPD 127%
2) Was a sample replicated at the frequency of 1 per batch or 20 samples?	X			
Was a Laboratory Control Sample (LCS) Included in Lab Package?	X			
1) %R criteria met? (80-120%R).	X			
2) Was an LCS analyzed at the frequency of 1/batch or 20 samples?	X			
Were any Field Duplicate samples submitted with this SDG?	X			
1) Were Field duplicate RPD criteria met ? (RPD,20% for sample results >4x the RL.	X			
Were all sample quantitation and reporting requirements met?	X			
1) Were all solid samples reported with percent solids > 50%?	X			
2) Were any samples analyzed or reported with dilutions?		X		
Miscellaneous Items				
1) For soils by 7196A, was the pH within a range of 7.0-8.0?	x			
2) For soils by 7199, was the pH within a range of 9.0-9.5?			x	
3) For aqueous by 7196A, was the pH with a range of 1.5-2,5?	x			
4) For soils (3060A), was the digestion temperature 90-95C for at least 60 minutes?	x			
5) For 7199, was each sample injected twice and was the RPD =20?			x	

Matrix Spikes

Sample ID	Compound	Analysis Batch	Matrix Spike	% Recovery	Lower Limit	Upper Limit	Qual
186-Z2S2-E-2.0-2.5	CHROMIUM (HEXAVALENT)	GP75636/GN94215	Soluble	66.6	75	125	J
186-Z2S2-E-2.0-2.5	CHROMIUM (HEXAVALENT)	GP75636/GN94215	Insoluble	113.1	75	125	
186-Z2S2-E-2.0-2.5	CHROMIUM (HEXAVALENT)	GP75667/GN94260	Soluble	63.1	75	125	J
186-Z2S2-E-2.0-2.5	CHROMIUM (HEXAVALENT)	GP75667/GN94260	Insoluble	106	75	125	

Lab Duplicates

Sample ID	Compound	Sample Result	Qual	Duplicate Result	Qual	QL	Units	RPD
186-Z2S2-E-2.0-2.5	CHROMIUM (HEXAVALENT)	0.78		0.81		0.48	mg/kg	3.8
186-Z2S2-E-2.0-2.5 (Re-digested)	CHROMIUM (HEXAVALENT)	0.87		3.9		0.48	mg/kg	127

Percent Solids

Sample ID	Percent Solids (%)	Status
186-Z2S2-E-2.0-2.5	83.7	ok @50%
186-Z3S2-E-C-2.0-2.5	89.8	ok @50%
186-Z3S2-E-C-2.0-2.5X	90.2	ok @50%

SDG#: JB51615, Method 7196	x - concentration	y - response
Batch: GP75636/GN94215		
Cr+6 ICAL - 10/31/2013	0	0
Soils	0.01	0.009
(p 40 of data pkg)	0.05	0.042
	0.1	0.088
	0.3	0.261
	0.5	0.445
	0.8	0.692
	1	0.888

				(p 40 of data pkg)
AECOM Calculated Intercept	-0.0009	OK	Reported intercept	-0.0009
AECOM Slope	0.8812	OK	Reported Slope	0.8812
AECOM Calculated r	0.99985	OK	Reported r	0.99985

LCS calculation	**GP75636-B1**	**p 21, 40**		
Background absorbance	0			
Sample absorbance	0.821			
LCS Soluble Instrument Response	0.821			
Instrument Concentration (mg/L)	0.933			
Sample weight (kg)	0.0025			
Percent solids	1			
Dilution Factor	1			
AECOM Calculated LCS Result (mg/kg)	37.3	OK	Reported Result (mg/kg)	37.3

%R = Found/True*100	**GP75636-B1**	**p 21, 40**		
True Value (mg/kg)	40.0			
AECOM Calculated %R	93.3	OK	Reported %R	93.3

MS calculation	**GP75636-S1**	**p 23, 24, 40**	**JB51615-1**	
Background reading	0.001			
Total absorbance	0.601			
Total absorbance - background	0.6			
Instrument Concentration (mg/L)	0.6819			
Sample weight (kg)	0.0025			
Percent solids	0.837			
Dilution Factor	1			
AECOM Calculated MS Result (mg/kg)	32.6	OK	Reported Result (mg/kg)	32.6

%R = Found/True*100	**GP75636-S1**	**p 23, 24, 40**	**JB51615-1**	
True Value (mg/kg)	47.8			
Native concentration (mg/kg)	0.78			
AECOM Calculated MS Result %R	66.6	OK	Reported %R	66.6

Percent Solids	**JB51615-1**	**p 24**		
Empty dish weight (g)=	19.92			
Wet weight (g)=	26.84			
Dry weight (g)=	25.71			
AECOM%solids =	83.7	OK	Reported %solids=	83.7

Reporting Limit	**JB51615-1**		**p 8, 24, 40**		
Low Standard		0.01			
Initial weight (kg)		0.00242			
Final volume (L)		0.1			
Percent solids		0.837			
Dilution Factor		1			
AECOM Calculated Reporting Limit		0.49	OK, rounding	Reported RL (mg/kg)=	0.48

Sample Calculations	**JB51615-3**		**p 10, 24, 40**		
Background reading		0.002			
Total absorbance		0.011			
Total absorbance - background		0.009			
Instrument Response (mg/L)		0.011			
Sample weight (kg)		0.00249			
Final Volume (L)		0.1			
Percent solids		0.902			
Dilution Factor		1			
AECOM Calculated Result (mg/kg)		0.5	OK	Reported Result (mg/kg)	0.5

SDG#: JB51615R, Method 7196	x - concentration	y - response
Batch: GP75667/GN94260		
Cr+6 ICAL - 11/1/2013	0	0
Soils	0.01	0.009
(p 71 of data pkg)	0.05	0.042
	0.1	0.088
	0.3	0.265
	0.5	0.443
	0.8	0.689
	1	0.883

				(p 71 of data pkg)
AECOM Calculated Intercept	0.00007	OK	Reported intercept	0.00007
AECOM Slope	0.8762	OK	Reported Slope	0.8762
AECOM Calculated r	0.99986	OK	Reported r	0.99986

LCS calculation	**GP75667-B1**	**p 19, 71**		
Background absorbance	0			
Sample absorbance	0.875			
LCS Soluble Instrument Response	0.875			
Instrument Concentration (mg/L)	0.999			
Sample weight (kg)	0.0025			
Percent solids	1			
Dilution Factor	1			
AECOM Calculated LCS Result (mg/kg)	39.9	OK	Reported Result (mg/kg)	39.9

%R = Found/True*100	**GP75667-B1**	**p 19, 71**		
True Value (mg/kg)	40.0			
AECOM Calculated %R	99.9	OK, Rounding	Reported %R	99.8

MS calculation	**GP75667-S1**	**p 21, 27, 71**	**JB51615-1R**	
Background reading	0			
Total absorbance	0.569			
Total absorbance - background	0.569			
Instrument Concentration (mg/L)	0.6493			
Sample weight (kg)	0.00251			
Percent solids	0.837			
Dilution Factor	1			
AECOM Calculated MS Result (mg/kg)	30.9	OK	Reported Result (mg/kg)	30.9

%R = Found/True*100	**GP75667-S1**	**p 21, 27, 71**	**JB51615-1R**	
True Value (mg/kg)	47.6			
Native concentration (mg/kg)	0.87			
AECOM Calculated MS Result %R	63.1	OK, rounding	Reported %R	63.1

Percent Solids	**JB51615-1R**	**p 27**		
Empty dish weight (g)=	19.92			
Wet weight (g)=	26.84			
Dry weight (g)=	25.71			
AECOM%solids =	83.7	OK	Reported %solids=	83.7

Reporting Limit	**JB51615-1R**	**p 8, 27, 71**		
Low Standard	0.01			
Initial weight (kg)	0.00251			
Final volume (L)	0.1			
Percent solids	0.837			
Dilution Factor	1			
AECOM Calculated Reporting Limit	0.48	OK	Reported RL (mg/kg)=	0.48

Sample Calculations	**JB51615-3R**	**p 10, 27, 71**		
Background reading	0			
Total absorbance	0.005			
Total absorbance - background	0.005			
Instrument Response (mg/L)	0.006			
Sample weight (kg)	0.00247			
Final Volume (L)	0.1			
Percent solids	0.902			
Dilution Factor	1			
AECOM Calculated Result (mg/kg)	0.25	OK	Reported Result (mg/kg)	0.25 B

AECOM
250 Apollo Drive
Chelmsford, MA 01886-3140

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Data Validation Report

Project:	Metropolitan Family Health Network Property - Site 186 Borings		
Laboratory:	Accutest, Dayton, NJ		
Laboratory Job No.:	JB51864 and JB51864R		
Analysis/Method:	Hexavalent Chromium SW846 3060A/7196		
Validation Level:	Full		
Site Location/Address:	947 Garfield Avenue, Jersey City, NJ		
AECOM Project No:	60238842.NGA.186.RAM		
Prepared by:	Dion Lewis/AECOM	Completed on: 11/14/2013	
Reviewed by:	Mary Kozik/AECOM	File Name: 2013-11-14 DV Report_JB51864_R-F	

Introduction

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

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

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

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

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

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

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

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

Sample Information

The samples listed below were collected by AECOM on November 1, 2013 as part of the Metropolitan Family Health Network property, Site 186, 947 Garfield Avenue, Jersey City, New Jersey. Only the samples that were validated are listed below:

Field ID	Laboratory ID	Matrix	Fraction
186-FB20131101 (Equipment Blank)	JB51864-1	Aqueous	Hexavalent Chromium
186-Z2S2-W-2.5-3.0	JB51864-2	Soil	Hexavalent Chromium
186-Z2S2-W-2.5-3.0	JB51864-2R	Soil	Hexavalent Chromium

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

RESULTS

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.

MS Results

Method 7196

Sample 186-Z2S2-W-2.5-3.0 was selected for the soil matrix spike analysis and used for supporting data quality assessments. The soluble and insoluble matrix spike (MS) recoveries from the initial batch were 66.3% and 92.7%, respectively, and the soluble spike result did not meet quality control recovery criteria of 75-125%. The post digestion spike (PDS) recovery was 82.7% which also did not meet the PDS criteria of 85-115%.

Based on the low soluble MS recovery, the MS and associated samples were re-digested and re-analyzed using Method 7196. The soluble and insoluble matrix spike recoveries from the re-analysis were 70% and 89%, respectively, and the soluble spike result again did not meet the quality control criteria of 75-125%R. The post digestion spike result for the re-analysis batch was recovered at 85.7%, which did meet the PDS criteria of 85-115%.

Since the soluble MS recoveries were outside of the acceptable QC range of 75-125%, additional parameters were analyzed to determine if possible matrix interferences could be the cause for the poor matrix spike recovery. All of the soil samples were tested for pH and oxidation reduction potential (ORP) and plotted on an Eh/pH phase diagram chart. From this chart, the source sample for the matrix spike analysis was plotted below the phase change line, indicating reducing potential within the sample matrix incapable of supporting hexavalent chromium. Analyses for ferrous iron, sulfide screen, and total organic carbon (TOC) were also performed on the MS source sample to obtain further evidence of the oxidizing/reducing potential within the sample matrix. The sulfide screen was reported as negative, indicating an absence of reduced sulfur/reducing agents within the sample matrix; however, the ferrous iron (0.79%) and the TOC results (27,500 mg/Kg) were positive, indicating potential reducing agents within the sample matrix.

For reporting purposes, the highest hexavalent chromium data between the initial and re-digested sample batches have been reported. Since the soluble MS recoveries from the initial and re-digested batches were below the acceptable QC recovery range of 75-125%, the soil hexavalent chromium results have been reported as estimates with a potential low bias.

Laboratory Duplicate Precision

Sample 186-Z2S2-W-2.5-3.0 was analyzed in duplicate to support a laboratory precision assessment. The reporting limit for these (initial and re-digested) measurements was 0.44 mg/Kg and the results from the initial batch were 2.5 and 5.5 mg/Kg. The replicate data from the re-digested batch were 5.3 and 3 mg/Kg.

The relative percent difference (RPD) associated with the first and second/re-digested batches were 75 and 55.4%, respectively. The replicate data associated with these (initial and re-digested) batches did not meet the RPD criteria of less than 20%. Thus, the hexavalent chromium data were qualified as estimated (J) with the potential for bias in an unknown direction due to poor laboratory precision.

Data Quality and Usability

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

All soil hexavalent chromium data are usable as estimated values, as a result of the initial and re-digested matrix spike QC results that did not meet project criteria.

In addition, hexavalent chromium results are usable as estimated values with the potential for bias in an unknown direction due to poor laboratory precision.

ATTACHMENTS

Attachment A: Target Analyte Summary Hitlist(s)

Attachment B: Data Validation Report Form

Attachment A

Target Analyte Summary Hitlist(s)

Soil Target Analyte Summary Hit List (Hexavalent Chromium)

Site Name Metropolitan Family Health Network Property, Site 186 Borings
Sampling Date November 1, 2013
Lab Name/ID Accutest, Dayton, NJ
SDG No JB51864 and JB51864R
Sample Matrix Soil
Trip Blank ID NA
Field Blank ID 186-FB20131101

Field Sample ID	Lab Sample ID	Analyte	Method Blank (mg/kg)	Laboratory Sample Result (mg/kg)	Validation Sample Result (mg/kg)	RL (mg/kg)	Quality Assurance Decision	NJDEP Validation Footnote
186-Z2S2-W-2.5-3.0	JB51864-2R	CHROMIUM (HEXAVALENT)	U	5.3	5.3 J	0.44	Qualify	8, 18

Note: A “U” under Method Blank column indicates a nondetect result.

A “U” under the Laboratory Sample Result and Validation Sample Result columns indicates a nondetect result at the RL.

NJDEP Laboratory Footnote

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

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

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

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

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

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

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

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

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

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

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

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

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

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

15. This analyte is 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 soluble predigestion spike recovery was less than 75 %, but greater than 50%.

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

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

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

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

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

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

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

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

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

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

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

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

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

32. The reported value was qualified because the sample replicate precision criterion of ≤ 20% for

method 7199 was exceeded.

Soil Target Analyte Summary Hit List (Hexavalent Chromium)

Site Name Metropolitan Family Health Network Property, Site 186 Borings
Sampling Date November 1, 2013
Lab Name/ID Accutest, Dayton, NJ
SDG No JB51864 and JB51864R
Sample Matrix Aqueous
Trip Blank ID NA
Field Blank ID 186-FB20131101

Field Sample ID	Lab Sample ID	Analyte	Method Blank (mg/L)	Laboratory Sample Result (mg/L)	Validation Sample Result (mg/L)	RL (mg/L)	Quality Assurance Decision	NJDEP Validation Footnote
186-FB20131101	JB51864-1	CHROMIUM (HEXAVALENT)	U	0.010 U	0.010 U	0.010	Accept	

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.

Attachment B

Data Validation Report Form

Client Name: PPG Industries	**Project Number:** 60238842.NGA.186.RAM
Site Location: Metropolitan Family Health Network Property Site 186 Borings, Jersey City, NJ	**Project Manager:** Al LoPilato
Laboratory: Accutest, Dayton, NJ	**Type of Validation:** Full
Laboratory Job No: JB51864 and JB51864R	**Date Checked:** NA
Validator: Dion Lewis	**Peer:** Mary Kozik

ITEM	YES	NO	N/A	COMMENTS
Sample results included?	X			
Reporting Limits met project requirements?	X			
Field I.D. included?	X			
Laboratory I.D. included?	X			
Sample matrix included?	X			
Sample receipt temperature 2-6C?	x			
Signed COCs included?	x			Initial relinquish time not recorded. NO IMPACT: samples hand delivered for immediate lab analysis, bypassing lab login department to reduce time delays and meet critical TAT
Date of sample collection included?	X			
Date of sample digestion included?	X			
Holding time to digestion met criteria? (Soils -30 days from collection to digestion.)	X			
Date of analysis included?	X			
Holding time to analysis met criteria? (Soils -168 hours from digestion to analysis; Aqueous - 24 hours from collection to analysis.	X			
Method reference included?	X			
Laboratory Case Narrative included?	X			

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

ITEM	YES	NO	N/A	COMMENTS
Initial calibration documentation included in lab package?				
1) Blank plus 4 standards (7196A) or blank plus 3 standards (7199)	X			
2) Correlation coefficient of =0.995 (7196A) or =0.999 (7199)	X			
3) Calibrate daily or each time instrument is set up.	X			
Calibration Check Standard (CCS) for 7196A and Quality Control Sample (QCS) for 7199 Included in Lab Package?	X			
1) %R criteria met? (90 - 110%)	X			
2) Correct frequency of one per every 10 samples	X			
3) CCS and QCS from independent source and at mid level of calibration curve	X			
Calibration Blanks				
1) Analyzed prior to initial calibration standards and after each CCS/QCS?	X			
2) Absolute value should not exceed MDL.	X			
Method Blank, Field Blanks and/or Equipment Blanks Included in Lab Package?	X			
1) Method blank analyzed with each preparation batch?	X			
2) Absolute value should not exceed MDL.	X			
Eh and pH Data				
1) Eh and pH data was included and plotted for all samples?	X			
Soluble Matrix Spike Data Included in Lab Package?	X			
1) Soluble Matrix %R criteria met? (75-125%R).		x		Initial soluble recovery 66.3%; Re-digested sample spike recovery 70%
2) Was the spike concentration 40 mg/Kg or twice the sample concentration?	~			Initial spike 45.3 mg/Kg; Re-digested batch spike 44.7 mg/Kg (NO IMPACT)
3) Was a sample spiked at the frequency of 1 per batch or 20 samples?	x			
Insoluble Matrix Spike Data Included in Lab Package?				
1) Insoluble Matrix %R criteria met? (75-125%R).	x			
2) Was the spike concentration around 400 to 800 mg/Kg?	~			Initial batch spike 856 mg/Kg; Re-digested batch spike 867 mg/Kg NO IMPACT
3) Was a sample spiked at the frequency of 1 per batch or 20 samples?	x			

Post Digestion Spike				
1) Post Digestion Spike %R criteria met? (85-115%R).	X	X		Initial batch PDS recovery 82.7%; Re-digested batch recovery 85.7
2) Was the spike concentration 40 mg/Kg or twice the sample concentration?	X			
3) Was a sample spiked at the frequency of 1 per batch or 20 samples?	X			
Sample Duplicate Data Included in Lab Package?	X			
1) RPD criteria met? (RPD < 20%) if both results are =4x RL or control limit of RL if both results are <4x		X		Initial batch RPD 75; Re-digested batch RPD 55.4%
2) Was a sample replicated at the frequency of 1 per batch or 20 samples?	X			
Was a Laboratory Control Sample (LCS) Included in Lab Package?	X			
1) %R criteria met? (80-120%R).	X			
2) Was an LCS analyzed at the frequency of 1/batch or 20 samples?	X			
Were any Field Duplicate samples submitted with this SDG?		X		
1) Were Field duplicate RPD criteria met ? (RPD,20% for sample results >4x the RL.			X	
Were all sample quantitation and reporting requirements met?	X			
1) Were all solid samples reported with percent solids > 50%?	X			
2) Were any samples analyzed or reported with dilutions?		X		
Miscellaneous Items				
1) For soils by 7196A, was the pH within a range of 7.0-8.0?	x			
2) For soils by 7199, was the pH within a range of 9.0-9.5?			X	
3) For aqueous by 7196A, was the pH with a range of 1.5-2,5?	x			
4) For soils (3060A), was the digestion temperature 90-95C for at least 60 minutes?	x			
5) For 7199, was each sample injected twice and was the RPD =20?			X	

Matrix Spikes

Sample ID	Compound	Analysis Batch	Matrix Spike	% Recovery	Lower Limit	Upper Limit	Qual
186-Z2S2-W-2.5-3.0	CHROMIUM (HEXAVALENT)	GP75738/GN94448	Soluble	70	75	125	J
186-Z2S2-W-2.5-3.0	CHROMIUM (HEXAVALENT)	GP75738/GN94448	Insoluble	89	75	125	
186-Z2S2-W-2.5-3.0	CHROMIUM (HEXAVALENT)	GP75699/GN94345	Soluble	66.3	75	125	J
186-Z2S2-W-2.5-3.0	CHROMIUM (HEXAVALENT)	GP75699/GN94345	Insoluble	92.7	75	125	

Lab Duplicates

Sample ID	Compound	Sample Result	Qual	Duplicate Result	Qual	QL	Units	RPD
186-Z2S2-W-2.5-3.0	CHROMIUM (HEXAVALENT)	2.5		5.5		0.44	mg/kg	75
186-Z2S2-W-2.5-3.0	CHROMIUM (HEXAVALENT)	5.3		3		0.44	mg/kg	55.4

Percent Solids

Sample ID	Percent Solids (%)	Status
186-Z2S2-W-2.5-3.0	90.5	ok @50%

SDG#: JB51864, Method 7196	x - concentration	y - response
Batch: GP75699/GN94345		
Cr+6 ICAL - 11/4/2013	0	0
Soils	0.01	0.009
(p 40 of data pkg)	0.05	0.045
	0.1	0.091
	0.3	0.269
	0.5	0.445
	0.8	0.695
	1	0.893

(p 37 of data pkg)

AECOM Calculated Intercept	0.0010	OK	Reported intercept	0.0010
AECOM Slope	0.8837	OK	Reported Slope	0.8837
AECOM Calculated r	0.99984	OK	Reported r	0.99984

LCS calculation	**GP75699-B1**	**p 17, 40**		
Background absorbance	0			
Sample absorbance	0.812			
LCS Soluble Instrument Response	0.812			
Instrument Concentration (mg/L)	0.918			
Sample weight (kg)	0.0025			
Percent solids	1			
Dilution Factor	1			
AECOM Calculated LCS Result (mg/kg)	36.7	OK	Reported Result (mg/kg)	36.7

%R = Found/True*100	**GP75699-B1**	**p 17, 40**		
True Value (mg/kg)	40.0			
AECOM Calculated %R	91.8	OK	Reported %R	91.8

MS calculation	**GP75699-S1**	**p 19, 20, 40**	**JB51864-2**	
Background reading	0.01			
Total absorbance	0.646			
Total absorbance - background	0.636			
Instrument Concentration (mg/L)	0.7186			
Sample weight (kg)	0.00244			
Percent solids	0.905			
Dilution Factor	1			
AECOM Calculated MS Result (mg/kg)	32.5	OK	Reported Result (mg/kg)	32.5

%R = Found/True*100	**GP75699-S1**	**p 19, 20, 40**	**JB51864-2**	
True Value (mg/kg)	45.3			
Native concentration (mg/kg)	2.49			
AECOM Calculated MS Result %R	66.3	OK	Reported %R	66.3

Percent Solids	**JB51864-2**	**p 20**		
Empty dish weight (g)=	17.81			
Wet weight (g)=	23.07			
Dry weight (g)=	22.57			
AECOM%solids =	90.5	OK	Reported %solids=	90.5

Reporting Limit	**JB51864-2**	**p 9, 20, 40**		
Low Standard	0.01			
Initial weight (kg)	0.00256			
Final volume (L)	0.1			
Percent solids	0.905			
Dilution Factor	1			
AECOM Calculated Reporting Limit	0.43	OK, rounding	Reported RL (mg/kg)=	0.44

Sample Calculations	**JB51864-3**	**p 9, 20, 30**		
Background reading	0.01			
Total absorbance	0.062			
Total absorbance - background	0.052			
Instrument Response (mg/L)	0.058			
Sample weight (kg)	0.00256			
Final Volume (L)	0.1			
Percent solids	0.905			
Dilution Factor	1			
AECOM Calculated Result (mg/kg)	2.5	OK	Reported Result (mg/kg)	2.5

SDG#: JB51864R, Method 7196	x - concentration	y - response
Batch: GP75738/GN94448		
Cr+6 ICAL - 11/5/2013	0	0
Soils	0.01	0.009
(p 42 of data pkg)	0.05	0.045
	0.1	0.086
	0.3	0.264
	0.5	0.443
	0.8	0.694
	1	0.883

				(p 42 of data pkg)
AECOM Calculated Intercept	0.00006	OK	Reported intercept	0.00006
AECOM Slope	0.8781	OK	Reported Slope	0.8781
AECOM Calculated r	0.99993	OK	Reported r	0.99993

LCS calculation	**GP75738-B1**	**p 16, 42**		
Background absorbance	0			
Sample absorbance	0.791			
LCS Soluble Instrument Response	0.791			
Instrument Concentration (mg/L)	0.901			
Sample weight (kg)	0.0025			
Percent solids	1			
Dilution Factor	1			
AECOM Calculated LCS Result (mg/kg)	36.0	OK	Reported Result (mg/kg)	36.0

%R = Found/True*100	**GP75738-B1**	**p 16, 42**		
True Value (mg/kg)	40.0			
AECOM Calculated %R	90.1	OK, Rounding	Reported %R	90.0

MS calculation	**GP75738-S1**	**p 18, 24, 42**	**JB51864-2R**	
Background reading	0.005			
Total absorbance	0.724			
Total absorbance - background	0.719			
Instrument Concentration (mg/L)	0.8188			
Sample weight (kg)	0.00247			
Percent solids	0.905			
Dilution Factor	1			
AECOM Calculated MS Result (mg/kg)	36.6	OK	Reported Result (mg/kg)	36.6

%R = Found/True*100	**GP75738-S1**	**p 18, 24, 42**	**JB51864-2R**	
True Value (mg/kg)	44.7			
Native concentration (mg/kg)	5.30			
AECOM Calculated MS Result %R	70.1	OK, rounding	Reported %R	70.0

Percent Solids	**JB51864-2R**	**p 24**		
Empty dish weight (g)=	17.81			
Wet weight (g)=	23.07			
Dry weight (g)=	22.57			
AECOM%solids =	90.5	OK	Reported %solids=	90.5

Reporting Limit	**JB51864-2R**	**p 8, 24, 42**		
Low Standard	0.01			
Initial weight (kg)	0.00247			
Final volume (L)	0.1			
Percent solids	0.905			
Dilution Factor	1			
AECOM Calculated Reporting Limit	0.45	OK, rounding	Reported RL (mg/kg)=	0.44

Sample Calculations	**JB51864-3R**	**p 8, 24, 42**		
Background reading	0.008			
Total absorbance	0.112			
Total absorbance - background	0.104			
Instrument Response (mg/L)	0.118			
Sample weight (kg)	0.00247			
Final Volume (L)	0.1			
Percent solids	0.905			
Dilution Factor	1			
AECOM Calculated Result (mg/kg)	5.3	OK	Reported Result (mg/kg)	5.3

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Data Validation Report

Project:	Metropolitan Family Health Network Property - Site 186 Borings	
Laboratory:	Accutest, Dayton, NJ	
Laboratory Job No.:	JB51256, JB51256R, JB51256T, and JB51256TR	
Analysis/Method:	Hexavalent Chromium SW846 3060A/7196	
Validation Level:	Full	
Site Location/Address:	947 Garfield Avenue, Jersey City, NJ	
AECOM Project No:	60238842.NGA.186.RAM	
Prepared by:	Dion Lewis/AECOM	Completed on: 11/25/2013
Reviewed by:	Mary Kozik/AECOM	File Name: 2013-11-25 DV Report_JB51256_TR-F

Introduction

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

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

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

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

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

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

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

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

Sample Information

The samples listed below were collected by AECOM on October 25, 2013 as part of the Metropolitan Family Health Network property, Site 186, 947 Garfield Avenue, Jersey City, New Jersey. Only the samples that were validated are listed below:

Field ID	Laboratory ID	Matrix	Fraction
186-FB20131025 (Equipment Blank)	JB51256-1	Aqueous	Hexavalent Chromium
186-MFHT-6-2.0-2.5	JB51256-3	Soil	Hexavalent Chromium
186-MFHT-6-2.0-2.5	JB51256-3R	Soil	Hexavalent Chromium
186-MFHT-7-2.0-2.5	JB51256-2	Soil	Hexavalent Chromium
186-MFHT-7-2.0-2.5	JB51256-2R	Soil	Hexavalent Chromium
186-MFHT-8-2.0-2.5	JB51256-4	Soil	Hexavalent Chromium
186-MFHT-8-2.0-2.5	JB51256-4R	Soil	Hexavalent Chromium
186-MFHT-C-1.0-1.5	JB51256-5	Concrete	Hexavalent Chromium
186-MFHT-C-1.0-1.5	JB51256-5R	Concrete	Hexavalent Chromium
186-MFHT-6-2.0-2.5	JB51256-3T	Soil	Hexavalent Chromium
186-MFHT-7-2.0-2.5	JB51256-2T	Soil	Hexavalent Chromium
186-MFHT-8-2.0-2.5	JB51256-4T	Soil	Hexavalent Chromium
186-MFHT-6-2.0-2.5	JB51256-3TR	Soil	Hexavalent Chromium
186-MFHT-7-2.0-2.5	JB51256-2TR	Soil	Hexavalent Chromium
186-MFHT-8-2.0-2.5	JB51256-4TR	Soil	Hexavalent Chromium

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

RESULTS

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.

MS Results

Method 7196 and 7196R [concrete sample analysis]

Sample 186-MFHT-C-1.0-1.5 was selected for the concrete matrix spike analysis and used for data quality assessments to support the analysis. The soluble and insoluble matrix spike (MS) recoveries from the initial batch were 70.9% and 89.9%, respectively, and the soluble spike result did not meet quality control recovery criteria of 75-125%. The post digestion spike (PDS) recovery was 86.7% which met the PDS criteria of 85-115%.

Based on the low soluble MS recovery, the MS and associated samples were re-digested and re-analyzed using Method 7196. The soluble and insoluble matrix spike recoveries from the re-analysis

were 73.3% and 98.3%, respectively; once again the soluble spike result did not meet the quality control criteria of 75-125%R. The post digestion spike result for the re-analysis batch was recovered at 99.5%, which again met the PDS criteria of 85-115%.

Since the initial soluble MS recovery was outside the acceptable QC range of 75-125%, additional parameters were analyzed to determine if possible matrix interferences could be the cause for the poor matrix spike recovery. All of the samples were tested for pH and oxidation reduction potential (ORP) and plotted on an Eh/pH phase diagram chart. From this chart, the source sample for the matrix spike analysis was plotted on the phase change line, indicating reducing potential within the sample matrix incapable of supporting hexavalent chromium.

For reporting purposes, the higher of the two hexavalent chromium values (initial vs. re-digested) has been reported. Since the soluble MS recoveries from the initial and re-digested batches were below the acceptable QC recovery range of 75-125%, the concrete hexavalent chromium results have been reported as estimates with a potential low bias.

Method 7196T and 7196TR [soil sample analysis]

Sample 186-MFHT-6-2.0-2.5 was selected for the soil matrix spike analysis and used for data quality assessments to support the analysis of soils. The soluble and insoluble matrix spike (MS) recoveries from the initial batch were 51.9% and 82.2%, respectively, and the soluble spike result did not meet quality control recovery criteria of 75-125%. The post digestion spike (PDS) recovery was 65.5% which did not meet the PDS criteria of 85-115%.

Based on the low soluble MS recovery, the MS and associated samples were re-digested and re-analyzed using Method 7196. The soluble and insoluble matrix spike recoveries from the re-analysis were 34% and 86.6%, respectively, and the soluble spike result again did not meet the quality control criteria of 75-125%R. The post digestion spike result for the re-analysis batch was recovered at 61.9%, which also did not meet the PDS criteria of 85-115%.

Since the initial soluble MS recovery was outside the acceptable QC range of 75-125%, additional parameters were analyzed to determine if possible matrix interferences could be the cause for the poor matrix spike recovery. All of the samples were tested for pH and oxidation reduction potential (ORP) and plotted on an Eh/pH phase diagram chart. From this chart, the source sample for the matrix spike analysis was plotted below the phase change line, indicating reducing potential within the sample matrix incapable of supporting hexavalent chromium. Analyses for ferrous iron, sulfide screen, and total organic carbon (TOC) were also performed on the MS source sample to obtain further evidence of the oxidizing/reducing potential within the sample matrix. The sulfide screen was reported as negative, indicating an absence of reduced sulfur/reducing agents within the sample matrix; however, the ferrous iron (0.57%) and the TOC results (59,600 mg/Kg) were positive, indicating potential reducing agents within the sample matrix.

For reporting purposes, the highest hexavalent chromium data between the initial and re-digested sample batches have been reported. Since the soluble MS recoveries were below the acceptable QC recovery range of 75-125%, the soil hexavalent chromium results have been reported as estimates with a potential low bias.

Laboratory Duplicate Precision

Concrete. Sample 186-MFHT-C-1.0-1.5 was analyzed in duplicate to support a laboratory precision assessment for concrete. The reporting limit for these (initial and re-digested) measurements was 0.43 mg/Kg and the results from the initial batch were 2.0 and 1.8 mg/Kg. The replicate data from the re-digested batch were 3.2 and 2.6 mg/Kg.

The relative percent difference (RPD) associated with the first and second/re-digested batches were 10.5 and 20.7%, respectively. The replicate data associated with the initial batch met the RPD criteria of less than 20%; the replicate data from the re-digested batch did not meet the 20% criteria. Thus, the concrete hexavalent chromium data reported from the second batch was qualified as estimated (J) with the potential for bias in an unknown direction due to poor laboratory precision.

Soil. Sample 186-MFHT-6-2.0-2.5 was analyzed in duplicate to support a laboratory precision assessment for soil. The reporting limit for these (initial and re-digested) measurements was 0.50 mg/Kg and the results from the initial batch were 1.6 and 1.6 mg/Kg. The replicate data from the re-digested batch were 2.5 and 3.6 mg/Kg.

The relative percent difference (RPD) associated with the first and second/re-digested batches were 0 and 36.1%, respectively. The replicate data associated with the initial batch met the RPD criteria of less than 20%; the replicate data from the re-digested batch did not meet the 20% criteria. Thus, the soil hexavalent chromium data reported from the second batch has been qualified as estimated (J) with the potential for bias in an unknown direction due to poor laboratory precision.

Data Quality and Usability

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

The concrete and soil hexavalent chromium data are usable as estimated values, as a result of the initial and re-digested matrix spike QC results that did not meet project criteria.

In addition, concrete and soil hexavalent chromium results associated with each of the re-digested batch sets are usable as estimated values with the potential for bias in an unknown direction due to poor laboratory precision.

ATTACHMENTS

Attachment A: Target Analyte Summary Hitlist(s)

Attachment B: Data Validation Report Form

Attachment A

Target Analyte Summary Hitlist(s)

Soil Target Analyte Summary Hit List (Hexavalent Chromium)

Site Name Metropolitan Family Health Network Property, Site 186 Borings
Sampling Date October 25, 2013
Lab Name/ID Accutest, Dayton, NJ
SDG No JB51256, JB51256R, JB51256T and JB51256TR
Sample Matrix Soil
Trip Blank ID NA
Field Blank ID 186-FB20131025

Field Sample ID	Lab Sample ID	Analyte	Method Blank (mg/kg)	Laboratory Sample Result (mg/kg)	Validation Sample Result (mg/kg)	RL (mg/kg)	Quality Assurance Decision	NJDEP Validation Footnote
186-MFHT-6-2.0-2.5	JB51256-3TR	CHROMIUM (HEXAVALENT)	U	2.5	2.5 J	0.50	Qualify	8, 11, 18
186-MFHT-7-2.0-2.5	JB51256-2TR	CHROMIUM (HEXAVALENT)	U	7.0	7.0 J	0.48	Qualify	8, 11, 18
186-MFHT-8-2.0-2.5	JB51256-4T	CHROMIUM (HEXAVALENT)	U	17	17 J	0.46	Qualify	11, 18
186-MFHT-C-1.0-1.5	JB51256-5R	CHROMIUM (HEXAVALENT)	U	3.2	3.2 J	0.43	Qualify	8, 18

Note: A “U” under Method Blank column indicates a nondetect result.

A “U” under the Laboratory Sample Result and Validation Sample Result columns indicates a nondetect result at the RL.

NJDEP Laboratory Footnote

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

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

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

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

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

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

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

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

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

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

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

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

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

15. This analyte is 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 soluble predigestion spike recovery was less than 75 %, but greater than 50%.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Soil Target Analyte Summary Hit List (Hexavalent Chromium)

Site Name Metropolitan Family Health Network Property, Site 186 Borings
Sampling Date October 25, 2013
Lab Name/ID Accutest, Dayton, NJ
SDG No JB51256, JB51256R, JB51256T and JB51256TR
Sample Matrix Aqueous
Trip Blank ID NA
Field Blank ID 186-FB20131025

Field Sample ID	Lab Sample ID	Analyte	Method Blank (mg/L)	Laboratory Sample Result (mg/L)	Validation Sample Result (mg/L)	RL (mg/L)	Quality Assurance Decision	NJDEP Validation Footnote
186-FB20131025	JB51256-1	CHROMIUM (HEXAVALENT)	U	0.010 U	0.010 U	0.010	Accept	

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.

Attachment B

Data Validation Report Form

Client Name: PPG Industries	**Project Number:** 60238842.NGA.186.RAM
Site Location: Metropolitan Family Health Network Property Site 186 Borings, Jersey City, NJ	**Project Manager:** Al LoPilato
Laboratory: Accutest, Dayton, NJ	**Type of Validation:** Full
Laboratory Job No: JB51256, JB51256R, JB51256T and JB51256TR	**Date Checked:** NA
Validator: Dion Lewis	**Peer:** Mary Kozik

ITEM	YES	NO	N/A	COMMENTS
Sample results included?	X			
Reporting Limits met project requirements?	X			
Field I.D. included?	X			
Laboratory I.D. included?	X			
Sample matrix included?	X			
Sample receipt temperature 2-6C?	x			
Signed COCs included?	x			Initial relinquish time not recorded. NO IMPACT: samples hand delivered for immediate lab analysis, bypassing lab login department to reduce time delays and meet critical TAT
Date of sample collection included?	X			
Date of sample digestion included?	X			
Holding time to digestion met criteria? (Soils -30 days from collection to digestion.)	X			
Date of analysis included?	X			
Holding time to analysis met criteria? (Soils -168 hours from digestion to analysis; Aqueous - 24 hours from collection to analysis.	X			
Method reference included?	X			
Laboratory Case Narrative included?	X			

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

ITEM	YES	NO	N/A	COMMENTS
Initial calibration documentation included in lab package?				
1) Blank plus 4 standards (7196A) or blank plus 3 standards (7199)	X			
2) Correlation coefficient of =0.995 (7196A) or =0.999 (7199)	X			
3) Calibrate daily or each time instrument is set up.	X			
Calibration Check Standard (CCS) for 7196A and Quality Control Sample (QCS) for 7199 Included in Lab Package?	X			
1) %R criteria met? (90 - 110%)	X			
2) Correct frequency of one per every 10 samples	X			
3) CCS and QCS from independent source and at mid level of calibration curve	X			
Calibration Blanks				
1) Analyzed prior to initial calibration standards and after each CCS/QCS?	X			
2) Absolute value should not exceed MDL.	X			
Method Blank, Field Blanks and/or Equipment Blanks Included in Lab Package?	X			
1) Method blank analyzed with each preparation batch?	X			
2) Absolute value should not exceed MDL.	X			
Eh and pH Data				
1) Eh and pH data was included and plotted for all samples?	X			
Soluble Matrix Spike Data Included in Lab Package?	X			
1) Soluble Matrix %R criteria met? (75-125%R).		x		Concrete sample Initial soluble recovery 70.9%; Re-digested (-R) sample spike recovery 73.3%. Soil sample initial soluble recovery 51.9%; Re-digested (-TR) sample spike recovery 34%
2) Was the spike concentration 40 mg/Kg or twice the sample concentration?	~			Spike (initial and re-digested concrete batch) 43 mg/Kg; Soil initial batch spike 50.4 mg/Kg and re-digested (-TR) spike 50.2 mg/Kg.
3) Was a sample spiked at the frequency of 1 per batch or 20 samples?	x			
Insoluble Matrix Spike Data Included in Lab Package?				
1) Insoluble Matrix %R criteria met? (75-125%R).	x			
2) Was the spike concentration around 400 to 800 mg/Kg?	~			Initial concrete batch spike 837 mg/Kg; Re-digested concrete batch spike 844 mg/Kg; Soil initial batch spike 1400 mg/Kg and Re-digested batch spike 1220 mg/Kg. NO IMPACT

3) Was a sample spiked at the frequency of 1 per batch or 20 samples?	x			
Post Digestion Spike				
1) Post Digestion Spike %R criteria met? (85-115%R).	X	X		Concrete sample matrix PDS acceptable; Soil matrix did not meet criteria. Soil PDS 65.5 and 61.9% recovery for initial and re-digested batch
2) Was the spike concentration 40 mg/Kg or twice the sample concentration?	X			
3) Was a sample spiked at the frequency of 1 per batch or 20 samples?	X			
Sample Duplicate Data Included in Lab Package?				
1) RPD criteria met? (RPD < 20%) if both results are =4x RL or control limit of RL if both results are <4x	X	x		Concrete initial batch RPD 10.5 and re-digested batch RPD 20.7; Soil duplicate RPD 0 and re-digested batch RPD 36.1
2) Was a sample replicated at the frequency of 1 per batch or 20 samples?	X			
Was a Laboratory Control Sample (LCS) Included in Lab Package?	X			
1) %R criteria met? (80-120%R).	X			
2) Was an LCS analyzed at the frequency of 1/batch or 20 samples?	X			
Were any Field Duplicate samples submitted with this SDG?		X		
1) Were Field duplicate RPD criteria met ? (RPD,20% for sample results >4x the RL.			X	
Were all sample quantitation and reporting requirements met?	X			
1) Were all solid samples reported with percent solids > 50%?	X			
2) Were any samples analyzed or reported with dilutions?		X		
Miscellaneous Items				
1) For soils by 7196A, was the pH within a range of 7.0-8.0?	x			
2) For soils by 7199, was the pH within a range of 9.0-9.5?			x	
3) For aqueous by 7196A, was the pH with a range of 1.5-2,5?	x			
4) For soils (3060A), was the digestion temperature 90-95C for at least 60 minutes?	x			
5) For 7199, was each sample injected twice and was the			x	

RPD =20?				

Matrix Spikes

Sample ID	Compound	Analysis Batch	Matrix Spike	% Recovery	Lower Limit	Upper Limit	Qual
186-MFHT-C-1.0-1.5	CHROMIUM (HEXAVALENT)	GP75563/GN93944	Soluble	70.9	75	125	J
186-MFHT-C-1.0-1.5	CHROMIUM (HEXAVALENT)	GP75563/GN93944	Insoluble	89.9	75	125	
186-MFHT-C-1.0-1.5	CHROMIUM (HEXAVALENT)	GP75691/GN94355	Soluble	73.3	75	125	J
186-MFHT-C-1.0-1.5	CHROMIUM (HEXAVALENT)	GP75691/GN94355	Insoluble	98.3	75	125	
186-MFHT-C-1.0-1.5	CHROMIUM (HEXAVALENT)	GP75920/GN94887	Soluble	51.9	75	125	J
186-MFHT-C-1.0-1.5	CHROMIUM (HEXAVALENT)	GP75920/GN94887	Insoluble	82.2	75	125	
186-MFHT-C-1.0-1.5	CHROMIUM (HEXAVALENT)	GP76070/GN95277	Soluble	34	75	125	J
186-MFHT-C-1.0-1.5	CHROMIUM (HEXAVALENT)	GP76070/GN95277	Insoluble	86.6	75	125	

Lab Duplicates

Sample ID	Compound	Sample Result	Qual	Duplicate Result	Qual	QL	Units	RPD
186-MFHT-C-1.0-1.5	CHROMIUM (HEXAVALENT)	2		1.8		0.43	mg/kg	10.5
186-MFHT-C-1.0-1.5 (Re-digested)	CHROMIUM (HEXAVALENT)	3.2		2.6		0.43	mg/kg	20.7
186-MFHT-6-2.0-2.5	CHROMIUM (HEXAVALENT	1.6		1.6		0.50	mg/kg	0
186-MFHT-6-2.0-2.5 (Re-digested)	CHROMIUM (HEXAVALENT	2.5		3.6		0.50	mg/kg	36.1

Percent Solids

Sample ID	Percent Solids (%)	Status
186-MFHT-6-2.0-2.5	80.6	ok @50%
186-MFHT-7-2.0-2.5	82.8	ok @50%
186-MFHT-8-2.0-2.5	87.4	ok @50%
186-MFHT-C-1.0-1.5	92.3	ok @50%

SDG#: JB51256, Method 7196	x - concentration	y - response
Batch: GP75563/GN93944		
Cr+6 ICAL - 10/27/2013	0	0
Soils	0.01	0.009
(p 41 of data pkg)	0.05	0.045
	0.1	0.088
	0.3	0.267
	0.5	0.445
	0.8	0.697
	1	0.889

				(p 43 of data pkg)
AECOM Calculated Intercept	0.0004	OK	Reported intercept	0.0004
AECOM Slope	0.8829	OK	Reported Slope	0.8829
AECOM Calculated r	0.99991	OK	Reported r	0.99991

LCS calculation	**GP75563-B1**	**p 21, 43**		
Background absorbance	0.002			
Sample absorbance	0.794			
LCS Soluble Instrument Response	0.792			
Instrument Concentration (mg/L)	0.897			
Sample weight (kg)	0.0025			
Percent solids	1			
Dilution Factor	1			
AECOM Calculated LCS Result (mg/kg)	35.9	OK	Reported Result (mg/kg)	35.9

%R = Found/True*100	**GP75563-B1**	**p 21, 43**		
True Value (mg/kg)	40.0			
AECOM Calculated %R	89.7	OK, rounding	Reported %R	89.8

MS calculation	**GP75563-S1**	**p 23, 24, 43**	**JB51256-5**	
Background reading	0.007			
Total absorbance	0.674			
Total absorbance - background	0.667			
Instrument Concentration (mg/L)	0.7550			
Sample weight (kg)	0.00252			
Percent solids	0.923			
Dilution Factor	1			
AECOM Calculated MS Result (mg/kg)	32.5	OK	Reported Result (mg/kg)	32.5

%R = Found/True*100	**GP75563-S1**	**p 23, 24, 43**	**JB51256-5**	
True Value (mg/kg)	43			
Native concentration (mg/kg)	1.95			
AECOM Calculated MS Result %R	71.0	OK, rounding	Reported %R	70.9

Percent Solids	**JB51256-5**	**p 24**		
Empty dish weight (g)=	19.44			
Wet weight (g)=	27.21			
Dry weight (g)=	26.61			
AECOM%solids =	92.3	OK	Reported %solids=	92.3

Reporting Limit	**JB51256-5**		**p 12, 24, 43**		
Low Standard		0.01			
Initial weight (kg)		0.00249			
Final volume (L)		0.1			
Percent solids		0.923			
Dilution Factor		1			
AECOM Calculated Reporting Limit		0.44	OK, rounding	Reported RL (mg/kg)=	0.43

Sample Calculations	**JB51256-2**		**p 9, 24, 43**		
Background reading		0.026			
Total absorbance		0.073			
Total absorbance - background		0.047			
Instrument Response (mg/L)		0.053			
Sample weight (kg)		0.00249			
Final Volume (L)		0.1			
Percent solids		0.828			
Dilution Factor		1			
AECOM Calculated Result (mg/kg)		2.6	OK	Reported Result (mg/kg)	2.6

SDG#: JB51256R, Method 7196	x - concentration	y - response
Batch: GP75691/GN94355		
Cr+6 ICAL - 11/4/2013	0	0
Soils	0.01	0.009
(p 49 of data pkg)	0.05	0.045
	0.1	0.091
	0.3	0.269
	0.5	0.445
	0.8	0.695
	1	0.893

				(p 49 of data pkg)
AECOM Calculated Intercept	0.0010	OK	Reported intercept	0.0010
AECOM Slope	0.8837	OK	Reported Slope	0.8837
AECOM Calculated r	0.99984	OK	Reported r	0.99984

LCS calculation	**GP75691-B1**	**p 20, 49**		
Background absorbance	0			
Sample absorbance	0.839			
LCS Soluble Instrument Response	0.839			
Instrument Concentration (mg/L)	0.948			
Sample weight (kg)	0.0025			
Percent solids	1			
Dilution Factor	1			
AECOM Calculated LCS Result (mg/kg)	37.9	OK	Reported Result (mg/kg)	37.9

%R = Found/True*100	**GP75691-B1**	**p 20, 49**		
True Value (mg/kg)	40.0			
AECOM Calculated %R	94.8	OK, Rounding	Reported %R	94.8

MS calculation	**GP75691-S1**	**p 27, 34, 74**	**JB51256-5R**	
Background reading	0.013			
Total absorbance	0.727			
Total absorbance - background	0.714			
Instrument Concentration (mg/L)	0.8068			
Sample weight (kg)	0.00252			
Percent solids	0.923			
Dilution Factor	1			
AECOM Calculated MS Result (mg/kg)	34.7	OK	Reported Result (mg/kg)	34.7

%R = Found/True*100	**GP75691-S1**	**p 27, 34, 74**	**JB51256-5R**	
True Value (mg/kg)	43			
Native concentration (mg/kg)	3.24			
AECOM Calculated MS Result %R	73.1	OK, rounding	Reported %R	73.3

Percent Solids	**JB51256-5R**	**p 34**		
Empty dish weight (g)=	19.44			
Wet weight (g)=	27.21			
Dry weight (g)=	26.61			
AECOM%solids =	92.3	OK	Reported %solids=	92.3

Reporting Limit	**JB51256-5R**	**p 15, 34, 74**		
Low Standard	0.01			
Initial weight (kg)	0.00242			
Final volume (L)	0.1			
Percent solids	0.923			
Dilution Factor	1			
AECOM Calculated Reporting Limit	0.43	OK	Reported RL (mg/kg)=	0.43

Sample Calculations	**JB51256-2R**	**p 14, 34, 74**		
Background reading	0.047			
Total absorbance	0.111			
Total absorbance - background	0.064			
Instrument Response (mg/L)	0.071			
Sample weight (kg)	0.00242			
Final Volume (L)	0.1			
Percent solids	0.828			
Dilution Factor	1			
AECOM Calculated Result (mg/kg)	3.6	OK	Reported Result (mg/kg)	3.6

SDG#: JB51256T, Method 7196	x - concentration	y - response
Batch: GP75920/GN94887		
Cr+6 ICAL - 11/13/2013	0	0
Soils	0.01	0.009
(p 24 of data pkg)	0.05	0.044
	0.1	0.086
	0.3	0.261
	0.5	0.441
	0.8	0.693
	1	0.887

				(p 24 of data pkg)
AECOM Calculated Intercept	-0.0011	OK	Reported intercept	-0.0011
AECOM Slope	0.8803	OK	Reported Slope	0.8803
AECOM Calculated r	0.99989	OK	Reported r	0.99989

LCS calculation	**GP75920-B1**	**p 19, 24**		
Background absorbance	0			
Sample absorbance	0.834			
LCS Soluble Instrument Response	0.834			
Instrument Concentration (mg/L)	0.949			
Sample weight (kg)	0.0025			
Percent solids	1			
Dilution Factor	1			
AECOM Calculated LCS Result (mg/kg)	37.9	OK	Reported Result (mg/kg)	37.9

%R = Found/True*100	**GP75920-B1**	**p 19, 24**		
True Value (mg/kg)	40.0			
AECOM Calculated %R	94.9	OK, rounding	Reported %R	94.8

MS calculation	**GP75920-S1**	**p 21, 22, 24**	**JB51256-3T**	
Background reading	0.062			
Total absorbance	0.547			
Total absorbance - background	0.485			
Instrument Concentration (mg/L)	0.5522			
Sample weight (kg)	0.00246			
Percent solids	0.806			
Dilution Factor	1			
AECOM Calculated MS Result (mg/kg)	27.9	OK, rounding	Reported Result (mg/kg)	27.8

%R = Found/True*100	**GP75920-S1**	**p 21, 22, 24**	**JB51256-3T**	
True Value (mg/kg)	50.4			
Native concentration (mg/kg)	1.63			
AECOM Calculated MS Result %R	52.0	OK, rounding	Reported %R	51.9

Percent Solids	**JB51256-3T**		**p 22**		
Empty dish weight (g)=		20.34			
Wet weight (g)=		25.80			
Dry weight (g)=		24.74			
AECOM%solids =		80.6	OK	Reported %solids=	80.6

Reporting Limit	**JB51256-3T**		**p 8, 22, 24**		
Low Standard		0.01			
Initial weight (kg)		0.00243			
Final volume (L)		0.1			
Percent solids		0.806			
Dilution Factor		1			
AECOM Calculated Reporting Limit		0.51	OK, rounding	Reported RL (mg/kg)=	0.50

Sample Calculations	**JB51256-4T**		**p 9, 22, 24**		
Background reading		0.034			
Total absorbance		0.355			
Total absorbance - background		0.321			
Instrument Response (mg/L)		0.366			
Sample weight (kg)		0.00246			
Final Volume (L)		0.1			
Percent solids		0.874			
Dilution Factor		1			
AECOM Calculated Result (mg/kg)		17.0	OK	Reported Result (mg/kg)	17.0

SDG#: JB51256TR, Method 7196	x - concentration	y - response
Batch: GP76070/GN95227		
Cr+6 ICAL - 11/19/2013	0	0
Soils	0.01	0.009
(p 60 of data pkg)	0.05	0.044
	0.1	0.085
	0.3	0.263
	0.5	0.441
	0.8	0.693
	1	0.906

				(p 60 of data pkg)
AECOM Calculated Intercept	-0.0028	OK	Reported intercept	-0.0028
AECOM Slope	0.8924	OK	Reported Slope	0.8924
AECOM Calculated r	0.99962	OK	Reported r	0.99962

LCS calculation	**GP76070-B1**	**p 21, 60**		
Background absorbance	0			
Sample absorbance	0.81			
LCS Soluble Instrument Response	0.81			
Instrument Concentration (mg/L)	0.911			
Sample weight (kg)	0.0025			
Percent solids	1			
Dilution Factor	1			
AECOM Calculated LCS Result (mg/kg)	36.4	OK	Reported Result (mg/kg)	36.4

%R = Found/True*100	**GP76070-B1**	**p 21, 60**		
True Value (mg/kg)	40.0			
AECOM Calculated %R	91.1	OK, rounding	Reported %R	91.0

MS calculation	**GP76070-S1**	**p 23, 28, 60**	**JB51256-3TR**	
Background reading	0.051			
Total absorbance	0.397			
Total absorbance - background	0.346			
Instrument Concentration (mg/L)	0.3908			
Sample weight (kg)	0.00247			
Percent solids	0.806			
Dilution Factor	1			
AECOM Calculated MS Result (mg/kg)	19.6	OK	Reported Result (mg/kg)	19.6

%R = Found/True*100	**GP76070-S1**	**p 23, 28, 60**	**JB51256-3TR**	
True Value (mg/kg)	50.2			
Native concentration (mg/kg)	2.53			
AECOM Calculated MS Result %R	34.1	OK, rounding	Reported %R	34.0

Percent Solids	**JB51256-3TR**	**p 28**		
Empty dish weight (g)=	20.34			
Wet weight (g)=	25.80			
Dry weight (g)=	24.74			
AECOM%solids =	80.6	OK	Reported %solids=	80.6

Reporting Limit	**JB51256-3TR**	**p 9, 28, 60**		
Low Standard	0.01			
Initial weight (kg)	0.0024			
Final volume (L)	0.1			
Percent solids	0.806			
Dilution Factor	1			
AECOM Calculated Reporting Limit	0.52	OK, rounding	Reported RL (mg/kg)=	0.50

Sample Calculations	**JB51256-4TR**	**p 10, 28, 60**		
Background reading	0.039			
Total absorbance	0.307			
Total absorbance - background	0.268			
Instrument Response (mg/L)	0.303			
Sample weight (kg)	0.00241			
Final Volume (L)	0.1			
Percent solids	0.874			
Dilution Factor	1			
AECOM Calculated Result (mg/kg)	14.4	OK	Reported Result (mg/kg)	14.4

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Data Validation Report

Project:	Metropolitan Family Health Network Property - Site 186 Borings	
Laboratory:	Accutest, Dayton, NJ	
Laboratory Job No.:	JB51864T	
Analysis/Method:	Metals by ICP-AES/ SW846-6010	
Validation Level:	Limited	
Site Location/Address:	PPG Site 186 - Jersey City, NJ	
AECOM Project No:	60238842.NGA.186.RAR	
Prepared by:	Helen Jones Parry /AECOM	Completed on: 02/24/2014
Reviewed by:	Mary Kozik /AECOM	File Name: JB51864T 2014-02-24 DV Report-F

Introduction

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

- NJDEP Office of Data Quality SOP 5.A.16, Rev 1 (May 2002), Quality Assurance Data Validation of Analytical Deliverables for Inorganics (based on USEPA SW-846 Methods);

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

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

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

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

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

RA: The sample result was rejected due to NJ specific data validation QC requirements; however, the result is usable for project objectives. Refer to the Data Quality and Usability section in this data validation report for further discussion.

Sample Information

The samples listed below were collected by AECOM on November 1, 2013 as part of the Metropolitan Family Health Network property, Site 186, 947 Garfield Avenue, Jersey City, New Jersey. Only the samples that were validated are listed below:

Field ID	Laboratory ID	Matrix	Fraction
186-Z2S2-W-2.5-3.0	JB51864-2T	Soil	Metals

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

General Comments

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

TAL Metals

MS Results

The MS/MSD was performed on a site sample from an earlier Site 186 SDG (JB45245-1T, 186-Z2S-SE-2.0-2.5). The MS and MSD recoveries for antimony were below the laboratory specific QC requirements and were qualified as estimated (J/UJ) with the potential for low bias in all samples in this SDG. All other target analytes were within control limits for accuracy and precision.

Sample Results

Sample results qualified due to low MS/MSD recoveries are usable as estimated values with the potential for low bias.

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).

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.

Sample results reported between the MDL and RL are usable as estimated values.

ATTACHMENTS

Attachment A: Target Analyte Summary Hitlists(s)

Attachment B: Data Validation Report Form

Attachment A

Target Analyte Summary Hitlist(s)

Soil Target Analyte Summary Hit List (TAL Metals)

Site Name Metropolitan Family Health Network Property, Site 186 Borings
Sampling Date November 1, 2013
Lab Name/ID Accutest, Dayton, NJ
SDG No JB51864T
Sample Matrix Soil
Trip Blank ID NA
Field Blank ID NA

Field Sample ID	Lab Sample ID	Analyte	Method Blank (mg/kg)	Laboratory Sample Result (mg/kg)	Validation Sample Result (mg/kg)	RL (mg/kg)	Quality Assurance Decision	NJDEP Validation Footnote
186-Z2S2-W-2.5-3.0	JB51864-2T	ANTIMONY	U	4.2	4.2	2.1	QUALIFY	15
186-Z2S2-W-2.5-3.0	JB51864-2T	CHROMIUM	U	242	242	1.1		
186-Z2S2-W-2.5-3.0	JB51864-2T	NICKEL	U	42.2	42.2	4.3		
186-Z2S2-W-2.5-3.0	JB51864-2T	THALLIUM	U	0.82B	0.82J	1.1	QUALIFY	23
186-Z2S2-W-2.5-3.0	JB51864-2T	VANADIUM	U	57.0	57.0	5.4		

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 Footnotes

1. The value reported is less than or equal to 3x the value in the method 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) but less than ten (10) times the value in the method blank and is considered "real". However, the reported value must be quantitatively qualified "J" due to the method blank contamination. The "B" qualifier alerts the end-user to the presence of this analyte in the method blank.
3. The value reported is less than or equal to 3x 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 3x but less than ten (10) the value in the trip/field blank 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 metal value was qualified because the Calibration Verification Standard was not within the recovery range (90-110 percent).
8. In the MS/MSD Sample Analysis, this analyte fell outside the control limits of 20% RPD. Therefore, the result was qualified.
9. This analyte was qualified because the laboratory performed the MS/MSD Analysis on a field blank.
10. The reported analyte was qualified because the associated Calibration Blank result was greater than the MDL.
11. The reported value was qualified because serial dilution analysis was not within QC limit of 10% D.
12. This analyte is rejected because the laboratory exceeded the holding time for digestion and analysis.
13. The laboratory subtracted the method blank from the sample result. The reviewer's calculation has added the method blank result to the reported concentration.
14. The photocopy submitted is illegible. Therefore, the QA reviewer cannot read the laboratory's reported concentration result.
15. The reported or nondetected value was qualified because the MS/MSD spike recovery was less than 75 percent.
16. The reported value was qualified because the MS/MSD spike recovery was greater than 125 percent.
17. The non-detected value was qualified (UJ) because the MS/MSD spike recovery was less than 75 percent. The possibility of a false negative exists.
18. The reported values were qualified because the laboratory duplicate exceeded 35 percent RPD or the absolute difference exceeded two times the reporting limit for sample result less than 5 times the reporting limit.
19. The reported value was qualified because the field duplicate exceeded 35 percent RPD.
20. The reported value was qualified because the LCS recovery was less than 80 percent.
21. The reported value was qualified because the sample moisture content was greater than 50 percent.
22. The reported value was rejected because the field duplicate absolute difference was greater than 4 times the RL or the RPD was greater than 120%.

23. The reported result was greater than the MDL but less than the RL and qualified (J) as estimated by the laboratory.
24. The reported value was qualified because the field duplicate exceeded 20 percent RPD or the absolute difference exceeded two times the reporting limit for sample result less than 5 times the reporting limit.
25. The reported value was qualified because the LCS recovery was greater than 120 percent.

Attachment B

Data Validation Report Form

Client Name: PPG Industries	**Project Number:** 60238842.NGA.186.RAR
Site Location: Metropolitan Family Health Network Property Site 186 Borings, Jersey City, NJ	**Project Manager:** Al LoPilato
Laboratory: Accutest, Dayton, NJ	**Type of Validation:** Limited
Laboratory Job No: JB51864T	**Date Checked:** 2/24/14
Validator: Helen Jones Parry	**Peer:** Mary Kozik

ITEM	YES	NO	N/A	COMMENTS
Sample results included?	X			
Reporting Limits met project requirements?	X			
Field I.D. included?	X			
Laboratory I.D. included?	X			
Sample matrix included?	X			
Sample receipt temperature 2-6C?	X			
Signed COCs included?	X			
Date of sample collection included?	X			
Date of sample digestion included?	X			
Date of analysis included?	X			
Holding time met QC criteria? (Metals -180 days from sample collection; Mercury - 28 days from sample collection. If HT exceeded by 10 days R all results.	X			
Method reference included?	X			
Laboratory Case Narrative included?	X			
Definitions: MDL - Method Detection Limit; %R - Percent Recovery; RL - Reporting Limit; RPD - Relative Percent Difference; RSD - Relative Standard Deviation :Corr - Correlation Coefficient.				

ITEM	YES	NO	N/A	COMMENTS
Sample dilutions?		X		
Initial calibration documentation included in lab package?	X			
1) Calibrate daily or each time instrument is set up.	X			
2) ICP (6010) -Blank plus 1 standard? If no, reject (R) data.	X			
3) Hg (7470/7471) -Blank plus 5 standards? If no, reject (R) data.			X	
Initial Calibration Verification Standard (ICV) for ICP (6010) and Initial Calibration Check Standard (ICCS) for Hg (7470/7471) included in lab package?	X			
1) Analyzed immediately after initial calibration? If no, reject (R) data.	X			
2) %R criteria met? (90-110%). If no, J positive results for affected analyte(s) if %R between 80-89% and 111-120% and indicate bias; UJ non-detect results for affected analyte(s) if %R between 80-89% , and R all data for affected analyte(s) if %R <80% or >120%.	X			
3) Spot check ICV/ICCS results for several analytes.	X			
Continuing Calibration Verification Standard (CCV) for ICP (6010) and Calibration Check Standard (CCS) for Hg (7470/7471) included in Lab Package?	X			
1) Analyzed immediately after each ICV/ICC/CB and after every 10 samples? If no, reject (R) data.	X			
2) CCS and CCV from independent source and at mid-level of calibration curve. If no, reject (R) data.	X			
3) %R criteria met? (90-110%R). If no, J positive results for affected analyte(s) if %R between 80-89% and 111-120% and indicate bias; UJ non-detect results for affected analyte(s) if %R between 80-89% and R all data for affected analyte(s) if %R <80% or >120%.	X			
4) Spot check CCV/CCS results for several analytes.	X			
Low Calibration Standard (CRI) included in Lab Package?	X			
1) %R criteria met? - 50-150% for Co, Mn, Zn, by ICP-MS; Pb, Tl by 6010; 70-130% all others. If no, refer to ILM05.4 NJ SOP 5.A.2 for actions.	X			
Calibration Blanks	X			

ITEM	YES	NO	N/A	COMMENTS
1) Analyzed after daily calibration and after each ICV/ICC/CCV/CCS and after every 10 samples? If no, reject (R) data.	X			
2) Absolute value <3xIDL? If no, -if sample result <10x CB result, qualify affected analyte(s) in associated samples with CB; -if sample result >10xCB result, no qualification.	X			
Method Blank Included in Lab Package?	X			
1) Method blank analyzed with each preparation batch or every SDG, or 1/20 samples? If no, reject (R) data, except no aqueous MB required for FB/EB if only soil samples were analyzed.	X			
2) Method blank analyzed 1/20 samples? If - MB 1/25, J sample results from 21-25; -MB >1/25, R sample results after 25th sample.	X			
3) MB results nondetect? If no, -sample result <3xMB, negate UB; -sample result>3xMB but <10xMB, JB; -sample result >10xMB, no qualification.	X			
4) Negative MB result reported? If yes, -Positive sample result<10xMB, qualify estimated, biased low (J); -Non-detect sample result , qualify UJ, may be false non-detect.		X		
Field Blanks/Equipment Blanks Included in Lab Package?		X		
1) FB/EB result non-detect? If no, -sample result <3xFB/EB, negate U; -sample result>3xFB/EB but <10xMB, J; -sample result >10xFB/EB, no qualification.			X	
ICP Interference Check Sample (ICS) included in Lab Package?	X			
1) Analyzed at beginning of analytical run? If no, reject (R) data.	X			
2) %R criteria met? (80-120%) If no, %R>120%, no qualification if sample result non-detect; %R between 121-150%, J positive results, biased high; %R between 50-79%, J/UJ results, biased low; %R<50% or >150%, reject (R) result	X			
3) Spot check accuracy of %Rs	X			
Matrix Spike/Matrix Spike Duplicate Data Included in Lab Package?	X			
1) MS/MSD %R (75-125%R) and RPD (+20%) criteria met? -%R>125% J positive results for affected analyte(s) for all samples in the same batch/SDG, accept NDs; -%R<75% J/UJ for affected analyte(s) for all samples in the same batch/SDG; -	X			The MS/MSD was performed on a site 186 sample from another SDG; antimony recovery was less than 75% for both the MS and MSD.

ITEM	YES	NO	N/A	COMMENTS
RPD outside +20% J positive results for affected analyte(s) for all samples in the same batch/SDG, accept NDs.				
2) Was a sample spiked at the frequency of 1/batch or 20 samples?	X			
3) Was the MS performed on a site sample?		X		
4) Was the MS performed on a FB/EB or TB? If yes, J all sample data.		X		
Post Digestion Spike		X		
1) %R criteria met? (75-125%R) - %R>125% J positive results for affected analyte(s) for all samples in the same batch/SDG, accept NDs.; - %R<75% J/UJ affected analyte(s) for all samples in the same batch/SDG.			X	
2) Was the spike performed on a FB/EB or TB? If yes, J all sample data.			X	
3) Was a sample spiked at the frequency of 1/batch or 20 samples?			X	
Laboratory Duplicate Data Included in Lab Package?		X		
Aqueous - If RPD is >20% but <100% and sample and duplicate results are >5x the QL, estimate (J) results >the QL. - If RPD is >100%, reject R results >/= the QL.- If sample and/or duplicate is <5x the QL and absolute difference is > the QL, estimate (J) positive results <5x the QL and nondetects (UJ).- If absolute difference is >2x the QL, reject R non-detects and positive results <5x the QL.			X	
Soil - If RPD is >35% but <120% and sample and duplicate results are >5x the QL, estimate (J) results > the QL. - If RPD is >120%, reject results > the QL. - If sample and/or duplicate is <5x the QL and absolute difference is >2x the QL, estimate (J) positive results <5x QL and nondetects (UJ). - If absolute difference is >4x the QL, reject nondetects and positive results <5x QL.			X	
Was a Laboratory Control Sample (LCS) Included in Lab Package?	X			
1) LCS %R criteria met? (80-120%R). If no, J/UJ all affected analytes(s) for all samples in the same batch/SDG.	X			
2) Was an LCS analyzed at the frequency of 1/batch or 20 samples? If no, J/UJ affected analyte(s) for all samples in the same batch/SDG.	X			
Serial Dilution				

ITEM	YES	NO	N/A	COMMENTS
1) %D(<10%R) criteria met? - If analyte concentration >25xIDL (7000) or >10xIDL (6010) and %D >10% J positive results for affected analyte(s) for all samples in the same batch/SDG, accept NDs.	X			
2) Was the frequency 1/batch or 20 samples?	X			
3) Was a site sample used?	X			
4) Was a FB/EB or TB used? If yes, J all sample data.		X		
5) Spot check accuracy of %Ds.	X			
Field Duplicate Data included in Lab Package?		X		
Aqueous - If RPD is >20% but <100% and sample and field duplicate results are >5x the QL, estimate (J) results > the QL. - If RPD is >100%, reject R results >/= the QL. - If sample and/or duplicate is <5x the QL and absolute difference is > the QL, estimate (J) positive results <5x the QL and nondetects (UJ). - If absolute difference is >2x the QL, reject R non-detects and positive results <5x the QL.			X	
Soil - If RPD is >35% but <120% and sample and field duplicate results are >5x the QL, estimate (J) results > the QL. - If RPD is >120%, reject results > the QL. - If sample and/or duplicate is <5x the QL and absolute difference is >2x the QL, estimate (J) positive results <5x QL and nondetects (UJ). - If absolute difference is >4x the QL, reject nondetects and positive results <5x QL.			X	
Percent Solids data included in Lab Package?	X			
1) %Solids criteria (Reg 2 criteria) met? (>/=50%)	X			

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Data Validation Report

Project:	Metropolitan Family Health Network Property - Site 186 Borings	
Laboratory:	Accutest, Dayton, NJ	
Laboratory Job No.:	JB51615T	
Analysis/Method:	Metals by ICP-AES/ SW846-6010	
Validation Level:	Limited	
Site Location/Address:	PPG Site 186 - Jersey City, NJ	
AECOM Project No:	60238842.NGA.186.RAR	
Prepared by:	Helen Jones Parry /AECOM	Completed on: 02/21/2014
Reviewed by:	Mary Kozik /AECOM	File Name: JB51615T 2014-02-21 DV Report-F

Introduction

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

- NJDEP Office of Data Quality SOP 5.A.16, Rev 1 (May 2002), Quality Assurance Data Validation of Analytical Deliverables for Inorganics (based on USEPA SW-846 Methods);

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

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

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

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

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

RA: The sample result was rejected due to NJ specific data validation QC requirements; however, the result is usable for project objectives. Refer to the Data Quality and Usability section in this data validation report for further discussion.

Sample Information

The samples listed below were collected by AECOM on October 30, 2013 as part of the Metropolitan Family Health Network property sampling program, Site 186, 947 Garfield Avenue, Jersey City, New Jersey. Only the samples that were validated are listed below:

Field ID	Laboratory ID	Matrix	Fraction
186-Z2S2-E-2.0-2.5	JB51615-1T	Soil	Metals
186-Z3S2-E-C-2.0-2.5	JB51615-2T	Soil	Metals
186-Z3S2-E-C-2.0-2.5X	JB51615-3T	Soil	Metals

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

General Comments

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

TAL Metals

MS Results

The laboratory selected sample 186-Z2S2-E-2.0-2.5 as the source for the MS analysis for analytical batch MP77655; for analytical batch MP77641, Site 186 sample 186-Z2S-SE-2.0-2.5 (JB45245-1T) was used.. The MS and MSD recoveries for antimony in both of these analytical batches were below the laboratory specific QC requirements and were qualified as estimated (J/UJ) with the potential for low bias in all samples in this SDG.

Qualified sample results for MS recoveries that did not meet the QC requirements are presented in the Metal Soil Target Analyte Summary Hit List in Attachment A and in the nonconformance table in Attachment B.

Field Duplicates

Samples 186-Z3S2-E-C-2.0-2.5 and 186-Z3S2-E-C-2.0-2.5X were field duplicates. Chromium results for the field duplicate pair exceeded the criteria of 35% RPD therefore results for both samples have been qualified as estimated (J) due to possible sample nonhomogeneity.

ICP Serial Dilution Results

The serial dilution for analytical batch MP77655 was performed using sample 186-Z2S2-E-2.0-2.5; analytical batch 77641 used Site 186 sample 186-Z2S-SE-2.0-2.5 (JB45245-1T). Antimony did not meet the 10% criteria for either analytical batch however the sample results were low in both cases and no further qualification was applied on the basis of the serial dilution results.

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.

Sample results qualified due to low MS recoveries are usable as estimated values with the potential for low bias. Results qualified based on field duplicate precision are usable as estimated values with the potential for sample nonhomogeneity.

Sample results reported between the MDL and RL are usable as estimated values.

ATTACHMENTS

Attachment A: Target Analyte Summary Hitlists(s)

Attachment B: Data Validation Report Form

Attachment A

Target Analyte Summary Hitlist(s)

Soil Target Analyte Summary Hit List (TAL Metals)

Site Name Metropolitan Family Health Network Property, Site 186 Borings
Sampling Date October 30, 2013
Lab Name/ID Accutest, Dayton, NJ
SDG No JB51615T
Sample Matrix Soil
Trip Blank ID NA
Field Blank ID NA

Field Sample ID	Lab Sample ID	Analyte	Method Blank (mg/kg)	Laboratory Sample Result (mg/kg)	Validation Sample Result (mg/kg)	RL (mg/kg)	Quality Assurance Decision	NJDEP Validation Footnote
186-Z2S2-E-2.0-2.5	JB51615-1T	ANTIMONY	U	2.5	2.5J	2.5	QUALIFY	15
186-Z2S2-E-2.0-2.5	JB51615-1T	CHROMIUM	U	27.5	27.5	1.2		
186-Z2S2-E-2.0-2.5	JB51615-1T	NICKEL	U	18.5	18.5	5.0		
186-Z2S2-E-2.0-2.5	JB51615-1T	VANADIUM	U	26.8	26.8	6.2		
186-Z3S2-E-C-2.0-2.5	JB51615-2T	CHROMIUM	U	14.9	14.9	1.1	QUALIFY	19
186-Z3S2-E-C-2.0-2.5	JB51615-2T	NICKEL	U	7.9	7.9	4.3		
186-Z3S2-E-C-2.0-2.5	JB51615-2T	VANADIUM	U	13.2	13.2	5.4		
186-Z3S2-E-C-2.0-2.5X	JB51615-3T	ANTIMONY	U	0.35B	0.35B	2.1	QUALIFY	15,23
186-Z3S2-E-C-2.0-2.5X	JB51615-3T	CHROMIUM	U	9.5	9.5	1.1	QUALIFY	19
186-Z3S2-E-C-2.0-2.5X	JB51615-3T	NICKEL	U	8.3	8.3	4.3		
186-Z3S2-E-C-2.0-2.5X	JB51615-3T	VANADIUM	U	10.8	10.8	5.3		

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 Footnotes

1. The value reported is less than or equal to 3x the value in the method 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) but less than ten (10) times the value in the method blank and is considered "real". However, the reported value must be quantitatively qualified "J"

due to the method blank contamination. The "B" qualifier alerts the end-user to the presence of this analyte in the method blank.

3. The value reported is less than or equal to 3x 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 3x but less than ten (10) the value in the trip/field blank 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 metal value was qualified because the Calibration Verification Standard was not within the recovery range (90-110 percent).
8. In the MS/MSD Sample Analysis, this analyte fell outside the control limits of 20% RPD. Therefore, the result was qualified.
9. This analyte was qualified because the laboratory performed the MS/MSD Analysis on a field blank.
10. The reported analyte was qualified because the associated Calibration Blank result was greater than the MDL.
11. The reported value was qualified because serial dilution analysis was not within QC limit of 10% D.
12. This analyte is rejected because the laboratory exceeded the holding time for digestion and analysis.
13. The laboratory subtracted the method blank from the sample result. The reviewer's calculation has added the method blank result to the reported concentration.
14. The photocopy submitted is illegible. Therefore, the QA reviewer cannot read the laboratory's reported concentration result.
15. The reported or nondetected value was qualified because the MS/MSD spike recovery was less than 75 percent.
16. The reported value was qualified because the MS/MSD spike recovery was greater than 125 percent.
17. The non-detected value was qualified (UJ) because the MS/MSD spike recovery was less than 75 percent. The possibility of a false negative exists.
18. The reported values were qualified because the laboratory duplicate exceeded 35 percent RPD or the absolute difference exceeded two times the reporting limit for sample result less than 5 times the reporting limit.

19. The reported value was qualified because the field duplicate exceeded 35 percent RPD.
20. The reported value was qualified because the LCS recovery was less than 80 percent.
21. The reported value was qualified because the sample moisture content was greater than 50 percent.
22. The reported value was rejected because the field duplicate absolute difference was greater than 4 times the RL or the RPD was greater than 120%.
23. The reported result was greater than the MDL but less than the RL and qualified (J) as estimated by the laboratory.
24. The reported value was qualified because the field duplicate exceeded 20 percent RPD or the absolute difference exceeded two times the reporting limit for sample result less than 5 times the reporting limit.
25. The reported value was qualified because the LCS recovery was greater than 120 percent.

Attachment B

Data Validation Report Form

Client Name: PPG Industries	**Project Number:** 60238842.NGA.186.RAR
Site Location: Metropolitan Family Health Network Property Site 186 Borings, Jersey City, NJ	**Project Manager:** Al LoPilato
Laboratory: Accutest, Dayton, NJ	**Type of Validation:** Limited
Laboratory Job No: JB51615T	**Date Checked:** 2/21/14
Validator: Helen Jones Parry	**Peer:** Mary Kozik

ITEM	YES	NO	N/A	COMMENTS
Sample results included?	X			
Reporting Limits met project requirements?	X			
Field I.D. included?	X			
Laboratory I.D. included?	X			
Sample matrix included?	X			
Sample receipt temperature 2-6C?	X			
Signed COCs included?	X			
Date of sample collection included?	X			
Date of sample digestion included?	X			
Date of analysis included?	X			
Holding time met QC criteria? (Metals -180 days from sample collection; Mercury - 28 days from sample collection. If HT exceeded by 10 days R all results.	X			
Method reference included?	X			
Laboratory Case Narrative included?	X			
Definitions: MDL - Method Detection Limit; %R - Percent Recovery; RL - Reporting Limit; RPD - Relative Percent Difference; RSD - Relative Standard Deviation :Corr - Correlation Coefficient.				

ITEM	YES	NO	N/A	COMMENTS
Sample dilutions?		X		
Initial calibration documentation included in lab package?	X			
1) Calibrate daily or each time instrument is set up.	X			
2) ICP (6010) -Blank plus 1 standard? If no, reject (R) data.	X			
3) Hg (7470/7471) -Blank plus 5 standards? If no, reject (R) data.			X	
Initial Calibration Verification Standard (ICV) for ICP (6010) and Initial Calibration Check Standard (ICCS) for Hg (7470/7471) included in lab package?	X			
1) Analyzed immediately after initial calibration? If no, reject (R) data.	X			
2) %R criteria met? (90-110%). If no, J positive results for affected analyte(s) if %R between 80-89% and 111-120% and indicate bias; UJ non-detect results for affected analyte(s) if %R between 80-89% , and R all data for affected analyte(s) if %R <80% or >120%.	X			
3) Spot check ICV/ICCS results for several analytes.	X			
Continuing Calibration Verification Standard (CCV) for ICP (6010) and Calibration Check Standard (CCS) for Hg (7470/7471) included in Lab Package?	X			
1) Analyzed immediately after each ICV/ICC/CB and after every 10 samples? If no, reject (R) data.	X			
2) CCS and CCV from independent source and at mid-level of calibration curve. If no, reject (R) data.	X			
3) %R criteria met? (90-110%R). If no, J positive results for affected analyte(s) if %R between 80-89% and 111-120% and indicate bias; UJ non-detect results for affected analyte(s) if %R between 80-89% and R all data for affected analyte(s) if %R <80% or >120%.	X			
4) Spot check CCV/CCS results for several analytes.	X			
Low Calibration Standard (CRI) included in Lab Package?	X			
1) %R criteria met? - 50-150% for Co, Mn, Zn, by ICP-MS; Pb, Tl by 6010; 70-130% all others. If no, refer to ILM05.4 NJ SOP 5.A.2 for actions.	X			
Calibration Blanks				
1) Analyzed after daily calibration and after each ICV/ICC/CCV/CCS and after every 10 samples? If no, reject	X			

ITEM	YES	NO	N/A	COMMENTS
(R) data.				
2) Absolute value <3xIDL? If no, -if sample result <10x CB result, qualify affected analyte(s) in associated samples with CB; -if sample result >10xCB result, no qualification.	X			
Method Blank Included in Lab Package?	X			
1) Method blank analyzed with each preparation batch or every SDG, or 1/20 samples? If no, reject (R) data, except no aqueous MB required for FB/EB if only soil samples were analyzed.	X			
2) Method blank analyzed 1/20 samples? If - MB 1/25, J sample results from 21-25; -MB >1/25, R sample results after 25th sample.	X			
3) MB results nondetect? If no, -sample result <3xMB, negate UB; -sample result>3xMB but <10xMB, JB; -sample result >10xMB, no qualification.	X			
4) Negative MB result reported? If yes, -Positive sample result<10xMB, qualify estimated, biased low (J); -Non-detect sample result , qualify UJ, may be false non-detect.		X		
Field Blanks/Equipment Blanks Included in Lab Package?		X		
1) FB/EB result non-detect? If no, -sample result <3xFB/EB, negate U; -sample result>3xFB/EB but <10xMB, J; -sample result >10xFB/EB, no qualification.			X	
ICP Interference Check Sample (ICS) included in Lab Package?	X			
1) Analyzed at beginning of analytical run? If no, reject (R) data.	X			
2) %R criteria met? (80-120%) If no, %R>120%, no qualification if sample result non-detect; %R between 121-150%, J positive results, biased high; %R between 50-79%, J/UJ results, biased low; %R<50% or >150%, reject (R) result	X			
3) Spot check accuracy of %Rs	X			
Matrix Spike/Matrix Spike Duplicate Data Included in Lab Package?	X			
1) MS/MSD %R (75-125%R) and RPD (+20%) criteria met? - %R>125% J positive results for affected analyte(s) for all samples in the same batch/SDG, accept NDs; -%R<75% J/UJ for affected analyte(s) for all samples in the same batch/SDG; -RPD outside +20% J positive results for affected analyte(s) for all samples in the same batch/SDG, accept NDs.		X		See table of nonconformances.
2) Was a sample spiked at the frequency of 1/batch or 20	X			

ITEM	YES	NO	N/A	COMMENTS
samples?				
3) Was the MS performed on a site sample?	X			Two MS/MSDs were used; both were from Site 186 but the MS/MSD associated with MP77641 was taken from SDG JB45245T.
4) Was the MS performed on a FB/EB or TB? If yes, J all sample data.		X		
Post Digestion Spike		X		
1) %R criteria met? (75-125%R) - %R>125% J positive results for affected analyte(s) for all samples in the same batch/SDG, accept NDs.; - %R<75% J/UJ affected analyte(s) for all samples in the same batch/SDG.			X	
2) Was the spike performed on a FB/EB or TB? If yes, J all sample data.			X	
3) Was a sample spiked at the frequency of 1/batch or 20 samples?			X	
Laboratory Duplicate Data Included in Lab Package?		X		
Aqueous - If RPD is >20% but <100% and sample and duplicate results are >5x the QL, estimate (J) results >the QL. - If RPD is >100%, reject R results >/= the QL.- If sample and/or duplicate is <5x the QL and absolute difference is > the QL, estimate (J) positive results <5x the QL and nondetects (UJ).- If absolute difference is >2x the QL, reject R non-detects and positive results <5x the QL.			X	
Soil - If RPD is >35% but <120% and sample and duplicate results are >5x the QL, estimate (J) results > the QL. - If RPD is >120%, reject results > the QL. - If sample and/or duplicate is <5x the QL and absolute difference is >2x the QL, estimate (J) positive results <5x QL and nondetects (UJ). - If absolute difference is >4x the QL, reject nondetects and positive results <5x QL.			X	
Was a Laboratory Control Sample (LCS) Included in Lab Package?	X			
1) LCS %R criteria met? (80-120%R). If no, J/UJ all affected analytes(s) for all samples in the same batch/SDG.	X			
2) Was an LCS analyzed at the frequency of 1/batch or 20 samples? If no, J/UJ affected analyte(s) for all samples in the same batch/SDG.	X			
Serial Dilution				
1) %D(<10%R) criteria met? - If analyte concentration >25xIDL (7000) or >10xIDL (6010) and %D >10% J positive results for affected analyte(s) for all samples in the same	X			Antimony did not meet 10% criteria but sample concentrations were low.

ITEM	YES	NO	N/A	COMMENTS
batch/SDG, accept NDs.				
2) Was the frequency 1/batch or 20 samples?	X			
3) Was a site sample used?	X			
4) Was a FB/EB or TB used? If yes, J all sample data.		X		
5) Spot check accuracy of %Ds.	X			
Field Duplicate Data included in Lab Package?	X			
Aqueous - If RPD is >20% but <100% and sample and field duplicate results are >5x the QL, estimate (J) results > the QL. - If RPD is >100%, reject R results >/= the QL. - If sample and/or duplicate is <5x the QL and absolute difference is > the QL, estimate (J) positive results <5x the QL and nondetects (UJ). - If absolute difference is >2x the QL, reject R non-detects and positive results <5x the QL.			X	
Soil - If RPD is >35% but <120% and sample and field duplicate results are >5x the QL, estimate (J) results > the QL. - If RPD is >120%, reject results > the QL. - If sample and/or duplicate is <5x the QL and absolute difference is >2x the QL, estimate (J) positive results <5x QL and nondetects (UJ). - If absolute difference is >4x the QL, reject nondetects and positive results <5x QL.	X			Chromium results exceeded RPD limit for 186-Z3S2-E-C-2.0-2.5 and 186-Z3S2-E-C-2.0-2.5X; J qualify both samples
Percent Solids data included in Lab Package?	X			
1) %Solids criteria (Reg 2 criteria) met? (>/=50%)	X			

Matrix Spikes

Sample ID	Compound	Analysis Batch	Matrix Spike	Matrix Spike Duplicate	Lower Limit	Upper Limit	RPD	RPD Limit
186-Z2S2-E-2.0-2.5	ANTIMONY	MP77655	41.8	42.9	75	125	2.1	20
186-Z2S-SE-2.0-2.5	ANTIMONY	MP77641	58.6	54.4	75	125	6.1	20

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Data Validation Report

Project:	Metropolitan Family Health Network Property - Site 186 Borings	
Laboratory:	Accutest, Dayton, NJ	
Laboratory Job No.:	JB51256U	
Analysis/Method:	Metals by ICP-AES/ SW846-6010	
Validation Level:	Limited	
Site Location/Address:	PPG Site 186 - Jersey City, NJ	
AECOM Project No:	60238842.NGA.186.RAR	
Prepared by:	Helen Jones Parry /AECOM	Completed on: 02/24/2014
Reviewed by:	Mary Kozik /AECOM	File Name: JB51256U 2014-02-24 DV Report-F

Introduction

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

- NJDEP Office of Data Quality SOP 5.A.16, Rev 1 (May 2002), Quality Assurance Data Validation of Analytical Deliverables for Inorganics (based on USEPA SW-846 Methods);

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

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

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

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

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

RA: The sample result was rejected due to NJ specific data validation QC requirements; however, the result is usable for project objectives. Refer to the Data Quality and Usability section in this data validation report for further discussion.

Sample Information

The samples listed below were collected by AECOM on October 25, 2013 as part of the Metropolitan Family Health Network property sampling program, Site 186, 947 Garfield Avenue, Jersey City, New Jersey. Only the samples that were validated are listed below:

Field ID	Laboratory ID	Matrix	Fraction
186-MFHT-6-2.0-2.5	JB51256-3U	Soil	Metals
186-MFHT-7-2.0-2.5	JB51256-2U	Soil	Metals
186-MFHT-8-2.0-2.5	JB51256-4U	Soil	Metals

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

General Comments

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

TAL Metals

MS Results

The MS/MSD was performed on a site sample from an earlier Site 186 SDG (JB45245-1T, 186-Z2S-SE-2.0-2.5). The MS and MSD recoveries for antimony were below the laboratory specific QC requirements and were qualified as estimated (J/UJ) with the potential for low bias in all samples in this SDG. All other target analytes were within control limits for accuracy and precision.

Sample Results

Sample results qualified due to low MS/MSD recoveries are usable as estimated values with the potential for low bias.

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.

Sample results reported between the MDL and RL are usable as estimated values.

ATTACHMENTS

Attachment A: Target Analyte Summary Hitlists(s)

Attachment B: Data Validation Report Form

Attachment A

Target Analyte Summary Hitlist(s)

Soil Target Analyte Summary Hit List (TAL Metals)

Site Name Metropolitan Family Health Network Property, Site 186 Borings
Sampling Date October 25, 2013
Lab Name/ID Accutest, Dayton, NJ
SDG No JB51256U
Sample Matrix Soil
Trip Blank ID NA
Field Blank ID NA

Field Sample ID	Lab Sample ID	Analyte	Method Blank (mg/kg)	Laboratory Sample Result (mg/kg)	Validation Sample Result (mg/kg)	RL (mg/kg)	Quality Assurance Decision	NJDEP Validation Footnote
186-MFHT-6-2.0-2.5	JB51256-3U	ANTIMONY	U	2.7	2.7	2.6	QUALIFY	15
186-MFHT-6-2.0-2.5	JB51256-3U	CHROMIUM	U	212	212	1.3		
186-MFHT-6-2.0-2.5	JB51256-3U	NICKEL	U	35.0	35.0	5.1		
186-MFHT-6-2.0-2.5	JB51256-3U	VANADIUM	U	84.1	84.1	6.4		
186-MFHT-7-2.0-2.5	JB51256-2U	ANTIMONY	U	2.7	2.7	2.5	QUALIFY	15
186-MFHT-7-2.0-2.5	JB51256-2U	CHROMIUM	U	115	115	3.7		
186-MFHT-7-2.0-2.5	JB51256-2U	NICKEL	U	32.3	32.3	5.0		
186-MFHT-7-2.0-2.5	JB51256-2U	THALLIUM	U	1.8B	1.8J	3.7	QUALIFY	23
186-MFHT-7-2.0-2.5	JB51256-2U	VANADIUM	U	36.7	36.7	19		
186-MFHT-8-2.0-2.5	JB51256-4U	ANTIMONY	U	2.6	2.6	2.4	QUALIFY	15
186-MFHT-8-2.0-2.5	JB51256-4U	CHROMIUM	U	188	188	1.2		
186-MFHT-8-2.0-2.5	JB51256-4U	NICKEL	U	24.2	24.2	4.7		
186-MFHT-8-2.0-2.5	JB51256-4U	VANADIUM	U	38.3	38.3	5.9		

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 Footnotes

1. The value reported is less than or equal to 3x the value in the method 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) but less than ten (10) times the value in the method blank and is considered "real". However, the reported value must be quantitatively qualified "J" due to the method blank contamination. The "B" qualifier alerts the end-user to the presence of this analyte in the method blank.
3. The value reported is less than or equal to 3x 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 3x but less than ten (10) the value in the trip/field blank 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 metal value was qualified because the Calibration Verification Standard was not within the recovery range (90-110 percent).
8. In the MS/MSD Sample Analysis, this analyte fell outside the control limits of 20% RPD. Therefore, the result was qualified.
9. This analyte was qualified because the laboratory performed the MS/MSD Analysis on a field blank.
10. The reported analyte was qualified because the associated Calibration Blank result was greater than the MDL.
11. The reported value was qualified because serial dilution analysis was not within QC limit of 10% D.
12. This analyte is rejected because the laboratory exceeded the holding time for digestion and analysis.
13. The laboratory subtracted the method blank from the sample result. The reviewer's calculation has added the method blank result to the reported concentration.
14. The photocopy submitted is illegible. Therefore, the QA reviewer cannot read the laboratory's reported concentration result.
15. The reported or nondetected value was qualified because the MS/MSD spike recovery was less than 75 percent.
16. The reported value was qualified because the MS/MSD spike recovery was greater than 125 percent.
17. The non-detected value was qualified (UJ) because the MS/MSD spike recovery was less than 75 percent. The possibility of a false negative exists.

18. The reported values were qualified because the laboratory duplicate exceeded 35 percent RPD or the absolute difference exceeded two times the reporting limit for sample result less than 5 times the reporting limit.
19. The reported value was qualified because the field duplicate exceeded 35 percent RPD.
20. The reported value was qualified because the LCS recovery was less than 80 percent.
21. The reported value was qualified because the sample moisture content was greater than 50 percent.
22. The reported value was rejected because the field duplicate absolute difference was greater than 4 times the RL or the RPD was greater than 120%.
23. The reported result was greater than the MDL but less than the RL and qualified (J) as estimated by the laboratory.
24. The reported value was qualified because the field duplicate exceeded 20 percent RPD or the absolute difference exceeded two times the reporting limit for sample result less than 5 times the reporting limit.
25. The reported value was qualified because the LCS recovery was greater than 120 percent.

Attachment B

Data Validation Report Form

Client Name: PPG Industries	**Project Number:** 60238842.NGA.186.RAR
Site Location: Metropolitan Family Health Network Property Site 186 Borings, Jersey City, NJ	**Project Manager:** AL LoPilato
Laboratory: Accutest, Dayton, NJ	**Type of Validation:** Limited
Laboratory Job No: JB51256U	**Date Checked:** 2/24/14
Validator: Helen Jones Parry	**Peer:** Mary Kozik

ITEM	YES	NO	N/A	COMMENTS
Sample results included?	X			
Reporting Limits met project requirements?	X			
Field I.D. included?	X			
Laboratory I.D. included?	X			
Sample matrix included?	X			
Sample receipt temperature 2-6C?	X			
Signed COCs included?	X			
Date of sample collection included?	X			
Date of sample digestion included?	X			
Date of analysis included?	X			
Holding time met QC criteria? (Metals -180 days from sample collection; Mercury - 28 days from sample collection. If HT exceeded by 10 days R all results.	X			
Method reference included?	X			
Laboratory Case Narrative included?	X			
Definitions: MDL - Method Detection Limit; %R - Percent Recovery; RL - Reporting Limit; RPD - Relative Percent Difference; RSD - Relative Standard Deviation :Corr - Correlation Coefficient.				

ITEM	YES	NO	N/A	COMMENTS
Sample dilutions?	X			
Initial calibration documentation included in lab package?	X			
1) Calibrate daily or each time instrument is set up.	X			
2) ICP (6010) -Blank plus 1 standard? If no, reject (R) data.	X			
3) Hg (7470/7471) -Blank plus 5 standards? If no, reject (R) data.			X	
Initial Calibration Verification Standard (ICV) for ICP (6010) and Initial Calibration Check Standard (ICCS) for Hg (7470/7471) included in lab package?	X			
1) Analyzed immediately after initial calibration? If no, reject (R) data.	X			
2) %R criteria met? (90-110%). If no, J positive results for affected analyte(s) if %R between 80-89% and 111-120% and indicate bias; UJ non-detect results for affected analyte(s) if %R between 80-89% , and R all data for affected analyte(s) if %R <80% or >120%.	X			
3) Spot check ICV/ICCS results for several analytes.	X			
Continuing Calibration Verification Standard (CCV) for ICP (6010) and Calibration Check Standard (CCS) for Hg (7470/7471) included in Lab Package?	X			
1) Analyzed immediately after each ICV/ICC/CB and after every 10 samples? If no, reject (R) data.	X			
2) CCS and CCV from independent source and at mid-level of calibration curve. If no, reject (R) data.	X			
3) %R criteria met? (90-110%R). If no, J positive results for affected analyte(s) if %R between 80-89% and 111-120% and indicate bias; UJ non-detect results for affected analyte(s) if %R between 80-89% and R all data for affected analyte(s) if %R <80% or >120%.	X			
4) Spot check CCV/CCS results for several analytes.	X			
Low Calibration Standard (CRI) included in Lab Package?	X			
1) %R criteria met? - 50-150% for Co, Mn, Zn, by ICP-MS; Pb, Tl by 6010; 70-130% all others. If no, refer to ILM05.4 NJ SOP 5.A.2 for actions.	X			
Calibration Blanks				

ITEM	YES	NO	N/A	COMMENTS
1) Analyzed after daily calibration and after each ICV/ICC/CCV/CCS and after every 10 samples? If no, reject (R) data.	X			
2) Absolute value <3xIDL? If no, -if sample result <10x CB result, qualify affected analyte(s) in associated samples with CB; -if sample result >10xCB result, no qualification.	X			
Method Blank Included in Lab Package?	X			
1) Method blank analyzed with each preparation batch or every SDG, or 1/20 samples? If no, reject (R) data, except no aqueous MB required for FB/EB if only soil samples were analyzed.	X			
2) Method blank analyzed 1/20 samples? If - MB 1/25, J sample results from 21-25; -MB >1/25, R sample results after 25th sample.	X			
3) MB results nondetect? If no, -sample result <3xMB, negate UB; -sample result>3xMB but <10xMB, JB; -sample result >10xMB, no qualification.	X			
4) Negative MB result reported? If yes, -Positive sample result<10xMB, qualify estimated, biased low (J); -Non-detect sample result , qualify UJ, may be false non-detect.		X		
Field Blanks/Equipment Blanks Included in Lab Package?		X		
1) FB/EB result non-detect? If no, -sample result <3xFB/EB, negate U; -sample result>3xFB/EB but <10xMB, J; -sample result >10xFB/EB, no qualification.			X	
ICP Interference Check Sample (ICS) included in Lab Package?	X			
1) Analyzed at beginning of analytical run? If no, reject (R) data.	X			
2) %R criteria met? (80-120%) If no, %R>120%, no qualification if sample result non-detect; %R between 121-150%, J positive results, biased high; %R between 50-79%, J/UJ results, biased low; %R<50% or >150%, reject (R) result	X			
3) Spot check accuracy of %Rs	X			
Matrix Spike/Matrix Spike Duplicate Data Included in Lab Package?	X			
1) MS/MSD %R (75-125%R) and RPD (+20%) criteria met? -%R>125% J positive results for affected analyte(s) for all samples in the same batch/SDG, accept NDs; -%R<75% J/UJ for affected analyte(s) for all samples in the same batch/SDG; -	X			The MS/MSD was performed on a site 186 sample from another SDG; antimony was less than 75% in both the MS and MSD.

ITEM	YES	NO	N/A	COMMENTS
RPD outside +20% J positive results for affected analyte(s) for all samples in the same batch/SDG, accept NDs.				
2) Was a sample spiked at the frequency of 1/batch or 20 samples?	X			
3) Was the MS performed on a site sample?		X		
4) Was the MS performed on a FB/EB or TB? If yes, J all sample data.		X		
Post Digestion Spike		X		
1) %R criteria met? (75-125%R) - %R>125% J positive results for affected analyte(s) for all samples in the same batch/SDG, accept NDs.; - %R<75% J/UJ affected analyte(s) for all samples in the same batch/SDG.			X	
2) Was the spike performed on a FB/EB or TB? If yes, J all sample data.			X	
3) Was a sample spiked at the frequency of 1/batch or 20 samples?			X	
Laboratory Duplicate Data Included in Lab Package?		X		
Aqueous - If RPD is >20% but <100% and sample and duplicate results are >5x the QL, estimate (J) results >the QL. - If RPD is >100%, reject R results >/= the QL.- If sample and/or duplicate is <5x the QL and absolute difference is > the QL, estimate (J) positive results <5x the QL and nondetects (UJ).- If absolute difference is >2x the QL, reject R non-detects and positive results <5x the QL.			X	
Soil - If RPD is >35% but <120% and sample and duplicate results are >5x the QL, estimate (J) results > the QL. - If RPD is >120%, reject results > the QL. - If sample and/or duplicate is <5x the QL and absolute difference is >2x the QL, estimate (J) positive results <5x QL and nondetects (UJ). - If absolute difference is >4x the QL, reject nondetects and positive results <5x QL.			X	
Was a Laboratory Control Sample (LCS) Included in Lab Package?	X			
1) LCS %R criteria met? (80-120%R). If no, J/UJ all affected analytes(s) for all samples in the same batch/SDG.	X			
2) Was an LCS analyzed at the frequency of 1/batch or 20 samples? If no, J/UJ affected analyte(s) for all samples in the same batch/SDG.	X			
Serial Dilution				

ITEM	YES	NO	N/A	COMMENTS
1) %D(<10%R) criteria met? - If analyte concentration >25xIDL (7000) or >10xIDL (6010) and %D >10% J positive results for affected analyte(s) for all samples in the same batch/SDG, accept NDs.	X			
2) Was the frequency 1/batch or 20 samples?	X			
3) Was a site sample used?	X			
4) Was a FB/EB or TB used? If yes, J all sample data.		X		
5) Spot check accuracy of %Ds.	X			
Field Duplicate Data included in Lab Package?		X		
Aqueous - If RPD is >20% but <100% and sample and field duplicate results are >5x the QL, estimate (J) results > the QL. - If RPD is >100%, reject R results >/= the QL. - If sample and/or duplicate is <5x the QL and absolute difference is > the QL, estimate (J) positive results <5x the QL and nondetects (UJ). - If absolute difference is >2x the QL, reject R non-detects and positive results <5x the QL.			X	
Soil - If RPD is >35% but <120% and sample and field duplicate results are >5x the QL, estimate (J) results > the QL. - If RPD is >120%, reject results > the QL. - If sample and/or duplicate is <5x the QL and absolute difference is >2x the QL, estimate (J) positive results <5x QL and nondetects (UJ). - If absolute difference is >4x the QL, reject nondetects and positive results <5x QL.			X	
Percent Solids data included in Lab Package?	X			
1) %Solids criteria (Reg 2 criteria) met? (>/=50%)	X			

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Data Validation Report

Project:	Metropolitan Family Health Network Property - Site 186 Borings	
Laboratory:	Accutest, Dayton, NJ	
Laboratory Job No.:	JB48411T	
Analysis/Method:	Metals by ICP-AES/ SW846-6010	
Validation Level:	Limited	
Site Location/Address:	PPG Site 186 - Jersey City, NJ	
AECOM Project No:	60238842.NGA.186.RAR	
Prepared by:	Helen Jones Parry /AECOM	Completed on: 02/21/2014
Reviewed by:	Mary Kozik /AECOM	File Name: JB48411T 2014-02-21 DV Report-F

Introduction

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

- NJDEP Office of Data Quality SOP 5.A.16, Rev 1 (May 2002), Quality Assurance Data Validation of Analytical Deliverables for Inorganics (based on USEPA SW-846 Methods);

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

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

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

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

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

RA: The sample result was rejected due to NJ specific data validation QC requirements; however, the result is usable for project objectives. Refer to the Data Quality and Usability section in this data validation report for further discussion.

Sample Information

The samples listed below were collected by AECOM on September 25, 2013 as part of the sampling program at the Metropolitan Family Health Network property, Site 186, 947 Garfield Avenue, Jersey City, New Jersey. Only the samples that were validated are listed below:

Field ID	Laboratory ID	Matrix	Fraction
186-NTW1-1.0-1.5	JB48411-5T	Soil	Metals
186-NTW2-1.0-1.5	JB48411-4T	Soil	Metals
186-Z1S-W1-2.0-2.5	JB48411-8T	Soil	Metals
186-Z1S-W1S-6.0-6.5	JB48411-9T	Soil	Metals
186-Z1S-W2S-6.0-6.5	JB48411-7T	Soil	Metals

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

General Comments

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

TAL Metals

MS Results

The MS/MSD was performed on a site sample from an earlier Site 186 SDG (JB45245-1T, 186-Z2S-SE-2.0-2.5). The MS and MSD recoveries for antimony were below the laboratory specific QC requirements and were qualified as estimated (J/UJ) with the potential for low bias in all samples in this SDG. All other target analytes were within control limits for accuracy and precision.

Sample Results

Sample results qualified due to low MS/MSD recoveries are usable as estimated values with the potential for low bias.

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. Data qualification was not required.

Sample results reported between the MDL and RL are usable as estimated values.

ATTACHMENTS

Attachment A: Target Analyte Summary Hitlists(s)

Attachment B: Data Validation Report Form

Attachment A

Target Analyte Summary Hitlist(s)

Soil Target Analyte Summary Hit List (TAL Metals)

Site Name Metropolitan Family Health Network Property, Site 186 Borings
Sampling Date September 25, 2013
Lab Name/ID Accutest, Dayton, NJ
SDG No JB48411T
Sample Matrix Soil
Trip Blank ID NA
Field Blank ID NA

Field Sample ID	Lab Sample ID	Analyte	Method Blank (mg/kg)	Laboratory Sample Result (mg/kg)	Validation Sample Result (mg/kg)	RL (mg/kg)	Quality Assurance Decision	NJDEP Validation Footnote
186-NTW1-1.0-1.5	JB48411-5T	CHROMIUM	U	14.8	14.8	1.1		
186-NTW1-1.0-1.5	JB48411-5T	NICKEL	U	8.3	8.3	4.4		
186-NTW1-1.0-1.5	JB48411-5T	VANADIUM	U	20.5	20.5	5.5		
186-NTW2-1.0-1.5	JB48411-4T	ANTIMONY	U	2.1B	2.1J	2.2	QUALIFY	15, 23
186-NTW2-1.0-1.5	JB48411-4T	CHROMIUM	U	67.1	67.1	1.1		
186-NTW2-1.0-1.5	JB48411-4T	NICKEL	U	23.3	23.3	4.4		
186-NTW2-1.0-1.5	JB48411-4T	VANADIUM	U	44.1	44.1	5.5		
186-Z1S-W1-2.0-2.5	JB48411-8T	ANTIMONY	U	0.95B	0.95J	2.2	QUALIFY	15, 23
186-Z1S-W1-2.0-2.5	JB48411-8T	CHROMIUM	U	92.6	92.6	1.1		
186-Z1S-W1-2.0-2.5	JB48411-8T	NICKEL	U	32.5	32.5	4.4		
186-Z1S-W1-2.0-2.5	JB48411-8T	THALLIUM	U	0.97B	0.97J	1.1	QUALIFY	23
186-Z1S-W1-2.0-2.5	JB48411-8T	VANADIUM	U	47.8	47.8	5.5		
186-Z1S-W1S-6.0-6.5	JB48411-9T	ANTIMONY	U	1.0B	1.0J	2.3	QUALIFY	15, 23
186-Z1S-W1S-6.0-6.5	JB48411-9T	CHROMIUM	U	127	127	1.1		
186-Z1S-W1S-6.0-6.5	JB48411-9T	NICKEL	U	37.5	37.5	4.6		
186-Z1S-W1S-6.0-6.5	JB48411-9T	VANADIUM	U	68.1	68.1	5.7		
186-Z1S-W2S-6.0-6.5	JB48411-7T	CHROMIUM	U	18.7	18.7	1.0		
186-Z1S-W2S-6.0-6.5	JB48411-7T	NICKEL	U	17.7	17.7	4.0		
186-Z1S-W2S-6.0-6.5	JB48411-7T	THALLIUM	U	0.33B	0.33J	1.0	QUALIFY	23

186-Z1S-W2S-6.0-6.5	JB48411-7T	VANADIUM	U	25.5	25.5	5.0		

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 Footnotes

1. The value reported is less than or equal to 3x the value in the method 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) but less than ten (10) times the value in the method blank and is considered "real". However, the reported value must be quantitatively qualified "J" due to the method blank contamination. The "B" qualifier alerts the end-user to the presence of this analyte in the method blank.
3. The value reported is less than or equal to 3x 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 3x but less than ten (10) the value in the trip/field blank 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 metal value was qualified because the Calibration Verification Standard was not within the recovery range (90-110 percent).
8. In the MS/MSD Sample Analysis, this analyte fell outside the control limits of 20% RPD. Therefore, the result was qualified.
9. This analyte was qualified because the laboratory performed the MS/MSD Analysis on a field blank.
10. The reported analyte was qualified because the associated Calibration Blank result was greater than the MDL.
11. The reported value was qualified because serial dilution analysis was not within QC limit of 10% D.
12. This analyte is rejected because the laboratory exceeded the holding time for digestion and analysis.
13. The laboratory subtracted the method blank from the sample result. The reviewer's calculation has added the method blank result to the reported concentration.

14. The photocopy submitted is illegible. Therefore, the QA reviewer cannot read the laboratory's reported concentration result.
15. The reported or nondetected value was qualified because the MS/MSD spike recovery was less than 75 percent.
16. The reported value was qualified because the MS/MSD spike recovery was greater than 125 percent.
17. The non-detected value was qualified (UJ) because the MS/MSD spike recovery was less than 75 percent. The possibility of a false negative exists.
18. The reported values were qualified because the laboratory duplicate exceeded 35 percent RPD or the absolute difference exceeded two times the reporting limit for sample result less than 5 times the reporting limit.
19. The reported value was qualified because the field duplicate exceeded 35 percent RPD.
20. The reported value was qualified because the LCS recovery was less than 80 percent.
21. The reported value was qualified because the sample moisture content was greater than 50 percent.
22. The reported value was rejected because the field duplicate absolute difference was greater than 4 times the RL or the RPD was greater than 120%.
23. The reported result was greater than the MDL but less than the RL and qualified (J) as estimated by the laboratory.
24. The reported value was qualified because the field duplicate exceeded 20 percent RPD or the absolute difference exceeded two times the reporting limit for sample result less than 5 times the reporting limit.
25. The reported value was qualified because the LCS recovery was greater than 120 percent.

Attachment B

Data Validation Report Form

Client Name: PPG Industries	**Project Number:** 60238842.NGA.186.RAR
Site Location: Metropolitan Family Health Network Property Site 186 Borings, Jersey City, NJ	**Project Manager:** Al LoPilato
Laboratory: Accutest, Dayton, NJ	**Type of Validation:** Limited
Laboratory Job No: JB48411T	**Date Checked:** 2/21/14
Validator: Helen Jones Parry	**Peer:** Mary Kozik

ITEM	YES	NO	N/A	COMMENTS
Sample results included?	X			
Reporting Limits met project requirements?	X			
Field I.D. included?	X			
Laboratory I.D. included?	X			
Sample matrix included?	X			
Sample receipt temperature 2-6C?	X			
Signed COCs included?	X			
Date of sample collection included?	X			
Date of sample digestion included?	X			
Date of analysis included?	X			
Holding time met QC criteria? (Metals -180 days from sample collection; Mercury - 28 days from sample collection. If HT exceeded by 10 days R all results.	X			
Method reference included?	X			
Laboratory Case Narrative included?	X			
Definitions: MDL - Method Detection Limit; %R - Percent Recovery; RL - Reporting Limit; RPD - Relative Percent Difference; RSD - Relative Standard Deviation :Corr - Correlation Coefficient.				

ITEM	YES	NO	N/A	COMMENTS
Sample dilutions?		X		
Initial calibration documentation included in lab package?	X			
1) Calibrate daily or each time instrument is set up.	X			
2) ICP (6010) -Blank plus 1 standard? If no, reject (R) data.	X			
3) Hg (7470/7471) -Blank plus 5 standards? If no, reject (R) data.			X	
Initial Calibration Verification Standard (ICV) for ICP (6010) and Initial Calibration Check Standard (ICCS) for Hg (7470/7471) included in lab package?	X			
1) Analyzed immediately after initial calibration? If no, reject (R) data.	X			
2) %R criteria met? (90-110%). If no, J positive results for affected analyte(s) if %R between 80-89% and 111-120% and indicate bias; UJ non-detect results for affected analyte(s) if %R between 80-89% , and R all data for affected analyte(s) if %R <80% or >120%.	X			
3) Spot check ICV/ICCS results for several analytes.	X			
Continuing Calibration Verification Standard (CCV) for ICP (6010) and Calibration Check Standard (CCS) for Hg (7470/7471) included in Lab Package?	X			
1) Analyzed immediately after each ICV/ICC/CB and after every 10 samples? If no, reject (R) data.	X			
2) CCS and CCV from independent source and at mid-level of calibration curve. If no, reject (R) data.	X			
3) %R criteria met? (90-110%R). If no, J positive results for affected analyte(s) if %R between 80-89% and 111-120% and indicate bias; UJ non-detect results for affected analyte(s) if %R between 80-89% and R all data for affected analyte(s) if %R <80% or >120%.	X			
4) Spot check CCV/CCS results for several analytes.	X			
Low Calibration Standard (CRI) included in Lab Package?	X			
1) %R criteria met? - 50-150% for Co, Mn, Zn, by ICP-MS; Pb, Tl by 6010; 70-130% all others. If no, refer to ILM05.4 NJ SOP 5.A.2 for actions.	X			
Calibration Blanks				

ITEM	YES	NO	N/A	COMMENTS
1) Analyzed after daily calibration and after each ICV/ICC/CCV/CCS and after every 10 samples? If no, reject (R) data.	X			
2) Absolute value <3xIDL? If no, -if sample result <10x CB result, qualify affected analyte(s) in associated samples with CB; -if sample result >10xCB result, no qualification.	X			
Method Blank Included in Lab Package?	X			
1) Method blank analyzed with each preparation batch or every SDG, or 1/20 samples? If no, reject (R) data, except no aqueous MB required for FB/EB if only soil samples were analyzed.	X			
2) Method blank analyzed 1/20 samples? If - MB 1/25, J sample results from 21-25; -MB >1/25, R sample results after 25th sample.	X			
3) MB results nondetect? If no, -sample result <3xMB, negate UB; -sample result>3xMB but <10xMB, JB; -sample result >10xMB, no qualification.	X			
4) Negative MB result reported? If yes, -Positive sample result<10xMB, qualify estimated, biased low (J); -Non-detect sample result , qualify UJ, may be false non-detect.		X		
Field Blanks/Equipment Blanks Included in Lab Package?		X		
1) FB/EB result non-detect? If no, -sample result <3xFB/EB, negate U; -sample result>3xFB/EB but <10xMB, J; -sample result >10xFB/EB, no qualification.			X	
ICP Interference Check Sample (ICS) included in Lab Package?	X			
1) Analyzed at beginning of analytical run? If no, reject (R) data.	X			
2) %R criteria met? (80-120%) If no, %R>120%, no qualification if sample result non-detect; %R between 121-150%, J positive results, biased high; %R between 50-79%, J/UJ results, biased low; %R<50% or >150%, reject (R) result	X			
3) Spot check accuracy of %Rs	X			
Matrix Spike/Matrix Spike Duplicate Data Included in Lab Package?	X			
1) MS/MSD %R (75-125%R) and RPD (+20%) criteria met? -%R>125% J positive results for affected analyte(s) for all samples in the same batch/SDG, accept NDs; -%R<75% J/UJ for affected analyte(s) for all samples in the same batch/SDG; -		X		The MS/MSD was performed on a site sample from another SDG; antimony MS and MSD results were < 75%.

ITEM	YES	NO	N/A	COMMENTS
RPD outside +20% J positive results for affected analyte(s) for all samples in the same batch/SDG, accept NDs.				
2) Was a sample spiked at the frequency of 1/batch or 20 samples?	X			
3) Was the MS performed on a site sample?	X			
4) Was the MS performed on a FB/EB or TB? If yes, J all sample data.		X		
Post Digestion Spike		X		
1) %R criteria met? (75-125%R) - %R>125% J positive results for affected analyte(s) for all samples in the same batch/SDG, accept NDs.; - %R<75% J/UJ affected analyte(s) for all samples in the same batch/SDG.			X	
2) Was the spike performed on a FB/EB or TB? If yes, J all sample data.			X	
3) Was a sample spiked at the frequency of 1/batch or 20 samples?			X	
Laboratory Duplicate Data Included in Lab Package?		X		
Aqueous - If RPD is >20% but <100% and sample and duplicate results are >5x the QL, estimate (J) results >the QL. - If RPD is >100%, reject R results >/= the QL.- If sample and/or duplicate is <5x the QL and absolute difference is > the QL, estimate (J) positive results <5x the QL and nondetects (UJ).- If absolute difference is >2x the QL, reject R non-detects and positive results <5x the QL.			X	
Soil - If RPD is >35% but <120% and sample and duplicate results are >5x the QL, estimate (J) results > the QL. - If RPD is >120%, reject results > the QL. - If sample and/or duplicate is <5x the QL and absolute difference is >2x the QL, estimate (J) positive results <5x QL and nondetects (UJ). - If absolute difference is >4x the QL, reject nondetects and positive results <5x QL.			X	
Was a Laboratory Control Sample (LCS) Included in Lab Package?	X			
1) LCS %R criteria met? (80-120%R). If no, J/UJ all affected analytes(s) for all samples in the same batch/SDG.	X			
2) Was an LCS analyzed at the frequency of 1/batch or 20 samples? If no, J/UJ affected analyte(s) for all samples in the same batch/SDG.	X			
Serial Dilution				

ITEM	YES	NO	N/A	COMMENTS
1) %D(<10%R) criteria met? - If analyte concentration >25xIDL (7000) or >10xIDL (6010) and %D >10% J positive results for affected analyte(s) for all samples in the same batch/SDG, accept NDs.	X			
2) Was the frequency 1/batch or 20 samples?	X			
3) Was a site sample used?	X			
4) Was a FB/EB or TB used? If yes, J all sample data.		X		
5) Spot check accuracy of %Ds.	X			
Field Duplicate Data included in Lab Package?		X		
Aqueous - If RPD is >20% but <100% and sample and field duplicate results are >5x the QL, estimate (J) results > the QL. - If RPD is >100%, reject R results >/= the QL. - If sample and/or duplicate is <5x the QL and absolute difference is > the QL, estimate (J) positive results <5x the QL and nondetects (UJ). - If absolute difference is >2x the QL, reject R non-detects and positive results <5x the QL.			X	
Soil - If RPD is >35% but <120% and sample and field duplicate results are >5x the QL, estimate (J) results > the QL. - If RPD is >120%, reject results > the QL. - If sample and/or duplicate is <5x the QL and absolute difference is >2x the QL, estimate (J) positive results <5x QL and nondetects (UJ). - If absolute difference is >4x the QL, reject nondetects and positive results <5x QL.			X	
Percent Solids data included in Lab Package?	X			
1) %Solids criteria (Reg 2 criteria) met? (>/=50%)	X			

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Data Validation Report

Project:	Metropolitan Family Health Network Property - Site 186 Borings	
Laboratory:	Accutest, Dayton, NJ	
Laboratory Job No.:	JB48264R	
Analysis/Method:	Metals by ICP-AES/ SW846-6010	
Validation Level:	Limited	
Site Location/Address:	PPG Site 186 - Jersey City, NJ	
AECOM Project No:	60238842.NGA.186.RAR	
Prepared by:	Helen Jones Parry /AECOM	Completed on: 02/26/2014
Reviewed by:	Mary Kozik /AECOM	File Name: JB48264R 2014-02-26 DV Report-F

Introduction

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

- NJDEP Office of Data Quality SOP 5.A.16, Rev 1 (May 2002), Quality Assurance Data Validation of Analytical Deliverables for Inorganics (based on USEPA SW-846 Methods);

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

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

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

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

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

RA: The sample result was rejected due to NJ specific data validation QC requirements; however, the result is usable for project objectives. Refer to the Data Quality and Usability section in this data validation report for further discussion.

Sample Information

The samples listed below were collected by AECOM on September 24, 2013 as part of the sampling program at the Metropolitan Family Health Network property, Site 186, 947 Garfield Avenue, Jersey City, New Jersey. Only the samples that were validated are listed below:

Field ID	Laboratory ID	Matrix	Fraction
186-Z3B-NC-7.0-7.5	JB48264-5R	Soil	Metals
186-Z3S-NW-2.0-2.5	JB48264-1R	Soil	Metals
186-Z3S-NW-2.0-2.5X (Field Duplicate)	JB48264-3R	Soil	Metals
186-Z3S-NWS-6.0-6.5	JB48264-4R	Soil	Metals

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

General Comments

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

TAL Metals

MS Results

The laboratory selected sample 186-Z3B-NC-7.0-7.5 as the source for the MS analysis.
The MS and MSD recoveries for antimony were below the laboratory specific QC requirements and were qualified as estimated (J/UJ) with the potential for low bias in all samples in the SDG.
Qualified sample results for MS recoveries that did not meet the QC requirements are presented in the Metal Soil Target Analyte Summary Hit List in Attachment A and in the nonconformance table in Attachment B.

ICP Serial Dilution Results

The serial dilution % difference for antimony was greater than 10% but less than 100%. No further action was taken since the sample concentration was low and the data have already been qualified on the basis of matrix spike recovery.

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.

Sample results qualified due to low MS recoveries are usable as estimated values with the potential for low bias.

Sample results reported between the MDL and RL are usable as estimated values.

ATTACHMENTS

Attachment A: Target Analyte Summary Hitlists(s)

Attachment B: Data Validation Report Form

Attachment A

Target Analyte Summary Hitlist(s)

Soil Target Analyte Summary Hit List (TAL Metals)

Site Name Metropolitan Family Health Network Property, Site 186 Borings
Sampling Date September 24, 2013
Lab Name/ID Accutest, Dayton, NJ
SDG No JB48264R
Sample Matrix Soil
Trip Blank ID NA
Field Blank ID NA

Field Sample ID	Lab Sample ID	Analyte	Method Blank (mg/kg)	Laboratory Sample Result (mg/kg)	Validation Sample Result (mg/kg)	RL (mg/kg)	Quality Assurance Decision	NJDEP Validation Footnote
186-Z3B-NC-7.0-7.5	JB48264-5R	ANTIMONY	U	0.57B	0.57J	2.0	QUALIFY	15, 23
186-Z3B-NC-7.0-7.5	JB48264-5R	CHROMIUM	U	14.1	14.1	0.98		
186-Z3B-NC-7.0-7.5	JB48264-5R	NICKEL	U	11.3	11.3	3.9		
186-Z3B-NC-7.0-7.5	JB48264-5R	VANADIUM	U	25.4	25.4	4.9		
186-Z3S-NW-2.0-2.5	JB48264-1R	ANTIMONY	U	1.9B	1.9J	2.3	QUALIFY	15, 23
186-Z3S-NW-2.0-2.5	JB48264-1R	CHROMIUM	U	42.8	42.8	1.1		
186-Z3S-NW-2.0-2.5	JB48264-1R	NICKEL	U	22.3	22.3	4.5		
186-Z3S-NW-2.0-2.5	JB48264-1R	VANADIUM	U	33.4	33.4	5.7		
186-Z3S-NW-2.0-2.5X	JB48264-3R	ANTIMONY	U	1.8B	1.8J	2.3	QUALIFY	15, 23
186-Z3S-NW-2.0-2.5X	JB48264-3R	CHROMIUM	U	44.2	44.2	1.2		
186-Z3S-NW-2.0-2.5X	JB48264-3R	NICKEL	U	22.9	22.9	4.7		
186-Z3S-NW-2.0-2.5X	JB48264-3R	THALLIUM	U	0.67B	0.67J	1.2	QUALIFY	23
186-Z3S-NW-2.0-2.5X	JB48264-3R	VANADIUM	U	28.0	28.0	5.9		
186-Z3S-NWS-6.0-6.5	JB48264-4R	ANTIMONY	U	0.90B	0.90J	1.9	QUALIFY	15, 23
186-Z3S-NWS-6.0-6.5	JB48264-4R	CHROMIUM	U	23.1	23.1	0.96		
186-Z3S-NWS-6.0-6.5	JB48264-4R	NICKEL	U	12.1	12.1	3.8		
186-Z3S-NWS-6.0-6.5	JB48264-4R	VANADIUM	U	25.7	25.7	4.8		

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 Footnotes

1. The value reported is less than or equal to 3x the value in the method 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) but less than ten (10) times the value in the method blank and is considered "real". However, the reported value must be quantitatively qualified "J" due to the method blank contamination. The "B" qualifier alerts the end-user to the presence of this analyte in the method blank.
3. The value reported is less than or equal to 3x 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 3x but less than ten (10) the value in the trip/field blank 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 metal value was qualified because the Calibration Verification Standard was not within the recovery range (90-110 percent).
8. In the MS/MSD Sample Analysis, this analyte fell outside the control limits of 20% RPD. Therefore, the result was qualified.
9. This analyte was qualified because the laboratory performed the MS/MSD Analysis on a field blank.
10. The reported analyte was qualified because the associated Calibration Blank result was greater than the MDL.
11. The reported value was qualified because serial dilution analysis was not within QC limit of 10% D.
12. This analyte is rejected because the laboratory exceeded the holding time for digestion and analysis.
13. The laboratory subtracted the method blank from the sample result. The reviewer's calculation has added the method blank result to the reported concentration.
14. The photocopy submitted is illegible. Therefore, the QA reviewer cannot read the laboratory's reported concentration result.
15. The reported or nondetected value was qualified because the MS/MSD spike recovery was less than 75 percent.

16. The reported value was qualified because the MS/MSD spike recovery was greater than 125 percent.
17. The non-detected value was qualified (UJ) because the MS/MSD spike recovery was less than 75 percent. The possibility of a false negative exists.
18. The reported values were qualified because the laboratory duplicate exceeded 35 percent RPD or the absolute difference exceeded two times the reporting limit for sample result less than 5 times the reporting limit.
19. The reported value was qualified because the field duplicate exceeded 35 percent RPD.
20. The reported value was qualified because the LCS recovery was less than 80 percent.
21. The reported value was qualified because the sample moisture content was greater than 50 percent.
22. The reported value was rejected because the field duplicate absolute difference was greater than 4 times the RL or the RPD was greater than 120%.
23. The reported result was greater than the MDL but less than the RL and qualified (J) as estimated by the laboratory.
24. The reported value was qualified because the field duplicate exceeded 20 percent RPD or the absolute difference exceeded two times the reporting limit for sample result less than 5 times the reporting limit.
25. The reported value was qualified because the LCS recovery was greater than 120 percent.

Attachment B

Data Validation Report Form

Client Name: PPG Industries	**Project Number:** 60238842.NGA.186.RAR
Site Location: Metropolitan Family Health Network Property Site 186 Borings, Jersey City, NJ	**Project Manager:** Al LoPilato
Laboratory: Accutest, Dayton, NJ	**Type of Validation:** Limited
Laboratory Job No: JB48264R	**Date Checked:** 2/26/14
Validator: Helen Jones Parry	**Peer:** Mary Kozik

ITEM	YES	NO	N/A	COMMENTS
Sample results included?	X			
Reporting Limits met project requirements?	X			
Field I.D. included?	X			
Laboratory I.D. included?	X			
Sample matrix included?	X			
Sample receipt temperature 2-6C?	X			
Signed COCs included?	X			
Date of sample collection included?	X			
Date of sample digestion included?	X			
Date of analysis included?	X			
Holding time met QC criteria? (Metals -180 days from sample collection; Mercury - 28 days from sample collection. If HT exceeded by 10 days R all results.	X			
Method reference included?	X			
Laboratory Case Narrative included?	X			
Definitions: MDL - Method Detection Limit; %R - Percent Recovery; RL - Reporting Limit; RPD - Relative Percent Difference; RSD - Relative Standard Deviation :Corr - Correlation Coefficient.				

ITEM	YES	NO	N/A	COMMENTS
Sample dilutions?		X		
Initial calibration documentation included in lab package?	X			
1) Calibrate daily or each time instrument is set up.	X			
2) ICP (6010) -Blank plus 1 standard? If no, reject (R) data.	X			
3) Hg (7470/7471) -Blank plus 5 standards? If no, reject (R) data.			X	
Initial Calibration Verification Standard (ICV) for ICP (6010) and Initial Calibration Check Standard (ICCS) for Hg (7470/7471) included in lab package?	X			
1) Analyzed immediately after initial calibration? If no, reject (R) data.	X			
2) %R criteria met? (90-110%). If no, J positive results for affected analyte(s) if %R between 80-89% and 111-120% and indicate bias; UJ non-detect results for affected analyte(s) if %R between 80-89% , and R all data for affected analyte(s) if %R <80% or >120%.	X			
3) Spot check ICV/ICCS results for several analytes.	X			
Continuing Calibration Verification Standard (CCV) for ICP (6010) and Calibration Check Standard (CCS) for Hg (7470/7471) included in Lab Package?	X			
1) Analyzed immediately after each ICV/ICC/CB and after every 10 samples? If no, reject (R) data.	X			
2) CCS and CCV from independent source and at mid level of calibration curve. If no, reject (R) data.	X			
3) %R criteria met? (90-110%R). If no, J positive results for affected analyte(s) if %R between 80-89% and 111-120% and indicate bias; UJ non-detect results for affected analyte(s) if %R between 80-89% and R all data for affected analyte(s) if %R <80% or >120%.	X			
4) Spot check CCV/CCS results for several analytes.	X			
Low Calibration Standard (CRI) included in Lab Package?	X			
1) %R criteria met? - 50-150% for Co, Mn, Zn, by ICP-MS; Pb, Tl by 6010; 70-130% all others. If no, refer to ILM05.4 NJ SOP 5.A.2 for actions.	X			
Calibration Blanks	X			
1) Analyzed after daily calibration and after each ICV/ICC/CCV/CCS and after every 10 samples? If no, reject	X			

ITEM	YES	NO	N/A	COMMENTS
(R) data.				
2) Absolute value <3xIDL? If no, -if sample result <10x CB result, qualify affected analyte(s) in associated samples with CB; -if sample result >10xCB result, no qualification.	X			
Method Blank Included in Lab Package?	X			
1) Method blank analyzed with each preparation batch or every SDG, or 1/20 samples? If no, reject (R) data, except no aqueous MB required for FB/EB if only soil samples were analyzed.	X			
2) Method blank analyzed 1/20 samples? If - MB 1/25, J sample results from 21-25; -MB >1/25, R sample results after 25th sample.	X			
3) MB results nondetect? If no, -sample result <3xMB, negate UB; -sample result>3xMB but <10xMB, JB; -sample result >10xMB, no qualification.	X			
4) Negative MB result reported? If yes, -Positive sample result<10xMB, qualify estimated, biased low (J); -Non-detect sample result , qualify UJ, may be false non-detect.		X		
Field Blanks/Equipment Blanks Included in Lab Package?		X		
1) FB/EB result non-detect? If no, -sample result <3xFB/EB, negate U; -sample result>3xFB/EB but <10xMB, J; -sample result >10xFB/EB, no qualification.			X	
ICP Interference Check Sample (ICS) included in Lab Package?	X			
1) Analyzed at beginning of analytical run? If no, reject (R) data.	X			
2) %R criteria met? (80-120%) If no, %R>120%, no qualification if sample result non-detect; %R between 121-150%, J positive results, biased high; %R between 50-79%, J/UJ results, biased low; %R<50% or >150%, reject (R) result	X			
3) Spot check accuracy of %Rs	X			
Matrix Spike/Matrix Spike Duplicate Data Included in Lab Package?	X			
1) MS/MSD %R (75-125%R) and RPD (+20%) criteria met? - %R>125% J positive results for affected analyte(s) for all samples in the same batch/SDG, accept NDs; -%R<75% J/UJ for affected analyte(s) for all samples in the same batch/SDG; -RPD outside +20% J positive results for affected analyte(s) for all samples in the same batch/SDG, accept NDs.		X		See table of nonconformances.
2) Was a sample spiked at the frequency of 1/batch or 20	X			

ITEM	YES	NO	N/A	COMMENTS
samples?				
3) Was the MS performed on a site sample?	X			
4) Was the MS performed on a FB/EB or TB? If yes, J all sample data.		X		
Post Digestion Spike		X		
1) %R criteria met? (75-125%R) - %R>125% J positive results for affected analyte(s) for all samples in the same batch/SDG, accept NDs.; - %R<75% J/UJ affected analyte(s) for all samples in the same batch/SDG.			X	
2) Was the spike performed on a FB/EB or TB? If yes, J all sample data.			X	
3) Was a sample spiked at the frequency of 1/batch or 20 samples?			X	
Laboratory Duplicate Data Included in Lab Package?		X		
Aqueous - If RPD is >20% but <100% and sample and duplicate results are >5x the QL, estimate (J) results >the QL. - If RPD is >100%, reject R results >/= the QL.- If sample and/or duplicate is <5x the QL and absolute difference is > the QL, estimate (J) positive results <5x the QL and nondetects (UJ).- If absolute difference is >2x the QL, reject R non-detects and positive results <5x the QL.			X	
Soil - If RPD is >35% but <120% and sample and duplicate results are >5x the QL, estimate (J) results > the QL. - If RPD is >120%, reject results > the QL. - If sample and/or duplicate is <5x the QL and absolute difference is >2x the QL, estimate (J) positive results <5x QL and nondetects (UJ). - If absolute difference is >4x the QL, reject nondetects and positive results <5x QL.			X	
Was a Laboratory Control Sample (LCS) Included in Lab Package?	X			
1) LCS %R criteria met? (80-120%R). If no, J/UJ all affected analytes(s) for all samples in the same batch/SDG.	X			
2) Was an LCS analyzed at the frequency of 1/batch or 20 samples? If no, J/UJ affected analyte(s) for all samples in the same batch/SDG.	X			
Serial Dilution	X			
1) %D(<10%R) criteria met? - If analyte concentration >25xIDL (7000) or >10xIDL (6010) and %D >10% J positive results for affected analyte(s) for all samples in the same batch/SDG, accept NDs.		X		Antimony %D fell outside of 10% limit but reported sample concentration is low

ITEM	YES	NO	N/A	COMMENTS
2) Was the frequency 1/batch or 20 samples?	X			
3) Was a site sample used?	X			
4) Was a FB/EB or TB used? If yes, J all sample data.		X		
5) Spot check accuracy of %Ds.	X			
Field Duplicate Data included in Lab Package?	X			
Aqueous - If RPD is >20% but <100% and sample and field duplicate results are >5x the QL, estimate (J) results > the QL. - If RPD is >100%, reject R results >/= the QL. - If sample and/or duplicate is <5x the QL and absolute difference is > the QL, estimate (J) positive results <5x the QL and nondetects (UJ). - If absolute difference is >2x the QL, reject R non-detects and positive results <5x the QL.			X	
Soil - If RPD is >35% but <120% and sample and field duplicate results are >5x the QL, estimate (J) results > the QL. - If RPD is >120%, reject results > the QL. - If sample and/or duplicate is <5x the QL and absolute difference is >2x the QL, estimate (J) positive results <5x QL and nondetects (UJ). - If absolute difference is >4x the QL, reject nondetects and positive results <5x QL.	X			186-Z3S-NW-2.0-2.5 and 186-Z3S-NW-2.0-2.5X are field duplicates; RPD results are acceptable for target analytes.
Percent Solids data included in Lab Package?	X			
1) %Solids criteria (Reg 2 criteria) met? (>/=50%)	X			

Matrix Spikes

Sample ID	Compound	Analysis Batch	Matrix Spike	Matrix Spike Duplicate	Lower Limit	Upper Limit	RPD	RPD Limit
186-Z3B-NC-7.0-7.5	ANTIMONY	MP77648	28.3	32.3	75	125	11.5	20

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Data Validation Report

Project:	Metropolitan Family Health Network Property - Site 186 Borings	
Laboratory:	Accutest, Dayton, NJ	
Laboratory Job No.:	JB48160R	
Analysis/Method:	Metals by ICP-AES/ SW846-6010	
Validation Level:	Limited	
Site Location/Address:	PPG Site 186 - Jersey City, NJ	
AECOM Project No:	60238842.NGA.186.RAR	
Prepared by:	Helen Jones Parry /AECOM	Completed on: 02/27/2014
Reviewed by:	Mary Kozik /AECOM	File Name: JB48160R 2014-02-27 DV Report-F

Introduction

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

- NJDEP Office of Data Quality SOP 5.A.16, Rev 1 (May 2002), Quality Assurance Data Validation of Analytical Deliverables for Inorganics (based on USEPA SW-846 Methods);

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

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

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

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

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

RA: The sample result was rejected due to NJ specific data validation QC requirements; however, the result is usable for project objectives. Refer to the Data Quality and Usability section in this data validation report for further discussion.

Sample Information

The samples listed below were collected by AECOM on September 23, 2013 as part of the Metropolitan Family Health Network property sampling program, Site 186, 947 Garfield Avenue, Jersey City, New Jersey. Only the samples that were validated are listed below:

Field ID	Laboratory ID	Matrix	Fraction
186-Z3S-NE-6.0-6.5	JB48160-3R	Soil	Metals

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

General Comments

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

TAL Metals

MS Results

The MS/MSD was not performed on a Site 186 sample reported in a different SDG, 186-Z3B-NC-7.0-7.5 (JB48264-5R). Spike recoveries for antimony in both the MS and MSD were less than 75% therefore antimony results in all samples were qualified as estimated (J/UJ) with a possible low bias. All other MS/MSD results showed acceptable precision and accuracy.

ICP Serial Dilution Results

Serial dilution was also performed on 186-Z3B-NC-7.0-7.5 (JB48264-5R); antimony exceeded the 10% limit however since the sample concentration was low no further validation action was taken.

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.

Antimony results are qualified (J/UJ) based on MS/MSD values below 75% recovery.

Sample results reported between the MDL and RL are usable as estimated values.

ATTACHMENTS

Attachment A: Target Analyte Summary Hitlists(s)

Attachment B: Data Validation Report Form

Attachment A

Target Analyte Summary Hitlist(s)

Soil Target Analyte Summary Hit List (Metals)

Site Name Metropolitan Family Health Network Property, Site 186 Borings
Sampling Date September 23, 2013
Lab Name/ID Accutest, Dayton, NJ
SDG No JB48160R
Sample Matrix Soil
Trip Blank ID NA
Field Blank ID NA

Field Sample ID	Lab Sample ID	Analyte	Method Blank (mg/kg)	Laboratory Sample Result (mg/kg)	Validation Sample Result (mg/kg)	RL (mg/kg)	Quality Assurance Decision	NJDEP Validation Footnote
186-Z3S-NE-6.0-6.5	JB48160-3R	ANTIMONY	U	0.51B	0.51J	2.0	QUALIFY	23
186-Z3S-NE-6.0-6.5	JB48160-3R	CHROMIUM	U	17.4	17.4	1.0		
186-Z3S-NE-6.0-6.5	JB48160-3R	NICKEL	U	12.0	12.0	4.1		
186-Z3S-NE-6.0-6.5	JB48160-3R	VANADIUM	U	24.3	24.3	5.1		

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 Footnotes

1. The value reported is less than or equal to 3x the value in the method 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) but less than ten (10) times the value in the method blank and is considered "real". However, the reported value must be quantitatively qualified "J" due to the method blank contamination. The "B" qualifier alerts the end-user to the presence of this analyte in the method blank.
3. The value reported is less than or equal to 3x 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 3x but less than ten (10) the value in the trip/field blank 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 metal value was qualified because the Calibration Verification Standard was not within the recovery range (90-110 percent).
8. In the MS/MSD Sample Analysis, this analyte fell outside the control limits of 20% RPD. Therefore, the result was qualified.
9. This analyte was qualified because the laboratory performed the MS/MSD Analysis on a field blank.
10. The reported analyte was qualified because the associated Calibration Blank result was greater than the MDL.
11. The reported value was qualified because serial dilution analysis was not within QC limit of 10% D.
12. This analyte is rejected because the laboratory exceeded the holding time for digestion and analysis.
13. The laboratory subtracted the method blank from the sample result. The reviewer's calculation has added the method blank result to the reported concentration.
14. The photocopy submitted is illegible. Therefore, the QA reviewer cannot read the laboratory's reported concentration result.
15. The reported or nondetected value was qualified because the MS/MSD spike recovery was less than 75 percent.
16. The reported value was qualified because the MS/MSD spike recovery was greater than 125 percent.
17. The non-detected value was qualified (UJ) because the MS/MSD spike recovery was less than 75 percent. The possibility of a false negative exists.
18. The reported values were qualified because the laboratory duplicate exceeded 35 percent RPD or the absolute difference exceeded two times the reporting limit for sample result less than 5 times the reporting limit.
19. The reported value was qualified because the field duplicate exceeded 35 percent RPD.
20. The reported value was qualified because the LCS recovery was less than 80 percent.
21. The reported value was qualified because the sample moisture content was greater than 50 percent.
22. The reported value was rejected because the field duplicate absolute difference was greater than 4 times the RL or the RPD was greater than 120%.
23. The reported result was greater than the MDL but less than the RL and qualified (J) as estimated by the laboratory.

24. The reported value was qualified because the field duplicate exceeded 20 percent RPD or the absolute difference exceeded two times the reporting limit for sample result less than 5 times the reporting limit.
25. The reported value was qualified because the LCS recovery was greater than 120 percent.

Attachment B

Data Validation Report Form

Client Name: PPG Industries	**Project Number:** 60238842.NGA.186.RAR
Site Location: Metropolitan Family Health Network Property Site 186 Borings, Jersey City, NJ	**Project Manager:** Al LoPilato
Laboratory: Accutest, Dayton, NJ	**Type of Validation:** Limited
Laboratory Job No: JB48160R	**Date Checked:** 2/27/14
Validator: Helen Jones Parry	**Peer:** Mary Kozik

ITEM	YES	NO	N/A	COMMENTS
Sample results included?	X			
Reporting Limits met project requirements?	X			
Field I.D. included?	X			
Laboratory I.D. included?	X			
Sample matrix included?	X			
Sample receipt temperature 2-6C?	X			
Signed COCs included?	X			
Date of sample collection included?	X			
Date of sample digestion included?	X			
Date of analysis included?	X			
Holding time met QC criteria? (Metals -180 days from sample collection; Mercury - 28 days from sample collection. If HT exceeded by 10 days R all results.	X			
Method reference included?	X			
Laboratory Case Narrative included?	X			
Definitions: MDL - Method Detection Limit; %R - Percent Recovery; RL - Reporting Limit; RPD - Relative Percent Difference; RSD - Relative Standard Deviation :Corr - Correlation Coefficient.				

ITEM	YES	NO	N/A	COMMENTS
Sample dilutions?		X		
Initial calibration documentation included in lab package?	X			
1) Calibrate daily or each time instrument is set up.	X			
2) ICP (6010) -Blank plus 1 standard? If no, reject (R) data.	X			
3) Hg (7470/7471) -Blank plus 5 standards? If no, reject (R) data.			X	
Initial Calibration Verification Standard (ICV) for ICP (6010) and Initial Calibration Check Standard (ICCS) for Hg (7470/7471) included in lab package?	X			
1) Analyzed immediately after initial calibration? If no, reject (R) data.	X			
2) %R criteria met? (90-110%). If no, J positive results for affected analyte(s) if %R between 80-89% and 111-120% and indicate bias; UJ non-detect results for affected analyte(s) if %R between 80-89% , and R all data for affected analyte(s) if %R <80% or >120%.	X			
3) Spot check ICV/ICCS results for several analytes.	X			
Continuing Calibration Verification Standard (CCV) for ICP (6010) and Calibration Check Standard (CCS) for Hg (7470/7471) included in Lab Package?	X			
1) Analyzed immediately after each ICV/ICC/CB and after every 10 samples? If no, reject (R) data.	X			
2) CCS and CCV from independent source and at mid level of calibration curve. If no, reject (R) data.	X			
3) %R criteria met? (90-110%R). If no, J positive results for affected analyte(s) if %R between 80-89% and 111-120% and indicate bias; UJ non-detect results for affected analyte(s) if %R between 80-89% and R all data for affected analyte(s) if %R <80% or >120%.	X			
4) Spot check CCV/CCS results for several analytes.	X			
Low Calibration Standard (CRI) included in Lab Package?	X			
1) %R criteria met? - 50-150% for Co, Mn, Zn, by ICP-MS; Pb, Tl by 6010; 70-130% all others. If no, refer to ILM05.4 NJ SOP 5.A.2 for actions.	X			
Calibration Blanks	X			

ITEM	YES	NO	N/A	COMMENTS
1) Analyzed after daily calibration and after each ICV/ICC/CCV/CCS and after every 10 samples? If no, reject (R) data.	X			
2) Absolute value <3xIDL? If no, -if sample result <10x CB result, qualify affected analyte(s) in associated samples with CB; -if sample result >10xCB result, no qualification.	X			
Method Blank Included in Lab Package?	X			
1) Method blank analyzed with each preparation batch or every SDG, or 1/20 samples? If no, reject (R) data, except no aqueous MB required for FB/EB if only soil samples were analyzed.	X			
2) Method blank analyzed 1/20 samples? If - MB 1/25, J sample results from 21-25; -MB >1/25, R sample results after 25th sample.	X			
3) MB results nondetect? If no, -sample result <3xMB, negate UB; -sample result>3xMB but <10xMB, JB; -sample result >10xMB, no qualification.	X			
4) Negative MB result reported? If yes, -Positive sample result<10xMB, qualify estimated, biased low (J); -Non-detect sample result , qualify UJ, may be false non-detect.		X		
Field Blanks/Equipment Blanks Included in Lab Package?		X		
1) FB/EB result non-detect? If no, -sample result <3xFB/EB, negate U; -sample result>3xFB/EB but <10xMB, J; -sample result >10xFB/EB, no qualification.			X	
ICP Interference Check Sample (ICS) included in Lab Package?	X			
1) Analyzed at beginning of analytical run? If no, reject (R) data.	X			
2) %R criteria met? (80-120%) If no, %R>120%, no qualification if sample result non-detect; %R between 121-150%, J positive results, biased high; %R between 50-79%, J/UJ results, biased low; %R<50% or >150%, reject (R) result	X			
3) Spot check accuracy of %Rs	X			
Matrix Spike/Matrix Spike Duplicate Data Included in Lab Package?	X			
1) MS/MSD %R (75-125%R) and RPD (+20%) criteria met? -%R>125% J positive results for affected analyte(s) for all samples in the same batch/SDG, accept NDs; -%R<75% J/UJ for affected analyte(s) for all samples in the same batch/SDG; -		X		The MS/MSD was performed on a site sample reported in another SDG; antimony was <75% in the MS/MSD

ITEM	YES	NO	N/A	COMMENTS
RPD outside +20% J positive results for affected analyte(s) for all samples in the same batch/SDG, accept NDs.				
2) Was a sample spiked at the frequency of 1/batch or 20 samples?	X			
3) Was the MS performed on a site sample?		X		
4) Was the MS performed on a FB/EB or TB? If yes, J all sample data.		X		
Post Digestion Spike		X		
1) %R criteria met? (75-125%R) - %R>125% J positive results for affected analyte(s) for all samples in the same batch/SDG, accept NDs.; - %R<75% J/UJ affected analyte(s) for all samples in the same batch/SDG.			X	
2) Was the spike performed on a FB/EB or TB? If yes, J all sample data.			X	
3) Was a sample spiked at the frequency of 1/batch or 20 samples?			X	
Laboratory Duplicate Data Included in Lab Package?		X		
Aqueous - If RPD is >20% but <100% and sample and duplicate results are >5x the QL, estimate (J) results >the QL. - If RPD is >100%, reject R results >/= the QL.- If sample and/or duplicate is <5x the QL and absolute difference is > the QL, estimate (J) positive results <5x the QL and nondetects (UJ).- If absolute difference is >2x the QL, reject R non-detects and positive results <5x the QL.			X	
Soil - If RPD is >35% but <120% and sample and duplicate results are >5x the QL, estimate (J) results > the QL. - If RPD is >120%, reject results > the QL. - If sample and/or duplicate is <5x the QL and absolute difference is >2x the QL, estimate (J) positive results <5x QL and nondetects (UJ). - If absolute difference is >4x the QL, reject nondetects and positive results <5x QL.			X	
Was a Laboratory Control Sample (LCS) Included in Lab Package?	X			
1) LCS %R criteria met? (80-120%R). If no, J/UJ all affected analytes(s) for all samples in the same batch/SDG.	X			
2) Was an LCS analyzed at the frequency of 1/batch or 20 samples? If no, J/UJ affected analyte(s) for all samples in the same batch/SDG.	X			
Serial Dilution	X			

ITEM	YES	NO	N/A	COMMENTS
1) %D(<10%R) criteria met? - If analyte concentration >25xIDL (7000) or >10xIDL (6010) and %D >10% J positive results for affected analyte(s) for all samples in the same batch/SDG, accept NDs.		X		The serial dilution was performed on a site sample reported in another SDG; antimony was outside the 10% control limit but based on the low concentration no further validation action was taken.
2) Was the frequency 1/batch or 20 samples?	X			
3) Was a site sample used?		X		
4) Was a FB/EB or TB used? If yes, J all sample data.		X		
5) Spot check accuracy of %Ds.	X			
Field Duplicate Data included in Lab Package?		X		
Aqueous - If RPD is >20% but <100% and sample and field duplicate results are >5x the QL, estimate (J) results > the QL. - If RPD is >100%, reject R results >/= the QL. - If sample and/or duplicate is <5x the QL and absolute difference is > the QL, estimate (J) positive results <5x the QL and nondetects (UJ). - If absolute difference is >2x the QL, reject R non-detects and positive results <5x the QL.			X	
Soil - If RPD is >35% but <120% and sample and field duplicate results are >5x the QL, estimate (J) results > the QL. - If RPD is >120%, reject results > the QL. - If sample and/or duplicate is <5x the QL and absolute difference is >2x the QL, estimate (J) positive results <5x QL and nondetects (UJ). - If absolute difference is >4x the QL, reject nondetects and positive results <5x QL.			X	
Percent Solids data included in Lab Package?	X			
1) %Solids criteria (Reg 2 criteria) met? (>/=50%)	X			

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Data Validation Report

Project:	Metropolitan Family Health Network Property - Site 186 Borings	
Laboratory:	Accutest, Dayton, NJ	
Laboratory Job No.:	JB47736T	
Analysis/Method:	Metals by ICP-AES/ SW846-6010	
Validation Level:	Limited	
Site Location/Address:	PPG Site 186 - Jersey City, NJ	
AECOM Project No:	60238842.NGA.186.RAR	
Prepared by:	Helen Jones Parry /AECOM	Completed on: 02/21/2014
Reviewed by:	Mary Kozik /AECOM	File Name: JB47736T 2014-02-21 DV Report-F

Introduction

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

- NJDEP Office of Data Quality SOP 5.A.16, Rev 1 (May 2002), Quality Assurance Data Validation of Analytical Deliverables for Inorganics (based on USEPA SW-846 Methods);

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

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

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

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

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

RA: The sample result was rejected due to NJ specific data validation QC requirements; however, the result is usable for project objectives. Refer to the Data Quality and Usability section in this data validation report for further discussion.

Sample Information

The samples listed below were collected by AECOM on September 18, 2013 as part of the sampling program at the Metropolitan Family Health Network property, Site 186, 947 Garfield Avenue, Jersey City, New Jersey. Only the samples that were validated are listed below:

Field ID	Laboratory ID	Matrix	Fraction
186-Z1B-W-6.0-6.5	JB47736-6T	Soil	Metals
186-Z3B-C1-6.0-6.5	JB47736-3T	Soil	Metals
186-Z3B-N1-6.0-6.5	JB47736-1T	Soil	Metals
186-Z3S-N-6.0-6.5	JB47736-5T	Soil	Metals

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

General Comments

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

TAL Metals

MS Results

The MS/MSD was performed on a site sample from an earlier Site 186 SDG (JB45245-1T, 186-Z2S-SE-2.0-2.5). The MS and MSD recoveries for antimony were below the laboratory specific QC requirements and were qualified as estimated (J/UJ) with the potential for low bias in all samples in this SDG. All other target analytes were within control limits for accuracy and precision.

Sample Results

Sample results qualified due to low MS/MSD recoveries are usable as estimated values with the potential for low bias.

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. Data qualification was not required.

Sample results reported between the MDL and RL are usable as estimated values.

ATTACHMENTS

Attachment A: Target Analyte Summary Hitlists(s)

Attachment B: Data Validation Report Form

Attachment A

Target Analyte Summary Hitlist(s)

Soil Target Analyte Summary Hit List (TAL Metals)

Site Name Metropolitan Family Health Network Property, Site 186 Borings
Sampling Date September 18, 2013
Lab Name/ID Accutest, Dayton, NJ
SDG No JB47736T
Sample Matrix Soil
Trip Blank ID NA
Field Blank ID NA

Field Sample ID	Lab Sample ID	Analyte	Method Blank (mg/kg)	Laboratory Sample Result (mg/kg)	Validation Sample Result (mg/kg)	RL (mg/kg)	Quality Assurance Decision	NJDEP Validation Footnote
186-Z1B-W-6.0-6.5	JB47736-6T	CHROMIUM	U	18.0	18.0	1.1		
186-Z1B-W-6.0-6.5	JB47736-6T	NICKEL	U	12.1	12.1	4.5		
186-Z1B-W-6.0-6.5	JB47736-6T	VANADIUM	U	31.3	31.3	5.6		
186-Z3B-C1-6.0-6.5	JB47736-3T	CHROMIUM	U	20.9	20.9	1.1		
186-Z3B-C1-6.0-6.5	JB47736-3T	NICKEL	U	13.4	13.4	4.5		
186-Z3B-C1-6.0-6.5	JB47736-3T	VANADIUM	U	34.8	34.8	5.6		
186-Z3B-N1-6.0-6.5	JB47736-1T	ANTIMONY	U	0.91B	0.91J	2.3	QUALIFY	15, 23
186-Z3B-N1-6.0-6.5	JB47736-1T	CHROMIUM	U	18.5	18.5	1.2		
186-Z3B-N1-6.0-6.5	JB47736-1T	NICKEL	U	11.7	11.7	4.7		
186-Z3B-N1-6.0-6.5	JB47736-1T	VANADIUM	U	28.2	28.2	5.9		
186-Z3S-N-6.0-6.5	JB47736-5T	CHROMIUM	U	11.8	11.8	1.2		
186-Z3S-N-6.0-6.5	JB47736-5T	NICKEL	U	8.8	8.8	4.9		
186-Z3S-N-6.0-6.5	JB47736-5T	VANADIUM	U	22.3	22.3	6.1		

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 Footnotes

1. The value reported is less than or equal to 3x the value in the method 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) but less than ten (10) times the value in the method blank and is considered "real". However, the reported value must be quantitatively qualified "J" due to the method blank contamination. The "B" qualifier alerts the end-user to the presence of this analyte in the method blank.
3. The value reported is less than or equal to 3x 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 3x but less than ten (10) the value in the trip/field blank 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 metal value was qualified because the Calibration Verification Standard was not within the recovery range (90-110 percent).
8. In the MS/MSD Sample Analysis, this analyte fell outside the control limits of 20% RPD. Therefore, the result was qualified.
9. This analyte was qualified because the laboratory performed the MS/MSD Analysis on a field blank.
10. The reported analyte was qualified because the associated Calibration Blank result was greater than the MDL.
11. The reported value was qualified because serial dilution analysis was not within QC limit of 10% D.
12. This analyte is rejected because the laboratory exceeded the holding time for digestion and analysis.
13. The laboratory subtracted the method blank from the sample result. The reviewer's calculation has added the method blank result to the reported concentration.
14. The photocopy submitted is illegible. Therefore, the QA reviewer cannot read the laboratory's reported concentration result.
15. The reported or nondetected value was qualified because the MS/MSD spike recovery was less than 75 percent.
16. The reported value was qualified because the MS/MSD spike recovery was greater than 125 percent.
17. The non-detected value was qualified (UJ) because the MS/MSD spike recovery was less than 75 percent. The possibility of a false negative exists.

18. The reported values were qualified because the laboratory duplicate exceeded 35 percent RPD or the absolute difference exceeded two times the reporting limit for sample result less than 5 times the reporting limit.
19. The reported value was qualified because the field duplicate exceeded 35 percent RPD.
20. The reported value was qualified because the LCS recovery was less than 80 percent.
21. The reported value was qualified because the sample moisture content was greater than 50 percent.
22. The reported value was rejected because the field duplicate absolute difference was greater than 4 times the RL or the RPD was greater than 120%.
23. The reported result was greater than the MDL but less than the RL and qualified (J) as estimated by the laboratory.
24. The reported value was qualified because the field duplicate exceeded 20 percent RPD or the absolute difference exceeded two times the reporting limit for sample result less than 5 times the reporting limit.
25. The reported value was qualified because the LCS recovery was greater than 120 percent.

Attachment B

Data Validation Report Form

Client Name: PPG Industries	**Project Number:** 60238842.NGA.186.RAR
Site Location: Metropolitan Family Health Network Property Site 186 Borings, Jersey City, NJ	**Project Manager:** Al LoPilato
Laboratory: Accutest, Dayton, NJ	**Type of Validation:** Limited
Laboratory Job No: JB47736T	**Date Checked:** 2/21/14
Validator: Helen Jones Parry	**Peer:** Mary Kozik

ITEM	YES	NO	N/A	COMMENTS
Sample results included?	X			
Reporting Limits met project requirements?	X			
Field I.D. included?	X			
Laboratory I.D. included?	X			
Sample matrix included?	X			
Sample receipt temperature 2-6C?	X			
Signed COCs included?	X			
Date of sample collection included?	X			
Date of sample digestion included?	X			
Date of analysis included?	X			
Holding time met QC criteria? (Metals -180 days from sample collection; Mercury - 28 days from sample collection. If HT exceeded by 10 days R all results.	X			
Method reference included?	X			
Laboratory Case Narrative included?	X			
Definitions: MDL - Method Detection Limit; %R - Percent Recovery; RL - Reporting Limit; RPD - Relative Percent Difference; RSD - Relative Standard Deviation :Corr - Correlation Coefficient.				

ITEM	YES	NO	N/A	COMMENTS
Sample dilutions?		X		
Initial calibration documentation included in lab package?	X			
1) Calibrate daily or each time instrument is set up.	X			
2) ICP (6010) -Blank plus 1 standard? If no, reject (R) data.	X			
3) Hg (7470/7471) -Blank plus 5 standards? If no, reject (R) data.			X	
Initial Calibration Verification Standard (ICV) for ICP (6010) and Initial Calibration Check Standard (ICCS) for Hg (7470/7471) included in lab package?	X			
1) Analyzed immediately after initial calibration? If no, reject (R) data.	X			
2) %R criteria met? (90-110%). If no, J positive results for affected analyte(s) if %R between 80-89% and 111-120% and indicate bias; UJ non-detect results for affected analyte(s) if %R between 80-89% , and R all data for affected analyte(s) if %R <80% or >120%.	X			
3) Spot check ICV/ICCS results for several analytes.	X			
Continuing Calibration Verification Standard (CCV) for ICP (6010) and Calibration Check Standard (CCS) for Hg (7470/7471) included in Lab Package?	X			
1) Analyzed immediately after each ICV/ICC/CB and after every 10 samples? If no, reject (R) data.	X			
2) CCS and CCV from independent source and at mid-level of calibration curve. If no, reject (R) data.	X			
3) %R criteria met? (90-110%R). If no, J positive results for affected analyte(s) if %R between 80-89% and 111-120% and indicate bias; UJ non-detect results for affected analyte(s) if %R between 80-89% and R all data for affected analyte(s) if %R <80% or >120%.	X			
4) Spot check CCV/CCS results for several analytes.	X			
Low Calibration Standard (CRI) included in Lab Package?	X			
1) %R criteria met? - 50-150% for Co, Mn, Zn, by ICP-MS; Pb, Tl by 6010; 70-130% all others. If no, refer to ILM05.4 NJ SOP 5.A.2 for actions.	X			
Calibration Blanks				

ITEM	YES	NO	N/A	COMMENTS
1) Analyzed after daily calibration and after each ICV/ICC/CCV/CCS and after every 10 samples? If no, reject (R) data.	X			
2) Absolute value <3xIDL? If no, -if sample result <10x CB result, qualify affected analyte(s) in associated samples with CB; -if sample result >10xCB result, no qualification.	X			
Method Blank Included in Lab Package?	X			
1) Method blank analyzed with each preparation batch or every SDG, or 1/20 samples? If no, reject (R) data, except no aqueous MB required for FB/EB if only soil samples were analyzed.	X			
2) Method blank analyzed 1/20 samples? If - MB 1/25, J sample results from 21-25; -MB >1/25, R sample results after 25th sample.	X			
3) MB results nondetect? If no, -sample result <3xMB, negate UB; -sample result>3xMB but <10xMB, JB; -sample result >10xMB, no qualification.	X			
4) Negative MB result reported? If yes, -Positive sample result<10xMB, qualify estimated, biased low (J); -Non-detect sample result , qualify UJ, may be false non-detect.		X		
Field Blanks/Equipment Blanks Included in Lab Package?		X		
1) FB/EB result non-detect? If no, -sample result <3xFB/EB, negate U; -sample result>3xFB/EB but <10xMB, J; -sample result >10xFB/EB, no qualification.			X	
ICP Interference Check Sample (ICS) included in Lab Package?	X			
1) Analyzed at beginning of analytical run? If no, reject (R) data.	X			
2) %R criteria met? (80-120%) If no, %R>120%, no qualification if sample result non-detect; %R between 121-150%, J positive results, biased high; %R between 50-79%, J/UJ results, biased low; %R<50% or >150%, reject (R) result	X			
3) Spot check accuracy of %Rs	X			
Matrix Spike/Matrix Spike Duplicate Data Included in Lab Package?	X			
1) MS/MSD %R (75-125%R) and RPD (+20%) criteria met? -%R>125% J positive results for affected analyte(s) for all samples in the same batch/SDG, accept NDs; -%R<75% J/UJ for affected analyte(s) for all samples in the same batch/SDG; -		X		The MS/MSD was performed on a site sample from another SDG; antimony recoveries were <75% for both the MS and MSD

ITEM	YES	NO	N/A	COMMENTS
RPD outside +20% J positive results for affected analyte(s) for all samples in the same batch/SDG, accept NDs.				
2) Was a sample spiked at the frequency of 1/batch or 20 samples?	X			
3) Was the MS performed on a site sample?	X			
4) Was the MS performed on a FB/EB or TB? If yes, J all sample data.		X		
Post Digestion Spike		X		
1) %R criteria met? (75-125%R) - %R>125% J positive results for affected analyte(s) for all samples in the same batch/SDG, accept NDs.; - %R<75% J/UJ affected analyte(s) for all samples in the same batch/SDG.			X	
2) Was the spike performed on a FB/EB or TB? If yes, J all sample data.			X	
3) Was a sample spiked at the frequency of 1/batch or 20 samples?			X	
Laboratory Duplicate Data Included in Lab Package?		X		
Aqueous - If RPD is >20% but <100% and sample and duplicate results are >5x the QL, estimate (J) results >the QL. - If RPD is >100%, reject R results >/= the QL.- If sample and/or duplicate is <5x the QL and absolute difference is > the QL, estimate (J) positive results <5x the QL and nondetects (UJ).- If absolute difference is >2x the QL, reject R non-detects and positive results <5x the QL.			X	
Soil - If RPD is >35% but <120% and sample and duplicate results are >5x the QL, estimate (J) results > the QL. - If RPD is >120%, reject results > the QL. - If sample and/or duplicate is <5x the QL and absolute difference is >2x the QL, estimate (J) positive results <5x QL and nondetects (UJ). - If absolute difference is >4x the QL, reject nondetects and positive results <5x QL.			X	
Was a Laboratory Control Sample (LCS) Included in Lab Package?	X			
1) LCS %R criteria met? (80-120%R). If no, J/UJ all affected analytes(s) for all samples in the same batch/SDG.	X			
2) Was an LCS analyzed at the frequency of 1/batch or 20 samples? If no, J/UJ affected analyte(s) for all samples in the same batch/SDG.	X			
Serial Dilution				

ITEM	YES	NO	N/A	COMMENTS
1) %D(<10%R) criteria met? - If analyte concentration >25xIDL (7000) or >10xIDL (6010) and %D >10% J positive results for affected analyte(s) for all samples in the same batch/SDG, accept NDs.	X			A site sample from another SDG was used for the serial dilution
2) Was the frequency 1/batch or 20 samples?	X			
3) Was a site sample used?	X			
4) Was a FB/EB or TB used? If yes, J all sample data.		X		
5) Spot check accuracy of %Ds.	X			
Field Duplicate Data included in Lab Package?		X		
Aqueous - If RPD is >20% but <100% and sample and field duplicate results are >5x the QL, estimate (J) results > the QL. - If RPD is >100%, reject R results >/= the QL. - If sample and/or duplicate is <5x the QL and absolute difference is > the QL, estimate (J) positive results <5x the QL and nondetects (UJ). - If absolute difference is >2x the QL, reject R non-detects and positive results <5x the QL.			X	
Soil - If RPD is >35% but <120% and sample and field duplicate results are >5x the QL, estimate (J) results > the QL. - If RPD is >120%, reject results > the QL. - If sample and/or duplicate is <5x the QL and absolute difference is >2x the QL, estimate (J) positive results <5x QL and nondetects (UJ). - If absolute difference is >4x the QL, reject nondetects and positive results <5x QL.			X	
Percent Solids data included in Lab Package?	X			
1) %Solids criteria (Reg 2 criteria) met? (>/=50%)	X			

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Data Validation Report

Project:	Metropolitan Family Health Network Property - Site 186 Borings	
Laboratory:	Accutest, Dayton, NJ	
Laboratory Job No.:	JB47619T	
Analysis/Method:	Metals by ICP-AES/ SW846-6010	
Validation Level:	Limited	
Site Location/Address:	PPG Site 186 - Jersey City, NJ	
AECOM Project No:	60238842.NGA.186.RAR	
Prepared by:	Helen Jones Parry /AECOM	Completed on: 02/24/2014
Reviewed by:	Mary Kozik /AECOM	File Name: JB47619T 2014-02-24 DV Report-F

Introduction

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

- NJDEP Office of Data Quality SOP 5.A.16, Rev 1 (May 2002), Quality Assurance Data Validation of Analytical Deliverables for Inorganics (based on USEPA SW-846 Methods);

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

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

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

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

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

RA: The sample result was rejected due to NJ specific data validation QC requirements; however, the result is usable for project objectives. Refer to the Data Quality and Usability section in this data validation report for further discussion.

Sample Information

The samples listed below were collected by AECOM on September 17, 2013 as part of the sampling program at the Metropolitan Family Health Network property, Site 186, 947 Garfield Avenue, Jersey City, New Jersey. Only the samples that were validated are listed below:

Field ID	Laboratory ID	Matrix	Fraction
186-Z3B-6.0-6.5	JB47619-1T	Soil	Metals

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

General Comments

The data package was complete. Quality control (QC) issues identified during validation are discussed below. Refer to the Soil Target Analyte Summary Hitlist in Attachment A for a listing of all detected results, qualified results, and associated qualifications, where applicable. The nonconformances for each section discussed below are presented in Attachment B.

TAL Metals

MS Results

The laboratory selected sample 186-Z3B-6.0-6.5 as the source for the MS analysis.
The MS and MSD recoveries for antimony were below the laboratory specific QC requirements and were qualified as estimated (J/UJ) with the potential for low bias in sample 186-Z3B-6.0-6.5.
Qualified sample results for MS recoveries that did not meet the QC requirements are presented in the Metal Soil Target Analyte Summary Hit List in Attachment A and in the nonconformance table in Attachment B.

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.

Sample results qualified due to low MS recoveries are usable as estimated values with the potential for low bias.

Sample results reported between the MDL and RL are usable as estimated values.

ATTACHMENTS

Attachment A: Target Analyte Summary Hitlists(s)

Attachment B: Data Validation Report Form

Attachment A

Target Analyte Summary Hitlist(s)

Soil Target Analyte Summary Hit List (TAL Metals)

Site Name Metropolitan Family Health Network Property, Site 186 Borings
Sampling Date September 17, 2013
Lab Name/ID Accutest, Dayton, NJ
SDG No JB47619T
Sample Matrix Soil
Trip Blank ID NA
Field Blank ID NA

Field Sample ID	Lab Sample ID	Analyte	Method Blank (mg/kg)	Laboratory Sample Result (mg/kg)	Validation Sample Result (mg/kg)	RL (mg/kg)	Quality Assurance Decision	NJDEP Validation Footnote
186-Z3B-6.0-6.5	JB47619-1T	ANTIMONY	U	0.57B	0.57J	2.0	QUALIFY	15, 23
186-Z3B-6.0-6.5	JB47619-1T	CHROMIUM	U	15.5	15.5	1.0		
186-Z3B-6.0-6.5	JB47619-1T	NICKEL	U	12.6	12.6	4.1		
186-Z3B-6.0-6.5	JB47619-1T	VANADIUM	U	21.8	21.8	5.1		

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 Footnotes

1. The value reported is less than or equal to 3x the value in the method 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) but less than ten (10) times the value in the method blank and is considered "real". However, the reported value must be quantitatively qualified "J" due to the method blank contamination. The "B" qualifier alerts the end-user to the presence of this analyte in the method blank.
3. The value reported is less than or equal to 3x 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 3x but less than ten (10) the value in the trip/field blank 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 metal value was qualified because the Calibration Verification Standard was not within the recovery range (90-110 percent).
8. In the MS/MSD Sample Analysis, this analyte fell outside the control limits of 20% RPD. Therefore, the result was qualified.
9. This analyte was qualified because the laboratory performed the MS/MSD Analysis on a field blank.
10. The reported analyte was qualified because the associated Calibration Blank result was greater than the MDL.
11. The reported value was qualified because serial dilution analysis was not within QC limit of 10% D.
12. This analyte is rejected because the laboratory exceeded the holding time for digestion and analysis.
13. The laboratory subtracted the method blank from the sample result. The reviewer's calculation has added the method blank result to the reported concentration.
14. The photocopy submitted is illegible. Therefore, the QA reviewer cannot read the laboratory's reported concentration result.
15. The reported or nondetected value was qualified because the MS/MSD spike recovery was less than 75 percent.
16. The reported value was qualified because the MS/MSD spike recovery was greater than 125 percent.
17. The non-detected value was qualified (UJ) because the MS/MSD spike recovery was less than 75 percent. The possibility of a false negative exists.
18. The reported values were qualified because the laboratory duplicate exceeded 35 percent RPD or the absolute difference exceeded two times the reporting limit for sample result less than 5 times the reporting limit.
19. The reported value was qualified because the field duplicate exceeded 35 percent RPD.
20. The reported value was qualified because the LCS recovery was less than 80 percent.
21. The reported value was qualified because the sample moisture content was greater than 50 percent.
22. The reported value was rejected because the field duplicate absolute difference was greater than 4 times the RL or the RPD was greater than 120%.
23. The reported result was greater than the MDL but less than the RL and qualified (J) as estimated by the laboratory.

24. The reported value was qualified because the field duplicate exceeded 20 percent RPD or the absolute difference exceeded two times the reporting limit for sample result less than 5 times the reporting limit.
25. The reported value was qualified because the LCS recovery was greater than 120 percent.

Attachment B

Data Validation Report Form

Client Name: PPG Industries	**Project Number:** 60238842.NGA.186.RAR
Site Location: Metropolitan Family Health Network Property Site 186 Borings, Jersey City, NJ	**Project Manager:** Al Lopilato
Laboratory: Accutest, Dayton, NJ	**Type of Validation:** Limited
Laboratory Job No: JB47619T	**Date Checked:** 2/24/14
Validator: Helen Jones Parry	**Peer:** Mary Kozik

ITEM	YES	NO	N/A	COMMENTS
Sample results included?	X			
Reporting Limits met project requirements?	X			
Field I.D. included?	X			
Laboratory I.D. included?	X			
Sample matrix included?	X			
Sample receipt temperature 2-6C?	X			
Signed COCs included?	X			
Date of sample collection included?	X			
Date of sample digestion included?	X			
Date of analysis included?	X			
Holding time met QC criteria? (Metals -180 days from sample collection; Mercury - 28 days from sample collection. If HT exceeded by 10 days R all results.	X			
Method reference included?	X			
Laboratory Case Narrative included?	X			
Definitions: MDL - Method Detection Limit; %R - Percent Recovery; RL - Reporting Limit; RPD - Relative Percent Difference; RSD - Relative Standard Deviation :Corr - Correlation Coefficient.				

ITEM	YES	NO	N/A	COMMENTS
Sample dilutions?		X		
Initial calibration documentation included in lab package?	X			
1) Calibrate daily or each time instrument is set up.	X			
2) ICP (6010) -Blank plus 1 standard? If no, reject (R) data.	X			
3) Hg (7470/7471) -Blank plus 5 standards? If no, reject (R) data.			X	
Initial Calibration Verification Standard (ICV) for ICP (6010) and Initial Calibration Check Standard (ICCS) for Hg (7470/7471) included in lab package?	X			
1) Analyzed immediately after initial calibration? If no, reject (R) data.	X			
2) %R criteria met? (90-110%). If no, J positive results for affected analyte(s) if %R between 80-89% and 111-120% and indicate bias; UJ non-detect results for affected analyte(s) if %R between 80-89% , and R all data for affected analyte(s) if %R <80% or >120%.	X			
3) Spot check ICV/ICCS results for several analytes.	X			
Continuing Calibration Verification Standard (CCV) for ICP (6010) and Calibration Check Standard (CCS) for Hg (7470/7471) included in Lab Package?	X			
1) Analyzed immediately after each ICV/ICC/CB and after every 10 samples? If no, reject (R) data.	X			
2) CCS and CCV from independent source and at mid level of calibration curve. If no, reject (R) data.	X			
3) %R criteria met? (90-110%R). If no, J positive results for affected analyte(s) if %R between 80-89% and 111-120% and indicate bias; UJ non-detect results for affected analyte(s) if %R between 80-89% and R all data for affected analyte(s) if %R <80% or >120%.	X			
4) Spot check CCV/CCS results for several analytes.	X			
Low Calibration Standard (CRI) included in Lab Package?	X			
1) %R criteria met? - 50-150% for Co, Mn, Zn, by ICP-MS; Pb, Tl by 6010; 70-130% all others. If no, refer to ILM05.4 NJ SOP 5.A.2 for actions.	X			
Calibration Blanks				
1) Analyzed after daily calibration and after each ICV/ICC/CCV/CCS and after every 10 samples? If no, reject	X			

ITEM	YES	NO	N/A	COMMENTS
(R) data.				
2) Absolute value <3xIDL? If no, -if sample result <10x CB result, qualify affected analyte(s) in associated samples with CB; -if sample result >10xCB result, no qualification.	X			
Method Blank Included in Lab Package?	X			
1) Method blank analyzed with each preparation batch or every SDG, or 1/20 samples? If no, reject (R) data, except no aqueous MB required for FB/EB if only soil samples were analyzed.	X			
2) Method blank analyzed 1/20 samples? If - MB 1/25, J sample results from 21-25; -MB >1/25, R sample results after 25th sample.	X			
3) MB results nondetect? If no, -sample result <3xMB, negate UB; -sample result>3xMB but <10xMB, JB; -sample result >10xMB, no qualification.	X			
4) Negative MB result reported? If yes, -Positive sample result<10xMB, qualify estimated, biased low (J); -Non-detect sample result , qualify UJ, may be false non-detect.		X		
Field Blanks/Equipment Blanks Included in Lab Package?		X		
1) FB/EB result non-detect? If no, -sample result <3xFB/EB, negate U; -sample result>3xFB/EB but <10xMB, J; -sample result >10xFB/EB, no qualification.			X	
ICP Interference Check Sample (ICS) included in Lab Package?	X			
1) Analyzed at beginning of analytical run? If no, reject (R) data.	X			
2) %R criteria met? (80-120%) If no, %R>120%, no qualification if sample result non-detect; %R between 121-150%, J positive results, biased high; %R between 50-79%, J/UJ results, biased low; %R<50% or >150%, reject (R) result	X			
3) Spot check accuracy of %Rs	X			
Matrix Spike/Matrix Spike Duplicate Data Included in Lab Package?	X			
1) MS/MSD %R (75-125%R) and RPD (+20%) criteria met? - %R>125% J positive results for affected analyte(s) for all samples in the same batch/SDG, accept NDs; -%R<75% J/UJ for affected analyte(s) for all samples in the same batch/SDG; -RPD outside +20% J positive results for affected analyte(s) for all samples in the same batch/SDG, accept NDs.		X		See table of nonconformances.
2) Was a sample spiked at the frequency of 1/batch or 20	X			

ITEM	YES	NO	N/A	COMMENTS
samples?				
3) Was the MS performed on a site sample?	X			
4) Was the MS performed on a FB/EB or TB? If yes, J all sample data.		X		
Post Digestion Spike		X		
1) %R criteria met? (75-125%R) - %R>125% J positive results for affected analyte(s) for all samples in the same batch/SDG, accept NDs.; - %R<75% J/UJ affected analyte(s) for all samples in the same batch/SDG.			X	
2) Was the spike performed on a FB/EB or TB? If yes, J all sample data.			X	
3) Was a sample spiked at the frequency of 1/batch or 20 samples?			X	
Laboratory Duplicate Data Included in Lab Package?		X		
Aqueous - If RPD is >20% but <100% and sample and duplicate results are >5x the QL, estimate (J) results >the QL. - If RPD is >100%, reject R results >/= the QL.- If sample and/or duplicate is <5x the QL and absolute difference is > the QL, estimate (J) positive results <5x the QL and nondetects (UJ).- If absolute difference is >2x the QL, reject R non-detects and positive results <5x the QL.			X	
Soil - If RPD is >35% but <120% and sample and duplicate results are >5x the QL, estimate (J) results > the QL. - If RPD is >120%, reject results > the QL. - If sample and/or duplicate is <5x the QL and absolute difference is >2x the QL, estimate (J) positive results <5x QL and nondetects (UJ). - If absolute difference is >4x the QL, reject nondetects and positive results <5x QL.			X	
Was a Laboratory Control Sample (LCS) Included in Lab Package?	X			
1) LCS %R criteria met? (80-120%R). If no, J/UJ all affected analytes(s) for all samples in the same batch/SDG.	X			
2) Was an LCS analyzed at the frequency of 1/batch or 20 samples? If no, J/UJ affected analyte(s) for all samples in the same batch/SDG.	X			
Serial Dilution				
1) %D(<10%R) criteria met? - If analyte concentration >25xIDL (7000) or >10xIDL (6010) and %D >10% J positive results for affected analyte(s) for all samples in the same batch/SDG, accept NDs.	X			

ITEM	YES	NO	N/A	COMMENTS
2) Was the frequency 1/batch or 20 samples?	X			
3) Was a site sample used?	X			
4) Was a FB/EB or TB used? If yes, J all sample data.		X		
5) Spot check accuracy of %Ds.	X			
Field Duplicate Data included in Lab Package?		X		
Aqueous - If RPD is >20% but <100% and sample and field duplicate results are >5x the QL, estimate (J) results > the QL. - If RPD is >100%, reject R results >/= the QL. - If sample and/or duplicate is <5x the QL and absolute difference is > the QL, estimate (J) positive results <5x the QL and nondetects (UJ). - If absolute difference is >2x the QL, reject R non-detects and positive results <5x the QL.			X	
Soil - If RPD is >35% but <120% and sample and field duplicate results are >5x the QL, estimate (J) results > the QL. - If RPD is >120%, reject results > the QL. - If sample and/or duplicate is <5x the QL and absolute difference is >2x the QL, estimate (J) positive results <5x QL and nondetects (UJ). - If absolute difference is >4x the QL, reject nondetects and positive results <5x QL.			X	
Percent Solids data included in Lab Package?	X			
1) %Solids criteria (Reg 2 criteria) met? (>/=50%)	X			

Matrix Spikes

Sample ID	Compound	Analysis Batch	Matrix Spike	Matrix Spike Duplicate	Lower Limit	Upper Limit	RPD	RPD Limit
186-Z3B-6.0-6.5	ANTIMONY	MP77647	50.6	52.7	75	125	1.5	20

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Data Validation Report

Project:	Metropolitan Family Health Network Property - Site 186 Borings	
Laboratory:	Accutest, Dayton, NJ	
Laboratory Job No.:	JB45361T	
Analysis/Method:	Metals by ICP-AES/ SW846-6010	
Validation Level:	Limited	
Site Location/Address:	PPG Site 186 - Jersey City, NJ	
AECOM Project No:	60238842.NGA.186.RAR	
Prepared by:	Helen Jones Parry /AECOM	Completed on: 02/21/2014
Reviewed by:	Mary Kozik /AECOM	File Name: JB45361T 2014-02-21 DV Report-F

Introduction

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

- NJDEP Office of Data Quality SOP 5.A.16, Rev 1 (May 2002), Quality Assurance Data Validation of Analytical Deliverables for Inorganics (based on USEPA SW-846 Methods);

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

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

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

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

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

RA: The sample result was rejected due to NJ specific data validation QC requirements; however, the result is usable for project objectives. Refer to the Data Quality and Usability section in this data validation report for further discussion.

Sample Information

The samples listed below were collected by AECOM on August 21, 2013 at the Metropolitan Family Health Network Property - PPG Site 186 - Jersey City, NJ. Only the samples and parameters listed below were validated:

Field ID	Laboratory ID	Matrix	Fraction
186-Z1B-3.0-3.5	JB45361-3T	Soil	Metals
186-Z2B-4.0-4.5	JB45361-4T	Soil	Metals

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

General Comments

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

TAL Metals

MS Results

The laboratory selected sample 186-Z2B-4.0-4.5 as the source for the MS analysis.

The MS and MSD recoveries for antimony were below the laboratory specific QC requirements and were qualified as estimated (J/UJ) with the potential for low bias in all samples within the SDG. The MS recovery for chromium exceeded the laboratory specific QC requirements. In addition, the RPD between MS and MSD recoveries for chromium exceeded 20%. All chromium results in the SDG were qualified as estimated (J/UJ) due to possible sample heterogeneity with the potential for high bias.

Qualified sample results for MS recoveries that did not meet the QC requirements are presented in the Metal Soil Target Analyte Summary Hit List in Attachment A and in the nonconformance table in Attachment B.

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.

Sample results qualified due to poor MS/MSD precision are usable as estimated values with an unknown directional bias.

Sample results qualified due to low MS recoveries are usable as estimated values with the potential for low bias.

Sample results qualified due to high MS recoveries are usable as estimated values with the potential for high bias.

ATTACHMENTS

Attachment A: Target Analyte Summary Hitlists(s)

Attachment B: Data Validation Report Form

Attachment A

Target Analyte Summary Hitlist(s)

Soil Target Analyte Summary Hit List (TAL Metals)

Site Name Metropolitan Family Health Network Property - Site 186 Borings
Sampling Date August 21, 2013
Lab Name/ID Accutest, Dayton, NJ
SDG No JB45361T
Sample Matrix Soil
Trip Blank ID NA
Field Blank ID NA

Field Sample ID	Lab Sample ID	Analyte	Method Blank (mg/kg)	Laboratory Sample Result (mg/kg)	Validation Sample Result (mg/kg)	RL (mg/kg)	Quality Assurance Decision	NJDEP Validation Footnote
186-Z1B-3.0-3.5	JB45361-3T	CHROMIUM	U	22.3	22.3J	1.2	QUALIFY	8, 16
186-Z1B-3.0-3.5	JB45361-3T	NICKEL	U	12.6	12.6	4.6		
186-Z1B-3.0-3.5	JB45361-3T	VANADIUM	U	28.4	28.4	5.8		
186-Z2B-4.0-4.5	JB45361-4T	CHROMIUM	U	37.1	37.1J	1.0	QUALIFY	8, 16
186-Z2B-4.0-4.5	JB45361-4T	NICKEL	U	17.0	17.0	4.0		
186-Z2B-4.0-4.5	JB45361-4T	VANADIUM	U	27.0	27.0	5.0		

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 Footnotes

1. The value reported is less than or equal to 3x the value in the method 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) but less than ten (10) times the value in the method blank and is considered "real". However, the reported value must be quantitatively qualified "J" due to the method blank contamination. The "B" qualifier alerts the end-user to the presence of this analyte in the method blank.
3. The value reported is less than or equal to 3x 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 3x but less than ten (10) the value in the trip/field blank 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 metal value was qualified because the Calibration Verification Standard was not within the recovery range (90-110 percent).
8. In the MS/MSD Sample Analysis, this analyte fell outside the control limits of 20% RPD. Therefore, the result was qualified.
9. This analyte was qualified because the laboratory performed the MS/MSD Analysis on a field blank.
10. The reported analyte was qualified because the associated Calibration Blank result was greater than the MDL.
11. The reported value was qualified because serial dilution analysis was not within QC limit of 10% D.
12. This analyte is rejected because the laboratory exceeded the holding time for digestion and analysis.
13. The laboratory subtracted the method blank from the sample result. The reviewer's calculation has added the method blank result to the reported concentration.
14. The photocopy submitted is illegible. Therefore, the QA reviewer cannot read the laboratory's reported concentration result.
15. The reported or nondetected value was qualified because the MS/MSD spike recovery was less than 75 percent.
16. The reported value was qualified because the MS/MSD spike recovery was greater than 125 percent.
17. The non-detected value was qualified (UJ) because the MS/MSD spike recovery was less than 75 percent. The possibility of a false negative exists.
18. The reported values were qualified because the laboratory duplicate exceeded 35 percent RPD or the absolute difference exceeded two times the reporting limit for sample result less than 5 times the reporting limit.
19. The reported value was qualified because the field duplicate exceeded 35 percent RPD.
20. The reported value was qualified because the LCS recovery was less than 80 percent.
21. The reported value was qualified because the sample moisture content was greater than 50 percent.
22. The reported value was rejected because the field duplicate absolute difference was greater than 4 times the RL or the RPD was greater than 120%.

23. The reported result was greater than the MDL but less than the RL and qualified (J) as estimated by the laboratory.
24. The reported value was qualified because the field duplicate exceeded 20 percent RPD or the absolute difference exceeded two times the reporting limit for sample result less than 5 times the reporting limit.
25. The reported value was qualified because the LCS recovery was greater than 120 percent.

Attachment B

Data Validation Report Form

Client Name: PPG Industries	**Project Number:** 60238842.NGA.186.RAR
Site Location: Metropolitan Family Health Network Property - Site 186 Borings	**Project Manager:** Al LoPilato
Laboratory: Accutest, Dayton, NJ	**Type of Validation:** Limited
Laboratory Job No: JB45361T	**Date Checked:** 2/21/14
Validator: Helen Jones Parry	**Peer:** Mary Kozik

ITEM	YES	NO	N/A	COMMENTS
Sample results included?	X			
Reporting Limits met project requirements?	X			
Field I.D. included?	X			
Laboratory I.D. included?	X			
Sample matrix included?	X			
Sample receipt temperature 2-6C?	X			
Signed COCs included?	X			
Date of sample collection included?	X			
Date of sample digestion included?	X			
Date of analysis included?	X			
Holding time met QC criteria? (Metals -180 days from sample collection; Mercury - 28 days from sample collection. If HT exceeded by 10 days R all results.	X			
Method reference included?	X			
Laboratory Case Narrative included?	X			
Definitions: MDL - Method Detection Limit; %R - Percent Recovery; RL - Reporting Limit; RPD - Relative Percent Difference; RSD - Relative Standard Deviation :Corr - Correlation Coefficient.				

ITEM	YES	NO	N/A	COMMENTS
Sample dilutions?		X		
Initial calibration documentation included in lab package?	X			
1) Calibrate daily or each time instrument is set up.	X			
2) ICP (6010) -Blank plus 1 standard? If no, reject (R) data.	X			
3) Hg (7470/7471) -Blank plus 5 standards? If no, reject (R) data.			X	
Initial Calibration Verification Standard (ICV) for ICP (6010) and Initial Calibration Check Standard (ICCS) for Hg (7470/7471) included in lab package?	X			
1) Analyzed immediately after initial calibration? If no, reject (R) data.	X			
2) %R criteria met? (90-110%). If no, J positive results for affected analyte(s) if %R between 80-89% and 111-120% and indicate bias; UJ non-detect results for affected analyte(s) if %R between 80-89% , and R all data for affected analyte(s) if %R <80% or >120%.	X			
3) Spot check ICV/ICCS results for several analytes.	X			
Continuing Calibration Verification Standard (CCV) for ICP (6010) and Calibration Check Standard (CCS) for Hg (7470/7471) included in Lab Package?	X			
1) Analyzed immediately after each ICV/ICC/CB and after every 10 samples? If no, reject (R) data.	X			
2) CCS and CCV from independent source and at mid-level of calibration curve. If no, reject (R) data.	X			
3) %R criteria met? (90-110%R). If no, J positive results for affected analyte(s) if %R between 80-89% and 111-120% and indicate bias; UJ non-detect results for affected analyte(s) if %R between 80-89% and R all data for affected analyte(s) if %R <80% or >120%.	X			
4) Spot check CCV/CCS results for several analytes.	X			
Low Calibration Standard (CRI) included in Lab Package?	X			
1) %R criteria met? - 50-150% for Co, Mn, Zn, by ICP-MS; Pb, Tl by 6010; 70-130% all others. If no, refer to ILM05.4 NJ SOP 5.A.2 for actions.	X			
Calibration Blanks				
1) Analyzed after daily calibration and after each ICV/ICC/CCV/CCS and after every 10 samples? If no, reject	X			

ITEM	YES	NO	N/A	COMMENTS
(R) data.				
2) Absolute value <3xIDL? If no, -if sample result <10x CB result, qualify affected analyte(s) in associated samples with CB; -if sample result >10xCB result, no qualification.	X			
Method Blank Included in Lab Package?	X			
1) Method blank analyzed with each preparation batch or every SDG, or 1/20 samples? If no, reject (R) data, except no aqueous MB required for FB/EB if only soil samples were analyzed.	X			
2) Method blank analyzed 1/20 samples? If - MB 1/25, J sample results from 21-25; -MB >1/25, R sample results after 25th sample.	X			
3) MB results nondetect? If no, -sample result <3xMB, negate UB; -sample result>3xMB but <10xMB, JB; -sample result >10xMB, no qualification.	X			
4) Negative MB result reported? If yes, -Positive sample result<10xMB, qualify estimated, biased low (J); -Non-detect sample result , qualify UJ, may be false non-detect.		X		
Field Blanks/Equipment Blanks Included in Lab Package?		X		
1) FB/EB result non-detect? If no, -sample result <3xFB/EB, negate U; -sample result>3xFB/EB but <10xMB, J; -sample result >10xFB/EB, no qualification.			X	
ICP Interference Check Sample (ICS) included in Lab Package?	X			
1) Analyzed at beginning of analytical run? If no, reject (R) data.	X			
2) %R criteria met? (80-120%) If no, %R>120%, no qualification if sample result non-detect; %R between 121-150%, J positive results, biased high; %R between 50-79%, J/UJ results, biased low; %R<50% or >150%, reject (R) result	X			
3) Spot check accuracy of %Rs	X			
Matrix Spike/Matrix Spike Duplicate Data Included in Lab Package?	X			
1) MS/MSD %R (75-125%R) and RPD (+20%) criteria met? - %R>125% J positive results for affected analyte(s) for all samples in the same batch/SDG, accept NDs; -%R<75% J/UJ for affected analyte(s) for all samples in the same batch/SDG; -RPD outside +20% J positive results for affected analyte(s) for all samples in the same batch/SDG, accept NDs.		X		See table of nonconformances.
2) Was a sample spiked at the frequency of 1/batch or 20	X			

ITEM	YES	NO	N/A	COMMENTS
samples?				
3) Was the MS performed on a site sample?	X			
4) Was the MS performed on a FB/EB or TB? If yes, J all sample data.		X		
Post Digestion Spike		X		
1) %R criteria met? (75-125%R) - %R>125% J positive results for affected analyte(s) for all samples in the same batch/SDG, accept NDs.; - %R<75% J/UJ affected analyte(s) for all samples in the same batch/SDG.			X	
2) Was the spike performed on a FB/EB or TB? If yes, J all sample data.			X	
3) Was a sample spiked at the frequency of 1/batch or 20 samples?			X	
Laboratory Duplicate Data Included in Lab Package?		X		
Aqueous - If RPD is >20% but <100% and sample and duplicate results are >5x the QL, estimate (J) results >the QL. - If RPD is >100%, reject R results >/= the QL.- If sample and/or duplicate is <5x the QL and absolute difference is > the QL, estimate (J) positive results <5x the QL and nondetects (UJ).- If absolute difference is >2x the QL, reject R non-detects and positive results <5x the QL.			X	
Soil - If RPD is >35% but <120% and sample and duplicate results are >5x the QL, estimate (J) results > the QL. - If RPD is >120%, reject results > the QL. - If sample and/or duplicate is <5x the QL and absolute difference is >2x the QL, estimate (J) positive results <5x QL and nondetects (UJ). - If absolute difference is >4x the QL, reject nondetects and positive results <5x QL.			X	
Was a Laboratory Control Sample (LCS) Included in Lab Package?	X			
1) LCS %R criteria met? (80-120%R). If no, J/UJ all affected analytes(s) for all samples in the same batch/SDG.	X			
2) Was an LCS analyzed at the frequency of 1/batch or 20 samples? If no, J/UJ affected analyte(s) for all samples in the same batch/SDG.	X			
Serial Dilution				
1) %D(<10%R) criteria met? - If analyte concentration >25xIDL (7000) or >10xIDL (6010) and %D >10% J positive results for affected analyte(s) for all samples in the same batch/SDG, accept NDs.	X			

ITEM	YES	NO	N/A	COMMENTS
2) Was the frequency 1/batch or 20 samples?	X			
3) Was a site sample used?	X			
4) Was a FB/EB or TB used? If yes, J all sample data.		X		
5) Spot check accuracy of %Ds.	X			
Field Duplicate Data included in Lab Package?		X		
Aqueous - If RPD is >20% but <100% and sample and field duplicate results are >5x the QL, estimate (J) results > the QL. - If RPD is >100%, reject R results >/= the QL. - If sample and/or duplicate is <5x the QL and absolute difference is > the QL, estimate (J) positive results <5x the QL and nondetects (UJ). - If absolute difference is >2x the QL, reject R non-detects and positive results <5x the QL.			X	
Soil - If RPD is >35% but <120% and sample and field duplicate results are >5x the QL, estimate (J) results > the QL. - If RPD is >120%, reject results > the QL. - If sample and/or duplicate is <5x the QL and absolute difference is >2x the QL, estimate (J) positive results <5x QL and nondetects (UJ). - If absolute difference is >4x the QL, reject nondetects and positive results <5x QL.			X	
Percent Solids data included in Lab Package?	X			
1) %Solids criteria (Reg 2 criteria) met? (>/=50%)	X			

Matrix Spikes

Sample ID	Compound	Analysis Batch	Matrix Spike	Matrix Spike Duplicate	Lower Limit	Upper Limit	RPD	RPD Limit
186-Z2B-4.0-4.5	ANTIMONY	MP77642	53.8	54.2	75	125	3.7	20
186-Z2B-4.0-4.5	CHROMIUM	MP77642	168.3	86.2	75	125	39	20

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Data Validation Report

Project:	Metropolitan Family Health Network Property - Site 186 Borings	
Laboratory:	Accutest, Dayton, NJ	
Laboratory Job No.:	JB45245T	
Analysis/Method:	Metals by ICP-AES/ SW846-6010	
Validation Level:	Limited	
Site Location/Address:	PPG Site 186 - Jersey City, NJ	
AECOM Project No:	60238842.NGA.186.RAR	
Prepared by:	Helen Jones Parry /AECOM	Completed on: 02/24/2014
Reviewed by:	Mary Kozik /AECOM	File Name: JB45245T 2014-02-24 DV Report-F

Introduction

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

- NJDEP Office of Data Quality SOP 5.A.16, Rev 1 (May 2002), Quality Assurance Data Validation of Analytical Deliverables for Inorganics (based on USEPA SW-846 Methods);

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

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

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

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

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

RA: The sample result was rejected due to NJ specific data validation QC requirements; however, the result is usable for project objectives. Refer to the Data Quality and Usability section in this data validation report for further discussion.

Sample Information

The samples listed below were collected by AECOM on August 20, 2013 as part of the Metropolitan Family Health Network property, Site 186, 947 Garfield Avenue, Jersey City, New Jersey. Only the samples that were validated are listed below:

Field ID	Laboratory ID	Matrix	Fraction
186-Z2S-E-4.0-4.5	JB45245-2T	Soil	Metals
186-Z2S-E-4.0-4.5X (Field Duplicate)	JB45245-3T	Soil	Metals
186-Z2S-SE-2.0-2.5	JB45245-1T	Soil	Metals

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

General Comments

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

TAL Metals

MS Results

The laboratory selected sample 186-Z2S-SE-2.0-2.5 as the source for the MS analysis.

The MS and MSD recoveries for antimony were below the laboratory specific QC requirements and were qualified as estimated (J/UJ) with the potential for low bias in all samples in this SDG.

Qualified sample results for MS recoveries that did not meet the QC requirements are presented in the Metal Soil Target Analyte Summary Hit List in Attachment A and in the nonconformance table in Attachment B.

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.

Sample results qualified due to low MS recoveries are usable as estimated values with the potential for low bias.

Sample results reported between the MDL and RL are usable as estimated values.

ATTACHMENTS

Attachment A: Target Analyte Summary Hitlists(s)

Attachment B: Data Validation Report Form

Attachment A

Target Analyte Summary Hitlist(s)

Soil Target Analyte Summary Hit List (TAL Metals)

Site Name Metropolitan Family Health Network Property, Site 186 Borings
Sampling Date August 20, 2013
Lab Name/ID Accutest, Dayton, NJ
SDG No JB45245T
Sample Matrix Soil
Trip Blank ID NA
Field Blank ID NA

Field Sample ID	Lab Sample ID	Analyte	Method Blank (mg/kg)	Laboratory Sample Result (mg/kg)	Validation Sample Result (mg/kg)	RL (mg/kg)	Quality Assurance Decision	NJDEP Validation Footnote
186-Z2S-E-4.0-4.5	JB45245-2T	ANTIMONY	U	0.42B	0.42J	2.0	QUALIFY	15, 23
186-Z2S-E-4.0-4.5	JB45245-2T	CHROMIUM	U	87.8	87.8	0.99		
186-Z2S-E-4.0-4.5	JB45245-2T	NICKEL	U	21.5	21.5	3.9		
186-Z2S-E-4.0-4.5	JB45245-2T	THALLIUM	U	1.6B	1.6J	2.0	QUALIFY	23
186-Z2S-E-4.0-4.5	JB45245-2T	VANADIUM	U	37.4	37.4	9.9		
186-Z2S-E-4.0-4.5X	JB45245-3T	ANTIMONY	U	0.39B	0.39J	2.0	QUALIFY	15, 23
186-Z2S-E-4.0-4.5X	JB45245-3T	CHROMIUM	U	87.8	87.8	1.0		
186-Z2S-E-4.0-4.5X	JB45245-3T	NICKEL	U	23.1	23.1	4.1		
186-Z2S-E-4.0-4.5X	JB45245-3T	THALLIUM	U	0.59B	0.59J	1.0	QUALIFY	23
186-Z2S-E-4.0-4.5X	JB45245-3T	VANADIUM	U	38.1	38.1	5.1		
186-Z2S-SE-2.0-2.5	JB45245-1T	ANTIMONY	U	2.7	2.7J	2.2	QUALIFY	15
186-Z2S-SE-2.0-2.5	JB45245-1T	CHROMIUM	U	44.0	44.0	5.5		
186-Z2S-SE-2.0-2.5	JB45245-1T	NICKEL	U	19.1	19.1	4.4		
186-Z2S-SE-2.0-2.5	JB45245-1T	THALLIUM	U	1.6B	1.6J	5.5	QUALIFY	23
186-Z2S-SE-2.0-2.5	JB45245-1T	VANADIUM	U	35.2	35.2	27		

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 Footnotes

1. The value reported is less than or equal to 3x the value in the method 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) but less than ten (10) times the value in the method blank and is considered "real". However, the reported value must be quantitatively qualified "J" due to the method blank contamination. The "B" qualifier alerts the end-user to the presence of this analyte in the method blank.
3. The value reported is less than or equal to 3x 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 3x but less than ten (10) the value in the trip/field blank 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 metal value was qualified because the Calibration Verification Standard was not within the recovery range (90-110 percent).
8. In the MS/MSD Sample Analysis, this analyte fell outside the control limits of 20% RPD. Therefore, the result was qualified.
9. This analyte was qualified because the laboratory performed the MS/MSD Analysis on a field blank.
10. The reported analyte was qualified because the associated Calibration Blank result was greater than the MDL.
11. The reported value was qualified because serial dilution analysis was not within QC limit of 10% D.
12. This analyte is rejected because the laboratory exceeded the holding time for digestion and analysis.
13. The laboratory subtracted the method blank from the sample result. The reviewer's calculation has added the method blank result to the reported concentration.
14. The photocopy submitted is illegible. Therefore, the QA reviewer cannot read the laboratory's reported concentration result.
15. The reported or nondetected value was qualified because the MS/MSD spike recovery was less than 75 percent.

16. The reported value was qualified because the MS/MSD spike recovery was greater than 125 percent.
17. The non-detected value was qualified (UJ) because the MS/MSD spike recovery was less than 75 percent. The possibility of a false negative exists.
18. The reported values were qualified because the laboratory duplicate exceeded 35 percent RPD or the absolute difference exceeded two times the reporting limit for sample result less than 5 times the reporting limit.
19. The reported value was qualified because the field duplicate exceeded 35 percent RPD.
20. The reported value was qualified because the LCS recovery was less than 80 percent.
21. The reported value was qualified because the sample moisture content was greater than 50 percent.
22. The reported value was rejected because the field duplicate absolute difference was greater than 4 times the RL or the RPD was greater than 120%.
23. The reported result was greater than the MDL but less than the RL and qualified (J) as estimated by the laboratory.
24. The reported value was qualified because the field duplicate exceeded 20 percent RPD or the absolute difference exceeded two times the reporting limit for sample result less than 5 times the reporting limit.
25. The reported value was qualified because the LCS recovery was greater than 120 percent.

Attachment B

Data Validation Report Form

Client Name: PPG Industries	**Project Number:** 60238842.NGA.186.RAR
Site Location: Metropolitan Family Health Network Property Site 186 Borings, Jersey City, NJ	**Project Manager:** Al LoPilato
Laboratory: Accutest, Dayton, NJ	**Type of Validation:** Limited
Laboratory Job No: JB45245T	**Date Checked:** 2/24/14
Validator: Helen Jones Parry	**Peer:** Mary Kozik

ITEM	YES	NO	N/A	COMMENTS
Sample results included?	X			
Reporting Limits met project requirements?	X			
Field I.D. included?	X			
Laboratory I.D. included?	X			
Sample matrix included?	X			
Sample receipt temperature 2-6C?	X			
Signed COCs included?	X			
Date of sample collection included?	X			
Date of sample digestion included?	X			
Date of analysis included?	X			
Holding time met QC criteria? (Metals -180 days from sample collection; Mercury - 28 days from sample collection. If HT exceeded by 10 days R all results.	X			
Method reference included?	X			
Laboratory Case Narrative included?	X			
Definitions: MDL - Method Detection Limit; %R - Percent Recovery; RL - Reporting Limit; RPD - Relative Percent Difference; RSD - Relative Standard Deviation :Corr - Correlation Coefficient.				

ITEM	YES	NO	N/A	COMMENTS
Sample dilutions?	X			
Initial calibration documentation included in lab package?	X			
1) Calibrate daily or each time instrument is set up.	X			
2) ICP (6010) -Blank plus 1 standard? If no, reject (R) data.	X			
3) Hg (7470/7471) -Blank plus 5 standards? If no, reject (R) data.			X	
Initial Calibration Verification Standard (ICV) for ICP (6010) and Initial Calibration Check Standard (ICCS) for Hg (7470/7471) included in lab package?	X			
1) Analyzed immediately after initial calibration? If no, reject (R) data.	X			
2) %R criteria met? (90-110%). If no, J positive results for affected analyte(s) if %R between 80-89% and 111-120% and indicate bias; UJ non-detect results for affected analyte(s) if %R between 80-89% , and R all data for affected analyte(s) if %R <80% or >120%.	X			
3) Spot check ICV/ICCS results for several analytes.	X			
Continuing Calibration Verification Standard (CCV) for ICP (6010) and Calibration Check Standard (CCS) for Hg (7470/7471) included in Lab Package?	X			
1) Analyzed immediately after each ICV/ICC/CB and after every 10 samples? If no, reject (R) data.	X			
2) CCS and CCV from independent source and at mid level of calibration curve. If no, reject (R) data.	X			
3) %R criteria met? (90-110%R). If no, J positive results for affected analyte(s) if %R between 80-89% and 111-120% and indicate bias; UJ non-detect results for affected analyte(s) if %R between 80-89% and R all data for affected analyte(s) if %R <80% or >120%.	X			
4) Spot check CCV/CCS results for several analytes.	X			
Low Calibration Standard (CRI) included in Lab Package?	X			
1) %R criteria met? - 50-150% for Co, Mn, Zn, by ICP-MS; Pb, Tl by 6010; 70-130% all others. If no, refer to ILM05.4 NJ SOP 5.A.2 for actions.	X			
Calibration Blanks				
1) Analyzed after daily calibration and after each ICV/ICC/CCV/CCS and after every 10 samples? If no, reject	X			

ITEM	YES	NO	N/A	COMMENTS
(R) data.				
2) Absolute value <3xIDL? If no, -if sample result <10x CB result, qualify affected analyte(s) in associated samples with CB; -if sample result >10xCB result, no qualification.	X			
Method Blank Included in Lab Package?	X			
1) Method blank analyzed with each preparation batch or every SDG, or 1/20 samples? If no, reject (R) data, except no aqueous MB required for FB/EB if only soil samples were analyzed.	X			
2) Method blank analyzed 1/20 samples? If - MB 1/25, J sample results from 21-25; -MB >1/25, R sample results after 25th sample.	X			
3) MB results nondetect? If no, -sample result <3xMB, negate UB; -sample result>3xMB but <10xMB, JB; -sample result >10xMB, no qualification.	X			
4) Negative MB result reported? If yes, -Positive sample result<10xMB, qualify estimated, biased low (J); -Non-detect sample result , qualify UJ, may be false non-detect.		X		
Field Blanks/Equipment Blanks Included in Lab Package?		X		
1) FB/EB result non-detect? If no, -sample result <3xFB/EB, negate U; -sample result>3xFB/EB but <10xMB, J; -sample result >10xFB/EB, no qualification.			X	
ICP Interference Check Sample (ICS) included in Lab Package?	X			
1) Analyzed at beginning of analytical run? If no, reject (R) data.	X			
2) %R criteria met? (80-120%) If no, %R>120%, no qualification if sample result non-detect; %R between 121-150%, J positive results, biased high; %R between 50-79%, J/UJ results, biased low; %R<50% or >150%, reject (R) result	X			
3) Spot check accuracy of %Rs	X			
Matrix Spike/Matrix Spike Duplicate Data Included in Lab Package?	X			
1) MS/MSD %R (75-125%R) and RPD (+20%) criteria met? - %R>125% J positive results for affected analyte(s) for all samples in the same batch/SDG, accept NDs; -%R<75% J/UJ for affected analyte(s) for all samples in the same batch/SDG; -RPD outside +20% J positive results for affected analyte(s) for all samples in the same batch/SDG, accept NDs.		X		See table of nonconformances.
2) Was a sample spiked at the frequency of 1/batch or 20	X			

ITEM	YES	NO	N/A	COMMENTS
samples?				
3) Was the MS performed on a site sample?	X			
4) Was the MS performed on a FB/EB or TB? If yes, J all sample data.		X		
Post Digestion Spike		X		
1) %R criteria met? (75-125%R) - %R>125% J positive results for affected analyte(s) for all samples in the same batch/SDG, accept NDs.; - %R<75% J/UJ affected analyte(s) for all samples in the same batch/SDG.			X	
2) Was the spike performed on a FB/EB or TB? If yes, J all sample data.			X	
3) Was a sample spiked at the frequency of 1/batch or 20 samples?			X	
Laboratory Duplicate Data Included in Lab Package?		X		
Aqueous - If RPD is >20% but <100% and sample and duplicate results are >5x the QL, estimate (J) results >the QL. - If RPD is >100%, reject R results >/= the QL.- If sample and/or duplicate is <5x the QL and absolute difference is > the QL, estimate (J) positive results <5x the QL and nondetects (UJ).- If absolute difference is >2x the QL, reject R non-detects and positive results <5x the QL.			X	
Soil - If RPD is >35% but <120% and sample and duplicate results are >5x the QL, estimate (J) results > the QL. - If RPD is >120%, reject results > the QL. - If sample and/or duplicate is <5x the QL and absolute difference is >2x the QL, estimate (J) positive results <5x QL and nondetects (UJ). - If absolute difference is >4x the QL, reject nondetects and positive results <5x QL.			X	
Was a Laboratory Control Sample (LCS) Included in Lab Package?	X			
1) LCS %R criteria met? (80-120%R). If no, J/UJ all affected analytes(s) for all samples in the same batch/SDG.	X			
2) Was an LCS analyzed at the frequency of 1/batch or 20 samples? If no, J/UJ affected analyte(s) for all samples in the same batch/SDG.	X			
Serial Dilution				
1) %D(<10%R) criteria met? - If analyte concentration >25xIDL (7000) or >10xIDL (6010) and %D >10% J positive results for affected analyte(s) for all samples in the same batch/SDG, accept NDs.	X			

ITEM	YES	NO	N/A	COMMENTS
2) Was the frequency 1/batch or 20 samples?	X			
3) Was a site sample used?	X			
4) Was a FB/EB or TB used? If yes, J all sample data.		X		
5) Spot check accuracy of %Ds.	X			
Field Duplicate Data included in Lab Package?	X			
Aqueous - If RPD is >20% but <100% and sample and field duplicate results are >5x the QL, estimate (J) results > the QL. - If RPD is >100%, reject R results >/= the QL. - If sample and/or duplicate is <5x the QL and absolute difference is > the QL, estimate (J) positive results <5x the QL and nondetects (UJ). - If absolute difference is >2x the QL, reject R non-detects and positive results <5x the QL.			X	
Soil - If RPD is >35% but <120% and sample and field duplicate results are >5x the QL, estimate (J) results > the QL. - If RPD is >120%, reject results > the QL. - If sample and/or duplicate is <5x the QL and absolute difference is >2x the QL, estimate (J) positive results <5x QL and nondetects (UJ). - If absolute difference is >4x the QL, reject nondetects and positive results <5x QL.	X			
Percent Solids data included in Lab Package?	X			
1) %Solids criteria (Reg 2 criteria) met? (>/=50%)	X			

Matrix Spikes

Sample ID	Compound	Analysis Batch	Matrix Spike	Matrix Spike Duplicate	Lower Limit	Upper Limit	RPD	RPD Limit
186-Z2S-SE-2.0-2.5	ANTIMONY	MP77641	58.6	54.4	75	125	6.1	20