Appendix I

AECOM 2012 Investigation Boring Logs and Data Validation Report

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Data Validation Report

Project:	PPG – Dennis Collins Park (1st Street Park)
Laboratory:	TestAmerica Laboratories, Inc., Edison, NJ
Laboratory Job No.:	J38115-1
Analysis/Method:	Hexavalent Chromium SW846 3060A/7196A Total Metals (Antimony, Chromium , Nickel, Thallium, Vanadium) SW846 3010A/3050B/6020
Validation Level:	Full (Hexavalent Chromium) Limited (Total Antimony, Chromium, Nickel, Thallium, and Vanadium)
Site Location/Address:	PPG Site 400 1st Street, Bayonne, NJ
AECOM Project Number:	60246594.DCP.RI.A
Prepared by: Paula DiMattei/AECOM	Completed on: April13, 2012
Reviewed by: Mary Kozik/AECOM	File Name: 2012-04-13 DV Report J38115-1_ID.docx

Introduction

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

Sample Information

The sample listed below was collected by AECOM on March 20, 2012 as part of the soil investigation for the Dennis Collins Park (1st Street Park) site in Bayonne, New Jersey.

Field ID	Laboratory ID	Matrix	Fraction
174-S121-0.0	460-38115-1	Soil	Hexavalent Chromium; Total Antimony, Chromium, Nickel, Thallium ,and Vanadium
174-S121-2.0	460-38115-2	Soil	Hexavalent Chromium; Total Antimony, Chromium, Nickel, Thallium, and Vanadium
174-S121-4.0	460-38115-3	Soil	Hexavalent Chromium; Total Antimony, Chromium, Nickel, Thallium, and Vanadium
174-S121-6.0	460-38115-4	Soil	Hexavalent Chromium; Total Antimony, Chromium, Nickel, Thallium, and Vanadium
174-S121-8.0	460-38115-5	Soil	Hexavalent Chromium; Total Antimony, Chromium, Nickel, Thallium, and Vanadium
174-S121-10.0	460-38115-6	Soil	Hexavalent Chromium; Total Antimony, Chromium, Nickel, Thallium, and Vanadium
174-S121-12.0	460-38115-7	Soil	Hexavalent Chromium; Total Antimony, Chromium, Nickel, Thallium, and Vanadium
174-S121-14.0	460-38115-8	Soil	Hexavalent Chromium; Total Antimony, Chromium, Nickel, Thallium, and Vanadium
174-S122-0.0	460-38115-9	Soil	Hexavalent Chromium; Total Antimony, Chromium, Nickel, Thallium, and Vanadium
174-S122-0.0X	460-38115-10	Soil	Hexavalent Chromium; Total Antimony, Chromium, Nickel, Thallium, and Vanadium
174-S122-2.0	460-38115-11	Soil	Hexavalent Chromium; Total Antimony, Chromium, Nickel, Thallium, and Vanadium
174-S122-4.0	460-38115-12	Soil	Hexavalent Chromium; Total Antimony, Chromium, Nickel, Thallium, and Vanadium
174-S122-8.0	460-38115-13	Soil	Hexavalent Chromium; Total Antimony, Chromium, Nickel, Thallium, and Vanadium
174-S122-10.0	460-38115-14	Soil	Hexavalent Chromium; Total Antimony, Chromium, Nickel, Thallium, and Vanadium
174-S122-12.0	460-38115-15	Soil	Hexavalent Chromium; Total Antimony, Chromium, Nickel, Thallium, and Vanadium
174-S122-14.0	460-38115-16	Soil	Hexavalent Chromium; Total Antimony, Chromium, Nickel, Thallium, and Vanadium
174-S123-0.0	460-38115-17	Soil	Hexavalent Chromium; Total Antimony, Chromium, Nickel, Thallium, and Vanadium
174-S123-2.0	460-38115-18	Soil	Hexavalent Chromium; Total Antimony, Chromium, Nickel, Thallium, and Vanadium
174-S123-4.0	460-38115-19	Soil	Hexavalent Chromium; Total Antimony, Chromium, Nickel, Thallium, and Vanadium
174-S123-8.0	460-38115-20	Soil	Hexavalent Chromium; Total Antimony, Chromium, Nickel, Thallium, and Vanadium
174-S123-12.0	460-38115-21	Soil	Hexavalent Chromium; Total Antimony, Chromium, Nickel, Thallium, and Vanadium
FB032012	460-38115-22	Field blank	Hexavalent Chromium; Total Antimony, Chromium, Nickel, Thallium, and Vanadium

The samples were collected following the procedures detailed in the Work Order for the soil investigation at the Dennis Collins Park (1st Street Park) in Bayonne, 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

Holding Times and Sample Preservation

The field blank FB032012 exceeded the 24-hour holding time criterion. However, this sample was analyzed less than 48 hours from the time of sample collection; therefore, the hexavalent chromium result in sample FB032012 was qualified as estimated (J).

The cooler temperature (8.8ºC) upon receipt at the laboratory exceeded the QC acceptance limits of 4±2ºC. Consequently, the positive and nondetect hexavalent chromium results in all samples were qualified as estimated (J and UJ, respectively).

Matrix Spike Results

Sample 174-S121-2.0 (460-38115-2) and 174-S121-8.0 (460-38115-5) were selected for the matrix spike (MS) analyses associated with the samples in this SDG and used for supporting data quality recommendations.

The soluble and insoluble MS recoveries performed on sample 174-S121-2.0 from the initial analysis (preparation batch 108703/analysis batch 108842) were 28% and 70%, respectively. The soluble and insoluble MS did not meet the quality control criteria of 75-125%, and the soluble MS was less than 50%. The post digestion spike (PDS) was 101%, which met the PDS criteria of 85-115%. These samples were redigested and reanalyzed as a result of the failed soluble and insoluble MS recoveries. The soluble and insoluble MS recoveries from the redigested/reanalysis batch (preparation batch 108856/analysis batch 108861) were 54% and 98%, respectively. The soluble MS did not meet the quality control criteria of 75-125%, however, the recovery was greater than 50%. The PDS was 91%, which met the PDS criteria of 85-115%.

The soluble and insoluble MS recoveries performed on sample 174-S121-8.0 from the initial analysis (preparation batch 108485/analysis batch 108815) were 36% and 59%, respectively. The soluble and insoluble MS did not meet the quality control criteria of 75-125%, and the soluble MS was less than 50%. The post digestion spike (PDS) was 89%, which met the PDS criteria of 85-115%. These samples were redigested and reanalyzed as a result of the failed soluble and insoluble MS recoveries. The soluble and insoluble MS recoveries from the redigested/reanalysis batch (preparation batch 108668/analysis batch 108849) were 55% and 84%, respectively. The soluble MS did not meet the quality control criteria of 75-125%, however, the recovery was greater than 50%. The PDS was 84%, which is below the PDS criteria of 85-115%.

The hexavalent chromium results from the redigested/reanalysis batches were reported since the soluble and insoluble MS recoveries were improved. All positive and nondetected hexavalent chromium results were qualified as estimated (J and UJ, respectively) due to the soluble MS recovery less than 75% but greater than 50%. Additionally, all samples except 174-S121-2.0, 174-S121-10.0, and 174-S123-12.0 were qualified as estimated (J,UJ) due to the PDS recovery less than 85%.

It should be noted that all samples except sample 174-S121-10.0 from preparation batch 108485 were redigested as part of preparation batch 108668. Sample 174-S121-10.0 was redigested in preparation batch 108858. Although matrix spikes were included with the original preparation batch for this sample, they were not included in the redigested batch. Consequently, the nondetect hexavalent chromium result for sample 174-S121-10.0 was qualified as estimated (UJ).

Laboratory Duplicate

It should be noted that all samples except sample 174-S121-10.0 from preparation batch 108485 were redigested as part of preparation batch 108668. Sample 174-S121-10.0 was redigested in preparation batch 108858. Although a laboratory duplicate was included with the original preparation batch for this sample, one was not included in the redigested batch. Consequently, the nondetect hexavalent chromium result for sample 174-S121-10.0 was qualified as estimated (UJ).

Sample Results

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

Percent Solids

The percent solids for sample 174-S123-8.0 were below the 50% criteria. Consequently, the nondetect hexavalent chromium result for this sample was qualified as estimated (UJ).

Total Metals (Antimony, Chromium, Nickel, Thallium, and Vanadium)

Matrix Spike Results

Samples 174-S123-12.0 (460-38115-21) and 174-S121-8.0 (460-38115-5) were selected for the MS analyses associated with the samples in this SDG. For the MS analysis performed on sample 174-S123-12.0, the antimony recovery exceeded criteria (75-125%) in the MS (218%). Consequently, the positive results for antimony in soil samples 174-S121-0.0, 174-S121-10.0, 174-S121-2.0, 174-S121-6.0, 174-S122-0.0, 174-S122-0.0X, 174-S122-10.0, 174-S122-2.0, 174-S122-4.0, 174-S122-8.0, 174-S123-12.0, 174-S123-2.0, 174-S123-4.0, and 174-S123-8.0 were qualified (J) with a high bias. Additionally, the MS recovery for nickel was not calculable since the concentration detected in the spiked sample was less than the concentration detected in the source sample. Consequently, the positive results for nickel in all soil samples were qualified as estimated (J) with a low bias.

For the MS analysis performed on sample 174-S121-8.0, the vanadium and total chromium recoveries were below criteria (75-125%) in the MS (46%) and (38%), respectively. Consequently, the positive results for vanadium and total chromium in all soil samples were qualified as estimated (J) with a low bias.

Laboratory Duplicate Results

Samples 174-S123-12.0 (460-38115-21) and 174-S121-8.0 (460-38115-5) were selected for the laboratory duplicate analyses associated with the samples in this SDG. For the laboratory duplicate analysis performed on sample 174-S123-12.0, the relative percent difference (RPD) for antimony and nickel exceeded the RPD criteria (<35%RPD) in the laboratory duplicate analysis (112%) and (55%), respectively. Consequently, the positive results for antimony and nickel in all soils except 174-S121-8.0 were qualified as estimated (J). For the laboratory duplicate analysis performed on sample 174-S121-8.0, the RPD for total chromium exceeded the RPD criteria (<35%RPD) in the laboratory duplicate

analysis (40%). Consequently, the positive results for total chromium in all soils except 174-S123-12.0 were qualified as estimated (J).

Sample Results

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

Percent Solids

The percent solids for sample 174-S123-8.0 were below the 50% criteria. Consequently, the positive and nondetect metals results for this sample were qualified as estimated (J and UJ, respectively).

Data Quality and Usability

In general, these data appear to be valid and may be used for decision-making purposes. Qualified results are discussed in attachments A and B below.

Based on elevated cooler temperatures upon sample receipt, the results for hexavalent chromium in all samples are usable as estimated results.

Based on the holding time exceedance of greater than 24 hours but less than 48 hours from the time of sample collection, the nondetect result for hexavalent chromium in the field blank FB032012 is usable as an estimated result.

Based on low MS recoveries below 75% but greater than 50% and/or PDS recoveries below 85%, the results for hexavalent chromium in all the soil samples are usable as estimated results.

Based on the incorrect frequency of an MS sample and a laboratory duplicate sample, the result for hexavalent chromium in soil sample 174-S121-10.0 is usable as an estimated result.

Based on low percent solids, the result for hexavalent chromium in sample 174-S123-8.0 is usable as an estimated result.

Based on low MS recoveries, the positive results for nickel in all samples and for vanadium and total chromium in all soil samples except 174-S123-12.0 are usable as estimated results with a low bias.

Based on the high MS recovery, the positive results for antimony in soil samples 174-S121-0.0, 174-S121-10.0, 174-S121-2.0, 174-S121-6.0, 174-S122-0.0, 174-S122-0.0X, 174-S122-10.0, 174-S122-2.0, 174-S122-4.0, 174-S122-8.0, 174-S123-12.0, 174-S123-2.0, 174-S123-4.0, and 174-S123-8.0 are usable as estimated results with a high bias.

Based on the laboratory duplicate RPD exceedance, the positive results for total chromium in all soil samples except 174-S123-12.0, and the positive results for antimony and nickel in all soil samples except 174-S121-8.0 are usable as estimated results.

Based on low percent solids, the results for all target metals in sample 174-S123-8.0 are usable as estimated results.

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 Dennis Collins Park (1st Street Park), Bayonne, NJ
Sampling Date March 20, 2012
Lab Name/ID TestAmerica Laboratories, Inc., Edison, NJ
SDG No J38115-1
Sample Matrix Soil
Field Blank ID FB032012
Trip 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
174-S121-0.0	460-38115-1	CHROMIUM (HEXAVALENT)	U	0.91 J	0.91 J	2.4	Qualify	12, 27, 31, 37
174-S121-10.0	460-38115-6	CHROMIUM (HEXAVALENT)	U	U	UJ	2.5	Qualify	35, 36, 37
174-S121-12.0	460-38115-7	CHROMIUM (HEXAVALENT)	U	U	UJ	2.8	Qualify	12, 27, 37
174-S121-14.0	460-38115-8	CHROMIUM (HEXAVALENT)	U	U	UJ	2.3	Qualify	12, 27, 37
174-S121-2.0	460-38115-2	CHROMIUM (HEXAVALENT)	U	U	UJ	2.3	Qualify	27, 37
174-S121-4.0	460-38115-3	CHROMIUM (HEXAVALENT)	U	U	UJ	2.4	Qualify	12, 27, 37
174-S121-6.0	460-38115-4	CHROMIUM (HEXAVALENT)	U	U	UJ	2.5	Qualify	12, 27, 37
174-S121-8.0	460-38115-5	CHROMIUM (HEXAVALENT)	U	U	UJ	2.4	Qualify	12, 27, 37
174-S122-0.0	460-38115-9	CHROMIUM (HEXAVALENT)	U	U	UJ	2.4	Qualify	12, 27, 37
174-S122-0.0X	460-38115-10	CHROMIUM (HEXAVALENT)	U	U	UJ	2.3	Qualify	12, 27, 37
174-S122-10.0	460-38115-14	CHROMIUM (HEXAVALENT)	U	U	UJ	2.9	Qualify	12, 27, 37
174-S122-12.0	460-38115-15	CHROMIUM (HEXAVALENT)	U	U	UJ	2.4	Qualify	12, 27, 37
174-S122-14.0	460-38115-16	CHROMIUM (HEXAVALENT)	U	U	UJ	2.5	Qualify	12, 27, 37
174-S122-2.0	460-38115-11	CHROMIUM (HEXAVALENT)	U	U	UJ	2.2	Qualify	12, 27, 37
174-S122-4.0	460-38115-12	CHROMIUM (HEXAVALENT)	U	U	UJ	2.3	Qualify	12, 27, 37
174-S122-8.0	460-38115-13	CHROMIUM (HEXAVALENT)	U	U	UJ	2.8	Qualify	12, 27, 37
174-S123-0.0	460-38115-17	CHROMIUM (HEXAVALENT)	U	U	UJ	2.3	Qualify	12, 27, 37
174-S123-12.0	460-38115-21	CHROMIUM (HEXAVALENT)	U	U	UJ	2.9	Qualify	27, 37
174-S123-2.0	460-38115-18	CHROMIUM (HEXAVALENT)	U	U	UJ	2.2	Qualify	12, 27, 37
174-S123-4.0	460-38115-19	CHROMIUM (HEXAVALENT)	U	U	UJ	2.9	Qualify	12, 27, 37
174-S123-8.0	460-38115-20	CHROMIUM (HEXAVALENT)	U	U	UJ	6.7	Qualify	12, 22, 27, 37

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

NJDEP Laboratory Footnote

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Soil Target Analyte Summary Hit List (Total Metals)

Site Name Dennis Collins Park (1st Street Park), Bayonne, NJ
Sampling Date March 20, 2012
Lab Name/ID TestAmerica Laboratories, Inc., Edison, NJ
SDG No J38115-1
Sample Matrix Soil
Trip Blank ID FB032012
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
174-S121-0.0	460-38115-1	ANTIMONY	U	0.53 J	0.53 J	0.57	Qualify	16, 18
174-S121-0.0	460-38115-1	CHROMIUM	U	17.3	17.3 J	1.1	Qualify	15, 18
174-S121-0.0	460-38115-1	NICKEL	U	10	10 J	1.1	Qualify	15, 18
174-S121-0.0	460-38115-1	VANADIUM	U	22.7	22.7 J	1.1	Qualify	15
174-S121-10.0	460-38115-6	ANTIMONY	U	0.057	0.057 J	0.030	Qualify	16, 18
174-S121-10.0	460-38115-6	CHROMIUM	U	0.78	0.78 J	0.060	Qualify	15, 18
174-S121-10.0	460-38115-6	NICKEL	U	1.1	1.1 J	0.060	Qualify	15, 18
174-S121-10.0	460-38115-6	VANADIUM	U	1.2	1.2 J	0.060	Qualify	15
174-S121-12.0	460-38115-7	CHROMIUM	U	16.5	16.5 J	1.4	Qualify	15, 18
174-S121-12.0	460-38115-7	NICKEL	U	16.4	16.4 J	1.4	Qualify	15, 18
174-S121-12.0	460-38115-7	VANADIUM	U	21.0	21.0 J	1.4	Qualify	15
174-S121-14.0	460-38115-8	CHROMIUM	U	20.3	20.3 J	1.1	Qualify	15, 18
174-S121-14.0	460-38115-8	NICKEL	U	16.8	16.8 J	1.1	Qualify	15, 18
174-S121-14.0	460-38115-8	VANADIUM	U	31.2	31.2 J	1.1	Qualify	15
174-S121-2.0	460-38115-2	ANTIMONY	U	3.3	3.3 J	0.54	Qualify	16, 18
174-S121-2.0	460-38115-2	CHROMIUM	U	16.0	16.0 J	1.1	Qualify	15, 18
174-S121-2.0	460-38115-2	NICKEL	U	14.4	14.4 J	1.1	Qualify	15, 18
174-S121-2.0	460-38115-2	VANADIUM	U	18.4	18.4 J	1.1	Qualify	15
174-S121-4.0	460-38115-3	CHROMIUM	U	19.3	19.3 J	1.2	Qualify	15, 18
174-S121-4.0	460-38115-3	NICKEL	U	22.3	22.3 J	1.2	Qualify	15, 18
174-S121-4.0	460-38115-3	VANADIUM	U	28.4	28.4 J	1.2	Qualify	15
174-S121-6.0	460-38115-4	ANTIMONY	U	1.4	1.4 J	0.59	Qualify	16, 18
174-S121-6.0	460-38115-4	CHROMIUM	U	17.1	17.1 J	1.2	Qualify	15, 18
174-S121-6.0	460-38115-4	NICKEL	U	113	113 J	1.2	Qualify	15, 18
174-S121-6.0	460-38115-4	VANADIUM	U	22.7	22.7 J	1.2	Qualify	15
174-S121-8.0	460-38115-5	ANTIMONY	U	0.89	0.89 J	0.61		

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
174-S121-8.0	460-38115-5	CHROMIUM	U	25.8	25.8 J	1.2	Qualify	15, 18
174-S121-8.0	460-38115-5	NICKEL	U	53.8	53.8 J	1.2	Qualify	15
174-S121-8.0	460-38115-5	VANADIUM	U	29.4	29.4 J	1.2	Qualify	15
174-S122-0.0	460-38115-9	ANTIMONY	U	1.0	1.0 J	0.57	Qualify	16, 18
174-S122-0.0	460-38115-9	CHROMIUM	U	20.7	20.7 J	1.1	Qualify	15, 18
174-S122-0.0	460-38115-9	NICKEL	U	19.6	19.6 J	1.1	Qualify	15, 18
174-S122-0.0	460-38115-9	VANADIUM	U	19.1	19.1 J	1.1	Qualify	15
174-S122-0.0X	460-38115-10	ANTIMONY	U	0.76	0.76 J	0.58	Qualify	16, 18
174-S122-0.0X	460-38115-10	CHROMIUM	U	18.3	18.3 J	1.2	Qualify	15, 18
174-S122-0.0X	460-38115-10	NICKEL	U	15.6	15.6 J	1.2	Qualify	15, 18
174-S122-0.0X	460-38115-10	VANADIUM	U	18.0	18.0 J	1.2	Qualify	15
174-S122-10.0	460-38115-14	ANTIMONY	U	1.5	1.5 J	0.70	Qualify	16, 18
174-S122-10.0	460-38115-14	THALLIUM	U	0.30	0.30	0.28		
174-S122-10.0	460-38115-14	CHROMIUM	U	67.2	67.2 J	3.5	Qualify	15, 18
174-S122-10.0	460-38115-14	NICKEL	U	37.9	37.9 J	3.5	Qualify	15, 18
174-S122-10.0	460-38115-14	VANADIUM	U	25.7	25.7 J	3.5	Qualify	15
174-S122-12.0	460-38115-15	CHROMIUM	U	16.7	16.7 J	1.1	Qualify	15, 18
174-S122-12.0	460-38115-15	NICKEL	U	12.7	12.7 J	1.1	Qualify	15, 18
174-S122-12.0	460-38115-15	VANADIUM	U	24.9	24.9 J	1.1	Qualify	15
174-S122-14.0	460-38115-16	CHROMIUM	U	21.6	21.6 J	1.2	Qualify	15, 18
174-S122-14.0	460-38115-16	NICKEL	U	18.1	18.1 J	1.2	Qualify	15, 18
174-S122-14.0	460-38115-16	VANADIUM	U	26.4	26.4 J	1.2	Qualify	15
174-S122-2.0	460-38115-11	ANTIMONY	U	0.46 J	0.46 J	0.52	Qualify	16, 18
174-S122-2.0	460-38115-11	CHROMIUM	U	25.1	25.1 J	1.0	Qualify	15, 18
174-S122-2.0	460-38115-11	NICKEL	U	28.9	28.9 J	1.0	Qualify	15, 18
174-S122-2.0	460-38115-11	VANADIUM	U	34.8	34.8 J	1.0	Qualify	15
174-S122-4.0	460-38115-12	ANTIMONY	U	0.98	0.98 J	0.56	Qualify	16, 18
174-S122-4.0	460-38115-12	CHROMIUM	U	25.9	25.9J	1.1	Qualify	15, 18
174-S122-4.0	460-38115-12	NICKEL	U	22.9	22.9 J	1.1	Qualify	15, 18
174-S122-4.0	460-38115-12	VANADIUM	U	27.6	27.6 J	1.1	Qualify	15
174-S122-8.0	460-38115-13	ANTIMONY	U	3.3	3.3 J	0.69	Qualify	16, 18
174-S122-8.0	460-38115-13	CHROMIUM	U	42.4	42.4 J	1.4	Qualify	15, 18
174-S122-8.0	460-38115-13	NICKEL	U	35.4	35.4 J	1.4	Qualify	15, 18
174-S122-8.0	460-38115-13	VANADIUM	U	24.1	24.1 J	1.4	Qualify	15
174-S123-0.0	460-38115-17	ANTIMONY	U	1.3	1.3 J	0.56	Qualify	16, 18
174-S123-0.0	460-38115-17	CHROMIUM	U	194	194 J	1.1	Qualify	15, 18
174-S123-0.0	460-38115-17	NICKEL	U	19.9	19.9 J	1.1	Qualify	15, 18
174-S123-0.0	460-38115-17	VANADIUM	U	32.7	32.7 J	1.1	Qualify	15
174-S123-12.0	460-38115-21	ANTIMONY	U	22.7	22.7 J	0.70	Qualify	16, 18

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
174-S123-12.0	460-38115-21	CHROMIUM	U	24.4	24.4 J	1.4	Qualify	15
174-S123-12.0	460-38115-21	NICKEL	U	51.6	51.6 J	1.4	Qualify	15, 18
174-S123-12.0	460-38115-21	VANADIUM	U	16.4	16.4 J	1.4	Qualify	15
174-S123-2.0	460-38115-18	ANTIMONY	U	1.7	1.7 J	0.57	Qualify	16, 18
174-S123-2.0	460-38115-18	CHROMIUM	U	49.9	49.9 J	1.1	Qualify	15, 18
174-S123-2.0	460-38115-18	NICKEL	U	17.4	17.4 J	1.1	Qualify	15, 18
174-S123-2.0	460-38115-18	VANADIUM	U	22.2	22.2 J	1.1	Qualify	15
174-S123-4.0	460-38115-19	ANTIMONY	U	3.5	3.5 J	0.70	Qualify	16, 18
174-S123-4.0	460-38115-19	CHROMIUM	U	34.4	34.4 J	1.4	Qualify	15, 18
174-S123-4.0	460-38115-19	NICKEL	U	31.4	31.4 J	1.4	Qualify	15, 18
174-S123-4.0	460-38115-19	VANADIUM	U	19.9	19.9 J	1.4	Qualify	15
174-S123-8.0	460-38115-20	ANTIMONY	U	39.0	39.0 J	1.6	Qualify	16, 21
174-S123-8.0	460-38115-20	CHROMIUM	U	64.5	64.5 J	3.1	Qualify	15, 18, 21
174-S123-8.0	460-38115-20	NICKEL	U	25.9	25.9 J	3.1	Qualify	15, 18, 21
174-S123-8.0	460-38115-20	THALLIUM	U	U	UJ	0.62	Qualify	21
174-S123-8.0	460-38115-20	VANADIUM	U	29.1	29.1 J	3.1	Qualify	15, 21

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 was 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.
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:** 60246594.DCP.RI.A
Site Location: PPG – Dennis Collins Park (1st Street Park)	**Project Manager:** Robert Cataldo
Laboratory: TestAmerica Laboratories, Inc, Edison, New Jersey	**Limited or Full Validation (circle one)**
Laboratory Job No: J38115-1	**Date Checked:** 04/13/12
Validator: Paula DiMattei	**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 2-6ºC?	x			8.8°C. No actions are required.
Signed COCs included?	x			
Date of sample collection included?	x			3/20/12
Date of sample digestion included?	x			Soil batches 107244 and 107245: 3/27/12 Aqueous batch 107073: 3/26/12
Date of analysis included?	x			3/26/12 and 3/28/12
Holding time met QC criteria? Metals -180 days from sample collection Mercury – 28 days from sample collection If HT exceeded by - ≤ 10 days, J/UJ all results - > 10 days, R all results	x			All holding times were met.
Method reference included?	x			SW846 3010A/3050B/6010C
Laboratory Case Narrative included?	x			
Sample Dilutions	x			All soils except 174-S121-10.0 were analyzed at a 20x dilution. FB032012 was analyzed at a 5x dilution.
Field Duplicates ("x "appended to sample ID) (RPD calculation on separate sheet)	x			174-S122-0.0 and 174-S122-0.0X

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

Comments

The percent solids for sample 174-S123-8.0 (30.4%) did not meet the QC acceptance criterion of >50% solids; therefore, the total chromium and CCWP metals results were qualified as estimated (J, UJ).

ITEM	YES	NO	N/A	COMMENTS
Initial Calibration Documentation Included in Lab Package?			x	**Not reviewed for limited validation**
1. Calibrate daily or each time instrument is set up?. If no, reject (R) data. 2. ICP (6010) - Blank plus 1standard? If no, reject (R) data. 3. Hg (7470/7471) – Blank plus 5 standards? If no, reject (R) data.				
Initial Calibration Verification Standard (ICV) for ICP (6010) and Initial Calibration Check Standard (ICCS) for Hg (7470/7471) Included in Lab Package?			x	**Not reviewed for limited validation**
1. Analyzed immediately after initial calibration? If no, reject (R) data. 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% R all data for affected analyte(s) if <80% or >120% 3. Spot check ICV/ICCS results for several analytes				
Continuing Calibration Verification Standard (CCV) for ICP (6010) and Calibration Check Standard (CCS) for Hg (7470/7471) included in Lab Package?			x	**Not reviewed for limited validation**
1. Analyzed immediately after each ICV/ICC/CB and after every 10 samples? If no, reject (R) data. 2. CCS and CCV from independent source and at mid level of calibration curve. If no, reject (R) data. 3. %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% R all data for affected analyte(s) if %R <80% or >120% 4. Spot check CCV/CCS results for several analytes				
Low Calibration Standard (CRI) included in Lab Package?			x	**Not reviewed for limited validation**
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.				
Calibration Blanks			x	**Not reviewed for limited validation**
1. Analyzed immediately after daily calibration and after each ICV/ICC/CCV/CCS, and after every 10 samples? If no, reject (R) data. 2. Absolute value ≤ 3xIDL? If no, - if sample result ≤ 10xCB result, qualify affected analyte(s) in associated samples with CB - if sample result > 10xCB result, no qualification				
Method Blank included in Lab Package?	x			Aqueous batch 107073 Soils batches: 107244 and 107245
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. 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 3. MB result nondetect? If no, - Sample result ≤ 3xMB, negate UB - Sample result <3xMB, but ≤10xMB, JB - Sample result > 10xMB, no qualification 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 x x	 x		1. Yes 2. Yes 3. Yes, MBs are nondetect 4. No
Field Blanks/Equipment Blanks included in Lab Package?	x			FB032012
1. FB/EB result nondetect? If no, - Sample result ≤ 3xFB/EB, negate U - Sample result <3xFB/EB, but ≤10xFB/EB, J - Sample result > 10xFB/EB, no qualification	x			1. Yes FB is nondetect

ITEM	YES	NO	N/A	COMMENTS
ICP Interference Check Sample (ICS) included in Lab Package?			x	**Not reviewed for limited validation**
1. Analyzed at beginning of analytical run? If no, reject (R) data. 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 3. Spot check accuracy of %Rs				
Matrix Spike/Matrix Spike Duplicate Data Included in Lab Package?	x			174-S121-8.0 (460-38115-5) batch 107144 174-S123-12.0 (460-38115-21) batch 107245 Batch QC was provided for the aqueous field blank
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. 2. Was a sample spiked at the frequency of 1/batch or 20 samples? 3, Was the MS performed on a site sample? 4. Was the MS performed on a FB/EB or TB? If yes, J all sample data.	 x x	x x		1. No, 174-S121-8.0 MS: Ni (263%), V (46%), Cr (38%) It should be noted that Ni in the native unspiked sample is >4x the spike concentration; thus, Ni is not evaluated in this MS. 174-S123-12.0 MS: Ni (not calculable since the spiked sample result was less than the native sample result); Sb (218%). Soil samples 174-S121-0.0, 174-S121-10.0, 174-S121-2.0, 174-S121-6.0, 174-S122-0.0, 174-S122-0.0X, 174-S122-10.0, 174-S122-2.0, 174-S122-4.0, 174-S122-8.0, 174-S123-12.0, 174-S123-2.0, 174-S123-4.0, and 174-S123-8.0 were qualified for Sb. Sb met criteria in the MS for 174-S121-8.0. V and Cr were qualified in all soils except 174-S123-12.0. V and Cr met criteria in the MS for 174-S123-12.0. Ni was qualified in all soil samples. 2. Yes 3. Yes 4. No
Serial Dilution			x	**Not reviewed for limited validation**
1. %D (≤ 10%R) criteria met? – If analyte concentration > 25xIDL (7000) or > 10x IDL (6010) and %D > 10% J positive results for affected analyte(s) for all samples in the same batch/SDG, accept NDs. 2. Was the frequency 1/batch or 20 samples? 3, Was a site sample used? 4. Was a FB/EB or TB used? If yes, J all sample data. **5.** Spot check accuracy of %Ds				
Post Digestion Spike			x	**Not reviewed for limited validation**
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. 2. Was the spike performed on a FB/EB or TB? If yes, J all sample data? 3. Was a sample spiked at the frequency of 1/batch or 20 samples?				
Laboratory Control Sample Data Included in Lab Package?	x			Aqueous batch 107073 Soils batches: 107244 and 107245
1. LCS %R (80-120%R) criteria met? If no, J/UJ all affected analyte(s) for all samples in the same batch/SDG. data. 2. Was a sample spiked at the frequency of 1/batch or 20 samples? If no, J/UJ affected analyte(s) for all sample in the same batch/SDG.	x x			1. Yes, LCS recovery met applicable quality control criteria. 2. Yes
Laboratory Duplicate Data Included in Lab Package?		x		174-S121-8.0 (460-38115-5) batch 107144 174-S123-12.0 (460-38115-21) batch 107245 Batch QC was provided for the aqueous field blank.
<u>Aqueous</u> 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. <u>SOIL:</u>	x	 x		Batch QC was provided for the aqueous field blank. 174-S121-8.0 DUP: Cr RPD=40.0 174-S123-12.0 DUP: Ni RPD=55%; Sb RPD=112.

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 (R) 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 (R) non detects and positive results <5x QL.				All soils except 174-S123-12.0 were qualified for Cr. Cr met criteria in the DUP for 174-S123-12.0. Ni and Sb were qualified in all soils except 174-S121-8.0. Ni and Sb met criteria in the DUP for 174-S121-8.0.
Field Duplicate Data Included in Lab Package?	x			174-S122-0.0 and 174-S122-0.0X
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. 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 (R) 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 (R) non detects and positive results <5x QL.	x			All criteria met

Holding Time

Sample ID	Method	Days from Sampling to Prep	Days from Prep to Analysis	Days from Sampling to Analysis	Sample to Analysis Status
FB032012	SW6020	6	0	6	OK @180 days
174-S121-0.0	SW6020	7	1	8	OK @180 days
174-S121-10.0	SW6020	7	1	8	OK @180 days
174-S121-12.0	SW6020	7	1	8	OK @180 days
174-S121-14.0	SW6020	7	1	8	OK @180 days
174-S121-2.0	SW6020	7	1	8	OK @180 days
174-S121-4.0	SW6020	7	1	8	OK @180 days
174-S121-6.0	SW6020	7	1	8	OK @180 days
174-S121-8.0	SW6020	7	1	8	OK @180 days
174-S122-0.0	SW6020	7	1	8	OK @180 days
174-S122-0.0X	SW6020	7	1	8	OK @180 days
174-S122-10.0	SW6020	7	1	8	OK @180 days
174-S122-10.0	SW6020	7	1	8	OK @180 days
174-S122-12.0	SW6020	7	1	8	OK @180 days
174-S122-14.0	SW6020	7	1	8	OK @180 days
174-S122-2.0	SW6020	7	1	8	OK @180 days
174-S122-4.0	SW6020	7	1	8	OK @180 days
174-S122-8.0	SW6020	7	1	8	OK @180 days
174-S123-0.0	SW6020	7	1	8	OK @180 days
174-S123-12.0	SW6020	7	1	8	OK @180 days
174-S123-2.0	SW6020	7	1	8	OK @180 days
174-S123-4.0	SW6020	7	1	8	OK @180 days
174-S123-8.0	SW6020	7	1	8	OK @180 days

Matrix Spike

Sample ID	Compound	MS % Recovery	Lower Limit	Upper Limit
174-S121-8.0	NICKEL	263	75	125
174-S121-8.0	CHROMIUM	38	75	125
174-S121-8.0	VANADIUM	46	75	125
174-S123-12.0	NICKEL	Not Calculable	75	125
174-S123-12.0	ANTIMONY	218	75	125

Laboratory Duplicates

Sample ID	Compound	RPD	QC Limit
174-S121-8.0	CHROMIUM	40	<35
174-S123-12.0	NICKEL	55	<35
174-S123-12.0	ANTIMONY	112	<35

Field Duplicate

Sample ID	Duplicate ID	Compound	Sample Result	Duplicate Result	QL	Units	RPD
174-S122-0.0	174-S122-0.0X	NICKEL	19.6	15.6	1.1	mg/kg	23
		ANTIMONY	1.0	0.76	0.57	mg/kg	27
		VANADIUM	19.1	18.0	1.1	mg/kg	5.9
		CHROMIUM	20.7	18.3	0.23	mg/kg	12

Percent Solids

Sample ID	Percent Solids (%)	Status
174-S121-0.0	84.8	ok @50%
174-S121-10.0	80.2	ok @50%
174-S121-12.0	71.2	ok @50%
174-S121-14.0	85.9	ok @50%
174-S121-2.0	86.1	ok @50%

Sample ID	Percent Solids (%)	Status
174-S121-4.0	84.1	ok @50%
174-S121-6.0	81.7	ok @50%
174-S121-8.0	82	ok @50%
174-S122-0.0	83.1	ok @50%
174-S122-0.0X	83.5	ok @50%
174-S122-10.0	68	ok @50%
174-S122-10.0	68	ok @50%
174-S122-12.0	84.2	ok @50%
174-S122-14.0	79.7	ok @50%
174-S122-2.0	92.3	ok @50%
174-S122-4.0	83.8	ok @50%
174-S122-8.0	70.4	ok @50%
174-S123-0.0	87.3	ok @50%
174-S123-12.0	71.4	ok @50%
174-S123-2.0	87.3	ok @50%
174-S123-4.0	67.1	ok @50%
174-S123-8.0	30.4	<50%

Client Name: PPG Industries	**Project Number:** 60246594.DCP.RI.A
Site Location: PPG – Dennis Collins Park (1st Street Park)	**Project Manager:** Robert Cataldo
Laboratory: TestAmerica Laboratories, Inc, Edison, New Jersey	**Limited or Full Validation (circle one)**
Laboratory Job No: J38115-1	**Date Checked:** 04/13/12
Validator: Paula DiMattei	**Peer:** Mary Kozik

ITEM	YES	NO	N/A	COMMENTS
Sample results included?	x			21 Soil samples, 1 Field blank
Reporting Limits met project requirements?	x			
Field I.D. included?	x			
Laboratory I.D. included?	x			
Sample matrix included?	x			
Sample receipt temperature 2-6ºC?		x		8.8°C
Signed COCs included?	x			
Date of sample collection included?	x			3/20/2012
Date of sample digestion included?	x			7196 Solid: prepped on 4/6/12and 4/9/12
Holding time to digestion met criteria? Soils -30 days from collection to digestion.	x			All preparation holding time criteria were met.
Date of analysis included?	x			7196 Solid : 4/6/12, 4/7/12, and 4/10/12 7196 Aqueous: 3/22/12
Holding time to analysis met criteria? Soils -168 hours from digestion to analysis. Aqueous – 24 hours from collection to analysis.	x	x		All holding times were met for the soil samples. FB032012 was analyzed >24 hours but <48Hours from time of collection; thus the hexavalent chromium result was qualified as UJ in FB032012
Method reference included?	x			3060A/7196A
Laboratory Case Narrative included?	x			
Sample Dilutions		x		No dilutions required.
Field Duplicates (“x “appended to sample ID) (RPD calculation on separate sheet)	x			174-S122-0.0 and 174-S122-0.0X Both samples ND; precision deemed acceptable.

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

Comments

The percent solids for sample 174-S123-8.0 (30.4%) did not meet the QC acceptance criterion of >50% solids; therefore, the nondetect hexavalent chromium result for this sample was qualified as estimated (UJ).

ITEM	YES	NO	N/A	COMMENTS
Initial Calibration Documentation Included in Lab Package?	x			Cal source (WThcrIM 00033)
1. Blank plus 4 standards (7196A) or blank plus 3 standards (7199), 2. Correlation coefficient of ≥0.995 (7196A) or ≥0.999 (7199). 3. Calibrate daily or each time instrument is set up.	x x x			1. Each analysis 1 blank and 5 cal STDs 2. All analyses meet CC 3. Yes
Calibration Check Standard (CCS) for 7196A and Quality Control Sample (QCS) for 7199 Included in Lab Package?	x			Check source (WThcrIM3 or WThcrIM4)
1. %R criteria met? (90 - 110%). 2. Correct frequency of once every 10 samples 3. CCS and QCS from independent source and at mid level of calibration curve.	x x x			1. All met %R 2. Analyzed every 10 samples 3. Yes
Calibration Blanks	x			Soils (Batches: 108815, 108849, 108842, 108861, 108863); AQ (Batch 106691)
1. Analyzed prior to initial calibration standards and after each CCS/QCS? 2. Absolute value should not exceed MDL.	x x			1. Yes 2. Yes
Method Blank and Field Blanks Included in Lab Package?	x			Field blank: FB032012 (ND)
1. Method blank analyzed with each preparation batch? 2. Absolute value should not exceed MDL.	x x			1. Yes, soil – prep batches: 108485, 108668, 108703, 108856, 108858. 2. Yes, all blanks ND
Eh and pH data .	x			
Eh and pH data was included and plotted for all samples?	x			Samples 2-12 were oxidizing; samples 13-17,and 19-22 were reducing; samples 1 and 18 were neither (on line)
Soluble Matrix Spike Data Included in Lab Package?	x			174-S121-8.0 (batch 108485) and 174-S121-8.0 RE (batch 108668) (460-38115-5 and -5RE) 174-S121-2.0 (batch 108703) and 174-S121-2.0 RE (batch 108856) (460-38115-2 and -2 RE)
1. %R criteria met? (75-125%R). 2. Was the spike concentration 40 mg/Kg? 3. Was a sample spiked at the frequency of 1/batch or 20 samples?	 x x	x		1. No, batch 108485 (36%) and batch 108668 (55%) Batch 108703 (28%) and batch 108856 (54%) 2. Yes, 46.4 or 48.8 mg/kg 3. No; A matrix spike was not performed for soil batch 108858 (associated sample:174-S121-10.0 RE);The associated sample was qualified as estimated (J).
Insoluble Matrix Spike Data Included in Lab Package?	x			174-S121-8.0 (batch 108485) and 174-S121-8.0 RE (batch 108668) (460-38115-5 and -5RE) 174-S121-2.0 (batch 108703) and 174-S121-2.0 RE (batch 108856) (460-38115-2 and -2 RE)
1. %R criteria met? (75-125%R) 2. Was the spike concentration 400 to 800 mg/Kg? 3. Was a sample spiked at the frequency of 1/batch or 20 samples?	x x	 x		1. No, batch 108485 (59%) and batch 108668 (84%) Batch 108703 (70%) and batch 108856 (98%) 2. Yes; 822 or 863 mg/kg; no actions required. 3. No; A matrix spike was not performed for soil batch 108858 (associated sample:174-S121-10.0 RE)**;** The associated sample was qualified as estimated (J).
Post Digestion Spike	x			174-S121-8.0 (batch 108485) and 174-S121-8.0 RE (batch 108668) (460-38115-5 and -5RE) 174-S121-2.0 (batch 108703) and 174-S121-2.0 RE (batch 108856) (460-38115-2 and -2 RE) Batch QC associated with FB032012
1. %R criteria met? (85-115%R). 2. Was the spike concentration 40 mg/Kg or twice the sample concentration? 3. Was a sample spiked at the frequency of 1/batch or 20 samples?	x x	 x		1. No, batch 108485 (89%) and batch 108668 (84%) Batch 108703 (101%) and batch 108856 (91%) 2. Yes; 46.4 or 48.8 mg/kg; no actions required. 3. No; A matrix spike was not performed for soil batch 108858 (associated sample:174-S121-10.0 RE); The associated sample was qualified as estimated (J).
Sample Duplicate Data Included in Lab Package?	x			174-S121-8.0 (460-38115-5), 174-S121-2.0 (460-38115-2), 174-S121-

				8.0 RE (460-38115-5 RE), and 174-S121-2.0 RE (460-38115-2RE) FB032012 (lab dup batch QC associated with this sample)
1. RPD criteria met? (RPD < 20%) if both results are ≥4x RL or control limit of ±RL if both results are <4x RL. 2. Was a sample spiked at the frequency of 1/batch or 20 samples?	x	x		1. Yes. All Lab dup results are ND; precision deemed acceptable. 2. No; A lab duplicate was not performed for soil batch 108858 (associated sample:174-S121-10.0 RE) The associated sample was qualified as estimated (J).
Was a Laboratory Control Sample (LCS) Included in Lab Package?	x			
1. %R criteria met? (80-120%R). 2. Was an LCS analyzed at the frequency of 1/batch or 20 samples?	x x			1. Yes, Soil Batches: 108485, 108668, 108703, 108856, and 108858. Aqueous batch: 106691. 2. Yes
Miscellaneous Items.				
1. For soils by 7196A, was the pH within a range of 7.0-8.0? 2. For soils by 7199, was the pH within a range of 9.0-9.5? 3. For aqueous by 7196A, was the pH with a range of 1.5-2,5? 4. For soils (3060A), was the digestion temperature 90-95°C for at least 60 minutes? 5. For 7199, was each sample injected twice and was the RPD ≤20?	x x x		 x x	1. Yes 2. NA 3. Yes 4. Yes 5. NA

Holding Time

Sample ID	Method	Days from Sampling to Prep	Days from Prep to Analysis	Days from Sampling to Analysis	Sample to Prep Status	Prep to Analysis Status	Sample to Analysis Status
FB032012	SW7196			2			>1*1 days
174-S121-0.0	SW7196	17	1	18	OK @30 days	OK @7 days	OK @37 days
174-S121-0.0 RE	SW7196	20	1	21	OK @30 days	OK @7 days	OK @37 days
174-S121-10.0	SW7196	17	1	18	OK @30 days	OK @7 days	OK @37 days
174-S121-10.0 RE	SW7196	21	0	21	OK @30 days	OK @7 days	OK @37 days
174-S121-12.0	SW7196	17	1	18	OK @30 days	OK @7 days	OK @37 days
174-S121-12.0 RE	SW7196	20	1	21	OK @30 days	OK @7 days	OK @37 days
174-S121-14.0	SW7196	17	1	18	OK @30 days	OK @7 days	OK @37 days
174-S121-14.0 RE	SW7196	20	1	21	OK @30 days	OK @7 days	OK @37 days
174-S121-2.0	SW7196	20	1	21	OK @30 days	OK @7 days	OK @37 days
174-S121-2.0 RE	SW7196	21	0	21	OK @30 days	OK @7 days	OK @37 days
174-S121-4.0	SW7196	17	1	18	OK @30 days	OK @7 days	OK @37 days
174-S121-4.0 RE	SW7196	20	1	21	OK @30 days	OK @7 days	OK @37 days
174-S121-6.0	SW7196	17	1	18	OK @30 days	OK @7 days	OK @37 days
174-S121-6.0 RE	SW7196	20	1	21	OK @30 days	OK @7 days	OK @37 days
174-S121-8.0	SW7196	17	1	18	OK @30 days	OK @7 days	OK @37 days
174-S121-8.0 RE	SW7196	20	1	21	OK @30 days	OK @7 days	OK @37 days
174-S122-0.0	SW7196	17	1	18	OK @30 days	OK @7 days	OK @37 days
174-S122-0.0 RE	SW7196	20	1	21	OK @30 days	OK @7 days	OK @37 days
174-S122-0.0X	SW7196	17	1	18	OK @30 days	OK @7 days	OK @37 days
174-S122-0.0X RE	SW7196	20	1	21	OK @30 days	OK @7 days	OK @37 days
174-S122-10.0	SW7196	17	1	18	OK @30 days	OK @7 days	OK @37 days
174-S122-10.0 RE	SW7196	20	1	21	OK @30 days	OK @7 days	OK @37 days
174-S122-12.0	SW7196	17	1	18	OK @30 days	OK @7 days	OK @37 days
174-S122-12.0 RE	SW7196	20	1	21	OK @30 days	OK @7 days	OK @37 days
174-S122-14.0	SW7196	17	1	18	OK @30 days	OK @7 days	OK @37 days
174-S122-14.0 RE	SW7196	20	1	21	OK @30 days	OK @7 days	OK @37 days
174-S122-2.0	SW7196	17	1	18	OK @30 days	OK @7 days	OK @37 days
174-S122-2.0 RE	SW7196	20	1	21	OK @30 days	OK @7 days	OK @37 days
174-S122-4.0	SW7196	17	1	18	OK @30 days	OK @7 days	OK @37 days
174-S122-4.0 RE	SW7196	20	1	21	OK @30 days	OK @7 days	OK @37 days
174-S122-8.0	SW7196	17	1	18	OK @30 days	OK @7 days	OK @37 days
174-S122-8.0 RE	SW7196	20	1	21	OK @30 days	OK @7 days	OK @37 days
174-S123-0.0	SW7196	17	1	18	OK @30 days	OK @7 days	OK @37 days
174-S123-0.0 RE	SW7196	20	1	21	OK @30 days	OK @7 days	OK @37 days
174-S123-12.0	SW7196	20	1	21	OK @30 days	OK @7 days	OK @37 days
174-S123-12.0 RE	SW7196	21	0	21	OK @30 days	OK @7 days	OK @37 days
174-S123-2.0	SW7196	17	1	18	OK @30 days	OK @7 days	OK @37 days
174-S123-2.0 RE	SW7196	20	1	21	OK @30 days	OK @7 days	OK @37 days
174-S123-4.0	SW7196	17	1	18	OK @30 days	OK @7 days	OK @37 days
174-S123-4.0 RE	SW7196	20	1	21	OK @30 days	OK @7 days	OK @37 days
174-S123-8.0	SW7196	17	1	18	OK @30 days	OK @7 days	OK @37 days
174-S123-8.0 RE	SW7196	20	1	21	OK @30 days	OK @7 days	OK @37 days

Matrix Spike

Sample ID	Compound	Soluble MS % Recovery	Insoluble MS % Recovery	Lower Limit	Upper Limit
174-S121-2.0	CHROMIUM (HEXAVALENT)	28	70	75	125
174-S121-2.0 RE	CHROMIUM (HEXAVALENT)	54	98	75	125
174-S121-8.0	CHROMIUM (HEXAVALENT)	36	59	75	125
174-S121-8.0 RE	CHROMIUM (HEXAVALENT)	55	84	75	125

Post Digestion Spike

Sample ID	Compound	PDS % Recovery	Lower Limit	Upper Limit
174-S121-2.0	CHROMIUM (HEXAVALENT)	101	85	115
174-S121-2.0 RE	CHROMIUM (HEXAVALENT)	91	85	115
174-S121-8.0	CHROMIUM (HEXAVALENT)	89	85	115
174-S121-8.0 RE	CHROMIUM (HEXAVALENT)	84	85	115

Percent Solids

Sample ID	Percent Solids (%)	Status
174-S121-0.0	84.8	ok @50%
174-S121-10.0	80.2	ok @50%
174-S121-12.0	71.2	ok @50%
174-S121-14.0	85.9	ok @50%
174-S121-2.0	86.1	ok @50%
174-S121-4.0	84.1	ok @50%
174-S121-6.0	81.7	ok @50%
174-S121-8.0	82	ok @50%
174-S122-0.0	83.1	ok @50%
174-S122-0.0X	83.5	ok @50%
174-S122-10.0	68	ok @50%
174-S122-12.0	84.2	ok @50%
174-S122-14.0	79.7	ok @50%
174-S122-2.0	92.3	ok @50%
174-S122-4.0	83.8	ok @50%
174-S122-8.0	70.4	ok @50%
174-S123-0.0	87.3	ok @50%
174-S123-12.0	71.4	ok @50%
174-S123-2.0	87.3	ok @50%
174-S123-4.0	67.1	ok @50%
174-S123-8.0	30.4	<50%

SDG#: JB38115-1
Batch: 108815
Cr+6 ICAL -04/9/2012
Solid
(p. 520 of data pkg)

x - concentration	y - response
0	0
0.05	0.04
0.1	0.081
0.5	0.4
0.75	0.611
1.25	1.019

(p. 520 of data pkg)

AECOM Calculated Intercept	-0.0015	OK	Reported intercept	1.8810
AECOM Slope	0.8151	OK	Reported Slope	1227
AECOM Calculated r	0.99997	OK	Reported r	1.00000

LCS calculation	**LCS Sol pgs. 462, 516, 547**			
Background Absorbance	0			
Total absorbance	0.442			
Total absorbance - background	0.442			
Instrument Concentration	0.544			
Sample weight (mg/kg)	0.0025			
Final Volume (L)	0.1			
Dilution Factor	1			
AECOM Calculated LCS Result (mg/Kg)	21.8	OK	Reported Result (mg/Kg)	21.77

%R = Found/True*100	**pg. 462**			
True Value (mg/kg)	24.4			
AECOM Calculated %R	89.2	OK rounding	Reported %R	89

MS calculation	**[174-S121-8.0] pg. 457, 516, 547**			
Background reading	0.005			
Total absorbance	0.293			
Total absorbance - background	0.288			
Instrument Concentration	0.355			
Sample weight (mg/kg)	0.0025			
Final Volume (L)	0.1			
Percent solids	0.82			
Dilution Factor	1			
AECOM Calculated MS Result (mg/Kg)	17.33	OK	Reported Result (mg/Kg)	17.32

%R = Found/True*100	**[174-S121-8.0] pg. 455**			
True Value (mg/kg)	48.8			
Native concentration (mg/Kg)	0			
AECOM%R	35.5	OK	Reported %R	36

Percent Solids 174-S122-14.0	**pg. 422, 577**			
Empty dish weight=	1			
Wet weight=	6.97			
Dry weight=	5.76			
AECOM%solids =	79.7	OK	reported %solids=	79.7

Reporting Limit [174-S122-14.0]	**pgs. 422, 547**			
Low Standard	0.05			
Initial weight (mg/kg)	0.00248			
Final volume (L)	0.1			
Percent solids	0.80			
Dilution Factor	1.00			
Reporting Limit	2.53	OK rounding	Reported RL (mg/Kg)=	2.5

Sample Calculations

174-S122-14.0	**pgs.422, 516, 547**			
Background reading	0.004			
Total absorbance	0.022			
Total absorbance - background	0.018			
Instrument Response	0.024			
Sample weight (mg/kg)	0.00248			
Final Volume (L)	0.1			
Percent solids	0.797			
Dilution Factor	1			
AECOM Calculated Result (mg/Kg)	1.2	OK	Reported Result (mg/Kg)	1.2

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

Boring ID: S121

Project Name: PPG Garfield Ave	**Drilling Company:** TPI Environmental	
Project Number: 60246594.DCP.RI.A	**Drilling Method:** Geoprobe	**Coordinates (NJSPNAD83) x:** 593298.9375
Date Started Drilling: 3/20/2012	**Rig Type:** TX-42	**Coordinates (NJSPNAD83) y:** 660313.625
Date Finished Drilling: 3/20/2012	**Core Size:** 2 in	**Boring Total Depth:** 16 ft
Logged By: M. Merdinger	**Project Manager:** Al LoPilato	**Depth to Water:** 4.5
Physical Location: Dennis Collins Park - west boring ballfield		

(Note bgs = below ground surface)

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	GA Class	USCS	Graphic Log	Surface Cover and Thickness:	Sample Number
0	4	0	dry	3	FILL		Reddish Brown (5YR 4/4) to Yellowish Red (5YR 5/6) SILT and fine Sand, trace topsoil and organics, loose, no odor.	174-S121-0.0
1		0	dry	3	FILL		Light Brown (7.5YR 6/4) medium SAND and fine Black Sand interbedded, loose, no odor.	
			moist	3	FILL		Reddish Brown (5YR 4/4) to (2.5YR 5/3) fine Sandy SILT to SILT, little coarse to medium Black Gravel and fine Sand and Clay, trace Concrete and Cinders, medium dense, no odor.	
2		0						174-S121-2.0
3		0						
			moist	3	FILL		Reddish Brown (2.5YR 5/3) Silty CLAY, trace coarse Sand, cohesive, medium stiff, no odor.	
4	2	0	moist	3	FILL		Reddish Brown (2.5YR 5/3) Silty CLAY, trace coarse Sand, cohesive, medium stiff, no odor.	174-S121-4.0
			wet	3	FILL		Dark Reddish Gray (5YR 4/2) SILT and fine to coarse SAND, trace brick, coal, ash, soft, no odor.	
5		0						
6			wet	3	VOID		No Recovery.	174-S121-6.0
7								
8	3.2	0	wet	3	FILL		Dark Reddish Gray (5YR 4/2) SILT and fine to coarse SAND, trace brick, coal, ash, wet, soft, no odor.	174-S121-8.0
9		0						
			moist	3	FILL		Reddish Brown (5YR 4/4) Silty Clay, little fine to medium Sand, soft, no odor.	
10		0						174-S121-10.0
			moist	3	FILL		Black-stained Silty Clay, medium stiff, slight degraded oil odor.	
11			moist	3	VOID		No Recovery.	
12	2	0	moist	3	FILL		Black-stained Silty Clay, trace shells, little very fine Sand, medium stiff, slight degraded oil odor.	174-S121-12.0
13		0	moist	3	FILL		Reddish Brown (5YR 4/4) to Red (2.5YR 4/6) fine Silty SAND and SILT, interbedded, little fine Gravel, dense, no odor.	
14			moist	3	VOID		No Recovery.	174-S121-14.0
15								
16							End of boring at 16 ft.	

Comments: No COPR or GGM identified at this location.

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

Boring ID: S122

Project Name: PPG Garfield Ave	**Drilling Company:** TPI Environmental	
Project Number: 60246594.DCP.RI.A	**Drilling Method:** Geoprobe	**Coordinates (NJSPNAD83) x:** 593410.375
Date Started Drilling: 3/20/2012	**Rig Type:** TX-42	**Coordinates (NJSPNAD83) y:** 660347.1875
Date Finished Drilling: 3/20/2012	**Core Size:** 2 in	**Boring Total Depth:** 16 ft
Logged By: B. Daniels	**Project Manager:** Al LoPilato	**Depth to Water:** 4.8
Physical Location: Dennis Collins Park - north boring ballfield		

(Note bgs = below ground surface)

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	GA Class	USCS	Graphic Log	Surface Cover and Thickness:	Sample Number
0	3	0	dry	3	FILL		Dark Brown (7.5YR 3/2) SILT, some fine Sand, trace organics, loose, no odor.	174-S122-0.0
1		0	moist	3	FILL		Dark Reddish Brown (5YR 3/3) coarse to fine SAND and coarse to fine sub-rounded GRAVEL, little Fill (slag, coal, cinders), medium dense, no odor.	
			dry	3	FILL		Gray (7.5YR 6/1) medium to fine sub-angular GRAVEL, little coarse to fine Sand, trace course sub-angular gravel, loose, no odor.	
2		0	moist	3	FILL		Reddish Brown (2.5YR 4/4) fine SAND and SILT, trace fine sub-rounded Gravel, trace fill (coal, cinders), medium dense, no odor.	174-S122-2.0
3			moist	3	VOID		No Recovery.	
4	1.5	0	moist	3	FILL		Brown (7.5YR 4/3) SILT, little coarse to fine sub-rounded Gravel, medium loose, no odor.	174-S122-4.0
			moist	3	FILL		Brown (7.5YR 4/4) SILT, little fine angular Gravel, little fill (coal, cinders), medium dense, no odor.	
5			wet	3	FILL		Brown (7.5YR 4/4) SILT, little fine angular Gravel, little fill (coal, cinders), medium dense, moist. No odor.	
		20.2	wet	3	FILL		Crushed wood fill.	
			wet	3	VOID		Crushed wood fill, wet.	
6							Black-stained SILT and fine SAND, trace fine angular Gravel, loose, degraded oil odor.	
7							No Recovery.	
8	3.2	20.5	wet	3	FILL		Black-stained coarse to fine SAND and SILT, trace fine angular Gravel, loose, degraded oil odor.	174-S122-8.0
9		33.3	wet	3	FILL		Black-stained SILT, loose, degraded oil odor.	
			wet	3	FILL		Black-stained SILT, loose, wet, degraded oil odor.	
			wet	3	FILL		Very Dark Gray (7.5YR 3/1) medium to fine SAND, loose, degraded oil odor.	
10		15.1	wet	3	FILL		Black SILTY CLAY, medium dense, degraded oil odor.	174-S122-10.0
							Black SILTY CLAY, medium dense, wet, degraded oil odor.	
11			wet	3	FILL		Reddish brown (5YR 4/3) medium to fine angular GRAVEL, little coarse to fine Sand, medium dense, no odor.	
			wet	3	VOID			
12	2.1	0	wet	3	FILL		Reddish brown (5YR 4/3) medium to fine angular GRAVEL, little course to fine Sand, medium dense, wet, no odor.	174-S122-12.0
							No Recovery.	
13		0	wet	3	FILL		Brown (7.5YR 5/3) SILT, little coarse to fine Sand, trace medium to fine sub-rounded Gravel, medium dense, no odor.	
14			wet	3	VOID		Reddish Brown (2.5YR 4/4) SILT and fine sub-rounded angular GRAVEL, little coarse to fine Sand, loose, no odor.	174-S122-14.0
							No Recovery.	
15								
16							End of boring at 16 ft.	

Comments: No COPR or GGM identified at this location.

AECOM
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Boring ID: S123

Project Name: PPG Garfield Ave	**Drilling Company:** TPI Environmental	
Project Number: 60246594.DCP.RI.A	**Drilling Method:** Geoprobe	**Coordinates (NJSPNAD83) x:** 593406
Date Started Drilling: 3/20/2012	**Rig Type:** TX-42	**Coordinates (NJSPNAD83) y:** 660261.75
Date Finished Drilling: 3/20/2012	**Core Size:** 2 in	**Boring Total Depth:** 12.5 ft
Logged By: B. Daniels	**Project Manager:** Al LoPilato	**Depth to Water:** 4.4
Physical Location: Dennis Collins Park - south boring ballfield		

(Note bgs = below ground surface)

Depth Range (ft bgs)	Recovery (ft/ft)	PID (ppm)	Moisture Content	GA Class	USCS	Graphic Log	Surface Cover and Thickness:	Sample Number
0	2.5	0	dry	3	FILL		Brown (7.5YR 4/3) SILT, little fine Sand, trace organics, trace coal fragments, loose, no odor.	174-S123-0.0
1		0	dry	3	FILL		Black coarse to fine SAND, some medium to fine angular Gravel, loose, no odor.	
			dry	3	FILL		Brown (7.5YR 5/6) to Reddish Brown (2.5YR 4/4) SILT, trace coarse to fine sub-angular Gravel and coal, dense, no odor.	
2		0	dry	3	FILL		Brown (7.5YR 5/6) to Reddish Brown (2.5YR 4/4) SILT, trace course to fine sub-angular Gravel, dense, dry, no odor. Trace coal.	174-S123-2.0
3			dry	3	VOID		Reddish Brown (2.5YR 4/4) coarse to fine SAND, little Silt, little fill (coal, glass), fractured sandstone in shoe, dense, no odor. No Recovery.	
4	1.1	0	dry	6	FILL		Crushed fill (coal, cinders), no odor.	174-S123-4.0
			wet	3	FILL		Crushed wood, no odor.	
5			wet	3	FILL		Crushed wood, wet, no odor. Brown (7.5YR 4/3) coarse to fine SAND, some medium to fine angular Gravel, medium dense. No odor.	
		0	wet	3	VOID		No Recovery.	
6								
7								
8	0.8	25.1	wet	3	FILL		Black-stained SILT, little clay, trace organics, medium loose, degraded oil odor.	174-S123-8.0
9			wet	3	VOID		No Recovery.	
10								
11								
12	0.5	0	wet	3	FILL		Black crushed fill, no odor, wood in shoe.	174-S123-12.0
							Refusal at 12.5 ft.	

Comments: No COPR or GGM identified at this location. 2 refusals at 12.5 ft.