

**APPENDIX B**

**Data Validation Report**

## Data Validation Report

Project:	Metropolitan Family Health Network Property - Site 186 Borings	
Laboratory:	Accutest, Dayton, NJ	
Laboratory Job No.:	JB50090 and JB50090R	
Analysis/Method:	Hexavalent Chromium SW846 3060A/7196	
Validation Level:	Full	
Site Location/Address:	947 Garfield Avenue, Jersey City, NJ	
AECOM Project No:	60238842.NGA.186.RAM	
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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