14 December, 2012

Dresdner-Robin Environmental Management
Att: Mr. Douglas Neumann, Director
371 Warren Street
Jersey City, New Jersey 07302

Re: PPG – Site 107, Laboratory Job No. 460-34686-1

Dear Mr. Neumann,

This cover letter, and the attached documents, detail the data validation findings associated with the following sample analytical results contained in the above-referenced deliverables set:

Site Name: PPG – Conrail

Fractions
Hexavalent chromium (Cr^{+6}) Laboratory: TestAmerica Laboratories, Inc.
Total Vanadium (V)
pH / Eh ; ORP

Report No.: 460-34686-1 Matrix: Non-Aqueous

Reviewer: Chris Taylor

Prepared By: Environmental Quality Associates, Inc.

SECTION A
Sample Information

The above-noted laboratory Job Number samples were analyzed by TestAmerica Laboratories, Inc., Edison, NJ (NJ Laboratory ID Cert. No. 12028). Hexavalent chromium (Cr^{+6}) samples were prepared and analyzed using USEPA SW-846 methods 3060A and 7196A. Total metals samples were prepared and analyzed using USEPA SW-846 methods 3050B (3010A for aqueous samples) and 6010B. Oxidation / Reduction Potential (ORP) characteristics were determined by measurement of pH / Eh values for samples and subsequent extrapolation against the $HCrO_4$- / $Cr(OH)_3$ phase diagram; pH and Eh values were measured by Standard Methods 4500H-B and 2580B, respectively.

A summary table of samples analyzed is presented below. Please note that the number of 'Total Samples' listed below is exclusive of associated QC samples (MS / MD).

Field Sample ID	Lab ID	Matrix	Date Collected	Analysis	
				Hex. Cr	Metals (V)
107_MO32E2_0.0	460-00034686-001	S	12/12/11		X
107_MO32E2_0.5	460-00034686-002	S	12/12/11	X	X
107_MO32E2_1.0	460-00034686-003	S	12/12/11	X	X
107_MO32E2_1.5	460-00034686-004	S	12/12/11	X	X
107_MO32E2_4.0	460-00034686-009	S	12/12/11		X
107_MO32E1_0.0	460-00034686-010	S	12/12/11		X
107_MO32E1_0.5	460-00034686-011	S	12/12/11	X	X
107_MO32E1_1.0	**460-00034686-012**	S	12/12/11	X	X
107_MO32E1_1.5	460-00034686-013	S	12/12/11	X	X
107_MO30E2_0.0	460-00034686-019	S	12/12/11	X	X
107_MO30E2_0.5	460-00034686-020	S	12/12/11	X	X
107_MO30E2_4.0	460-00034686-027	S	12/12/11		X
REP121211-1	460-00034686-028	S	12/12/11		X
107_MO30E1_0.0	460-00034686-029	S	12/12/11	X	X
107_MO30E1_0.5	460-00034686-030	S	12/12/11	X	X
107_MO30E1_4.0	460-00034686-037	S	12/12/11		X
107_MO28E2_0.0	460-00034686-038	S	12/12/11	X	X
107_MO28E2_0.5	460-00034686-039	S	12/12/11	X	X
107_MO28E2_1.0	**460-00034686-040**	S	12/12/11	X	X
107_MO28E1_0.0	460-00034686-045	S	12/12/11	X	X
107_MO28E1_0.5	**460-00034686-046**	S	12/12/11	X	X
107_MO28E1_1.0	460-00034686-047	S	12/12/11	X	X
107_MO28E1_1.5	460-00034686-048	S	12/12/11	X	X
107_MO28E1_2.0	460-00034686-049	S	12/12/11	X	X
107_MO28E1_2.5	460-00034686-050	S	12/12/11	X	X
107_MO28E1_3.0	460-00034686-051	S	12/12/11	X	X
107_MO28W_0.0	460-00034686-052	S	12/12/11	X	X
107_MO28W_0.5	460-00034686-053	S	12/12/11	X	X
107_MO28W_1.0	460-00034686-054	S	12/12/11	X	X
107_MO28W_1.5	460-00034686-055	S	12/12/11	X	X
107_MO28W_2.0	460-00034686-056	S	12/12/11	X	X
107_MO28W_2.5	460-00034686-057	S	12/12/11	X	X
107_MO28W_3.0	**460-00034686-058**	S	12/12/11	X	X
REP121211-2	460-00034686-059	S	12/12/11	X	
FB121211	460-00034686-060	A	12/12/11	X	X
107_MO26E2_0.5	460-00034686-061	S	12/12/11	X	X
107_MO26E2_1.0	460-00034686-062	S	12/12/11	X	
107_MO26E2_1.5	460-00034686-063	S	12/12/11	X	
107_MO26E2_2.0	460-00034686-064	S	12/12/11	X	
107_MO26E2_2.5	460-00034686-065	S	12/12/11	X	

Field Sample ID	Lab ID	Matrix	Date Collected	Analysis	
				Hex. Cr	Metals (V)
107_MO26E2_3.0	460-00034686-066	S	12/12/11	X	
107_MO26E2_3.5	460-00034686-067	S	12/12/11	X	X
107_MO26E2_4.0	460-00034686-068	S	12/12/11	X	X
107_MO26E2_4.5	460-00034686-069	S	12/12/11	X	X
107_MO26E2_5.0	460-00034686-070	S	12/12/11	X	X
107_MO26E2_6.0	460-00034686-071	S	12/12/11	X	X
REP121211-3	460-00034686-072	S	12/12/11	X	
107_MO26E1_0.5	460-00034686-073	S	12/12/11	X	X
107_MO26E1_1.0	460-00034686-074	S	12/12/11	X	
107_MO26E1_1.5	460-00034686-075	S	12/12/11	X	
107_MO26E1_2.0	460-00034686-076	S	12/12/11	X	
107_MO26E1_2.5	460-00034686-077	S	12/12/11	X	
107_MO26E1_3.0	460-00034686-078	S	12/12/11	X	
107_MO26E1_3.5	460-00034686-079	S	12/12/11	X	
107_MO26E1_4.0	460-00034686-080	S	12/12/11	X	
107_MO26E1_4.5	460-00034686-081	S	12/12/11	X	
107_MO26E1_5.0	460-00034686-082	S	12/12/11	X	
107_MO26E1_6.0	460-00034686-083	S	12/12/11	X	
REP121211-4	460-00034686-084	S	12/12/11	X	
107_MO26W1_0.5	460-00034686-085	S	12/12/11	X	X
107_MO26W1_1.0	460-00034686-086	S	12/12/11	X	
107_MO26W1_1.5	460-00034686-087	S	12/12/11	X	
107_MO26W1_2.0	460-00034686-088	S	12/12/11	X	
107_MO26W1_2.5	460-00034686-089	S	12/12/11	X	
107_MO26W1_3.0	460-00034686-090	S	12/12/11	X	X
REP121211-5	460-00034686-096	S	12/12/11	X	

S = Non-Aqueous Matrix
A = Aqueous Matrix

Total Samples = 60 (Cr^{+6}) ; 43 (V)
Bold Type indicates sample taken as a Batch QC sample

All samples were received one day from collection. Samples were received on ice at recorded temperatures of -3.1 and 1.9 ^{o}C. No sample condition issues were noted in the sample receipt log ; no QA action was necessary.

SECTION C
Hexavalent Chromium

Holding times from sample collection to analysis ($\leq$24 hours for aqueous matrix; $\leq$30 days for non-aqueous matrix) were met for all samples.

All calibration criteria were met for this sample group, including: initial calibration linearity and continuing calibration frequency and accuracy. Method and calibration blanks for soils were free of contamination.

Reported matrix spike recoveries, duplicate precision values, reported % moisture (% solids) and reported Cr^{+6} results were randomly verified from the raw data with no disparities between reported and calculated results found. Several samples were analyzed at dilution volumes due to Cr^{+6} concentrations above calibrated range; reported RL values were adjusted accordingly for these dilution runs and are noted on the sample result forms.

The matrix spike recovery for soluble Cr^{+6} in batch QC sample MO28W-3.0 (460-34686-58) was below the lower limit, with the sample native (unspiked) concentration >4x spike-added concentration (272 mg/Kg vs. 43 mg/Kg spiked). The sample was not re-spiked and re-analyzed; per NJDEP DV guidance, no further action is necessary and associated results are acceptable for use, therefore no QA action was taken.

SECTION D
Total Metals (V)

Holding times from sample collection to analysis were met for all total metals samples.

Calibration and QC criteria were met for this sample group, including: initial calibration linearity, continuing calibration frequency and accuracy, blanks, interference checks, matrix spike recoveries, duplicate precision, LCS recoveries and serial dilution sample precision. Reported % moisture (% solids) and reported metal results were randomly verified from the raw data with no disparities between reported and calculated results found.

It is noted that no post-digestion spike samples were reported for this delivery group. Serial dilution samples were reported; no results in these samples exceeded the applicable threshold for calculation of percent difference. No positive element results were reported for the field blank sample.

SECTION E
ReDox Characteristics

Reported pH and eH (ORP) values and resulting ReDox (reducing or oxidizing) characteristics were randomly verified from the $HCrO_4$- / $Cr(OH)_3$ phase diagram; no disparities relative to reported values and characteristics were found.

SECTION F
COLLOCATED SAMPLES

Precision of collocated samples is being reported separately.

SECTION G
Overall Recommendations

The results of the review and validation process for the above analytical fractions and associated samples are summarized on the attached standard-format NJDEP Data Validation Report Forms, in order to facilitate the end-user's' review of these data.

Very truly yours,

Environmental Quality Associates, Inc.

Chris W. Taylor
Vice President

17 December, 2012

Dresdner-Robin Environmental Management
Att: Mr. Douglas Neumann, Director
371 Warren Street
Jersey City, New Jersey 07302

Re: PPG – Site 107, Laboratory Job No. 460-34781-1

Dear Mr. Neumann,

This cover letter, and the attached documents, detail the data validation findings associated with the following sample analytical results contained in the above-referenced deliverables set:

Site Name: PPG – Site 107

Fractions
Hexavalent chromium (Cr^{+6}) Laboratory: TestAmerica Laboratories, Inc.
Total Vanadium (V)
pH / Eh ; ORP

Report No.: 460-34781-1 Matrix: Non-Aqueous

Reviewer: Chris Taylor

Prepared By: Environmental Quality Associates, Inc.

SECTION A
Sample Information

The above-noted laboratory Job Number samples were analyzed by TestAmerica Laboratories, Inc., Edison, NJ (NJ Laboratory ID Cert. No. 12028). Hexavalent chromium (Cr^{+6}) samples were prepared and analyzed using USEPA SW-846 methods 3060A and 7196A. Total metals samples were prepared and analyzed using USEPA SW-846 methods 3050B (3010A for aqueous samples) and 6010B. Oxidation / Reduction Potential (ORP) characteristics were determined by measurement of pH / Eh values for samples and subsequent extrapolation against the $HCrO_4$- / $Cr(OH)_3$ phase diagram; pH and Eh values were measured by Standard Methods 4500H-B and 2580B, respectively.

A summary table of samples analyzed is presented below. Please note that the number of 'Total Samples' listed below is exclusive of associated QC samples (MS / MD).

Field Sample ID	Lab ID	Matrix	Date Collected	Hex. Cr	Metals (V)
107_MO20N_0.0	460-00034781-001	S	12/13/11		X
107_MO20N_1.0	460-00034781-002	S	12/13/11	X	X
107_MO20N_1.5	460-00034781-003	S	12/13/11	X	X
107_MO20N_2.5	460-00034781-004	S	12/13/11	X	X
107_MO20N_3.0	460-00034781-005	S	12/13/11	X	X
107_MO20N_3.5	460-00034781-006	S	12/13/11	X	
107_MO20N_4.0	460-00034781-007	S	12/13/11	X	
REP121311-1	460-00034781-008	S	12/13/11	X	X
107_MO22N_0.0	460-00034781-009	S	12/13/11		X
107_MO22N_1.0	460-00034781-010	S	12/13/11		X
107_MO24N_0.5	460-00034781-014	S	12/13/11		X
107_MO26N_0.5	460-00034781-018	S	12/13/11	X	X
107_MO26N_1.0	460-00034781-019	S	12/13/11	X	
107_MO26N_1.5	460-00034781-020	S	12/13/11	X	
107_MO26N_2.0	460-00034781-021	S	12/13/11	X	
107_MO26N_2.5	460-00034781-022	S	12/13/11	X	
107_MO26N_3.0	460-00034781-023	S	12/13/11	X	
107_MO28N_0.0	460-00034781-029	S	12/13/11	X	X
107_MO28N_0.5	460-00034781-030	S	12/13/11	X	X
107_MO28N_1.0	460-00034781-031	S	12/13/11	X	X
107_MO28N_3.0	460-00034781-035	S	12/13/11		X
REP121311-2	460-00034781-036	S	12/13/11	X	X
107_MO30N_0.0	460-00034781-037	S	12/13/11	X	X
107_MO30N_0.5	460-00034781-038	S	12/13/11	X	X
107_MO32N_0.0	460-00034781-046	S	12/13/11		X
107_MO32N_0.5	460-00034781-047	S	12/13/11	X	X
107_MO32N_1.0	460-00034781-048	S	12/13/11	X	X
107_MO32N_1.5	460-00034781-049	S	12/13/11	X	X
107_MO34N_3.0	460-00034781-055	S	12/13/11		X
107_MO34N_3.5	460-00034781-056	S	12/13/11		X
REP121311-3	460-00034781-060	S	12/13/11		X
107_MO26W2_0.5	460-00034781-061	S	12/13/11	X	X
107_MO26W2_1.0	460-00034781-062	S	12/13/11	X	
107_MO26W2_1.5	460-00034781-063	S	12/13/11	X	
107_MO26W2_2.0	460-00034781-064	S	12/13/11	X	
107_MO26W2_2.5	460-00034781-065	S	12/13/11	X	
107_MO26W2_3.0	460-00034781-066	S	12/13/11	X	
107_MO20E2_0.0	460-00034781-073	S	12/13/11		X
107_MO20E2_1.0	460-00034781-074	S	12/13/11	X	X
107_MO20E2_1.5	460-00034781-075	S	12/13/11	X	X

Field Sample ID	Lab ID	Matrix	Date Collected	Hex. Cr	Metals (V)
107_MO20E2_2.5	460-00034781-076	S	12/13/11	X	X
107_MO20E2_3.0	460-00034781-077	S	12/13/11	X	X
107_MO20E2_3.5	460-00034781-078	S	12/13/11	X	X
107_MO20E2_4.0	460-00034781-079	S	12/13/11	X	X
FB121311-1	460-00034781-080	A	12/13/11	X	X

S = Non-Aqueous Matrix
A = Aqueous Matrix

Total Samples = 35 (Cr^{+6}) ; 33 (V)
Bold Type indicates sample taken as a Batch QC sample

All samples were received one day from collection. Samples were received on ice at recorded temperatures of -5.5 and 4.6 ^{o}C. No sample condition issues were noted in the sample receipt log ; no QA action was necessary.

SECTION C
Hexavalent Chromium

Holding times from sample collection to analysis ($\leq$24 hours for aqueous matrix; $\leq$30 days for non-aqueous matrix) were met for all samples, with the following exceptions:

Samples 107_MO20N_4.0, 107_MO20N_3.5, 107_MO20E2_3.5 and 107_MO20E2_4.0 (Lab IDs 460-34781-7, 6, 78 and 79, respectively) were initially digested and analyzed within the 30-day hold time. Due to soluble MS recovery above the upper limit (142% vs. 125%), the batch required re-digestion and re-analysis, which was performed 12 days outside holding time. *Although the re-digestion analysis soluble MS recovery was within limits, these results are not usable, since the extended hold time (i.e., >32 days from collection) is a rejectable deficiency. Therefore, it is recommended that the data user accept the initial results for the noted QC batch sample group, qualified as estimated 'J', with indication of potential high bias based on the initial prep and analysis high MS recovery.*

All calibration criteria were met for this sample group, including: initial calibration linearity and continuing calibration frequency and accuracy. Method and calibration blanks for soils were free of contamination.

Reported matrix spike recoveries, duplicate precision values, reported % moisture (% solids) and reported Cr^{+6} results were randomly verified from the raw data with no disparities between reported and calculated results found. Several samples were analyzed at dilution volumes due to Cr^{+6} concentrations above calibrated range; reported RL values were adjusted accordingly for these dilution runs and are noted on the sample result forms.

The matrix spike recovery for soluble Cr^{+6} in batch QC sample 107_MO20N_4.0 (Lab ID: 460-34781-7) was above the upper limit (at 142%). Although the sample and associated QC batch samples were re-digested, re-spiked and re-analyzed, this was performed 42 days from collection; per NJDEP DV guidance all samples which are digested / analyzed beyond 32 days from collection are rejected. Therefore, the initial batch results are qualified estimated 'J',with indication of potential high bias.

The matrix duplicate precision result for Cr^{+6} in batch QC sample 107_MO20N_4.0 (Lab ID: 460-34781-7) exceeded the applicable limit of 20% RPD, at 53%. Refer to comments regarding holding time exceedance above; all associated batch samples are qualified as estimated 'J', due to duplicate precision limit exceedance.

No ORP values were reported for samples107_MO20N_3.5 and 107_MO20N_4.0. It is noted that all other non-aqueous samples reported in this SDG indicated oxidizing tendency based on measured ORP values.

SECTION D
Total Metals (V)

Holding times from sample collection to analysis were met for all total metals samples.

Calibration and QC criteria were met for this sample group, including: initial calibration linearity, continuing calibration frequency and accuracy, blanks, interference checks, matrix spike recoveries, duplicate precision, LCS recoveries and serial dilution sample precision. Reported % moisture (% solids) and reported metal results were randomly verified from the raw data with no disparities between reported and calculated results found.

No positive element results were reported for the field blank sample (FB121311).

SECTION E
ReDox Characteristics

Reported pH and eH (ORP) values and resulting ReDox (reducing or oxidizing) characteristics were randomly verified from the $HCrO_4^-$ / $Cr(OH)_3$ phase diagram; no disparities relative to reported values and characteristics were found.

SECTION F
COLLOCATED SAMPLES

Precision of collocated samples is being reported separately.

SECTION G
Overall Recommendations

The results of the review and validation process for the above analytical fractions and associated samples are summarized on the attached standard-format NJDEP Data Validation Report Forms, in order to facilitate the end-user's' review of these data.

Very truly yours,
Environmental Quality Associates, Inc.

Chris W. Taylor
Vice President

18 December, 2012

Dresdner-Robin Environmental Management
Att: Mr. Douglas Neumann, Director
371 Warren Street
Jersey City, New Jersey 07302

Re: PPG – Site 107, Laboratory Job No. 460-34820-1

Dear Mr. Neumann,

This cover letter, and the attached documents, detail the data validation findings associated with the following sample analytical results contained in the above-referenced deliverables set:

Site Name: PPG – Site 107

Fractions
Hexavalent chromium (Cr^{+6}) Laboratory: TestAmerica Laboratories, Inc.
Total Vanadium (V)
pH / Eh ; ORP

Report No.: 460-34820-1 Matrix: Non-Aqueous

Reviewer: Chris Taylor

Prepared By: Environmental Quality Associates, Inc.

SECTION A
Sample Information

The above-noted laboratory Job Number samples were analyzed by TestAmerica Laboratories, Inc., Edison, NJ (NJ Laboratory ID Cert. No. 12028). Hexavalent chromium (Cr^{+6}) samples were prepared and analyzed using USEPA SW-846 methods 3060A and 7196A. Total metals samples were prepared and analyzed using USEPA SW-846 methods 3050B (3010A for aqueous samples) and 6010B. Oxidation / Reduction Potential (ORP) characteristics were determined by measurement of pH / Eh values for samples and subsequent extrapolation against the $HCrO_4$- / $Cr(OH)_3$ phase diagram; pH and Eh values were measured by Standard Methods 4500H-B and 2580B, respectively.

A summary table of samples analyzed is presented below. Please note that the number of 'Total Samples' listed below is exclusive of associated QC samples (MS / MD).

Field Sample ID	Lab ID	Matrix	Date Collected	Hex. Cr	Metals (V)
107_MO20E1_0.0	460-00034820-001	S	12/14/11		X
107_MO20E1_1.0	460-00034820-002	S	12/14/11	X	X
107_MO20E1_1.5	460-00034820-003	S	12/14/11	X	X
107_MO20E1_2.5	460-00034820-004	S	12/14/11	X	X
107_MO20E1_3.0	460-00034820-005	S	12/14/11	X	X
107_MO20E1_3.5	460-00034820-006	S	12/14/11	X	X
107_MO20E1_4.0	460-00034820-007	S	12/14/11	X	X
107_MO20W_0.0	460-00034820-008	S	12/14/11		X
107_MO20W_1.0	460-00034820-009	S	12/14/11	X	X
107_MO20W_1.5	460-00034820-010	S	12/14/11	X	X
107_MO20W_2.5	460-00034820-011	S	12/14/11	X	X
107_MO20W_3.0	460-00034820-012	S	12/14/11	X	X
107_MO20W_3.5	460-00034820-013	S	12/14/11	X	X
107_MO20W_4.0	460-00034820-014	S	12/14/11	X	X
108_MO18E2_1.0	460-00034820-015	S	12/14/11	X	X
108_MO18E2_3.0	460-00034820-016	S	12/14/11	X	X
108_MO18E2_3.5	460-00034820-017	S	12/14/11	X	X
108_MO18E2_4.0	460-00034820-018	S	12/14/11	X	X
108_MO18E2_4.5	460-00034820-019	S	12/14/11	X	X
108_MO18E2_5.0	460-00034820-020	S	12/14/11	X	X
REP121411-1	460-00034820-021	S	12/14/11	X	X
108_MO18E1_0.5	460-00034820-022	S	12/14/11	X	X
108_MO18E1_1.0	460-00034820-023	S	12/14/11	X	X
108_MO18E1_3.0	460-00034820-024	S	12/14/11	X	X
108_MO18E1_3.5	460-00034820-025	S	12/14/11	X	X
108_MO18E1_4.0	460-00034820-026	S	12/14/11		X
108_MO18E1_4.5	460-00034820-027	S	12/14/11		X
108_MO18E1_5.0	460-00034820-028	S	12/14/11		X
REP121411-2	460-00034820-029	S	12/14/11	X	X
108_MO18N_1.0	460-00034820-030	S	12/14/11	X	X
108_MO18N_1.5	460-00034820-031	S	12/14/11	X	X
108_MO18N_2.0	460-00034820-032	S	12/14/11	X	X
108_MO18N_3.0	**460-00034820-033**	S	12/14/11	X	X
108_MO18N_3.5	460-00034820-034	S	12/14/11	X	X
108_MO18W1_0.5	460-00034820-038	S	12/14/11	X	X
108_MO18W1_1.0	460-00034820-039	S	12/14/11	X	X
108_MO18W1_1.5	460-00034820-040	S	12/14/11	X	X
108_MO18W1_2.5	460-00034820-041	S	12/14/11	X	X
108_MO18W1_3.0	460-00034820-042	S	12/14/11	X	X
108_MO18W1_3.5	460-00034820-043	S	12/14/11	X	X
108_MO18W1_2.0	460-00034820-047	S	12/14/11	X	X
REP121411-3	**460-00034820-048**	S	12/14/11	X	X
108_MO18W2_0.5	460-00034820-049	S	12/14/11	X	X
108_MO18W2_1.0	460-00034820-050	S	12/14/11	X	X
108_MO18W2_3.0	460-00034820-051	S	12/14/11	X	X
108_MO18W2_4.0	460-00034820-052	S	12/14/11	X	X
108_MO18W2_4.5	460-00034820-053	S	12/14/11		X
108_MO18W2_5.0	460-00034820-054	S	12/14/11		X
FB121411-1	460-00034820-055	A	12/14/11	X	X
QC Sample	460-00034820-056	S	12/14/11	X	

S = Non-Aqueous Matrix
A = Aqueous Matrix

Total Samples = 43 (Cr^{+6}) ; 49 (V)
Bold Type indicates sample taken as a Batch QC sample

All samples were received one day from collection. Samples were received on ice at recorded temperatures of -2.7 and 3.4 ^{o}C. No sample condition issues were noted in the sample receipt log ; no QA action was necessary.

SECTION C
Hexavalent Chromium

Holding times from sample collection to analysis (≤24 hours for aqueous matrix; ≤30 days for non-aqueous matrix) were met for all samples.

All calibration criteria were met for this sample group, including: initial calibration linearity and continuing calibration frequency and accuracy. Method and calibration blanks for soils were free of contamination.

Reported matrix spike recoveries, duplicate precision values, reported % moisture (% solids) and reported Cr^{+6} results were randomly verified from the raw data with no disparities between reported and calculated results found. Several samples were analyzed at dilution volumes due to Cr^{+6} concentrations above calibrated range; reported RL values were adjusted accordingly for these dilution runs and are noted on the sample result forms.

The matrix spike recoveries for soluble and insoluble Cr^{+6} in SDG batch QC sample 108_M018N_3.0 (Lab ID: 460-34820-33) were below the lower limit, and below 50% on initial and re-analysis, affecting associated samples (34820-032, 033, 034. Positive Cr^{+6} results for these samples were flagged as estimated 'J', with indication of significant low bias, since the samples were characterized as oxidizing in nature, which should support the presence of hexavalent chromium.

The matrix spike recoveries for soluble Cr^{+6} in SDG batch QC sample REP121411-3 (Lab ID: 460-34820-48) were below the lower limit, but above 50% on initial and re-analysis, affecting associated samples (34820-009, 010, 023, 024, 025, 029030, 031, 038, 039, 040, 041, 042, 043, 048, 049, 050, 051 and 052. Positive Cr^{+6} results for these samples were flagged as estimated 'J', and non-detect results flagged 'UJ', with indication of low bias, since the samples were characterized as oxidizing in nature, which should support the presence of hexavalent chromium.

SECTION D
Total Metals (V)

Holding times from sample collection to analysis were met for all total metals samples.

Calibration and QC criteria were met for this sample group, including: initial calibration linearity, continuing calibration frequency and accuracy, blanks, interference checks, matrix spike recoveries, duplicate precision, LCS recoveries and serial dilution sample precision. Reported % moisture (% solids) and reported metal results were randomly verified from the raw data with no disparities between reported and calculated results found. It is noted that the native sample concentrations for vanadium in QC batch samples 34820-2 and 34820-51 exceeded the spike-added concentration by >>4x, thus obviating meaningful recovery information from these samples. No QA action was necessary.

No positive element results were reported for the field blank sample.

SECTION E
ReDox Characteristics

Reported pH and eH (ORP) values and resulting ReDox (reducing or oxidizing) characteristics were randomly verified from the $HCrO_4$- / $Cr(OH)_3$ phase diagram; no disparities relative to reported values and characteristics were found.

SECTION F
COLLOCATED SAMPLES

Precision of collocated samples is being reported separately.

SECTION G
Overall Recommendations

The results of the review and validation process for the above analytical fractions and associated samples are summarized on the attached standard-format NJDEP Data Validation Report Forms, in order to facilitate the end-user's' review of these data.

Very truly yours,
Environmental Quality Associates, Inc.

Chris W. Taylor
Vice President

03 January, 2013

Dresdner-Robin Environmental Management
Att: Mr. Douglas Neumann, Director
371 Warren Street
Jersey City, New Jersey 07302

Re: CONRAIL - PPG Site , Laboratory Case No. E12-11760

Dear Mr. Neumann,

This cover letter, and the attached documents, detail the data validation findings associated with the following sample analytical results contained in the above-referenced deliverables set:

Site Name: CONRAIL - PPG Site

Fractions		
Hexavalent chromium (Cr^{+6})	Laboratory:	Integrated Analytical Laboratories, LLC
pH / Eh ; ORP		
Report No.: E12-11760	Matrix:	Non-Aqueous

Reviewer: Chris Taylor

Prepared By: Environmental Quality Associates, Inc.

SECTION A
Sample Information

The above-noted laboratory Job Number samples were analyzed by Integrated Analytical Laboratories, LLC (IAL), NJ Laboratory ID Cert. No. 14751. Hexavalent chromium (Cr^{+6}) samples were prepared and analyzed using USEPA SW-846 methods 3060A and 7196A. Oxidation / Reduction Potential (ORP) characteristics were determined by measurement of pH / Eh values for samples and subsequent extrapolation against the $HCrO_4$- / $Cr(OH)_3$ phase diagram; pH and Eh values were measured by Standard Methods 4500H-B and 2580B, respectively.

A summary table of samples analyzed is presented below. Please note that the number of 'Total Samples' listed below is exclusive of associated QC samples (MS / MD).

Sample ID	Lab ID	Matrix	Date Collected	Hex. Cr
108_M018W 2_2-2.0-2.5	11760-001	S	11/29/12	X
108_M018W 2_2-3.0-3.5	11760-002	S	11/29/12	X
108_M018W 2_2-4.0-4.5	*11760-003*	S	11/29/12	X
108_M018W 2_2-5.0-5.5	11760-004	S	11/29/12	X
108_M018W 2_3-2.0-2.5	**11760-005**	S	11/29/12	X
108_M018N_2-1.5-2.0	*11760-009*	S	11/29/12	X
108_M018N_2-2.0-2.5	11760-010	S	11/29/12	X
108_M018N_2-3.0-3.5	11760-011	S	11/29/12	X
108_M018N_2-4.0-4.5	11760-012	S	11/29/12	X
107_M018E2_N_1-1.0-1.5	11760-014	S	11/29/12	X
107_M029E2_N-1.0-1.5	11760-019	S	11/29/12	X
107_M020E2_N-1.5-2.0	11760-020	S	11/29/12	X
107_M020E2_N-2.5-3.0	11760-021	S	11/29/12	X
107_M020E2_N-3.0-3.5	11760-022	S	11/29/12	X
107_M026E2_N-0.5-1.0	**11760-025**	S	11/29/12	X
107_M026E2_N-1.5-2.0	11760-026	S	11/29/12	X
107_M026E2_N-2.5-3.0	11760-027	S	11/29/12	X
107_M026E2_N-3.5-4.0	11760-028	S	11/29/12	X
107_M026E2_N-4.5-5.0	11760-029	S	11/29/12	X
107_M026E2_N-5.5-6.0	11760-030	S	11/29/12	X
107_M026W2_N-1.5-2.0	11760-032	S	11/29/12	X
107_M026W2_N-2.0-2.5	11760-033	S	11/29/12	X
107_M026W2_N-2.5-3.0	11760-034	S	11/29/12	X
REP-112912-1	*11760-036*	S	11/29/12	X
REP-112912-2	*11760-037*	S	11/29/12	X
FB-112912	11760-038	A	11/29/12	X

S = Non-Aqueous Matrix
A = Aqueous Matrix

Total Samples = 26
Bold Type indicates sample taken as a Batch QC sample
Italic type indicates samples are collocated field duplicates

All samples were received one day from collection. Samples were received on ice at recorded temperature of -4^{o}C. No sample condition issues were noted in the sample receipt log ; no QA action was necessary.

SECTION C
Hexavalent Chromium

Holding times from sample collection to analysis ($\leq$24 hours for aqueous matrix; $\leq$30 days for non-aqueous matrix) were met for all samples.

All calibration criteria were met for this sample group, including: initial calibration linearity and continuing calibration frequency and accuracy. Method and calibration blanks for soils were free of contamination. Reported matrix spike recoveries, laboratory duplicate precision values, reported % moisture (% solids) and reported Cr^{+6} results were randomly verified from the raw data with no disparities between reported and calculated results found. When samples were analyzed at dilution volumes due to Cr^{+6} concentrations above calibrated range, reported RL values were adjusted accordingly for these dilution runs and are noted on the sample result forms.

No data validation qualifiers were necessary for the reported hexavalent chromium results.

SECTION D
Total Metals

No samples in this SDG were requested for total metals analysis.

SECTION E
pH / Eh (ORP) / Ferrous Iron / Sulfide

Reported pH and eH (ORP) values and resulting ReDox (reducing or oxidizing) characteristics were randomly verified from the $HCrO_4$- / $Cr(OH)_3$ phase diagram; no disparities relative to reported values and characteristics were found. These values are only used for data assessment purposes when Cr^{+6} sample matrix spike recoveries are outside acceptable recovery ranges.

SECTION F
COLLOCATED SAMPLES

REP112912-1 was identified as being collocated with 108_M018N_2_1.5-2.0, and REP112912-2 was identified as being collocated with 108_M018W2_2_4.0-4.5. Precision results are tabulated below. Note: ND = Not Detected ; nc = not calculated ; * = absolute difference is shown if either sample <5x RL

	REP112912-1	M018N_2_1.5-2.0	%RPD *
Cr (VI)	0.489	3.48	2.99 *
	REP112912-2	M018W2_2_4.0-4.5	
Cr (VI)	0.998	5.82	4.82 *

The NJDEP DV guidance protocols do not provide qualification thresholds for field duplicate precision values; however, EPA Region II data validation guidance (SOP No. HW-2, Rev. 13, Sept. 2006) provides for a qualification range of >35%, <120% RPD for soils >5x RL values, and difference >2x RL if either sample is <5x CRQL. It is noted that the precision values (based on absolute concentration difference) for the identified collocated sample pairs exceed this criterion, signifying sample matrix non-homogeneity and potential impact on sample representativeness. No data qualifiers were applied by the reviewer; however the data user should incorporate this information in assessing overall data usability.

SECTION G
Overall Recommendations

The results of the review and validation process for the above analytical fractions and associated samples are summarized on the attached standard-format NJDEP Data Validation Report Forms, in order to facilitate the end-user's' review of these data.

Very truly yours,
Environmental Quality Associates, Inc.

Chris W. Taylor
Vice President

19 April, 2011

Dresdner-Robin Environmental Management
Att: Mr. Douglas Neumann, Director
371 Warren Street
Jersey City, New Jersey 07302

Re: PPG – Sites 107 and 108, Laboratory Job No. 460-22438-1

Dear Mr. Neumann,

This cover letter, and the attached documents, detail the data validation findings associated with the following sample analytical results contained in the above-referenced deliverables set:

Site Name: PPG – Sites 107 and 108

Fractions
Hexavalent chromium (Cr^{+6}) Laboratory: TestAmerica Laboratories, Inc.
Total Metals (Cr, Ni, Sb, Tl, V)
pH / Eh ; ORP

Report No.: 460-22438-1 Matrix: Non-Aqueous

Reviewer: Chris Taylor

Prepared By: Environmental Quality Associates, Inc.
487 Shoddy Hollow Road
Middletown, New York 10940

SECTION A
Sample Information

The above-noted laboratory Job Number samples were analyzed by TestAmerica Laboratories, Inc., Edison, NJ (NJ Laboratory ID Cert. No. 12028). Hexavalent chromium (Cr^{+6}) samples were prepared and analyzed using USEPA SW-846 methods 3060A and 7196A. Total metals samples were prepared and analyzed using USEPA SW-846 methods 3050B (3010A for aqueous samples) and 6010B. Oxidation / Reduction Potential (ORP) characteristics were determined by measurement of pH / Eh values for samples and subsequent extrapolation against the $HCrO_4$- / $Cr(OH)_3$ phase diagram; pH and Eh values were measured by Standard Methods 4500H-B and 2580B, respectively.

A summary table of samples analyzed is presented below. Please note that the number of 'Total Samples' listed below is exclusive of associated QC samples (MS / MD).

Sample ID 107_-	Lab ID 460-22438-	Matrix	Date Collected	Analysis	
				Hex Cr	Metals
G032_0.0	1	S	01/24/11	X	X
G032_3.5	2	S	01/24/11	X	X
G032_7.5	3	S	01/24/11	X	X
G034_0.0	4	S	01/24/11	X	X
G034_3.5	5	S	01/24/11	X	X
G034_7.5	6	S	01/24/11	X	X
G034_11.0	7	S	01/24/11	X	X
G034_15.0	8	S	01/24/11	X	X
G034_19.0	9	S	01/24/11	X	X
I032_0.0	10	S	01/24/11	X	X
I032_3.5	**11**	S	01/24/11	X	X
I032_7.5	12	S	01/24/11	X	X
I032_10.0	13	S	01/24/11	X	X
I032_14.5	14	S	01/24/11	X	X
I032_18.5	15	S	01/24/11	X	X
I034_0.0	16	S	01/24/11	X	X
I034_3.5	17	S	01/24/11	X	X
I034_7.5	18	S	01/24/11	X	X
I034_11.5	19	S	01/24/11	X	X
I034_15.5	20	S	01/24/11	X	X
FB-1	21FB	A	01/24/11	X	X
I034_19.5	**22**	S	01/24/11	X	X

S = Non-Aqueous Matrix Total Samples = 22
A = Aqueous Matrix **Bold Type** indicates sample taken as a Batch QC sample

All samples were received one day after collection. Samples were received on ice at recorded temperature of 2.4°C.

SECTION C
Hexavalent Chromium

Holding times from sample collection to analysis (≤24 hours for aqueous matrix; ≤30 days for non-aqueous matrix) were met for all samples.

All calibration and QC criteria were met for this sample group, including: initial calibration linearity, continuing calibration frequency and accuracy, blanks, duplicate precision, and matrix and post-spike recoveries. Reported spike recoveries, duplicate precision values, reported % moisture (% solids) and reported Cr^{+6} results were randomly verified from the raw data with no disparities between reported and calculated results found.

Cr^{+6} was not detected in Field Blank FB-1.

No collocated field duplicate samples were identified for this sample delivery group.

SECTION D
Total Metals

Holding times from sample collection to analysis were met for all total metals samples.

Calibration and QC criteria were met for this sample group, including: initial calibration linearity, continuing calibration frequency and accuracy, blanks, interference checks, duplicate precision, LCS recoveries and serial dilution sample precision, *with the exception detailed below*. Reported spike recoveries, duplicate precision values, reported % moisture (% solids) and reported metal results were randomly verified from the raw data with no disparities between reported and calculated results found.

The recovery for antimony (Sb) in the matrix spike of sample 107_G032_3.5 (Lab ID# 460-22438-2) was below the lower limit of 75%, at 67%. Results for Sb in associated field samples were flagged as estimated values 'UJ' or 'J', with indication of low bias due to matrix effects. The associated LCS recoveries for Sb were within acceptable limits, indicating analytical process control.

It is noted that no post-digestion spike sample was reported for this delivery group. A serial dilution sample was reported, with acceptable precision shown; however, for Sb, none of the reported results were above the minimum threshold values for meaningful precision interpretation. Therefore, the indication of low bias for reported Sb results based on matrix spike recovery is maintained.

No positive element results were reported for the field blank sample (FB-1).

No collocated field duplicate samples were identified for this sample delivery group.

SECTION E
pH / Eh (ORP)

Samples for pH analysis were analyzed outside the method-defined holding-time of 15 minutes, which is essentially a 'field-performed' analysis. The laboratory assigned all reported pH results an 'HF' qualifier flag to indicate this exception. Since the samples were chilled on receipt at the lab, and analyzed within one day of receipt, no data validation qualifiers were assigned.

Calibrations for pH analysis were acceptable, as were required QC criteria (sample duplicates). Standard mV solution checks for Eh (Light's solution) were within acceptable ranges, as were sample duplicate measurements.

Reported pH and eH (ORP) values and resulting ReDox (reducing or oxidizing) characteristics were randomly verified from the $HCrO_4$- / $Cr(OH)_3$ phase diagram; no disparities relative to reported values and characteristics were found. These values are only used for data assessment purposes when Cr^{+6} sample spike recoveries are outside acceptable recovery ranges; reported spike recoveries were within specified limits.

SECTION F
Overall Recommendations

The results of the review and validation process for the above analytical fractions and associated samples are summarized on the attached standard-format NJDEP Data Validation Report Forms, in order to facilitate the end-user's' review of these data.

Very truly yours,
Environmental Quality Associates, Inc.

Chris W. Taylor
Vice President

25 April, 2011

Dresdner-Robin Environmental Management
Att: Mr. Douglas Neumann, Director
371 Warren Street
Jersey City, New Jersey 07302

Re: PPG – Sites 107 and 108, Laboratory Job No. 460-22465-1

Dear Mr. Neumann,

This cover letter, and the attached documents, detail the data validation findings associated with the following sample analytical results contained in the above-referenced deliverables set:

Site Name: PPG – Sites 107 and 108

Fractions
Hexavalent chromium (Cr^{+6}) Laboratory: TestAmerica Laboratories, Inc.
Total Metals (Cr, Ni, Sb, Tl, V)
pH / Eh ; ORP

Report No.: 460-22465-1 Matrix: Non-Aqueous

Reviewer: Chris Taylor

Prepared By: Environmental Quality Associates, Inc.
487 Shoddy Hollow Road
Middletown, New York 10940

SECTION A
Sample Information

The above-noted laboratory Job Number samples were analyzed by TestAmerica Laboratories, Inc., Edison, NJ (NJ Laboratory ID Cert. No. 12028). Hexavalent chromium (Cr^{+6}) samples were prepared and analyzed using USEPA SW-846 methods 3060A and 7196A. Total metals samples were prepared and analyzed using USEPA SW-846 methods 3050B (3010A for aqueous samples) and 6010B. Oxidation / Reduction Potential (ORP) characteristics were determined by measurement of pH / Eh values for samples and subsequent extrapolation against the $HCrO_4$- / $Cr(OH)_3$ phase diagram; pH and Eh values were measured by Standard Methods 4500H-B and 2580B, respectively.

A summary table of samples analyzed is presented below. Please note that the number of 'Total Samples' listed below is exclusive of associated QC samples (MS / MD).

Sample ID	Lab ID		Date	Analysis	
107_-	460-22465-	Matrix	Collected	Hex Cr	Metals
K032_0.0	1	S	01/25/11	X	X
K032_3.5	2	S	01/25/11	X	X
K032_7.5	3	S	01/25/11	X	X
K032_10.5	4	S	01/25/11	X	X
K032_14.5	5	S	01/25/11	X	X
K032_18.5	6	S	01/25/11	X	X
K036_0.0	7	S	01/25/11	X	X
K036_3.5	8	S	01/25/11	X	X
K036_7.5	9	S	01/25/11	X	X
I036_0.0	10	S	01/25/11	X	X
I036_3.5	11	S	01/25/11	X	X
I036_7.5	**12**	S	01/25/11	X	X
I036_11.5	13	S	01/25/11	X	X
I036_15.5	14	S	01/25/11	X	X
I036_19.5	15	S	01/25/11	X	X
I036_23.5	16	S	01/25/11	X	X
G036_0.0	17	S	01/25/11	X	X
G036_5.0	18	S	01/25/11	X	X
G036_6.0	19	S	01/25/11	X	X
G036_7.0	20	S	01/25/11	X	X
G036_15.0	21	S	01/25/11	X	X
G036_19.0	22	S	01/25/11	X	X
G036_23.0	23	S	01/25/11	X	X
E034_0.0	24	S	01/25/11	X	X
E034_3.5	25	S	01/25/11	X	X
E034_7.5	26	S	01/25/11	X	X
E034_10.5	27	S	01/25/11	X	X
E034_14.5	28	S	01/25/11	X	X
E034_18.5	29	S	01/25/11	X	X
G038_0.0	30	S	01/25/11	X	X
G038_4.5	31	S	01/25/11	X	X
G038_6.0	**32**	S	01/25/11	X	X
G038_7.0	33	S	01/25/11	X	X
Rep012511-1	34	S	01/25/11	X	X
Rep012511-2	**35**	S	01/25/11	X	X
FB-1	36	A	01/25/11	X	X

S = Non-Aqueous Matrix
A = Aqueous Matrix

Total Samples = 36
Bold Type indicates sample taken as a Batch QC sample

All samples were received one day after collection. Samples were received on ice at recorded temperatures of 0.2 and 5.3°C.

SECTION C
Hexavalent Chromium

Holding times from sample collection to analysis (≤24 hours for aqueous matrix; ≤30 days for non-aqueous matrix) were met for all samples.

All calibration criteria were met for this sample group, including: initial calibration linearity and continuing calibration frequency and accuracy. Method and calibration blanks were free of contamination. Reported spike recoveries, duplicate precision values, reported % moisture (% solids) and reported Cr^{+6} results were randomly verified from the raw data with no disparities between reported and calculated results found.

Cr^{+6} was not detected in Field Blank FB-1.

Matrix spike recoveries for soluble Cr^{+6} in samples 460-22465-18 and -32 (107_G036_5.0 and 107_G038_6.0, respectively) were below the allowable limit of 75% in both initial and re-analyses, with recoveries in sample 460-22465-18 below 50% (49%, 17%).

- QA Action: 1) Qualify Cr^{+6} results in batch samples associated with 460-22465-18 (samples 1 – 20) as rejected, 'R', per NJDEP SOP No. 5.A.10, Rev.3, Sect. VI.(D).7.D.8)e). See Data Usability comments below.

  2) Qualify Cr^{+6} results in batch samples associated with 460-22465-32 (samples 21 – 35) as estimated, 'UJ' or 'J', with the potential for low bias. See Data Usability comments below.

- Data Usability: 1) Eh / pH results were evaluated to determine ReDox characteristics of batch samples as an indicator of ability to support Cr^{+6}. The following associated batch samples were characterized as "Reducing" based upon the Method 3060A, Table 2 phase diagram: 460-22465- 4, -5, -8, -14, -15, -17, -18; these samples are not likely to support the presence of Cr^{+6}, or if positive, may be low-biased.

  2) Eh / pH results were evaluated to determine ReDox characteristics of batch samples as an indicator of ability to support Cr^{+6}. The following associated batch samples were characterized as "Reducing" based upon the Method 3060A, Table 2 phase diagram: 460-22465- 21, -22, -24, -28, -29, -30; these samples are not likely to support the presence of Cr^{+6}.

SECTION D
Total Metals

Holding times from sample collection to analysis were met for all total metals samples.

Calibration and QC criteria were met for this sample group, including: initial calibration linearity, continuing calibration frequency and accuracy, blanks, interference checks, duplicate precision, LCS recoveries and serial dilution sample precision, *with the exception detailed below*. Reported spike recoveries, duplicate precision values, reported % moisture (% solids) and reported metal results were randomly verified from the raw data with no disparities between reported and calculated results found.

The duplicate precision values for chromium (Cr) and nickel (Ni) in the matrix duplicate of sample 107_G038_6.0 (Lab ID# 460-22465-32) were above the upper limit of 20% RPD, at 22% and 21%, respectively. The duplicate precision value for nickel in the matrix duplicate of sample REP012511-2 (Lab ID# 460-22465-35) was above the upper limit of 20% RPD, at 49%.

- QA Action: 1) Qualify Cr and Ni results in associated samples 460-22465-29 through -34 (inclusive) as estimated, 'UJ' or 'J', with indeterminate bias direction.

  2) Qualify Ni in sample REP012511-2 and its collocated sample 107_E034-3.5 as estimated, 'J', with indeterminate bias direction.

No positive element results were reported for the field blank sample (FB-1).

SECTION E
pH / Eh (ORP)

Samples for pH analysis were analyzed outside the method-defined holding-time of 15 minutes, which is essentially a 'field-performed' analysis. The laboratory assigned all reported pH results an 'HF' qualifier flag to indicate this exception. Since the samples were chilled on receipt at the lab, and analyzed within one day of receipt, no data validation qualifiers were assigned.

Calibrations for pH analysis were acceptable, as were required QC criteria (sample duplicates). Standard mV solution checks for Eh (Light's solution) were within acceptable ranges, as were sample duplicate measurements.

Reported pH and eH (ORP) values and resulting ReDox (reducing or oxidizing) characteristics were randomly verified from the $HCrO_4^-$ / $Cr(OH)_3$ phase diagram; no disparities relative to reported values and characteristics were found. These values are only used for data assessment purposes when Cr^{+6} sample spike recoveries are outside acceptable recovery ranges; refer to the data usability section above.

SECTION F
COLLOCATED SAMPLES

107_REP012511-1 and 107_REP012511-2 were identified as being collocated with I036_3.5 and E034_3.5, respectively. Precision results (as %RPD) are tabulated below. Note: ND = Not Detected ; nc = not calculated ; * = absolute difference is shown if either sample <5x CRQL

	I036_3.5	R012511-1	%RPD	E034_3.5	R012511-2	%RPD*
Chromium	81.6	64.9	22.8	39.6	100	86.5
Nickel	18.2	24.5	29.5	43.1	51.1	17.0
Antimony	ND	ND	nc	ND	1.9	1.9 *
Thallium	ND	ND	nc	ND	ND	nc
Vanadium	28.6	28.9	1.0	22.0	21.9	0.5
Cr (VI)	ND	ND	nc	2.6	3.1	0.5 *

The NJDEP DV guidance protocols do not provide qualification thresholds for field duplicate precision values; however, EPA Region II data validation guidance (SOP No. HW-2, Rev. 13, Sept. 2006) provides for a qualification range of >35%, <120% RPD for soils >5x CRQL values, and difference >2x CRQL if either sample is <5x CRQL.

- QA Action: Qualify total chromium results in E034_3.5 and 107_REP012511-2 as estimated, 'J', due to collocated sample precision in exceedance of guidance threshold. Bias direction is indeterminate.

SECTION G
Overall Recommendations

The results of the review and validation process for the above analytical fractions and associated samples are summarized on the attached standard-format NJDEP Data Validation Report Forms, in order to facilitate the end-user's' review of these data.

Very truly yours,
Environmental Quality Associates, Inc.

Chris W. Taylor
Vice President

02 May, 2011

Dresdner-Robin Environmental Management
Att: Mr. Douglas Neumann, Director
371 Warren Street
Jersey City, New Jersey 07302

Re: PPG – Site 107, Laboratory Job No. 460-22506-1

Dear Mr. Neumann,

This cover letter, and the attached documents, detail the data validation findings associated with the following sample analytical results contained in the above-referenced deliverables set:

Site Name: PPG – Sites 107 and 108

Fractions
Hexavalent chromium (Cr^{+6}) Laboratory: TestAmerica Laboratories, Inc.
Total Metals (Cr, Ni, Sb, Tl, V)
pH / Eh ; ORP

Report No.: 460-22506-1 Matrix: Non-Aqueous

Reviewer: Chris Taylor

Prepared By: Environmental Quality Associates, Inc.
487 Shoddy Hollow Road
Middletown, New York 10940

SECTION A
Sample Information

The above-noted laboratory Job Number samples were analyzed by TestAmerica Laboratories, Inc., Edison, NJ (NJ Laboratory ID Cert. No. 12028). Hexavalent chromium (Cr^{+6}) samples were prepared and analyzed using USEPA SW-846 methods 3060A and 7196A. Total metals samples were prepared and analyzed using USEPA SW-846 methods 3050B (3010A for aqueous samples) and 6010B. Oxidation / Reduction Potential (ORP) characteristics were determined by measurement of pH / Eh values for samples and subsequent extrapolation against the $HCrO_4$- / $Cr(OH)_3$ phase diagram; pH and Eh values were measured by Standard Methods 4500H-B and 2580B, respectively.

A summary table of samples analyzed is presented below. Please note that the number of 'Total Samples' listed below is exclusive of associated QC samples (MS / MD).

Sample ID	Lab ID		Date	Analysis	
107_-	460-22506-	Matrix	Collected	Hex Cr	Metals
I038_0.0	1	S	01/26/11	X	X
I038_3.5	2	S	01/26/11	X	X
I038_6.5	3	S	01/26/11	X	X
I038_7.0	**4**	S	01/26/11	X	X
I038_8.0	5	S	01/26/11	X	X
I038_10.0	**6**	S	01/26/11	X	X
I038_11.0	7	S	01/26/11	X	X
I038_12.0	8	S	01/26/11	X	X
I038_17.0	9	S	01/26/11	X	X
I038_21.0	10	S	01/26/11	X	X
I038_25.0	**11**	S	01/26/11	X	X
K038_0.0	12	S	01/26/11	X	X
K038_3.5	13	S	01/26/11	X	X
K038_7.5	14	S	01/26/11	X	X
K038_11.5	15	S	01/26/11	X	X
K038_15.5	16	S	01/26/11	X	X
K038_16.5	17	S	01/26/11	X	X
K038_20.5	18	S	01/26/11	X	X
K038_24.5	19	S	01/26/11	X	X
K040_0.0	20	S	01/26/11	X	X
K040_3.5	21	S	01/26/11	X	X
K040_7.5	22	S	01/26/11	X	X
K040_11.5	23	S	01/26/11	X	X
K040_16.0	24	S	01/26/11	X	X
K040_20.0	25	S	01/26/11	X	X
K040_24.0	26	S	01/26/11	X	X
I040_0.0	27	S	01/26/11	X	X
I040_3.5	28	S	01/26/11	X	X
I040_7.5	29	S	01/26/11	X	X
I040_11.5	30	S	01/26/11	X	X
I040_15.5	31	S	01/26/11	X	X
I040_16.5	32	S	01/26/11	X	X
I040_20.5	33	S	01/26/11	X	X
I040_24.5	34	S	01/26/11	X	X
FB012611	35 FB	A	01/26/11	X	X

S = Non-Aqueous Matrix
A = Aqueous Matrix

Total Samples = 35
Bold Type indicates sample taken as a Batch QC sample

All samples were received one day after collection. Samples were received on ice at recorded temperature of 2.3°C.

SECTION C
Hexavalent Chromium

Holding times from sample collection to analysis (≤24 hours for aqueous matrix; ≤30 days for non-aqueous matrix) were met for all samples.

All calibration and QC criteria were met for this sample group, including: initial calibration linearity, continuing calibration frequency and accuracy, blanks, duplicate precision, and matrix and post-spike recoveries. Reported spike recoveries, duplicate precision values, reported % moisture (% solids) and reported Cr^{+6} results were randomly verified from the raw data with no disparities between reported and calculated results found.

Cr^{+6} was detected in Field Blank FB-1, at 1.8 J ug/L; this is equivalent to a nominal value of 0.072 mg/Kg. For qualification assessment, associated positive Cr^{+6} soil results below 3x adjusted nominal value are negated, while results >3x but <10x adjusted nominal values are qualified as estimated, 'J', with indication of positive bias.

- QA Action: The reported Cr^{+6} result for sample 460-22506-9 (107_I038_17.0) was >3x but <10x the adjusted nominal Field Blank value, and was flagged as estimated, 'J', with indication of positive bias due to field blank contamination.

No collocated field duplicate samples were identified for this sample delivery group.

SECTION D
Total Metals

Holding times from sample collection to analysis were met for all total metals samples.

Calibration and QC criteria were met for this sample group, including: initial calibration linearity, continuing calibration frequency and accuracy, blanks, interference checks, duplicate precision, LCS recoveries and serial dilution sample precision, *with the exception detailed below*. Reported spike recoveries, duplicate precision values, reported % moisture (% solids) and reported metal results were randomly verified from the raw data with no disparities between reported and calculated results found.

The duplicate precision values for chromium (Cr) and nickel (Ni) in the matrix duplicate of sample 460-22465-32 were above the upper limit of 20% RPD, at 22% and 21%, respectively. It is noted that although this batch duplicate sample was not from this SDG's samples, it is from this site, and thus may be considered to be of similar matrix type.

- QA Action: Qualify Cr and Ni results in associated samples 460-22506-21 through -34 (inclusive) as estimated, 'UJ' or 'J', with indeterminate bias direction.

It is noted that no post-digestion spike sample was reported for this delivery group. Serial dilution samples were reported, with acceptable precision.

No positive element results were reported for the field blank sample (FB012611).

No collocated field duplicate samples were identified for this sample delivery group.

SECTION E
pH / Eh (ORP)

Samples for pH analysis were analyzed outside the method-defined holding-time of 15 minutes, which is essentially a 'field-performed' analysis. The laboratory assigned all reported pH results an 'HF' qualifier flag to indicate this exception. Since the samples were chilled on receipt at the lab, and analyzed within one day of receipt, no data validation qualifiers were assigned.

Calibrations for pH analysis were acceptable, as were required QC criteria (sample duplicates). Standard mV solution checks for Eh (Light's solution) were within acceptable ranges, as were sample duplicate measurements.

Reported pH and eH (ORP) values and resulting ReDox (reducing or oxidizing) characteristics were randomly verified from the $HCrO_4$- / $Cr(OH)_3$ phase diagram; no disparities relative to reported values and characteristics were found. These values are only used for data assessment purposes when Cr^{+6} sample spike recoveries are outside acceptable recovery ranges; reported spike recoveries were within specified limits.

SECTION F
Overall Recommendations

The results of the review and validation process for the above analytical fractions and associated samples are summarized on the attached standard-format NJDEP Data Validation Report Forms, in order to facilitate the end-user's' review of these data.

Very truly yours,
Environmental Quality Associates, Inc.

Chris W. Taylor
Vice President

03 May, 2011

Dresdner-Robin Environmental Management
Att: Mr. Douglas Neumann, Director
371 Warren Street
Jersey City, New Jersey 07302

Re: PPG – Site 107, Laboratory Job No. 460-22560-1

Dear Mr. Neumann,

This cover letter, and the attached documents, detail the data validation findings associated with the following sample analytical results contained in the above-referenced deliverables set:

Site Name: PPG – Site 107

Fractions
Hexavalent chromium (Cr^{+6}) Laboratory: TestAmerica Laboratories, Inc.
Total Metals (Cr, Ni, Sb, Tl, V)
pH / Eh ; ORP

Report No.: 460-22560-1 Matrix: Non-Aqueous

Reviewer: Chris Taylor

Prepared By: Environmental Quality Associates, Inc.
487 Shoddy Hollow Road
Middletown, New York 10940

SECTION A
Sample Information

The above-noted laboratory Job Number samples were analyzed by TestAmerica Laboratories, Inc., Edison, NJ (NJ Laboratory ID Cert. No. 12028). Hexavalent chromium (Cr^{+6}) samples were prepared and analyzed using USEPA SW-846 methods 3060A and 7196A. Total metals samples were prepared and analyzed using USEPA SW-846 methods 3050B (3010A for aqueous samples) and 6010B. Oxidation / Reduction Potential (ORP) characteristics were determined by measurement of pH / Eh values for samples and subsequent extrapolation against the $HCrO_4$- / $Cr(OH)_3$ phase diagram; pH and Eh values were measured by Standard Methods 4500H-B and 2580B, respectively.

A summary table of samples analyzed is presented below. Please note that the number of 'Total Samples' listed below is exclusive of associated QC samples (MS / MD).

Sample ID	Lab ID		Date	Analysis	
107_-	460-22560-	Matrix	Collected	Hex Cr	Metals
G040_0.0-0.5	1	S	01/28/11	X	X
G040_3.5	2	S	01/28/11	X	X
G040_4.5	3	S	01/28/11	X	X
G040_5.0	4	S	01/28/11	X	X
G040_7.5	5	S	01/28/11	X	X
G040_11.5	6	S	01/28/11	X	X
G040_14.5	7	S	01/28/11	X	X
G042_0.0-0.5	8	S	01/28/11	X	X
G042_3.5	9	S	01/28/11	X	X
G042_7.5	**10**	S	01/28/11	X	X
G042_11.5	11	S	01/28/11	X	X
G042_14.0	12	S	01/28/11	X	X
G042_18.0	13	S	01/28/11	X	X
G042_22.0	14	S	01/28/11	X	X
I042_0.0-0.5	15	S	01/28/11	X	X
I042_3.5	16	S	01/28/11	X	X
I042_7.5	**17**	S	01/28/11	X	X
I042_11.5	18	S	01/28/11	X	X
I042_14.5	19	S	01/28/11	X	X
I042_18.5	20	S	01/28/11	X	X
I042_22.5	**21**	S	01/28/11	X	X
K042_0.0	22	S	01/28/11	X	X
K042_3.5	23	S	01/28/11	X	X
K042_7.5	24	S	01/28/11	X	X
K042_11.5	25	S	01/28/11	X	X
K042_15.0	26	S	01/28/11	X	X
K042_19.0	27	S	01/28/11	X	X
K042_23.0	**28**	S	01/28/11	X	X
G044_0.0-0.5	29	S	01/28/11	X	X
G044_3.5	30	S	01/28/11	X	X
G044_7.5	31	S	01/28/11	X	X
G044_15.0	32	S	01/28/11	X	X
G044_19.0	33	S	01/28/11	X	X
G044_23.0	34	S	01/28/11	X	X
FB012811	35	A	01/28/11	X	X
REP012811	36	S	01/28/11	X	X

S = Non-Aqueous Matrix
A = Aqueous Matrix

Total Samples = 36
Bold Type indicates sample taken as a Batch QC sample

All samples were received on the same day as collected. Samples were received on ice at recorded temperature of 3.1°C.

SECTION C
Hexavalent Chromium

Holding times from sample collection to analysis (≤24 hours for aqueous matrix; ≤30 days for non-aqueous matrix) were met for all samples.

All calibration and QC criteria were met for this sample group, including: initial calibration linearity, continuing calibration frequency and accuracy, blanks, duplicate precision, and matrix and post-spike recoveries. Reported spike recoveries, duplicate precision values, reported % moisture (% solids) and reported Cr^{+6} results were randomly verified from the raw data with no disparities between reported and calculated results found.

Cr^{+6} was not detected in Field Blank FB-1.

SECTION D
Total Metals

Holding times from sample collection to analysis were met for all total metals samples.

Calibration and QC criteria were met for this sample group, including: initial calibration linearity, continuing calibration frequency and accuracy, blanks, interference checks, matrix spike recoveries, duplicate precision, LCS recoveries and serial dilution sample precision. Reported spike recoveries, duplicate precision values, reported % moisture (% solids) and reported metal results were randomly verified from the raw data with no disparities between reported and calculated results found.

No positive element results were reported for the field blank sample (FB-1).

SECTION E
pH / Eh (ORP)

Samples for pH analysis were analyzed outside the method-defined holding-time of 15 minutes, which is essentially a 'field-performed' analysis. The laboratory assigned all reported pH results an 'HF' qualifier flag to indicate this exception. Since the samples were chilled on receipt at the lab, and analyzed within one day of receipt, no data validation qualifiers were assigned.

Calibrations for pH analysis were acceptable, as were required QC criteria (sample duplicates). Standard mV solution checks for Eh (Light's solution) were within acceptable ranges, as were sample duplicate measurements.

Reported pH and eH (ORP) values and resulting ReDox (reducing or oxidizing) characteristics were randomly verified from the $HCrO_4$- / $Cr(OH)_3$ phase diagram; no disparities relative to reported values and characteristics were found. These values are only used for data assessment purposes when Cr^{+6} sample spike recoveries are outside acceptable recovery ranges; refer to the data usability section above.

SECTION F
COLLOCATED SAMPLES

Sample 107_REP012811-1 was identified as being collocated with sample 107_I042_3.5. Precision results are tabulated below.

Note: ND = Not Detected ; nc = not calculated ; * = absolute difference is shown if either sample <5x CRQL

	I042_3.5	R012811-1	%RPD *
Chromium	26.7	24.5	8.6
Nickel	15.5	21.3	5.8 *
Antimony	1.1	ND	1.1 *
Thallium	ND	ND	nc
Vanadium	22.1	25.7	3.6 *
Cr (VI)	ND	5.9	5.9 *

The NJDEP DV guidance protocols do not provide qualification thresholds for field duplicate precision values; however, EPA Region II data validation guidance (SOP No. HW-2, Rev. 13, Sept. 2006) provides for a qualification range of >35%, <120% RPD for soils >5x CRQL values, and difference >2x CRQL if either sample is <5x CRQL.

- QA Action: Qualify Cr^{+6} results in I042_3.5 and 107_REP012811-1 as estimated, 'J', due to collocated sample precision in exceedance of guidance threshold. Bias direction is indeterminate.

SECTION G
Overall Recommendations

The results of the review and validation process for the above analytical fractions and associated samples are summarized on the attached standard-format NJDEP Data Validation Report Forms, in order to facilitate the end-user's' review of these data.

Very truly yours,
Environmental Quality Associates, Inc.

Chris W. Taylor
Vice President

05 May, 2011

Dresdner-Robin Environmental Management
Att: Mr. Douglas Neumann, Director
371 Warren Street
Jersey City, New Jersey 07302

Re: PPG – Site 107, Laboratory Job No. 460-22638-1

Dear Mr. Neumann,

This cover letter, and the attached documents, detail the data validation findings associated with the following sample analytical results contained in the above-referenced deliverables set:

Site Name: PPG – Site 107

Fractions
Hexavalent chromium (Cr^{+6}) Laboratory: TestAmerica Laboratories, Inc.
Total Metals (Cr, Ni, Sb, Tl, V)
pH / Eh ; ORP

Report No.: 460-22638-1 Matrix: Non-Aqueous

Reviewer: Chris Taylor

Prepared By: Environmental Quality Associates, Inc.
487 Shoddy Hollow Road
Middletown, New York 10940

SECTION A
Sample Information

The above-noted laboratory Job Number samples were analyzed by TestAmerica Laboratories, Inc., Edison, NJ (NJ Laboratory ID Cert. No. 12028). Hexavalent chromium (Cr^{+6}) samples were prepared and analyzed using USEPA SW-846 methods 3060A and 7196A. Total metals samples were prepared and analyzed using USEPA SW-846 methods 3050B (3010A for aqueous samples) and 6010B. Oxidation / Reduction Potential (ORP) characteristics were determined by measurement of pH / Eh values for samples and subsequent extrapolation against the $HCrO_4$- / $Cr(OH)_3$ phase diagram; pH and Eh values were measured by Standard Methods 4500H-B and 2580B, respectively.

A summary table of samples analyzed is presented below. Please note that the number of 'Total Samples' listed below is exclusive of associated QC samples (MS / MD).

Sample ID	Lab ID		Date	Analysis	
107_-	460-22638-	Matrix	Collected	Hex Cr	Metals
F040_0.0	1	S	01/31/11	X	X
F040_3.5	2	S	01/31/11	X	X
F040_5.5	3	S	01/31/11	X	X
F040_6.0	4	S	01/31/11	X	X
F040_6.5	5	S	01/31/11	X	X
F040_7.5	6	S	01/31/11	X	X
F040_11.5	7	S	01/31/11	X	X
F040_15.0	8	S	01/31/11	X	X
F040_19.0	9	S	01/31/11	X	X
F040_22.5	**10**	S	01/31/11	X	X
I044_0.0	11	S	01/31/11	X	X
I044_3.5	12	S	01/31/11	X	X
I044_7.5	13	S	01/31/11	X	X
I044_11.5	14	S	01/31/11	X	X
I044_13.5	15	S	01/31/11	X	X
I044_17.5	16	S	01/31/11	X	X
I044_21.5	17	S	01/31/11	X	X
K044_0.0	18	S	01/31/11	X	X
K044_3.5	19	S	01/31/11	X	X
K044_7.5	**20**	S	01/31/11	X	X
K044_11.5	21	S	01/31/11	X	X
K044_14.5	22	S	01/31/11	X	X
K044_18.5	**23**	S	01/31/11	X	X
K044_22.5	24	S	01/31/11	X	X
K046_0.0	25	S	01/31/11	X	X
K046_3.5	26	S	01/31/11	X	X
K046_11.5	27	S	01/31/11	X	X
K046_15.5	28	S	01/31/11	X	X
K046_19.5	29	S	01/31/11	X	X
REP013111	30	S	01/31/11	X	X
FB013111	31FB	A	01/31/11	X	X
G046_0.0	32	S	01/31/11	X	X
G046_3.5	33	S	01/31/11	X	X
G046_4.5	34	S	01/31/11	X	X
G046_5.0	35	S	01/31/11	X	X
G046_5.5	36	S	01/31/11	X	X

Sample ID 107_-	Lab ID 460-22638-	Matrix	Date Collected	Analysis	
				Hex Cr	Metals
G046_7.5	37	S	01/31/11	X	X
G046_10.0	38	S	01/31/11	X	X
G046_14.0	39	S	01/31/11	X	X
G046_18.0	40	S	01/31/11	X	X
I046_0.0	41	S	01/31/11	X	X
I046_3.5	42	S	01/31/11	X	X
I046_7.5	43	S	01/31/11	X	X
I046_11.5	44	S	01/31/11	X	X
I046_15.5	45	S	01/31/11	X	X
I046_19.5	46	S	01/31/11	X	X

S = Non-Aqueous Matrix Total Samples = 46
A = Aqueous Matrix **Bold Type** indicates sample taken as a Batch QC sample

All samples were received on the same day as collected. Samples were received on ice at recorded temperature of 2.4°C.

SECTION C
Hexavalent Chromium

Holding times from sample collection to analysis (≤24 hours for aqueous matrix; ≤30 days for non-aqueous matrix) were met for all samples.

All calibration and QC criteria were met for this sample group, including: initial calibration linearity, continuing calibration frequency and accuracy, blanks, duplicate precision, and matrix and post-spike recoveries. Reported spike recoveries, duplicate precision values, reported % moisture (% solids) and reported Cr^{+6} results were randomly verified from the raw data with no disparities between reported and calculated results found.

Cr^{+6} was not detected in Field Blank FB-1.

SECTION D
Total Metals

Holding times from sample collection to analysis were met for all total metals samples.

Calibration and QC criteria were met for this sample group, including: initial calibration linearity, continuing calibration frequency and accuracy, blanks, interference checks, duplicate precision, LCS recoveries and serial dilution sample precision, *with the exception detailed below*. Reported spike recoveries, duplicate precision values, reported % moisture (% solids) and reported metal results were randomly verified from the raw data with no disparities between reported and calculated results found.

The recovery for antimony (Sb) in the matrix spike of sample 107_K044_7.5 (Lab ID# 460-22638-20) was below the lower limit of 75%, at 49%. The associated LCS recoveries for Sb were within acceptable limits, indicating analytical process control.

- QA Action: Qualify Sb results in in associated field samples (460-22638-17-30, 32-35 and 6-7) as estimated values 'UJ' or 'J', with indication of low bias due to matrix effects.

It is noted that no post-digestion spike samples were reported for this delivery group. Serial dilution samples were reported, with acceptable precision shown; however, for Sb, none of the reported results were above the minimum threshold values for meaningful precision interpretation. Therefore, the indication of low bias for associated Sb resultsbased on matrix spike recovery is maintained.

No positive element results were reported for the field blank sample (FB-1).

SECTION E
pH / Eh (ORP)

Samples for pH analysis were analyzed outside the method-defined holding-time of 15 minutes, which is essentially a 'field-performed' analysis. The laboratory assigned all reported pH results an 'HF' qualifier flag to indicate this exception. Since the samples were chilled on receipt at the lab, and analyzed within one day of receipt, no data validation qualifiers were assigned.

Calibrations for pH analysis were acceptable, as were required QC criteria (sample duplicates). Standard mV solution checks for Eh (Light's solution) were within acceptable ranges, as were sample duplicate measurements.

Reported pH and eH (ORP) values and resulting ReDox (reducing or oxidizing) characteristics were randomly verified from the $HCrO_4$- / $Cr(OH)_3$ phase diagram; no disparities relative to reported values and characteristics were found. These values are only used for data assessment purposes when Cr^{+6} sample spike recoveries are outside acceptable recovery ranges; refer to the data usability section above.

SECTION F
COLLOCATED SAMPLES

Sample 107_REP013111-1 was identified as being collocated with sample 107_K046_3.5. Precision results are tabulated below.

Note: ND = Not Detected ; nc = not calculated ; * = absolute difference is shown if either sample <5x CRQL

	K046_3.5	R013111-1	%RPD *
Chromium	32.3	31.4	2.8
Nickel	35.9	66.6	30.7 *
Antimony	ND	3.9	3.9 *
Thallium	ND	ND	nc
Vanadium	147	165	11.5
Cr (VI)	ND	ND	nc

The NJDEP DV guidance protocols do not provide qualification thresholds for field duplicate precision values; however, EPA Region II data validation guidance (SOP No. HW-2, Rev. 13, Sept. 2006) provides for a qualification range of >35%, <120% RPD for soils >5x CRQL values, and difference >2x CRQL if either sample is <5x CRQL.

- QA Action: Qualify Ni results in K046_3.5 and 107_REP013111-1 as estimated, 'J', due to collocated sample precision in exceedance of guidance threshold. Bias direction is indeterminate.

SECTION G
Overall Recommendations

The results of the review and validation process for the above analytical fractions and associated samples are summarized on the attached standard-format NJDEP Data Validation Report Forms, in order to facilitate the end-user's' review of these data.

Very truly yours,
Environmental Quality Associates, Inc.

Chris W. Taylor
Vice President

18 May, 2011

Dresdner-Robin Environmental Management
Att: Mr. Douglas Neumann, Director
371 Warren Street
Jersey City, New Jersey 07302

Re: PPG – Sites 107 & 108, Laboratory Job No. 460-22912-1

Dear Mr. Neumann,

This cover letter, and the attached documents, detail the data validation findings associated with the following sample analytical results contained in the above-referenced deliverables set:

Site Name: PPG – Sites 107 & 108

Fractions		
Hexavalent chromium (Cr^{+6})	Laboratory:	TestAmerica Laboratories, Inc.
Total Metals (Cr, Ni, Sb, Tl, V)		
pH / Eh ; ORP		
Report No.: 460-22912-1	Matrix:	Non-Aqueous

Reviewer: Chris Taylor

Prepared By: Environmental Quality Associates, Inc.
487 Shoddy Hollow Road
Middletown, New York 10940

SECTION A
Sample Information

The above-noted laboratory Job Number samples were analyzed by TestAmerica Laboratories, Inc., Edison, NJ (NJ Laboratory ID Cert. No. 12028). Hexavalent chromium (Cr^{+6}) samples were prepared and analyzed using USEPA SW-846 methods 3060A and 7196A. Total metals samples were prepared and analyzed using USEPA SW-846 methods 3050B (3010A for aqueous samples) and 6010B. Oxidation / Reduction Potential (ORP) characteristics were determined by measurement of pH / Eh values for samples and subsequent extrapolation against the $HCrO_4$- / $Cr(OH)_3$ phase diagram; pH and Eh values were measured by Standard Methods 4500H-B and 2580B, respectively.

A summary table of samples analyzed is presented below. Please note that the number of 'Total Samples' listed below is exclusive of associated QC samples (MS / MD).

Sample ID 108_-	Lab ID 460-22912-	Matrix	Date Collected	Analysis	
				Hex Cr	Metals
D008_0.0	1	S	02/08/11	X	X
D008_4.0	2	S	02/08/11	X	X
D008_7.5	3	S	02/08/11	X	X
D008_11.5	4	S	02/08/11	X	X
D008_15.5	5	S	02/08/11	X	X
D008_18.0	6	S	02/08/11	X	X
J008_0.0	7	S	02/08/11	X	X
J008_3.5	8	S	02/08/11	X	X
J008_7.5	9	S	02/08/11	X	X
J008_11.5	10	S	02/08/11	X	X
J008_15.5	11	S	02/08/11	X	X
J008_15.5	11MSS	S	02/08/11	X	X
Sample ID 107_-	Lab ID 460-22912-	Matrix	Date Collected		
K034_0.0	12	S	02/08/11	X	X
K034_3.5	13	S	02/08/11	X	X
K034_7.5	14	S	02/08/11	X	X
K034_11.5	15	S	02/08/11	X	X
K034_15.5	16	S	02/08/11	X	X
K034_19.5	17	S	02/08/11	X	X
M046_0.0	18	S	02/08/11	X	X
M046_3.5	19	S	02/08/11	X	X
M046_8.0	20	S	02/08/11	X	X
M046_12.0	21	S	02/08/11	X	X
M046_16.0	22	S	02/08/11	X	X
FB020811	23FB	A	02/08/11	X	X

S = Non-Aqueous Matrix
A = Aqueous Matrix

Total Samples = 24
Bold Type indicates sample taken as a Batch QC sample

All samples were received one day following collection. Samples were received on ice at recorded temperature of 2.1 ^{o}C, in good condition.

SECTION C
Hexavalent Chromium

Holding times from sample collection to analysis ($\leq$24 hours for aqueous matrix; $\leq$30 days for non-aqueous matrix) were met for all samples.

All calibration and QC criteria were met for this sample group, including: initial calibration linearity, continuing calibration frequency and accuracy, blanks, duplicate precision, and matrix and post-spike recoveries. Reported spike recoveries, duplicate precision values, reported % moisture (% solids) and reported Cr^{+6} results were randomly verified from the raw data with no disparities between reported and calculated results found.

Cr^{+6} was not detected in Field Blank FB-1.

SECTION D
Total Metals

Holding times from sample collection to analysis were met for all total metals samples.

Calibration and QC criteria were met for this sample group, including: initial calibration linearity, continuing calibration frequency and accuracy, blanks, interference checks, LCS recoveries and serial dilution sample precision, *with the exceptions detailed below*. Reported spike recoveries, duplicate precision values, reported % moisture (% solids) and reported metal results were randomly verified from the raw data with no disparities between reported and calculated results found.

The recoveries for chromium (Cr) and vanadium (V) in the matrix spike of sample 460-22948-9 were reported below the lower limit of 75%, at 66% and 66%, respectively. The associated LCS recoveries for Cr and V were within acceptable limits, indicating analytical process control. *It is noted that this batch spike sample was not from this SDG's samples,but was from this site, and thus may be considered as representative of this SDG's sample matrix characteristics.*

- QA Action: Qualify Cr and V results in in associated field samples (460-22912-14 through -22) as estimated values 'UJ' or 'J', with indication of low bias due to matrix effects.

It is noted that no post-digestion spike samples were reported for this delivery group. Serial dilution samples were reported ; however, for Cr and V, none of the reported results were above the minimum threshold values for meaningful precision interpretation. Therefore, the indication of low bias for associated Cr and V results based on matrix spike recovery is maintained.

No positive element results were reported for the field blank sample (FB-1).

SECTION E
pH / Eh (ORP)

Samples for pH analysis were analyzed outside the method-defined holding-time of 15 minutes, which is essentially a 'field-performed' analysis. The laboratory assigned all reported pH results an 'HF' qualifier flag to indicate this exception. Since the samples were chilled on receipt at the lab, and analyzed within one day of receipt, no data validation qualifiers were assigned.

Calibrations for pH analysis were acceptable, as were required QC criteria (sample duplicates). Standard mV solution checks for Eh (Light's solution) were within acceptable ranges, as were sample duplicate measurements.

Reported pH and eH (ORP) values and resulting ReDox (reducing or oxidizing) characteristics were randomly verified from the $HCrO_4$- / $Cr(OH)_3$ phase diagram; no disparities relative to reported values and characteristics were found. These values are only used for data assessment purposes when Cr^{+6} sample spike recoveries are outside acceptable recovery ranges.

SECTION F
COLLOCATED SAMPLES

No collocated samples were identified for this SDG.

SECTION G
Overall Recommendations

The results of the review and validation process for the above analytical fractions and associated samples are summarized on the attached standard-format NJDEP Data Validation Report Forms, in order to facilitate the end-user's' review of these data.

Very truly yours,
Environmental Quality Associates, Inc.

Chris W. Taylor
Vice President

06 June, 2011

Dresdner-Robin Environmental Management
Att: Mr. Douglas Neumann, Director
371 Warren Street
Jersey City, New Jersey 07302

Re: PPG – Sites 107 & 108, Laboratory Job No. 460-22930-1

Dear Mr. Neumann,

This cover letter, and the attached documents, detail the data validation findings associated with the following sample analytical results contained in the above-referenced deliverables set:

Site Name: PPG – Sites 107 & 108

Fractions
Hexavalent chromium (Cr^{+6}) Laboratory: TestAmerica Laboratories, Inc.
Total Metals (Cr, Ni, Sb, Tl, V)
pH / Eh ; ORP

Report No.: 460-22930-1 Matrix: Aqueous

Reviewer: Chris Taylor

Prepared By: Environmental Quality Associates, Inc.
487 Shoddy Hollow Road
Middletown, New York 10940

SECTION A
Sample Information

The above-noted laboratory Job Number samples were analyzed by TestAmerica Laboratories, Inc., Edison, NJ (NJ Laboratory ID Cert. No. 12028). Hexavalent chromium (Cr^{+6}) samples were prepared and analyzed using USEPA SW-846 method 7196A. Total metals samples were prepared and analyzed using USEPA SW-846 methods 3010A and 6010B. Oxidation / Reduction Potential (ORP) characteristics were determined by measurement of pH / Eh values for samples and subsequent extrapolation against the $HCrO_4$- / $Cr(OH)_3$ phase diagram; pH and Eh values were measured by Standard Methods 4500H-B and 2580B, respectively.

A summary table of samples analyzed is presented below. Please note that the number of 'Total Samples' listed below is exclusive of associated QC samples (MS / MD).

Site ID	Sample ID	Lab ID 460-22930-	Matrix	Date Collected	Analysis	
					Hex Cr	Metals
108_	TMW-J008	1	A	02/09/11	X	X
107_	TMW-K034	2	A	02/09/11	X	X
107_	TMW-M046	3	A	02/09/11	X	X
108_	TMW-J014	4	A	02/09/11	X	X
108_	TMW-D012	5	A	02/09/11	X	X
107_	TMWI042	6	A	02/09/11	X	X
108_	DUP-020911	7	A	02/09/11	X	X
---	FB020911	8FB	A	02/09/11	X	X

A = Aqueous Matrix Total Samples = 8

All samples were received on the same day of collection. Samples were received on ice at recorded temperature of 0.4°C.

SECTION C
Hexavalent Chromium

Holding times from sample collection to analysis (≤24 hours for aqueous matrix) were met for all samples.

All calibration criteria were met for this sample group, including: initial calibration linearity and continuing calibration frequency and accuracy. Method and calibration blanks were free of contamination.

Reported spike recoveries, duplicate precision values, and reported Cr^{+6} results were randomly verified from the raw data with no disparities between reported and calculated results found.

The concentration of Cr^{+6} added to the matrix spike was not as specified in the method (7196A, Sect. 7.3.1): "… The amount of spike added should double the concentration found in the original aliquot. Under no circumstances should the increase be less than 30 ug Cr(VI)/liter. …".

- QA Action: Qualify all reported Cr+6 results as estimated "UJ"; potential bias magnitude and direction is indeterminate.

No positive Cr^{+6} result was reported for the field blank sample (FB020911).

SECTION D
Total Metals

Holding times from sample collection to analysis were met for all total metals samples.

Calibration and QC criteria were met for this sample group, including: ICP-MS tune, mass calibration and resolution checks, initial calibration linearity, CRQL sensitivity check, continuing calibration frequency and accuracy, internal standard recoveries, blanks, interference checks, matrix spike recoveries, duplicate precision, LCS recoveries and serial dilution sample precision. Reported spike recoveries and duplicate precision values were randomly verified from the raw data with no disparities between reported and calculated results found.

It is noted that no post-digestion spike samples were reported for this delivery group. Serial dilution samples were reported; no results in these samples exceeded the applicable threshold for calculation of percent difference.

Results for chromium (Cr), nickel (Ni) and vanadium (V) in sample 460-22930-3 (107-TMW-M046) were reported from a 20x dilution re-analysis, due to exceedance of the linear calibration range for these elements. All other target elements in this sample and all target elements in all other SDG samples were reported from initial 5x dilution runs.

No positive element results were reported for the field blank sample (FB020911).

SECTION E
pH / Eh (ORP)

Samples for pH analysis were analyzed outside the method-defined holding-time of 15 minutes, which is essentially a 'field-performed' analysis. The laboratory assigned all reported pH results an 'HF' qualifier flag to indicate this exception. Since the samples were chilled on receipt at the lab, and analyzed within one day of receipt, no data validation qualifiers were assigned.

Calibrations for pH analysis were acceptable, as were required QC criteria (sample duplicates). Standard mV solution checks for Eh (Light's solution) were within acceptable ranges, as were sample duplicate measurements.

SECTION F
COLLOCATED SAMPLES

DUP020911-1 was identified as being collocated with 108_TMW_I042 (460-22930-6). Precision results (as %RPD) are tabulated below. Note: ND = Not Detected ; nc = not calculated ; * = absolute difference is shown if either sample <5x CRQL

	TMW_I042	D020911-1	%RPD
Chromium	4.1 J	4.4 J	0.30 *
Nickel	161	169	4.8
Antimony	ND	ND	nc
Thallium	ND	ND	nc
Vanadium	6.2	6.8	0.60 *
Cr (VI)	ND	ND	nc

The NJDEP DV guidance protocols do not provide qualification thresholds for field duplicate precision values; however, EPA Region II data validation guidance (SOP No. HW-2, Rev. 13, Sept. 2006) provides for a qualification range of >20%, <100% RPD for aqueous samples >5x CRQL values, and difference >±CRQL, <2x±CRQL if either sample is <5x CRQL. No QA action is necessary based on the above field duplicate precision results.

SECTION G
Overall Recommendations

The results of the review and validation process for the above analytical fractions and associated samples are summarized on the attached standard-format NJDEP Data Validation Report Forms, in order to facilitate the end-user's' review of these data.

Very truly yours,
Environmental Quality Associates, Inc.

Chris W. Taylor
Vice President

20 May, 2011

Dresdner-Robin Environmental Management
Att: Mr. Douglas Neumann, Director
371 Warren Street
Jersey City, New Jersey 07302

Re: PPG – Sites 107 and 108, Laboratory Job No. 460-22948-1

Dear Mr. Neumann,

This cover letter, and the attached documents, detail the data validation findings associated with the following sample analytical results contained in the above-referenced deliverables set:

Site Name: PPG – Sites 107 and 108

Fractions
Hexavalent chromium (Cr^{+6}) Laboratory: TestAmerica Laboratories, Inc.
Total Metals (Cr, Ni, Sb, Tl, V)
pH / Eh ; ORP

Report No.: 460-22948-1 Matrix: Non-Aqueous

Reviewer: Chris Taylor

Prepared By: Environmental Quality Associates, Inc.
487 Shoddy Hollow Road
Middletown, New York 10940

SECTION A
Sample Information

The above-noted laboratory Job Number samples were analyzed by TestAmerica Laboratories, Inc., Edison, NJ (NJ Laboratory ID Cert. No. 12028). Hexavalent chromium (Cr^{+6}) samples were prepared and analyzed using USEPA SW-846 methods 3060A and 7196A. Total metals samples were prepared and analyzed using USEPA SW-846 methods 3050B (3010A for aqueous samples) and 6010B. Oxidation / Reduction Potential (ORP) characteristics were determined by measurement of pH / Eh values for samples and subsequent extrapolation against the $HCrO_4$- / $Cr(OH)_3$ phase diagram; pH and Eh values were measured by Standard Methods 4500H-B and 2580B, respectively.

A summary table of samples analyzed is presented below. Please note that the number of 'Total Samples' listed below is exclusive of associated QC samples (MS / MD).

Sample 108_D012_0.0 (22948-6) was not analyzed for Cr^{+6} or ICP metals; no reason was noted.

Site ID	Sample ID	Lab ID 460-22948-	Matrix	Date Collected	Analysis	
					Hex Cr	Metals
107_	M038_0.0	1	S	02/09/11	X	X
107_	M038_3.5	2	S	02/09/11	X	X
107_	M038_8.0	3	S	02/09/11	X	X
107_	M038_12.0	4	S	02/09/11	X	X
107_	M038_16.0	5	S	02/09/11	X	X
108_	D012_0.0	6	S	02/09/11	X	X
108_	D012_3.5	7	S	02/09/11	X	X
108_	D012_6.0	8	S	02/09/11	X	X
108_	D012_11.0	**9**	S	02/09/11	X	X
108_	D012_15.0	10	S	02/09/11	X	X
108_	D012_15.0	10MSS	S	02/09/11	X	X
108_	D012_19.0	11	S	02/09/11	X	X
108_	D012_19.0	11MSS	S	02/09/11	X	X
108_	D012_23.0	12	S	02/09/11	X	X
107_	M036_0.0	13	S	02/09/11	X	X
107_	M036_3.5	14	S	02/09/11	X	X
107_	M036_7.5	15	S	02/09/11	X	X
107_	M036_8.5	16	S	02/09/11	X	X
107_	M036_12.5	17	S	02/09/11	X	X
107_	M036_16.5	18	S	02/09/11	X	X
108_	D006_0.0	**19**	S	02/09/11	X	X
108_	D006_3.5	20	S	02/09/11	X	X
108_	D006_6.5	21	S	02/09/11	X	X
108_	D006_10.5	22	S	02/09/11	X	X
108_	D006_14.5	23	S	02/09/11	X	X
108_	D006_18.5	24	S	02/09/11	X	X
---	REP-020911-1	25	S	02/09/11	X	X
---	FB020911	26FB	A	02/09/11	X	X
107_	M044_0.5	27	S	02/09/11	X	X
107_	M044_3.5	28	S	02/09/11	X	X
107_	M044_7.5	29	S	02/09/11	X	X
107_	M044_11.5	30	S	02/09/11	X	X
107_	M044_15.5	31	S	02/09/11	X	X
107_	M042_0.5	32	S	02/09/11	X	X
107_	M042_3.5	33	S	02/09/11	X	X
107_	M042_7.5	34	S	02/09/11	X	X

Site ID	Sample ID	Lab ID 460-22948-	Matrix	Date Collected	Analysis	
					Hex Cr	Metals
107_	M042_8.5	35	S	02/09/11	X	X
107_	M042_12.5	36	S	02/09/11	X	X
107_	M042_16.5	37	S	02/09/11	X	X
107_	M040_0.5	38	S	02/09/11	X	X
107_	M040_3.5	**39**	S	02/09/11	X	X
107_	M040_7.5	40	S	02/09/11	X	X
107_	M040_8.5	41	S	02/09/11	X	X
107_	M040_12.5	42	S	02/09/11	X	X
107_	M040_16.5	43	S	02/09/11	X	X

S = Non-Aqueous Matrix Total Samples = 43
A = Aqueous Matrix **Bold Type** indicates sample taken as a Batch QC sample

All samples were received one day after collection. Samples were received on ice at recorded temperatures of 4.0°C.

SECTION C
Hexavalent Chromium

Holding times from sample collection to analysis (≤24 hours for aqueous matrix; ≤30 days for non-aqueous matrix) were met for all samples.

All calibration criteria were met for this sample group, including: initial calibration linearity and continuing calibration frequency and accuracy. Method and calibration blanks were free of contamination. Reported spike recoveries, duplicate precision values, reported % moisture (% solids) and reported Cr^{+6} results were randomly verified from the raw data with no disparities between reported and calculated results found.

Cr^{+6} was not detected in Field Blank FB-1.

Matrix spike recoveries for soluble and insoluble Cr^{+6} in sample 460-22948-39 (107_M040_3.5) were below the allowable limit of 75% in both initial and re-analyses, with recoveries below 50%, as tabulated below.

Sample ID	Sol.Recov.	Insol.Recov.
22948-39	23%	38%
re-analysis	33%	57%

- QA Action: Qualify Cr^{+6} results in batch samples associated with 460-22948-39 (samples 29 – 43) as rejected, 'R', per NJDEP SOP No. 5.A.10, Rev.3, Sect. VI.(D).7.D.8)e). See Data Usability comments below.

- Data Usability: Eh / pH results were evaluated to determine ReDox characteristics of batch samples as an indicator of ability to support Cr^{+6}. The following associated batch samples were characterized as "Reducing" based upon the Method 3060A, Table 2 phase diagram: 460-22948- 30, -31, -36, -37, -38, -39, -40, -42 and -43; these samples are not likely to support the presence of Cr^{+6}, or if positive, may be low-biased.

SECTION D
Total Metals

Holding times from sample collection to analysis were met for all total metals samples.

Calibration and QC criteria were met for this sample group, including: initial calibration linearity, continuing calibration frequency and accuracy, blanks, interference checks, matrix spike recoveries, duplicate precision, LCS recoveries and serial dilution sample precision, *with the exception detailed below*. Reported spike recoveries, duplicate precision values, reported % moisture (% solids) and reported metal results were randomly verified from the raw data with no disparities between reported and calculated results found.

The recoveries for chromium (Cr) and vanadium (V) in the matrix spike of sample 108_D012_11.0 (Lab ID# 460-22948-9) were below the limit of 75%, at 66% and 66%. The associated LCS recoveries for Cr and V were within acceptable limits, indicating analytical process control.

- QA Action: Qualify Cr and V results in associated samples 460-22948-1 through -9 (inclusive) as estimated, 'UJ' or 'J', with indication of low bias due to sample matrix effects.

It is noted that no post-digestion spike samples were reported for this delivery group. Serial dilution samples were reported, with acceptable precision shown.

No positive element results were reported for the field blank sample (FB-1).

SECTION E
pH / Eh (ORP)

Samples for pH analysis were analyzed outside the method-defined holding-time of 15 minutes, which is essentially a 'field-performed' analysis. The laboratory assigned all reported pH results an 'HF' qualifier flag to indicate this exception. Since the samples were chilled on receipt at the lab, and analyzed within one day of receipt, no data validation qualifiers were assigned.

Calibrations for pH analysis were acceptable, as were required QC criteria (sample duplicates). Standard mV solution checks for Eh (Light's solution) were within acceptable ranges, as were sample duplicate measurements.

Reported pH and eH (ORP) values and resulting ReDox (reducing or oxidizing) characteristics were randomly verified from the $HCrO_4$- / $Cr(OH)_3$ phase diagram; no disparities relative to reported values and characteristics were found. These values are only used for data assessment purposes when Cr^{+6} sample spike recoveries are outside acceptable recovery ranges; refer to the data usability section above.

SECTION F
COLLOCATED SAMPLES

107_REP020911-1 was identified as being collocated with 107_M036_3.5 (460-22948-14). Precision results (as %RPD) are tabulated below. Note: ND = Not Detected ; nc = not calculated ; * = absolute difference is shown if either sample <5x CRQL

	M036_3.5	R020911-1	%RPD
Chromium	58.9	60.2	2.2
Nickel	29.2	34.5	5.3 *
Antimony	2.2	1.0	1.2 *
Thallium	ND	ND	nc
Vanadium	102	71.8	34.8
Cr (VI)	ND	ND	nc

The NJDEP DV guidance protocols do not provide qualification thresholds for field duplicate precision values; however, EPA Region II data validation guidance (SOP No. HW-2, Rev. 13, Sept. 2006) provides for a qualification range of >35%, <120% RPD for soils >5x CRQL values, and difference >2x CRQL if either sample is <5x CRQL. No QA action is necessary based on the above field duplicate precision results.

SECTION G
Overall Recommendations

The results of the review and validation process for the above analytical fractions and associated samples are summarized on the attached standard-format NJDEP Data Validation Report Forms, in order to facilitate the end-user's' review of these data.

Very truly yours,
Environmental Quality Associates, Inc.

Chris W. Taylor
Vice President

25 May, 2011

Dresdner-Robin Environmental Management
Att: Mr. Douglas Neumann, Director
371 Warren Street
Jersey City, New Jersey 07302

Re: PPG – Site 107, Laboratory Job No. 460-22995-1

Dear Mr. Neumann,

This cover letter, and the attached documents, detail the data validation findings associated with the following sample analytical results contained in the above-referenced deliverables set:

Site Name: PPG – Site 107

Fractions
Hexavalent chromium (Cr^{+6}) Laboratory: TestAmerica Laboratories, Inc.
Total Metals (Cr, Ni, Sb, Tl, V)
pH / Eh ; ORP

Report No.: 460-22995-1 Matrix: Non-Aqueous

Reviewer: Chris Taylor

Prepared By: Environmental Quality Associates, Inc.
487 Shoddy Hollow Road
Middletown, New York 10940

SECTION A
Sample Information

The above-noted laboratory Job Number samples were analyzed by TestAmerica Laboratories, Inc., Edison, NJ (NJ Laboratory ID Cert. No. 12028). Hexavalent chromium (Cr^{+6}) samples were prepared and analyzed using USEPA SW-846 methods 3060A and 7196A. Total metals samples were prepared and analyzed using USEPA SW-846 methods 3050B (3010A for aqueous samples) and 6010B. Oxidation / Reduction Potential (ORP) characteristics were determined by measurement of pH / Eh values for samples and subsequent extrapolation against the $HCrO_4$- / $Cr(OH)_3$ phase diagram; pH and Eh values were measured by Standard Methods 4500H-B and 2580B, respectively.

A summary table of samples analyzed is presented below. Please note that the number of 'Total Samples' listed below is exclusive of associated QC samples (MS / MD).

Sample ID	Lab ID		Date	Analysis	
107_-	460-22995-	Matrix	Collected	Hex Cr	Metals
M034_0.0	1	S	02/10/11	X	X
M034_3.0	2	S	02/10/11	X	X
M034_3.5	3	S	02/10/11	X	X
M034_5.0	4	S	02/10/11	X	X
M034_7.5	5	S	02/10/11	X	X
M034_9.5	6	S	02/10/11	X	X
M034_13.5	7	S	02/10/11	X	X
M034_17.5	8	S	02/10/11	X	X
M032_0.0	9	S	02/10/11	X	X
M032_0.5	10	S	02/10/11	X	X
M032_1.5	11	S	02/10/11	X	X
M032_3.0	12	S	02/10/11	X	X
M032_7.0	13	S	02/10/11	X	X
M032_11.0	14	S	02/10/11	X	X
M030_0.0	15	S	02/10/11	X	X
M030_0.5	16	S	02/10/11	X	X
M030_2.5	17	S	02/10/11	X	X
M030_3.5	18	S	02/10/11	X	X
M030_7.5	19	S	02/10/11	X	X
M030_11.5	20	S	02/10/11	X	X
M028_0.0	21	S	02/10/11	X	X
M028_0.5	22	S	02/10/11	X	X
M028_1.0	23	S	02/10/11	X	X
M028_3.5	24	S	02/10/11	X	X
M028_7.5	25	S	02/10/11	X	X
M028_11.5	26	S	02/10/11	X	X
M026_0.5	27	S	02/10/11	X	X
M026_3.0	28	S	02/10/11	X	X
M026_4.0	29	S	02/10/11	X	X
M026_8.0	30	S	02/10/11	X	X
M026_12.0	31	S	02/10/11	X	X
M026_0.0	32	S	02/10/11	X	X
M024_0.0	33	S	02/10/11	X	X
M024_0.5	34	S	02/10/11	X	X
M024_2.0	35	S	02/10/11	X	X
M024_3.5	36	S	02/10/11	X	X
M024_7.5	37	S	02/10/11	X	X
M024_15.5	38	S	02/10/11	X	X
REP-021011-1	39	S	02/10/11	X	X
FB021011	40	A	02/10/11	X	X

S = Non-Aqueous Matrix Total Samples = 40
A = Aqueous Matrix **Bold Type** indicates sample taken as a Batch QC sample

All samples were received one day following collection. Samples were received on ice at recorded temperature of 2.6 ^{o}C, in good condition.

SECTION C
Hexavalent Chromium

Holding times from sample collection to analysis (≤24 hours for aqueous matrix; ≤30 days for non-aqueous matrix) were met for all samples.

All calibration and QC criteria were met for this sample group, including: initial calibration linearity, continuing calibration frequency and accuracy, blanks, duplicate precision, and matrix and post-spike recoveries. Reported spike recoveries, duplicate precision values, reported % moisture (% solids) and reported Cr^{+6} results were randomly verified from the raw data with no disparities between reported and calculated results found.

Cr^{+6} was reported positive in Field Blank FB-021011, at 1.9 J ug/L, which is equivalent to 0.076 mg/Kg (nominal). The following samples exhibited positive results which were >3x but <10x the field blank result: 460-22995- 4, -6, -19 and -31.

- QA Action: Qualify Cr^{+6} results in above-noted samples as estimated, 'J', with indication of high bias due to field blank contamination.

SECTION D
Total Metals

Holding times from sample collection to analysis were met for all total metals samples.

Calibration and QC criteria were met for this sample group, including: initial calibration linearity, continuing calibration frequency and accuracy, blanks, interference checks, matrix spike and LCS recoveries and serial dilution sample precision, *with the exceptions detailed below*. Reported spike recoveries, duplicate precision values, reported % moisture (% solids) and reported metal results were randomly verified from the raw data with no disparities between reported and calculated results found.

The precision (RPD) value for chromium (Cr) between lab replicates of sample 460-22995-22 was reported above the limit of 20%, at 29%.

- QA Action: Qualify Cr results in in associated field samples (460-22995-6 through -25) as estimated values 'J', with indeterminate bias direction.

It is noted that no post-digestion spike samples were reported for this delivery group.

No positive element results were reported for the field blank sample (FB-021011).

SECTION E
pH / Eh (ORP)

Samples for pH analysis were analyzed outside the method-defined holding-time of 15 minutes, which is essentially a 'field-performed' analysis. The laboratory assigned all reported pH results an 'HF' qualifier flag to indicate this exception. Since the samples were chilled on receipt at the lab, and analyzed within one day of receipt, no data validation qualifiers were assigned.

Calibrations for pH analysis were acceptable, as were required QC criteria (sample duplicates). Standard mV solution checks for Eh (Light's solution) were within acceptable ranges, as were sample duplicate measurements.

Reported pH and eH (ORP) values and resulting ReDox (reducing or oxidizing) characteristics were randomly verified from the $HCrO_4$- / $Cr(OH)_3$ phase diagram; no disparities relative to reported values and characteristics were found. These values are only used for data assessment purposes when Cr^{+6} sample spike recoveries are outside acceptable recovery ranges.

SECTION F
COLLOCATED SAMPLES

Sample REP-021011-1 was not identified with a corresponding collocated field sample.

SECTION G
Overall Recommendations

The results of the review and validation process for the above analytical fractions and associated samples are summarized on the attached standard-format NJDEP Data Validation Report Forms, in order to facilitate the end-user's' review of these data.

Very truly yours,
Environmental Quality Associates, Inc.

Chris W. Taylor
Vice President

26 May, 2011

Dresdner-Robin Environmental Management
Att: Mr. Douglas Neumann, Director
371 Warren Street
Jersey City, New Jersey 07302

Re: PPG – Sites 107 and 108, Laboratory Job No. 460-23018-1

Dear Mr. Neumann,

This cover letter, and the attached documents, detail the data validation findings associated with the following sample analytical results contained in the above-referenced deliverables set:

Site Name: PPG – Sites 107 and 108

Fractions
Hexavalent chromium (Cr^{+6}) Laboratory: TestAmerica Laboratories, Inc.
Total Metals (Cr, Ni, Sb, Tl, V)
pH / Eh ; ORP

Report No.: 460-23018-1 Matrix: Non-Aqueous

Reviewer: Chris Taylor

Prepared By: Environmental Quality Associates, Inc.
487 Shoddy Hollow Road
Middletown, New York 10940

SECTION A
Sample Information

The above-noted laboratory Job Number samples were analyzed by TestAmerica Laboratories, Inc., Edison, NJ (NJ Laboratory ID Cert. No. 12028). Hexavalent chromium (Cr^{+6}) samples were prepared and analyzed using USEPA SW-846 methods 3060A and 7196A. Total metals samples were prepared and analyzed using USEPA SW-846 methods 3050B (3010A for aqueous samples) and 6010B. Oxidation / Reduction Potential (ORP) characteristics were determined by measurement of pH / Eh values for samples and subsequent extrapolation against the $HCrO_4$- / $Cr(OH)_3$ phase diagram; pH and Eh values were measured by Standard Methods 4500H-B and 2580B, respectively.

A summary table of samples analyzed is presented below. Please note that the number of 'Total Samples' listed below is exclusive of associated QC samples (MS / MD).

Site ID	Sample ID	Lab ID 460-23018-	Matrix	Date Collected	Analysis	
					Hex Cr	Metals
107_	M022_0.0	1	S	02/11/11	X	X
107_	M022_1.0/2.0	2	S	02/11/11	X	X
107_	M022_4.0/4.5	3	S	02/11/11	X	X
107_	M022_4.5	4	S	02/11/11	X	X
107_	M022_8.5	**5**	S	02/11/11	X	X
107_	M022_12.5	6	S	02/11/11	X	X
---	FB021111	7	A	02/11/11	X	X
107_	REP021111-1	8	S	02/11/11	X	X
108_	REP021111-2	9	S	02/11/11	X	X
108_	REP021111-3	10	S	02/11/11	X	X
107_	M020_0.0	11	S	02/11/11	X	X
107_	M020_3.5	12	S	02/11/11	X	X
107_	M020_7.5	13	S	02/11/11	X	X
107_	M020_11.5	14	S	02/11/11	X	X
107_	M020_1.0/1.2	15	S	02/11/11	X	X
107_	M020_2.5	16	S	02/11/11	X	X
107_	M020_3.0	17	S	02/11/11	X	X
108_	K018_0.0	18	S	02/11/11	X	X
108_	K018_4.5	19	S	02/11/11	X	X
108_	K018_8.5	20	S	02/11/11	X	X
108_	K018_12.5	21	S	02/11/11	X	X
108_	I018_0.0	22	S	02/11/11	X	X
108_	I018_4.5	**23**	S	02/11/11	X	X
108_	I018_8.5	24	S	02/11/11	X	X
108_	I018_12.5	25	S	02/11/11	X	X
108_	G018_0.0	26	S	02/11/11	X	X
108_	G018_3.5	27	S	02/11/11	X	X
108_	G018_5.5	28	S	02/11/11	X	X
108_	G018_9.5	29	S	02/11/11	X	X
108_	G018_13.5	30	S	02/11/11	X	X

S = Non-Aqueous Matrix
A = Aqueous Matrix

Total Samples = 30
Bold Type indicates sample taken as a Batch QC sample

All samples were received on the same day of collection. Samples were received on ice at recorded temperature of 3.2^{o}C.

SECTION C
Hexavalent Chromium

Holding times from sample collection to analysis (≤24 hours for aqueous matrix; ≤30 days for non-aqueous matrix) were met for all samples.

All calibration criteria were met for this sample group, including: initial calibration linearity and continuing calibration frequency and accuracy. Method and calibration blanks were free of contamination. Reported spike recoveries, duplicate precision values, reported % moisture (% solids) and reported Cr^{+6} results were randomly verified from the raw data with no disparities between reported and calculated results found. Several samples were re-analyzed at dilution in order to bring absorbance values into calibrated range; reported RL values were adjusted based on dilution used.

Cr^{+6} was not detected in Field Blank FB021111.

SECTION D
Total Metals

Holding times from sample collection to analysis were met for all total metals samples.

Calibration and QC criteria were met for this sample group, including: initial calibration linearity, continuing calibration frequency and accuracy, blanks, interference checks, matrix spike recoveries, duplicate precision, LCS recoveries and serial dilution sample precision, *with the exception detailed below*. Reported spike recoveries, duplicate precision values, reported % moisture (% solids) and reported metal results were randomly verified from the raw data with no disparities between reported and calculated results found.

The recovery for antimony in the matrix spike of sample 108_I018_4.5 (Lab ID# 460-23018-23) was below the limit of 75%, at 62%. The associated LCS recoveries for Sb were within acceptable limits, indicating analytical process control.

- QA Action: Qualify Sb results in associated samples 460-23018-23 through -30 (inclusive) as estimated, 'UJ' or 'J', with indication of low bias due to sample matrix effects.

It is noted that no post-digestion spike samples were reported for this delivery group. Serial dilution samples were reported; no results in these samples exceeded the applicable threshold for calculation of percent difference.

No positive element results were reported for the field blank sample (FB-1).

SECTION E
pH / Eh (ORP)

Samples for pH analysis were analyzed outside the method-defined holding-time of 15 minutes, which is essentially a 'field-performed' analysis. The laboratory assigned all reported pH results an 'HF' qualifier flag to indicate this exception. Since the samples were chilled on receipt at the lab, and analyzed within one day of receipt, no data validation qualifiers were assigned.

Calibrations for pH analysis were acceptable, as were required QC criteria (sample duplicates). Standard mV solution checks for Eh (Light's solution) were within acceptable ranges, as were sample duplicate measurements.

Reported pH and eH (ORP) values and resulting ReDox (reducing or oxidizing) characteristics were randomly verified from the $HCrO_4$- / $Cr(OH)_3$ phase diagram; no disparities relative to reported values and characteristics were found. These values are only used for data assessment purposes when Cr^{+6} sample spike recoveries are outside acceptable recovery ranges.

SECTION F
COLLOCATED SAMPLES

REP021111-1, -2 and -3 were identified as being collocated with 107_M020_7.5, 108_K018_8.5, and 108_G018_3.5 (460-23018-13, -20 and -27), respectively. Precision results (as %RPD) are tabulated below. Note: ND = Not Detected ; nc = not calculated ; * = absolute difference is shown if either sample <5x CRQL

	M020_7.5	R021111-1	%RPD	K018_8.5	R021111-2	%RPD	G018_3.5	R021111-3	%RPD
Chromium	21.6	24.5	12.6	14.3	13.6	5.0	16.7	15.5	7.5
Nickel	12.0	12.5	0.5 *	13.7	12.5	1.2 *	17.9	16.6	1.3 *
Antimony	ND	ND	nc	ND	ND	nc	ND	ND	nc
Thallium	ND	ND	nc	ND	ND	nc	ND	ND	nc
Vanadium	17.4	18.7	1.3 *	20.8	19.7	1.1 *	23.0	20.7	2.3 *
Cr (VI)	1.2 J	1.2 J	0	ND	ND	nc	ND	ND	nc

The NJDEP DV guidance protocols do not provide qualification thresholds for field duplicate precision values; however, EPA Region II data validation guidance (SOP No. HW-2, Rev. 13, Sept. 2006) provides for a qualification range of >35%, <120% RPD for soils >5x CRQL values, and difference >2x CRQL if either sample is <5x CRQL. No QA action is necessary based on the above field duplicate precision results.

SECTION G
Overall Recommendations

The results of the review and validation process for the above analytical fractions and associated samples are summarized on the attached standard-format NJDEP Data Validation Report Forms, in order to facilitate the end-user's' review of these data.

Very truly yours,
Environmental Quality Associates, Inc.

Chris W. Taylor
Vice President

28 May, 2011

Dresdner-Robin Environmental Management
Att: Mr. Douglas Neumann, Director
371 Warren Street
Jersey City, New Jersey 07302

Re: PPG – Site 107, Laboratory Job No. 460-23077-1

Dear Mr. Neumann,

This cover letter, and the attached documents, detail the data validation findings associated with the following sample analytical results contained in the above-referenced deliverables set:

Site Name: PPG – Site 107

Fractions
Hexavalent chromium (Cr^{+6}) Laboratory: TestAmerica Laboratories, Inc.
Total Metals (Cr, Ni, Sb, Tl, V)
pH / Eh ; ORP

Report No.: 460-23077-1 Matrix: Non-Aqueous

Reviewer: Chris Taylor

Prepared By: Environmental Quality Associates, Inc.
487 Shoddy Hollow Road
Middletown, New York 10940

SECTION A
Sample Information

The above-noted laboratory Job Number samples were analyzed by TestAmerica Laboratories, Inc., Edison, NJ (NJ Laboratory ID Cert. No. 12028). Hexavalent chromium (Cr^{+6}) samples were prepared and analyzed using USEPA SW-846 methods 3060A and 7196A. Total metals samples were prepared and analyzed using USEPA SW-846 methods 3050B (3010A for aqueous samples) and 6010B. Oxidation / Reduction Potential (ORP) characteristics were determined by measurement of pH / Eh values for samples and subsequent extrapolation against the $HCrO_4$- / $Cr(OH)_3$ phase diagram; pH and Eh values were measured by Standard Methods 4500H-B and 2580B, respectively.

A summary table of samples analyzed is presented below. Please note that the number of 'Total Samples' listed below is exclusive of associated QC samples (MS / MD).

Sample ID 107_	Lab ID 460-23077-	Matrix	Date Collected	Analysis	
				Hex Cr	Metals
E031_0.0	1	S	02/14/11	X	X
E031_3.5	2	S	02/14/11	X	X
E031_6.5	3	S	02/14/11	X	X
E031_11.5	4	S	02/14/11	X	X
E031_15.5	5	S	02/14/11	X	X
E031_19.5	6	S	02/14/11	X	X
REP021411-1	7	S	02/14/11	X	X
E029_0.0	8	S	02/14/11	X	X
E029_3.5	9	S	02/14/11	X	X
E029_7.5	10	S	02/14/11	X	X
E029_10.5	11	S	02/14/11	X	X
E029_14.5	12	S	02/14/11	X	X
E029_18.5	13	S	02/14/11	X	X
E028a_0.0	14	S	02/14/11	X	X
E028a_3.5	15	S	02/14/11	X	X
E028a_6.0	16	S	02/14/11	X	X
E028a_9.0	17	S	02/14/11	X	X
E028a_10.0	18	S	02/14/11	X	X
E028a_14.0	19	S	02/14/11	X	X
E028a_18.0	20	S	02/14/11	X	X
REP021411-2	21	S	02/14/11	X	X
E027_0.0	22	S	02/14/11	X	X
E027_2.5	23	S	02/14/11	X	X
E027_7.5	24	S	02/14/11	X	X
E027_11.5	25	S	02/14/11	X	X
E027_15.5	26	S	02/14/11	X	X
E026a_0.0	27	S	02/14/11	X	X
E026a_4.5	28	S	02/14/11	X	X
E026a_7.0	29	S	02/14/11	X	X
E026a_11.0	30	S	02/14/11	X	X
E026a_15.0	31	S	02/14/11	X	X
REP021411-3	32	S	02/14/11	X	X
D023_0.0	33	S	02/14/11	X	X
D023_3.5	34	S	02/14/11	X	X
D023_7.0	35	S	02/14/11	X	X
D023_11.0	36	S	02/14/11	X	X
D023_15.0	37	S	02/14/11	X	X
FB021411	38FB	A	02/14/11	X	X

S = Non-Aqueous Matrix Total Samples = 38
A = Aqueous Matrix **Bold Type** indicates sample taken as a Batch QC sample

All samples were received one day following collection. Samples were received on ice at recorded temperature of 2.7°C.

SECTION C
Hexavalent Chromium

Holding times from sample collection to analysis (≤24 hours for aqueous matrix; ≤30 days for non-aqueous matrix) were met for all samples.

All calibration criteria were met for this sample group, including: initial calibration linearity and continuing calibration frequency and accuracy. Method and calibration blanks were free of contamination. Reported spike recoveries, duplicate precision values, reported % moisture (% solids) and reported Cr^{+6} results were randomly verified from the raw data with no disparities between reported and calculated results found. Several samples were re-analyzed at dilution in order to bring absorbance values into calibrated range; reported RL values were adjusted based on dilution used.

Cr^{+6} was not detected in Field Blank FB021411.

SECTION D
Total Metals

Holding times from sample collection to analysis were met for all total metals samples.

Calibration and QC criteria were met for this sample group, including: initial calibration linearity, continuing calibration frequency and accuracy, blanks, interference checks, matrix spike recoveries, duplicate precision, LCS recoveries and serial dilution sample precision, *with the exception detailed below*. Reported spike recoveries, duplicate precision values, reported % moisture (% solids) and reported metal results were randomly verified from the raw data with no disparities between reported and calculated results found.

The recoveries for antimony in the matrix spikes of samples 108_I018_4.5 (Lab ID# 460-23018-23) and 107_E027_15.5 (460-23077-26) were below the limit of 75%, at 62% and 73%, respectively. The associated LCS recoveries for Sb were within acceptable limits, indicating analytical process control.

- QA Action: Qualify Sb results in associated samples 460-23077- 1 through -3 and -15 through -34 (inclusive) as estimated, 'UJ' or 'J', with indication of low bias due to sample matrix effects.

It is noted that no post-digestion spike samples were reported for this delivery group. Serial dilution samples were reported; no results in these samples exceeded the applicable threshold for calculation of percent difference.

No positive element results were reported for the field blank sample (FB-1).

SECTION E
pH / Eh (ORP)

Samples for pH analysis were analyzed outside the method-defined holding-time of 15 minutes, which is essentially a 'field-performed' analysis. The laboratory assigned all reported pH results an 'HF' qualifier flag to indicate this exception. Since the samples were chilled on receipt at the lab, and analyzed within one day of receipt, no data validation qualifiers were assigned.

Calibrations for pH analysis were acceptable, as were required QC criteria (sample duplicates). Standard mV solution checks for Eh (Light's solution) were within acceptable ranges, as were sample duplicate measurements.

Reported pH and eH (ORP) values and resulting ReDox (reducing or oxidizing) characteristics were randomly verified from the $HCrO_4$- / $Cr(OH)_3$ phase diagram; no disparities relative to reported values and characteristics were found. These values are only used for data assessment purposes when Cr^{+6} sample spike recoveries are outside acceptable recovery ranges.

SECTION F
COLLOCATED SAMPLES

REP021411-1, -2 and -3 were identified as being collocated with 107_E031_3.5, E031_15.5, and E027_2.5 (460-23077-2, -5 and -23), respectively. Precision results (as %RPD) are tabulated below. Note: ND = Not Detected ; nc = not calculated ; * = absolute difference is shown if either sample <5x CRQL

	E031_3.5	R021411-1	%RPD	E031_15.5	R021411-2	%RPD	E027_2.5	R021411-3	%RPD
Chromium	18.6	19.6	5.2	15.0	16.6	10.1	116	110	5.3
Nickel	49.9	53.4	6.8	18.3	24.8	6.5 *	17.0	18.3	1.3 *
Antimony	ND	ND	nc	ND	ND	nc	ND	ND	nc
Thallium	ND	ND	nc	ND	ND	nc	ND	ND	nc
Vanadium	19.8	19.9	0.1 *	20.1	25.1	5.0 *	55.6	55.3	0.3 *
Cr (VI)	ND	ND	nc	ND	ND	nc	1.0 J	1.7 J	0.7 *

The NJDEP DV guidance protocols do not provide qualification thresholds for field duplicate precision values; however, EPA Region II data validation guidance (SOP No. HW-2, Rev. 13, Sept. 2006) provides for a qualification range of >35%, <120% RPD for soils >5x CRQL values, and difference >2x CRQL if either sample is <5x CRQL. No QA action is necessary based on the above field duplicate precision results.

SECTION G
Overall Recommendations

The results of the review and validation process for the above analytical fractions and associated samples are summarized on the attached standard-format NJDEP Data Validation Report Forms, in order to facilitate the end-user's' review of these data.

Very truly yours,
Environmental Quality Associates, Inc.

Chris W. Taylor
Vice President

01 June, 2011
Revised 22 June, 2011

Dresdner-Robin Environmental Management
Att: Mr. Douglas Neumann, Director
371 Warren Street
Jersey City, New Jersey 07302

Re: PPG – Sites 107 and 108, Laboratory Job No. 460-23116-1

Dear Mr. Neumann,

This cover letter, and the attached documents, detail the data validation findings associated with the following sample analytical results contained in the above-referenced deliverables set:

Site Name: PPG – Sites 107 and 108

Fractions		
Hexavalent chromium (Cr^{+6})	Laboratory:	TestAmerica Laboratories, Inc.
Total Metals (Cr, Ni, Sb, Tl, V)		
pH / Eh ; ORP		
Report No.: 460-23116-1	Matrix:	Non-Aqueous

Reviewer: Chris Taylor

Prepared By: Environmental Quality Associates, Inc.
487 Shoddy Hollow Road
Middletown, New York 10940

SECTION A
Sample Information

The above-noted laboratory Job Number samples were analyzed by TestAmerica Laboratories, Inc., Edison, NJ (NJ Laboratory ID Cert. No. 12028). Hexavalent chromium (Cr^{+6}) samples were prepared and analyzed using USEPA SW-846 methods 3060A and 7196A. Total metals samples were prepared and analyzed using USEPA SW-846 methods 3050B (3010A for aqueous samples) and 6010B. Oxidation / Reduction Potential (ORP) characteristics were determined by measurement of pH / Eh values for samples and subsequent extrapolation against the $HCrO_4$- / $Cr(OH)_3$ phase diagram; pH and Eh values were measured by Standard Methods 4500H-B and 2580B, respectively.

A summary table of samples analyzed is presented below. Please note that the number of 'Total Samples' listed below is exclusive of associated QC samples (MS / MD).

Site ID	Sample ID	Lab ID 460-23116-	Matrix	Date Collected	Analysis	
					Hex Cr	Metals
108_	D014_0.0	1	S	02/15/11	X	X
108_	D014_3.5	2	S	02/15/11	X	X
108_	D014_6.5	3	S	02/15/11	X	X
108_	D014_10.5	4	S	02/15/11	X	X
108_	D014_14.5	5	S	02/15/11	X	X
108_	REP021511-1	6	S	02/15/11	X	X
108_	F014_0.0	7	S	02/15/11	X	X
108_	F014_1.5	8	S	02/15/11	X	X
108_	F014_5.5	9	S	02/15/11	X	X
108_	F014_9.5	**10**	S	02/15/11	X	X
108_	E018_0.0	11	S	02/15/11	X	X
108_	E018_2.5	**12**	S	02/15/11	X	X
108_	E018_6.5	13	S	02/15/11	X	X
108_	E018_10.5	14	S	02/15/11	X	X
107_	D021_0.0	15	S	02/15/11	X	X
107_	D021_2.5	16	S	02/15/11	X	X
107_	D021_6.5	17	S	02/15/11	X	X
107_	D021_10.5	18	S	02/15/11	X	X
108_	REP021511-2	19	S	02/15/11	X	X
107_	D025_0.0	20	S	02/15/11	X	X
107_	D025_3.5	21	S	02/15/11	X	X
107_	D025_7.5	22	S	02/15/11	X	X
107_	D025_11.5	23	S	02/15/11	X	X
107_	D025_15.5	24	S	02/15/11	X	X
107_	D025_19.5	25	S	02/15/11	X	X
108_	D016_0.0	26	S	02/15/11	X	X
108_	D016_2.5	27	S	02/15/11	X	X
108_	D016_6.5	28	S	02/15/11	X	X
108_	D016_10.5	29	S	02/15/11	X	X
---	FB021511	30FB	A	02/15/11	X	X
108_	REP021511-3	31	S	02/15/11	X	X

S = Non-Aqueous Matrix
A = Aqueous Matrix

Total Samples = 31
Bold Type indicates sample taken as a Batch QC sample

All samples were received one day from collection. Samples were received on ice at recorded temperature of 3.3°C.

SECTION C
Hexavalent Chromium

Holding times from sample collection to analysis (≤24 hours for aqueous matrix; ≤30 days for non-aqueous matrix) were met for all samples.

All calibration criteria were met for this sample group, including: initial calibration linearity and continuing calibration frequency and accuracy. Method and calibration blanks were free of contamination. Reported spike recoveries, duplicate precision values, reported % moisture (% solids) and reported Cr^{+6} results were randomly verified from the raw data with no disparities between reported and calculated results found.

Cr^{+6} was not detected in Field Blank FB021511.

SECTION D
Total Metals

Holding times from sample collection to analysis were met for all total metals samples.

Samples 460-23116-12 through -29 and -31 exhibited incorrectly reported Result, RL, MDL and Units values, as raw concentration values in mg/L, rather than as mg/Kg dry-weight values. Therefore, the reported values are under-reported by a nominal factor of 50x in both the laboratory report and the associated EDD results summary.

- QA Action: Reported results for associated samples 460-23116-12 through -29 and -31 were re-calculated by the reviewer and reported to client. The laboratory was contacted and requested to determine and resolve the cause of the erroneous values via corrective action process, and to correct and re-issue the affected report sections.

    - *Post-Script: The laboratory re-digested and re-analyzed the affected samples noted above on 06/08/11, and submitted a revised report including the re-analyis results and associated batch calibrations and QC samples.*

Calibration and QC criteria were met for this sample group, including: initial calibration linearity, continuing calibration frequency and accuracy, blanks, interference checks, matrix spike recoveries, duplicate precision, LCS recoveries and serial dilution sample precision, ***with the exception detailed below***. Reported spike recoveries, duplicate precision values, reported % moisture (% solids) were randomly verified from the raw data with no disparities between reported and calculated results found. ***Exception*: *see QA Action above*.**

The recovery for antimony in the matrix spike of sample 108_F014_9.5 (Lab ID# 460-23166-10) was below the limit of 75%, at 67%. The associated LCS recovery for Sb was within acceptable limits, indicating analytical process control.

The recovery for antimony in the matrix spike of sample 108_E018_2.5 (Lab ID# 460-23166-12) was below the limit of 75%, at 26%. The associated LCS recovery for Sb was within acceptable limits, indicating analytical process control.

- QA Action: Qualify Sb results in associated samples 460-23116-1 through -11 (inclusive) as estimated, 'UJ' or 'J', with indication of low bias due to sample matrix effects.

- *QA Action: Qualify Sb results in associated samples 460-23116-12 through -29 (inclusive) and -31 as estimated, 'UJ' or 'J', with indication of low bias due to sample matrix effects.*

It is noted that no post-digestion spike samples were reported for this delivery group. Serial dilution samples were reported; no results in these samples exceeded the applicable threshold for calculation of percent difference.

No positive element results were reported for the field blank sample (FB021511).

SECTION E
pH / Eh (ORP)

Samples for pH analysis were analyzed outside the method-defined holding-time of 15 minutes, which is essentially a 'field-performed' analysis. The laboratory assigned all reported pH results an 'HF' qualifier flag to indicate this exception. Since the samples were chilled on receipt at the lab, and analyzed within one day of receipt, no data validation qualifiers were assigned.

Calibrations for pH analysis were acceptable, as were required QC criteria (sample duplicates). Standard mV solution checks for Eh (Light's solution) were within acceptable ranges, as were sample duplicate measurements.

Reported pH and eH (ORP) values and resulting ReDox (reducing or oxidizing) characteristics were randomly verified from the $HCrO_4$- / $Cr(OH)_3$ phase diagram; no disparities relative to reported values and characteristics were found. These values are only used for data assessment purposes when Cr^{+6} sample spike recoveries are outside acceptable recovery ranges.

SECTION F
COLLOCATED SAMPLES

REP021511-1, -2 and -3 were identified as being collocated with 108_D014_0.0, 108_F014_9.5, and 108_E018_2.5 (460-23116-1, -10 and -12), respectively. Precision results (as %RPD) are tabulated below. Note: ND = Not Detected ; nc = not calculated ; * = absolute difference is shown if either sample <5x CRQL

	D014_0.0	R021511-1	%RPD	F014_9.5	R021511-2	%RPD	E018_2.5	R021511-3	%RPD
Chromium	24.8	22.7	8.8	15.1	17.0	11.6	*18.9*	*15.9*	*17.2*
Nickel	15.8	14.0	1.8 *	10.8	11.5	0.7 *	*13.7*	*13.5*	*0.20 **
Antimony	ND	ND	nc	ND	ND	nc	ND	ND	nc
Thallium	ND	ND	nc	ND	ND	nc	ND	ND	nc
Vanadium	30.5	36.4	4.9 *	16.4	20.8	4.4 *	*23.5*	*20.4*	*3.1 **
Cr (VI)	ND	ND	nc	ND	ND	nc	ND	ND	nc

The NJDEP DV guidance protocols do not provide qualification thresholds for field duplicate precision values; however, EPA Region II data validation guidance (SOP No. HW-2, Rev. 13, Sept. 2006) provides for a qualification range of >35%, <120% RPD for soils >5x CRQL values, and difference >2x CRQL if either sample is <5x CRQL. No QA action is necessary based on the above field duplicate precision results.

SECTION G
Overall Recommendations

The results of the review and validation process for the above analytical fractions and associated samples are summarized on the attached standard-format NJDEP Data Validation Report Forms, in order to facilitate the end-user's' review of these data.

NB - The Total Metals samples re-analyzed on 06/08/11 exhibited concentrations which differed from the original reported results (as calculated from the raw data by the reviewer) by a relatively wide margin; the newer results were typically lower than those originally reported. Since there were no significant QC or analytical process anomalies noted in the original data (with the exception of incorrect final reporting, as discussed above), a conservative approach would suggest utilization of the original data (as correctly revised, reported and qualified) for regulatory compliance purposes.

Very truly yours,
Environmental Quality Associates, Inc.

Chris W. Taylor
Vice President

04 June, 2011

Dresdner-Robin Environmental Management
Att: Mr. Douglas Neumann, Director
371 Warren Street
Jersey City, New Jersey 07302

Re: PPG – Sites 107 & 108, Laboratory Job No. 460-23391-1

Dear Mr. Neumann,

This cover letter, and the attached documents, detail the data validation findings associated with the following sample analytical results contained in the above-referenced deliverables set:

Site Name: PPG – Site 108

Fractions
Hexavalent chromium (Cr^{+6}) Laboratory: TestAmerica Laboratories, Inc.
Total Metals (Cr, Ni, Sb, Tl, V)
pH / Eh ; ORP

Report No.: 460-23391-1 Matrix: Non-Aqueous

Reviewer: Chris Taylor

Prepared By: Environmental Quality Associates, Inc.
487 Shoddy Hollow Road
Middletown, New York 10940

SECTION A
Sample Information

The above-noted laboratory Job Number samples were analyzed by TestAmerica Laboratories, Inc., Edison, NJ (NJ Laboratory ID Cert. No. 12028). Hexavalent chromium (Cr^{+6}) samples were prepared and analyzed using USEPA SW-846 methods 3060A and 7196A. Total metals samples were prepared and analyzed using USEPA SW-846 methods 3050B (3010A for aqueous samples) and 6010B. Oxidation / Reduction Potential (ORP) characteristics were determined by measurement of pH / Eh values for samples and subsequent extrapolation against the $HCrO_4$- / $Cr(OH)_3$ phase diagram; pH and Eh values were measured by Standard Methods 4500H-B and 2580B, respectively.

A summary table of samples analyzed is presented below. Please note that the number of 'Total Samples' listed below is exclusive of associated QC samples (MS / MD).

Site ID	Sample ID	Lab ID 460-23391-	Matrix	Date Collected	Analysis	
					Hex Cr	Metals
107_	D019_0.0	1	S	02/23/11	X	X
107_	D019_4.0	2	S	02/23/11	X	X
107_	D019_8.0	**3**	S	02/23/11	X	X
107_	D019_12.0	4	S	02/23/11	X	X
108_	M018_0.0	5	S	02/23/11	X	X
108_	M018_4.0	6	S	02/23/11	X	X
108_	M018_8.0	7	S	02/23/11	X	X
108_	M018_12.0	**8**	S	02/23/11	X	X
108_	M018_3.5	9	S	02/23/11	X	X
108_	M006_0.0	10	S	02/23/11	X	X
108_	M006_4.0	11	S	02/23/11	X	X
108_	M006_8.0	12	S	02/23/11	X	X
108_	M006_12.0	13	S	02/23/11	X	X
108_	C002_0.0	14	S	02/23/11	X	X
108_	C002_4.0	15	S	02/23/11	X	X
108_	C002_8.0	16	S	02/23/11	X	X
108_	C002_12.0	17	S	02/23/11	X	X
108_	B006_0.0	18	S	02/23/11	X	X
108_	B006_3.5	**19**	S	02/23/11	X	X
108_	B006_7.5	20	S	02/23/11	X	X
108_	B006_11.5	21	S	02/23/11	X	X
107_	REP-022311-1	22	S	02/23/11	X	X
108_	B008_0.0	23	S	02/23/11	X	X
108_	B008_4.5	24	S	02/23/11	X	X
108_	B008_8.5	25	S	02/23/11	X	X
108_	B008_12.5	26	S	02/23/11	X	X
108_	REP-022311-2	27	S	02/23/11	X	X
---	FB022311	28FB	A	02/23/11	X	X

S = Non-Aqueous Matrix Total Samples = 28

A = Aqueous Matrix **Bold Type** indicates sample taken as a Batch QC sample

All samples were received one day from collection. Samples were received on ice at recorded temperature of 3.4^{o}C.

SECTION C

Hexavalent Chromium

Holding times from sample collection to analysis ($\leq$24 hours for aqueous matrix; $\leq$30 days for non-aqueous matrix) were met for all samples.

All calibration criteria were met for this sample group, including: initial calibration linearity and continuing calibration frequency and accuracy. Method and calibration blanks for soils were free of contamination.

Reported spike recoveries, duplicate precision values, reported % moisture (% solids) and reported Cr^{+6} results were randomly verified from the raw data with no disparities between reported and calculated results found.

No positive Cr^{+6} result was reported for the field blank sample (FB022311).

SECTION D
Total Metals

Holding times from sample collection to analysis were met for all total metals samples.

Calibration and QC criteria were met for this sample group, including: initial calibration linearity, continuing calibration frequency and accuracy, blanks, interference checks, matrix spike recoveries, duplicate precision, LCS recoveries and serial dilution sample precision. Reported spike recoveries, duplicate precision values, reported % moisture (% solids) were randomly verified from the raw data with no disparities between reported and calculated results found.

It is noted that no post-digestion spike samples were reported for this delivery group. Serial dilution samples were reported; no results in these samples exceeded the applicable threshold for calculation of percent difference.

No positive element results were reported for the field blank sample (FB022311).

SECTION E
pH / Eh (ORP)

Samples for pH analysis were analyzed outside the method-defined holding-time of 15 minutes, which is essentially a 'field-performed' analysis. The laboratory assigned all reported pH results an 'HF' qualifier flag to indicate this exception. Since the samples were chilled on receipt at the lab, and analyzed within one day of receipt, no data validation qualifiers were assigned.

Calibrations for pH analysis were acceptable, as were required QC criteria (sample duplicates). Standard mV solution checks for Eh (Light's solution) were within acceptable ranges, as were sample duplicate measurements.

Reported pH and eH (ORP) values and resulting ReDox (reducing or oxidizing) characteristics were randomly verified from the $HCrO_4$- / $Cr(OH)_3$ phase diagram; no disparities relative to reported values and characteristics were found. These values are only used for data assessment purposes when Cr^{+6} sample spike recoveries are outside acceptable recovery ranges.

SECTION F
COLLOCATED SAMPLES

REP022311-1 and -2 were identified as being collocated with 107_D019_8.0 and 108_M018_12.0 (460-23391-3 and -8), respectively. Precision results (as %RPD) are tabulated below. Note: ND = Not Detected ; nc = not calculated ; * = absolute difference is shown if either sample <5x CRQL

	D019_8.0	R022311-1	%RPD	M018_12.0	R022311-2	%RPD
Chromium	20.7	23.9	14.3	12.7	15.9	22.4
Nickel	14.0	13.7	0.3 *	10.5	12.2	1.7 *
Antimony	ND	ND	nc	ND	ND	nc
Thallium	ND	ND	nc	ND	ND	nc
Vanadium	29.4	32.9	3.5 *	18.3	20.1	1.8 *
Cr (VI)	ND	4.6	4.6 *	ND	ND	nc

The NJDEP DV guidance protocols do not provide qualification thresholds for field duplicate precision values; however, EPA Region II data validation guidance (SOP No. HW-2, Rev. 13, Sept. 2006) provides for a qualification range of >35%, <120% RPD for soils >5x CRQL values, and difference >2x CRQL if either sample is <5x CRQL. No QA action is necessary based on the above field duplicate precision results.

SECTION G
Overall Recommendations

The results of the review and validation process for the above analytical fractions and associated samples are summarized on the attached standard-format NJDEP Data Validation Report Forms, in order to facilitate the end-user's' review of these data.

Very truly yours,
Environmental Quality Associates, Inc.

Chris W. Taylor
Vice President

08 June, 2011

Dresdner-Robin Environmental Management
Att: Mr. Douglas Neumann, Director
371 Warren Street
Jersey City, New Jersey 07302

Re: PPG – Sites 107 & 108, Laboratory Job No. 460-23410-1

Dear Mr. Neumann,

This cover letter, and the attached documents, detail the data validation findings associated with the following sample analytical results contained in the above-referenced deliverables set:

Site Name: PPG – Sites 107 & 108

Fractions
Hexavalent chromium (Cr^{+6}) Laboratory: TestAmerica Laboratories, Inc.
Total Metals (Cr, Ni, Sb, Tl, V)
pH / Eh ; ORP

Report No.: 460-23410-1 Matrix: Aqueous

Reviewer: Chris Taylor

Prepared By: Environmental Quality Associates, Inc.
487 Shoddy Hollow Road
Middletown, New York 10940

SECTION A
Sample Information

The above-noted laboratory Job Number samples were analyzed by TestAmerica Laboratories, Inc., Edison, NJ (NJ Laboratory ID Cert. No. 12028). Hexavalent chromium (Cr^{+6}) samples were prepared and analyzed using USEPA SW-846 method 7196A. Total metals samples were prepared and analyzed using USEPA SW-846 methods 3010A and 6010B. Oxidation / Reduction Potential (ORP) characteristics were determined by measurement of pH / Eh values for samples and subsequent extrapolation against the $HCrO_4$- / $Cr(OH)_3$ phase diagram; pH and Eh values were measured by Standard Methods 4500H-B and 2580B, respectively.

A summary table of samples analyzed is presented below. Please note that the number of 'Total Samples' listed below is exclusive of associated QC samples (MS / MD).

Site ID	Sample ID	Lab ID 460-23410-	Matrix	Date Collected	Analysis	
					Hex Cr	Metals
107_	TMW-D019	1	A	02/24/11	X	X
108_	TMW-M018	2	A	02/24/11	X	X
108_	DUP	3	A	02/24/11	X	X
	Field Blank	4	A	02/24/11	X	X
108_	TMW-M006	5	A	02/24/11	X	X
108_	TMW-B008	6	A	02/24/11	X	X
108_	TMW-C002	7	A	02/24/11	X	X

A = Aqueous Matrix Total Samples = 7

All samples were received on the same day of collection. Samples were received on ice at recorded temperature of 1.1^{o}C.

SECTION C
Hexavalent Chromium

Holding times from sample collection to analysis (≤24 hours for aqueous matrix) were met for all samples. Samples 108-TMW- M006, -B008 and –C002 were analyzed at 2x, 5x and 2x dilutions, respectively, due to interferences present in the samples. These samples were reported with appropriate RL elevations.

All calibration criteria were met for this sample group, including: initial calibration linearity and continuing calibration frequency and accuracy. Method and calibration blanks were free of contamination.

Reported spike recoveries, duplicate precision values, and reported Cr^{+6} results were randomly verified from the raw data with no disparities between reported and calculated results found.

The concentration of Cr^{+6} added to the matrix spike was not as specified in the method (7196A, Sect. 7.3.1): "… The amount of spike added should double the concentration found in the original aliquot. Under no circumstances should the increase be less than 30 ug Cr(VI)/liter. …".

- QA Action: Qualify all reported Cr+6 results as estimated "UJ" or "J"; potential bias magnitude and direction is indeterminate.

No positive Cr^{+6} result was reported for the field blank sample.

SECTION D
Total Metals

Holding times from sample collection to analysis were met for all total metals samples.

Calibration and QC criteria were met for this sample group, including: ICP-MS tune, mass calibration and resolution checks, initial calibration linearity, CRQL sensitivity check, continuing calibration frequency and accuracy, internal standard recoveries, blanks, interference checks, matrix spike recoveries, duplicate precision, LCS recoveries and serial dilution sample precision. Reported spike recoveries and duplicate precision values were randomly verified from the raw data with no disparities between reported and calculated results found.

It is noted that no post-digestion spike samples were reported for this delivery group. Serial dilution samples were reported; no results in these samples exceeded the applicable threshold for calculation of percent difference.

All target elements in all samples were reported from initial 5x dilution runs.

No positive element results were reported for the field blank sample.

SECTION E
pH / Eh (ORP)

Samples for pH analysis were analyzed outside the method-defined holding-time of 15 minutes, which is essentially a 'field-performed' analysis. The laboratory assigned all reported pH results an 'HF' qualifier flag to indicate this exception. Since the samples were chilled on receipt at the lab, and analyzed within one day of receipt, no data validation qualifiers were assigned.

Calibrations for pH analysis were acceptable, as were required QC criteria (sample duplicates). Standard mV solution checks for Eh (Light's solution) were within acceptable ranges, as were sample duplicate measurements.

SECTION F
COLLOCATED SAMPLES

DUP (022411) was identified as being collocated with 108_TMW_M018 (460-23410-2). Precision results (as %RPD) are tabulated below. Note: ND = Not Detected ; nc = not calculated ; * = absolute difference is shown if either sample <5x CRQL

	TMW_M018	D022411	%RPD
Chromium	242	217	10.9
Nickel	17.1	16.3	0.80 *
Antimony	4.1	3.8	0.30 *
Thallium	ND	ND	nc
Vanadium	16.8	15.3	1.5 *
Cr (VI)	ND	ND	nc

The NJDEP DV guidance protocols do not provide qualification thresholds for field duplicate precision values; however, EPA Region II data validation guidance (SOP No. HW-2, Rev. 13, Sept. 2006) provides for a qualification range of >20%, <100% RPD for aqueous samples >5x CRQL values, and difference >±CRQL, <2x±CRQL if either sample is <5x CRQL. No QA action is necessary based on the above field duplicate precision results.

SECTION G
Overall Recommendations

The results of the review and validation process for the above analytical fractions and associated samples are summarized on the attached standard-format NJDEP Data Validation Report Forms, in order to facilitate the end-user's' review of these data.

Very truly yours,
Environmental Quality Associates, Inc.

Chris W. Taylor
Vice President

19 January, 2012

Dresdner-Robin Environmental Management
Att: Mr. Douglas Neumann, Director
371 Warren Street
Jersey City, New Jersey 07302

Re: PPG – Site 107, Laboratory Job No. 460-27331-1

Dear Mr. Neumann,

This cover letter, and the attached documents, detail the data validation findings associated with the following sample analytical results contained in the above-referenced deliverables set:

Site Name: PPG – Site 107

Fractions		
Hexavalent chromium (Cr^{+6})	Laboratory:	TestAmerica Laboratories, Inc.
pH / Eh ; ORP		
Report No.: 460-27331-1	Matrix:	Non-Aqueous

Reviewer: Chris Taylor

Prepared By: Environmental Quality Associates, Inc.

SECTION A
Sample Information

The above-noted laboratory Job Number samples were analyzed by TestAmerica Laboratories, Inc., Edison, NJ (NJ Laboratory ID Cert. No. 12028). Hexavalent chromium (Cr^{+6}) samples were prepared and analyzed using USEPA SW-846 methods 3060A and 7196A. Oxidation / Reduction Potential (ORP) characteristics were determined by measurement of pH / Eh values for samples and subsequent extrapolation against the $HCrO_4$- / $Cr(OH)_3$ phase diagram; pH and Eh values were measured by Standard Methods 4500H-B and 2580B, respectively.

A summary table of samples analyzed is presented below. Please note that the number of 'Total Samples' listed below is exclusive of associated QC samples (MS / MD).

Sample ID	Lab ID		Date	Analysis
107_-	460-27331-	Matrix	Collected	Hex Cr
I039_10.0	1	S	06/06/11	X
I039_11.0	2	S	06/06/11	X
I039_12.0	3	S	06/06/11	X
J038_7.0	4	S	06/06/11	X
J038_8.0	5	S	06/06/11	X
J038_10.0	6	S	06/06/11	X
J038_11.0	7	S	06/06/11	NR
J038_12.0	8	S	06/06/11	X
REP060611-1	9	S	06/06/11	X
I038N_7.0	10	S	06/06/11	X
I038N_6.5	11	S	06/06/11	X
I038N_8.0	12	S	06/06/11	X
I038N_10.0	13	S	06/06/11	X
I038N_11.0	14	S	06/06/11	X
I038N_12.0	15	S	06/06/11	X
I038E_7.0	16	S	06/06/11	X
I038E_8.0	**17**	S	06/06/11	X
I038E_10.0	18	S	06/06/11	X
I038E_12.0	**19**	S	06/06/11	X
I038_11.0	20	S	06/06/11	X
I039_7.0	21	S	06/06/11	X
I039_8.0	22	S	06/06/11	X
I037_10.0	23	S	06/06/11	X
I037_11.0	24	S	06/06/11	X
I037_12.0	25	S	06/06/11	X
REP060611-2	26	S	06/06/11	X
I038W_6.5	27	S	06/06/11	X
I038W_7.0	28	S	06/06/11	X
I038W_8.0	29	S	06/06/11	X
I038W_10.0	30	S	06/06/11	X
I038W_12.0	31	S	06/06/11	X
GO36N_5.0	32	S	06/06/11	X
GO36N_6.0	33	S	06/06/11	X
I038W_11.0	34	S	06/06/11	X
H038_7.0	35	S	06/06/11	X
H038_8.0	36	S	06/06/11	X
H038_10.0	37	S	06/06/11	X
H038_11.0	38	S	06/06/11	X
H038_12.0	39	S	06/06/11	X
IN38S_7.0	40	S	06/06/11	X
I038S_8.0	41	S	06/06/11	X
I038S_10.0	42	S	06/06/11	X

Sample ID	Lab ID		Date	Analysis
I038S_11.0	43	S	06/06/11	X
I038S_12.0	44	S	06/06/11	X
I037_7.0	45	S	06/06/11	X
I037_8.0	46	S	06/06/11	X
H036_6.0	47	S	06/06/11	X
H036_5.0	48	S	06/06/11	X
REP060611-3	49	S	06/06/11	X
FB060611	50	A	06/06/11	X

S = Non-Aqueous Matrix Total Samples = 50 NR = not reported
A = Aqueous Matrix **Bold Type** indicates sample taken as a Batch QC sample

All samples were received one day from collection. Samples were received on ice at recorded temperature of 2.1°C.

SECTION C
Hexavalent Chromium

Holding times from sample collection to analysis (≤24 hours for aqueous matrix; ≤30 days for non-aqueous matrix) were met for all samples.

All calibration criteria were met for this sample group, including: initial calibration linearity and continuing calibration frequency and accuracy. Method and calibration blanks for soils were free of contamination.

Reported spike recoveries, duplicate precision values, reported % moisture (% solids) and reported Cr^{+6} results were randomly verified from the raw data with no disparities between reported and calculated results found.

Cr^{+6} was reported positive for the field blank sample (FB060611) at 1.7 J ug/L, and in the associated aqueous method blank at 2.9 ug/L. Per NJDEP guidance, an aqueous prep blank is not required for the field blank if only soil samples are analyzed. It is the reviewer's opinion that the reported field blank contamination is due to the associated prep blank, and since the associated soil samples method blanks were free of contamination, no QA action is necessary.

SECTION D
pH / Eh (ORP)

Samples for pH analysis were analyzed outside the method-defined holding-time of 15 minutes, which is essentially a 'field-performed' analysis. The laboratory assigned all reported pH results an 'HF' qualifier flag to indicate this exception. Since the samples were chilled on receipt at the lab, and analyzed within one day of receipt, no data validation qualifiers were assigned.

Calibrations for pH analysis were acceptable, as were required QC criteria (sample duplicates). Standard mV solution checks for Eh (Light's solution) were within acceptable ranges, as were sample duplicate measurements.

Reported pH and eH (ORP) values and resulting ReDox (reducing or oxidizing) characteristics were randomly

verified from the $HCrO_4$- / $Cr(OH)_3$ phase diagram; no disparities relative to reported values and characteristics were found. These values are only used for data assessment purposes when Cr^{+6} sample spike recoveries are outside acceptable recovery ranges.

SECTION E
COLLOCATED SAMPLES

REP060611-1, -2 and -3 were identified as being collocated with (107_) I038E_7.0, J038-11.0 and I037_12.0, respectively. Precision results (as %RPD) are tabulated below. Note: ND = Not Detected ; nc = not calculated ; NR = Not Reported ; * = absolute difference is shown if either sample <5x CRQL

	I038E_7.0	R60611-1	%RPD	J038_11.0	R60611-2	%RPD	I037_12.0	R60611-3	%RPD
Cr (VI)	2.4	0.96	1.4 *	NR	2.4 U	nc	2.4 U	2.4 U	nc

The NJDEP DV guidance protocols do not provide qualification thresholds for field duplicate precision values; however, EPA Region II data validation guidance (SOP No. HW-2, Rev. 13, Sept. 2006) provides for a qualification range of >35%, <120% RPD for soils >5x CRQL values, and difference >2x CRQL if either sample is <5x CRQL. No QA action is necessary based on the above field duplicate precision results.

SECTION G
Overall Recommendations

The results of the review and validation process for the above analytical fractions and associated samples are summarized on the attached standard-format NJDEP Data Validation Report Forms, in order to facilitate the end-user's' review of these data.

Very truly yours,
Environmental Quality Associates, Inc.

Chris W. Taylor
Vice President

20 January, 2012

Dresdner-Robin Environmental Management
Att: Mr. Douglas Neumann, Director
371 Warren Street
Jersey City, New Jersey 07302

Re: PPG – Site 107, Laboratory Job No. 460-27429-1

Dear Mr. Neumann,

This cover letter, and the attached documents, detail the data validation findings associated with the following sample analytical results contained in the above-referenced deliverables set:

Site Name: PPG – Site 107

Fractions
Hexavalent chromium (Cr^{+6}) Laboratory: TestAmerica Laboratories, Inc.
Total Vanadium (V)
pH / Eh ; ORP

Report No.: 460-27429-1 Matrix: Non-Aqueous

Reviewer: Chris Taylor

Prepared By: Environmental Quality Associates, Inc.

SECTION A
Sample Information

The above-noted laboratory Job Number samples were analyzed by TestAmerica Laboratories, Inc., Edison, NJ (NJ Laboratory ID Cert. No. 12028). Hexavalent chromium (Cr^{+6}) samples were prepared and analyzed using USEPA SW-846 methods 3060A and 7196A. Total metals samples were prepared and analyzed using USEPA SW-846 methods 3050B (3010A for aqueous samples) and 6010B. Oxidation / Reduction Potential (ORP) characteristics were determined by measurement of pH / Eh values for samples and subsequent extrapolation against the $HCrO_4$- / $Cr(OH)_3$ phase diagram; pH and Eh values were measured by Standard Methods 4500H-B and 2580B, respectively.

A summary table of samples analyzed is presented below. Please note that the number of 'Total Samples' listed below is exclusive of associated QC samples (MS / MD).

Sample ID 107_	Lab ID 460-27429-	Matrix	Date Collected	Analysis	
				Hex. Cr	Metals (V)
G036E_5.0	1	S	06/07/11	X	
G036E_6.0	2	S	06/07/11	X	
G037_3.5	3	S	06/07/11	X	
G037_5.0	4	S	06/07/11	X	
G037_6.0	5	S	06/07/11	X	
G036S_3.5	6	S	06/07/11	X	
G036S_5.0	7	S	06/07/11	X	
G036S_6.0	8	S	06/07/11	X	
F036_3.5	**9**	S	06/07/11	X	X
F036_5.0	10	S	06/07/11	X	X
F036_6.0	**11**	S	06/07/11	X	X
REP060711-1	12	S	06/07/11	X	X
F039_4.0	13	S	06/07/11	X	
F039_5.0	14	S	06/07/11	X	
F039_6.0	15	S	06/07/11	X	
F039_7.5	16	S	06/07/11	X	
F039_8.5	17	S	06/07/11	X	
F039_4.5	18	S	06/07/11	X	
F040W_5.0	19	S	06/07/11	X	
F040W_6.0	20	S	06/07/11	X	
F040W_6.5	21	S	06/07/11	X	
F040W_7.5	22	S	06/07/11	X	
F039_6.5	23	S	06/07/11	X	
G036W_4.5	24	S	06/07/11	X	
G036W_5.0	25	S	06/07/11	X	
G036W_6.0	26	S	06/07/11	X	
G035_5.0	27	S	06/07/11	X	
G035_6.0	28	S	06/07/11	X	
F038_6.0	29	S	06/07/11	NR	X
F040W_9.5	30	S	06/07/11	X	
REP060711-2	31	S	06/07/11	X	X
FB060711	32FB	A	06/07/11	X	X

S = Non-Aqueous Matrix
A = Aqueous Matrix

Total Samples = 32

NR = not reported
Bold Type indicates sample taken as a Batch QC sample
Italic type indicates samples are collocated field duplicates

All samples were received one day from collection. Samples were received on ice at recorded temperature of 2.7^{o}C.

SECTION C
Hexavalent Chromium (Cr^{+6})

Holding times from sample collection to analysis (≤30 days for non-aqueous matrix) were met for all soil samples. The aqueous field blank (FB060711) was analyzed beyond the allowable holding time of 24 hours, but <48 hours from collection; the reported result for this sample was flagged as estimated 'UJ', with indication of potential low bias on the reported RL value due to holding time exceedance.

All calibration criteria were met for this sample group, including: initial calibration linearity and continuing calibration frequency and accuracy. Method and calibration blanks for soils were free of contamination. Reported matrix spike recoveries, duplicate precision values, reported % moisture (% solids) and reported Cr^{+6} results were randomly verified from the raw data with no disparities between reported and calculated results found. Several samples were analyzed at dilution volumes due to Cr^{+6} concentrations above calibrated range; reported RL values were adjusted accordingly for these dilution runs and are noted on the sample result forms.

The recovery of Cr^{+6} in the Post-Spike of batch QC sample F036_3.5 (460-27429-9) exceeded the upper limit of 115%, at 147%; re-analysis of the re-spiked sample was 144%. The positive results for Cr^{+6} in associated batch samples (460-27429-1-9) were flagged as estimated 'J', with indication of high bias due to matrix effects.

SECTION D
Total Metals (V)

Holding times from sample collection to analysis were met for all total metals samples.

Calibration and QC criteria were met for this sample group, including: initial calibration linearity, continuing calibration frequency and accuracy, blanks, interference checks, matrix spike recoveries, duplicate precision, LCS recoveries and serial dilution sample precision. The reported QC batch parent sample was not from this site's samples and may not be representative of this SDG's sample matrix characteristics, and were not considered for qualification. Reported % moisture (% solids) and reported metal results were randomly verified from the raw data with no disparities between reported and calculated results found.

It is noted that no post-digestion spike samples were reported for this delivery group. Serial dilution samples were reported; no results in these samples exceeded the applicable threshold for calculation of percent difference. No positive element results were reported for the field blank sample (FB060711).

SECTION E
pH / Eh (ORP)

Samples for pH analysis were analyzed outside the method-defined holding-time of 15 minutes, which is essentially a 'field-performed' analysis. The laboratory assigned all reported pH results an 'HF' qualifier flag to indicate this exception. No data validation qualifiers were assigned.

Calibrations for pH analysis were acceptable, as were required QC criteria (sample duplicates). Standard mV solution checks for Eh (Light's solution) were within acceptable ranges, as were sample duplicate measurements.

Reported pH and eH (ORP) values and resulting ReDox (reducing or oxidizing) characteristics were randomly verified from the $HCrO_4$- / $Cr(OH)_3$ phase diagram; no disparities relative to reported values and characteristics were found. These values are only used for data assessment purposes when Cr^{+6} sample matrix spike recoveries are outside acceptable recovery ranges.

SECTION F
COLLOCATED SAMPLES

REP060711-1 and -2 were identified as being collocated with 107_G036E_6.0 and 107_G035_5.0, respectively. Precision results are tabulated below. Note: ND = Not Detected ; nc = not calculated ; * = absolute difference is shown if either sample <5x CRQL.

	REP060711-1	G036E_6.0	%RPD	REP060711-1	G035_5.0	%RPD
Cr (VI)	4.3	6.5	2.2*	ND	ND	nc

The NJDEP DV guidance protocols do not provide qualification thresholds for field duplicate precision values; however, EPA Region II data validation guidance (SOP No. HW-2, Rev. 13, Sept. 2006) provides for a qualification range of >35%, <120% RPD for soils >5x CRQL values, and difference >2x CRQL if either sample is <5x CRQL. No QA action is necessary based on the above field duplicate precision results.

SECTION G
Overall Recommendations

The results of the review and validation process for the above analytical fractions and associated samples are summarized on the attached standard-format NJDEP Data Validation Report Forms, in order to facilitate the end-user's' review of these data.

Very truly yours,
Environmental Quality Associates, Inc.

Chris W. Taylor
Vice President

23 January, 2012

Dresdner-Robin Environmental Management
Att: Mr. Douglas Neumann, Director
371 Warren Street
Jersey City, New Jersey 07302

Re: PPG – Site 107, Laboratory Job No. 460-27475-2

Dear Mr. Neumann,

This cover letter, and the attached documents, detail the data validation findings associated with the following sample analytical results contained in the above-referenced deliverables set:

Site Name: PPG – Site 107

Fractions
Hexavalent chromium (Cr^{+6}) Laboratory: TestAmerica Laboratories, Inc.
Total Vanadium (V)
pH / Eh ; ORP

Report No.: 460-27475-2 Matrix: Non-Aqueous

Reviewer: Chris Taylor

Prepared By: Environmental Quality Associates, Inc.

SECTION A
Sample Information

The above-noted laboratory Job Number samples were analyzed by TestAmerica Laboratories, Inc., Edison, NJ (NJ Laboratory ID Cert. No. 12028). Hexavalent chromium (Cr^{+6}) samples were prepared and analyzed using USEPA SW-846 methods 3060A and 7196A. Total metals samples were prepared and analyzed using USEPA SW-846 methods 3050B (3010A for aqueous samples) and 6010B. Oxidation / Reduction Potential (ORP) characteristics were determined by measurement of pH / Eh values for samples and subsequent extrapolation against the $HCrO_4$- / $Cr(OH)_3$ phase diagram; pH and Eh values were measured by Standard Methods 4500H-B and 2580B, respectively.

A summary table of samples analyzed is presented below. Please note that the number of 'Total Samples' listed below is exclusive of associated QC samples (MS / MD).

Sample ID 107_-	Lab ID 460-27475-	Matrix	Date Collected	Analysis	
				Hex. Cr	Metals (V)
F040E_5.0	**1**	S	06/08/11	X	
F040E-5.5	2	S	06/08/11	X	
F040E-6.0	3	S	06/08/11	X	
F040E-6.5	4	S	06/08/11	X	
F040E-7.5	5	S	06/08/11	X	
F041_5.0	6	S	06/08/11	X	
F041-5.5	7	S	06/08/11	X	
F041-6.0	8	S	06/08/11	X	
F041-7.5	9	S	06/08/11	X	
F041-6.5	10	S	06/08/11	X	
J038_11.0	11	S	06/08/11	X	
F040N_6.0	12	S	06/08/11	X	
F040N_6.5	13	S	06/08/11	X	
F040N_7.5	14	S	06/08/11	X	
F040S_3.5	15	S	06/08/11	X	X
F040S_4.5	16	S	06/08/11	X	X
F040S_6.0	17	S	06/08/11	X	X
F040S_6.5	18	S	06/08/11	X	X
F040S_7.5	19	S	06/08/11	X	X
REP060811-1	20	S	06/08/11	X	X
FB060811	21FB	A	06/08/11	X	X

S = Non-Aqueous Matrix
A = Aqueous Matrix

Total Samples = 21
Bold Type indicates sample taken as a Batch QC sample
Italic type indicates samples are collocated field duplicates

All samples were received one day from collection. Samples were received on ice at recorded temperature of -0.2°C. No sample condition issues were noted in the sample receipt log ; no QA action was taken.

SECTION C
Hexavalent Chromium

Holding times from sample collection to analysis (≤24 hours for aqueous matrix; ≤30 days for non-aqueous matrix) were met for all samples.

All calibration criteria were met for this sample group, including: initial calibration linearity and continuing calibration frequency and accuracy. Method and calibration blanks for soils were free of contamination. Reported matrix spike recoveries, duplicate precision values, reported % moisture (% solids) and reported Cr^{+6} results were randomly verified from the raw data with no disparities between reported and calculated results found. Several samples were analyzed at dilution volumes due to Cr^{+6} concentrations above calibrated range; reported RL values were adjusted accordingly for these dilution runs and are noted on the sample result forms.

The recovery of Cr^{+6} in the Post-Spike of batch QC sample F040E_5.0 (460-27475-1) exceeded the upper limit of 115%, at 120%; re-analysis of the re-spiked sample recovered within limits at 96%. No data qualifiers were necessary.

The initial matrix spike recovery for soluble Cr^{+6} was low due to the sample native concentration >4x spike-added concentration (246 mg/Kg vs. 43 mg/Kg spiked). The sample was re-spiked and re-analyzed at appropriate concentration (541 mg/Kg) and recovered within limits at 77%. No QA action was necessary. It is noted that the batch QC sample F040E_5.0 (460-27475-1), and all other SDG samples, indicated oxidizing tendency based on measured ORP values. The parent sample was subsequently analyzed for sulfide ($S^{=}$), TOC and ferrous iron (Fe^{++}). TOC result was positive (31000 mg/Kg), and $S^{=}$ and Fe^{++} results were non-detect. It is presumed based on these ancillary results that the soil matrix is of an oxidizing nature that would not tend to inhibit the presence of hexavalent chromium.

SECTION D
Total Metals (V)

Holding times from sample collection to analysis were met for all total metals samples.

Calibration and QC criteria were met for this sample group, including: initial calibration linearity, continuing calibration frequency and accuracy, blanks, interference checks, matrix spike recoveries, duplicate precision, LCS recoveries and serial dilution sample precision. The reported QC batch parent sample was not from this site's samples and may not be representative of this SDG's sample matrix characteristics, and was not considered for qualification. Reported % moisture (% solids) and reported metal results were randomly verified from the raw data with no disparities between reported and calculated results found.

It is noted that no post-digestion spike samples were reported for this delivery group. Serial dilution samples were reported; no results in these samples exceeded the applicable threshold for calculation of percent difference. No positive element results were reported for the field blank sample (FB060711).

SECTION E
pH / Eh (ORP) / Ferrous Iron / Sulfide / TOC

Samples for pH analysis and Fe^{++} were analyzed outside the method-defined holding-time of 15 minutes, which is essentially a 'field-performed' analysis. The laboratory assigned all reported pH and Fe^{++} results an 'HF' qualifier flag to indicate this exception. No data validation qualifiers were assigned.

Calibrations for pH analysis were acceptable, as were required QC criteria (sample duplicates). Standard mV solution checks for Eh (Light's solution) were within acceptable ranges, as were sample duplicate measurements.

Reported pH and eH (ORP) values and resulting ReDox (reducing or oxidizing) characteristics were randomly verified from the $HCrO_4$- / $Cr(OH)_3$ phase diagram; no disparities relative to reported values and characteristics were found. All samples were characterized as "Oxidizing" based on ORP plots on the phase diagram. These values are only used for data assessment purposes when Cr^{+6} sample matrix spike recoveries are outside acceptable recovery ranges.

Matrix spike recoveries for sulfide and ferrous iron were below the respective lower acceptance limits of 90% and 81%, at 13% and 1%. LCS recoveries were within limits for these analytes, indicating acceptable analytical process control. Reported results for sulfide and ferrous iron in parent sample F040E_5.0 (460-27475-1) were flagged as estimated RL values (UJ), with indication of low bias due to sample matrix effects. Repeat analyses confirmed the original low recoveries.

SECTION F
COLLOCATED SAMPLES

REP060811-1 was identified as being collocated with 107_F040S_3.5. Precision results are tabulated below. Note: ND = Not Detected ; nc = not calculated ; * = absolute difference is shown if either sample <5x CRQL

	REP060811-1	F040S_3.5	%RPD
Vanadium	18.7	17.9	0.8*
Cr (VI)	ND	ND	nc

The NJDEP DV guidance protocols do not provide qualification thresholds for field duplicate precision values; however, EPA Region II data validation guidance (SOP No. HW-2, Rev. 13, Sept. 2006) provides for a qualification range of >35%, <120% RPD for soils >5x CRQL values, and difference >2x CRQL if either sample is <5x CRQL. No QA action is necessary based on the above field duplicate precision results.

SECTION G
Overall Recommendations

The results of the review and validation process for the above analytical fractions and associated samples are summarized on the attached standard-format NJDEP Data Validation Report Forms, in order to facilitate the end-user's' review of these data.

Very truly yours,
Environmental Quality Associates, Inc.

Chris W. Taylor
Vice President

24 January, 2012

Dresdner-Robin Environmental Management
Att: Mr. Douglas Neumann, Director
371 Warren Street
Jersey City, New Jersey 07302

Re: PPG – Site 108, Laboratory Job No. 460-27543-1

Dear Mr. Neumann,

This cover letter, and the attached documents, detail the data validation findings associated with the following sample analytical results contained in the above-referenced deliverables set:

Site Name: PPG – Site 108

Fractions
Hexavalent chromium (Cr^{+6}) Laboratory: TestAmerica Laboratories, Inc.

pH / Eh ; ORP

Report No.: 460-27543-1 Matrix: Non-Aqueous

Reviewer: Chris Taylor

Prepared By: Environmental Quality Associates, Inc.

SECTION A
Sample Information

The above-noted laboratory Job Number samples were analyzed by TestAmerica Laboratories, Inc., Edison, NJ (NJ Laboratory ID Cert. No. 12028). Hexavalent chromium (Cr^{+6}) samples were prepared and analyzed using USEPA SW-846 methods 3060A and 7196A. Total metals samples (if requested) were prepared and analyzed using USEPA SW-846 methods 3050B (3010A for aqueous samples) and 6010B. Oxidation / Reduction Potential (ORP) characteristics were determined by measurement of pH / Eh values for samples and subsequent extrapolation against the $HCrO_4$- / $Cr(OH)_3$ phase diagram; pH and Eh values were measured by Standard Methods 4500H-B and 2580B, respectively.

A summary table of samples analyzed is presented below. Please note that the number of 'Total Samples' listed below is exclusive of associated QC samples (MS / MD).

Sample ID: 108_	Laboratory ID: 460-27543-	Matrix	Date Collected	Analysis Hex. Cr
M018_E	**1**	S	06/10/11	X
M018_S	2	S	06/10/11	X
M018_W	3	S	06/10/11	X
M018_N	4	S	06/10/11	X
REP_061011-1	5	S	06/10/11	X
FB061011	6FB	A	06/10/11	X

S = Non-Aqueous Matrix
A = Aqueous Matrix

Total Samples = 6 NR = not reported
Bold Type indicates sample taken as a Batch QC sample
Italic type indicates samples are collocated field duplicates

All samples were received on the same day as collection. Samples were received on ice at recorded temperature of 6.0°C. The chain-of-custody indicated appropriate chemical preservation. The sample receipt log (p. 189) indicated that no custody seal was present on the sample cooler. No action was taken; however, the data users should incorporate this information into their overall assessment of data utility.

SECTION C
Hexavalent Chromium (Cr^{+6})

Holding times from sample collection to analysis (≤30 days for non-aqueous matrix; <24 hours for aqueous matrix) were met for all samples.

All calibration criteria were met for this sample group, including: initial calibration linearity and continuing calibration frequency and accuracy. Method and calibration blanks for soils were free of contamination. Reported matrix spike recoveries, duplicate precision values, reported % moisture (% solids) and reported Cr^{+6} results were randomly verified from the raw data with no disparities between reported and calculated results found.

Soluble and insoluble Cr^{+6} spike recoveries in batch QC sample 108-M018_E (Lab ID: 460-27543-1) were below the allowable limit of 75% (at 1% and 12%, respectively); sample re-digestion and re-analysis was subsequently performed on all samples, with the original QC batch parent sample presenting recoveries comparable to the initial results. The post-verification spike recoveries were below the allowable limit of 85% (at 30% and 37%). The associated LCS recoveries for Cr^{+6} were within acceptable limits, indicating analytical process control.

- QA Action: Reported Cr^{+6} results in all soil samples are rejected, 'R', per the guidance contained in NJDEP, SOP No. 5.A.10, Rev. 3, Sect. VI.(D)7.D.8)e).

The data user is referred to the attached Cr^{+6} report and Data Usability comments below.

- Data Usability: 1) Eh / pH results were evaluated to determine ReDox characteristics of batch samples as an indicator of ability to support Cr^{+6}. Numerous batch samples including the spike parent were characterized as "Reducing" based upon the Method 3060A, Table 2 phase diagram; these samples are not expected to support the presence of Cr^{+6}, or if positive, may be low-biased.

  2) Sulfide screen, ferrous iron and TOC analyses were performed on the batch QC parent sample in order to provide further information regarding sample matrix ReDox characteristics.

SECTION E
pH / Eh (ORP)

Samples for pH analysis were analyzed outside the method-defined holding-time of 15 minutes, which is essentially a 'field-performed' analysis. The laboratory assigned all reported pH results an 'HF' qualifier flag to indicate this exception. No data validation qualifiers were assigned.

Calibrations for pH analysis were acceptable, as were required QC criteria (sample duplicates). Standard mV solution checks for Eh (Light's solution) were within acceptable ranges, as were sample duplicate measurements.

Reported pH and eH (ORP) values and resulting ReDox (reducing or oxidizing) characteristics were randomly verified from the $HCrO_4$- / $Cr(OH)_3$ phase diagram; no disparities relative to reported values and characteristics were found. These values are only used for data assessment purposes when Cr^{+6} sample matrix spike recoveries are outside acceptable recovery ranges.

SECTION F
COLLOCATED SAMPLES

REP061011-1 was identified as being collocated with 108_M018_W. Precision results are tabulated below. Note: ND = Not Detected ; nc = not calculated ; * = absolute difference is shown if either sample <5x CRQL.

	REP061011-1	M018_W	%RPD
Cr (VI)	11.9	8.8	3.1*

The NJDEP DV guidance protocols do not provide qualification thresholds for field duplicate precision values; however, EPA Region II data validation guidance (SOP No. HW-2, Rev. 13, Sept. 2006) provides for a qualification range of >35%, <120% RPD for soils >5x CRQL values, and difference >2x CRQL if either sample is <5x CRQL. No QA action is necessary based on the above field duplicate precision results.

SECTION G
Overall Recommendations

The results of the review and validation process for the above analytical fractions and associated samples are summarized on the attached standard-format NJDEP Data Validation Report Forms, in order to facilitate the end-user's' review of these data.

Very truly yours,
Environmental Quality Associates, Inc.

Chris W. Taylor
Vice President

24 January, 2012

Dresdner-Robin Environmental Management
Att: Mr. Douglas Neumann, Director
371 Warren Street
Jersey City, New Jersey 07302

Re: PPG – Site 108, Laboratory Job No. 460-27543-1

Dear Mr. Neumann,

This cover letter, and the attached documents, detail the data validation findings associated with the following sample analytical results contained in the above-referenced deliverables set:

Site Name: PPG – Site 108

Fractions
Hexavalent chromium (Cr^{+6}) Laboratory: TestAmerica Laboratories, Inc.

pH / Eh ; ORP

Report No.: 460-27543-1 Matrix: Non-Aqueous

Reviewer: Chris Taylor

Prepared By: Environmental Quality Associates, Inc.

SECTION A
Sample Information

The above-noted laboratory Job Number samples were analyzed by TestAmerica Laboratories, Inc., Edison, NJ (NJ Laboratory ID Cert. No. 12028). Hexavalent chromium (Cr^{+6}) samples were prepared and analyzed using USEPA SW-846 methods 3060A and 7196A. Total metals samples (if requested) were prepared and analyzed using USEPA SW-846 methods 3050B (3010A for aqueous samples) and 6010B. Oxidation / Reduction Potential (ORP) characteristics were determined by measurement of pH / Eh values for samples and subsequent extrapolation against the $HCrO_4$- / $Cr(OH)_3$ phase diagram; pH and Eh values were measured by Standard Methods 4500H-B and 2580B, respectively.

A summary table of samples analyzed is presented below. Please note that the number of 'Total Samples' listed below is exclusive of associated QC samples (MS / MD).

Sample ID: 108_	Laboratory ID: 460-27543-	Matrix	Date Collected	Analysis Hex. Cr
M018_E	**1**	S	06/10/11	X
M018_S	2	S	06/10/11	X
M018_W	3	S	06/10/11	X
M018_N	4	S	06/10/11	X
REP_061011-1	5	S	06/10/11	X
FB061011	6FB	A	06/10/11	X

S = Non-Aqueous Matrix
A = Aqueous Matrix

Total Samples = 6 NR = not reported
Bold Type indicates sample taken as a Batch QC sample
Italic type indicates samples are collocated field duplicates

All samples were received on the same day as collection. Samples were received on ice at recorded temperature of 6.0°C. The chain-of-custody indicated appropriate chemical preservation. The sample receipt log (p. 189) indicated that no custody seal was present on the sample cooler. No action was taken; however, the data users should incorporate this information into their overall assessment of data utility.

SECTION C
Hexavalent Chromium (Cr^{+6})

Holding times from sample collection to analysis (≤30 days for non-aqueous matrix; <24 hours for aqueous matrix) were met for all samples.

All calibration criteria were met for this sample group, including: initial calibration linearity and continuing calibration frequency and accuracy. Method and calibration blanks for soils were free of contamination. Reported matrix spike recoveries, duplicate precision values, reported % moisture (% solids) and reported Cr^{+6} results were randomly verified from the raw data with no disparities between reported and calculated results found.

Soluble and insoluble Cr^{+6} spike recoveries in batch QC sample 108-M018_E (Lab ID: 460-27543-1) were below the allowable limit of 75% (at 1% and 12%, respectively); sample re-digestion and re-analysis was subsequently performed on all samples, with the original QC batch parent sample presenting recoveries comparable to the initial results. The post-verification spike recoveries were below the allowable limit of 85% (at 30% and 37%). The associated LCS recoveries for Cr^{+6} were within acceptable limits, indicating analytical process control.

- QA Action: Reported Cr^{+6} results in all soil samples are rejected, 'R', per the guidance contained in NJDEP, SOP No. 5.A.10, Rev. 3, Sect. VI.(D)7.D.8)e).

The data user is referred to the attached Cr^{+6} report and Data Usability comments below.

- Data Usability: 1) Eh / pH results were evaluated to determine ReDox characteristics of batch samples as an indicator of ability to support Cr^{+6}. Numerous batch samples including the spike parent were characterized as "Reducing" based upon the Method 3060A, Table 2 phase diagram; these samples are not expected to support the presence of Cr^{+6}, or if positive, may be low-biased.

  2) Sulfide screen, ferrous iron and TOC analyses were performed on the batch QC parent sample in order to provide further information regarding sample matrix ReDox characteristics.

SECTION E
pH / Eh (ORP)

Samples for pH analysis were analyzed outside the method-defined holding-time of 15 minutes, which is essentially a 'field-performed' analysis. The laboratory assigned all reported pH results an 'HF' qualifier flag to indicate this exception. No data validation qualifiers were assigned.

Calibrations for pH analysis were acceptable, as were required QC criteria (sample duplicates). Standard mV solution checks for Eh (Light's solution) were within acceptable ranges, as were sample duplicate measurements.

Reported pH and eH (ORP) values and resulting ReDox (reducing or oxidizing) characteristics were randomly verified from the $HCrO_4$- / $Cr(OH)_3$ phase diagram; no disparities relative to reported values and characteristics were found. These values are only used for data assessment purposes when Cr^{+6} sample matrix spike recoveries are outside acceptable recovery ranges.

SECTION F
COLLOCATED SAMPLES

REP061011-1 was identified as being collocated with 108_M018_W. Precision results are tabulated below. Note: ND = Not Detected ; nc = not calculated ; * = absolute difference is shown if either sample <5x CRQL.

	REP061011-1	M018_W	%RPD
Cr (VI)	11.9	8.8	3.1*

The NJDEP DV guidance protocols do not provide qualification thresholds for field duplicate precision values; however, EPA Region II data validation guidance (SOP No. HW-2, Rev. 13, Sept. 2006) provides for a qualification range of >35%, <120% RPD for soils >5x CRQL values, and difference >2x CRQL if either sample is <5x CRQL. No QA action is necessary based on the above field duplicate precision results.

SECTION G
Overall Recommendations

The results of the review and validation process for the above analytical fractions and associated samples are summarized on the attached standard-format NJDEP Data Validation Report Forms, in order to facilitate the end-user's' review of these data.

Very truly yours,
Environmental Quality Associates, Inc.

Chris W. Taylor
Vice President

24 January, 2012

Dresdner-Robin Environmental Management
Att: Mr. Douglas Neumann, Director
371 Warren Street
Jersey City, New Jersey 07302

Re: PPG – Site 108, Laboratory Job No. 460-27904-1

Dear Mr. Neumann,

This cover letter, and the attached documents, detail the data validation findings associated with the following sample analytical results contained in the above-referenced deliverables set:

Site Name: PPG – Site 108

Fractions		
Hexavalent chromium (Cr^{+6})	Laboratory:	TestAmerica Laboratories, Inc.
pH / Eh ; ORP		
Report No.: 460-27904-1	Matrix:	Non-Aqueous

Reviewer: Chris Taylor

Prepared By: Environmental Quality Associates, Inc.

SECTION A
Sample Information

The above-noted laboratory Job Number samples were analyzed by TestAmerica Laboratories, Inc., Edison, NJ (NJ Laboratory ID Cert. No. 12028). Hexavalent chromium (Cr^{+6}) samples were prepared and analyzed using USEPA SW-846 methods 3060A and 7196A. Total metals samples (if requested) were prepared and analyzed using USEPA SW-846 methods 3050B (3010A for aqueous samples) and 6010B. Oxidation / Reduction Potential (ORP) characteristics were determined by measurement of pH / Eh values for samples and subsequent extrapolation against the $HCrO_4$- / $Cr(OH)_3$ phase diagram; pH and Eh values were measured by Standard Methods 4500H-B and 2580B, respectively.

A summary table of samples analyzed is presented below. Please note that the number of 'Total Samples' listed below is exclusive of associated QC samples (MS / MD).

Sample ID: 108_	Laboratory ID: 460-27904-	Matrix	Date Collected	Analysis Hex. Cr
M018_S_2.5	1	S	06/21/11	X
M018_W_2.5	2	S	06/21/11	X
M018_N_2.0	**3**	S	06/21/11	X
M018_E_2.5	4	S	06/21/11	X
REP_062111	5	S	06/21/11	X
FB062111	6FB	A	06/21/11	X

S = Non-Aqueous Matrix Total Samples = 6 NR = not reported
A = Aqueous Matrix **Bold Type** indicates sample taken as a Batch QC sample
Italic type indicates samples are collocated field duplicates

All samples were received on the same day as collection. Samples were received on ice at recorded temperature of 3.5°C. The chain-of-custody indicated appropriate chemical preservation. The sample receipt log (p. 124) did not indicate the presence of a custody seal on the sample cooler. No action was taken; however, the data users should incorporate this information into their overall assessment of data utility.

SECTION C
Hexavalent Chromium (Cr^{+6})

Holding times from sample collection to analysis (≤30 days for non-aqueous matrix; <24 hours for aqueous matrix) were met for all samples.

All calibration criteria were met for this sample group, including: initial calibration linearity and continuing calibration frequency and accuracy. Method and calibration blanks for soils were free of contamination. Reported matrix spike recoveries, duplicate precision values, reported % moisture (% solids) and reported Cr^{+6} results were randomly verified from the raw data with no disparities between reported and calculated results found.

The precision value (expressed as RPD) for sample 108_M018_N_2.0 (Lab ID: 460-27904-3) and its laboratory replicate exceeded the method limit of 20 (at 33).

- QA Action: Reported positive Cr^{+6} results in soil samples are flagged as estimated 'J', with indeterminate bias direction.

SECTION D
pH / Eh (ORP)

Samples for pH analysis were analyzed outside the method-defined holding-time of 15 minutes, which is essentially a 'field-performed' analysis. The laboratory assigned all reported pH results an 'HF' qualifier flag to indicate this exception. No data validation qualifiers were assigned.

Calibrations for pH analysis were acceptable, as were required QC criteria (sample duplicates). Standard mV solution checks for Eh (Light's solution) were within acceptable ranges, as were sample duplicate measurements.

Reported pH and eH (ORP) values and resulting ReDox (reducing or oxidizing) characteristics were randomly verified from the $HCrO_4$- / $Cr(OH)_3$ phase diagram; no disparities relative to reported values and characteristics were found. These values are only used for data assessment purposes when Cr^{+6} sample matrix spike recoveries are outside acceptable recovery ranges.

SECTION E
COLLOCATED SAMPLES

REP062111-1 was identified as being collocated with 108_M018_E_2.5. Precision results are tabulated below. Note: ND = Not Detected ; nc = not calculated ; * = absolute difference is shown if either sample <5x CRQL.

	REP062111-1	M018_E_2.5	%RPD
Cr (VI)	6.9	6.0	0.9*

The NJDEP DV guidance protocols do not provide qualification thresholds for field duplicate precision values; however, EPA Region II data validation guidance (SOP No. HW-2, Rev. 13, Sept. 2006) provides for a qualification range of >35%, <120% RPD for soils >5x CRQL values, and difference >2x CRQL if either sample is <5x CRQL. No QA action is necessary based on the above field duplicate precision results.

SECTION F
Overall Recommendations

The results of the review and validation process for the above analytical fractions and associated samples are summarized on the attached standard-format NJDEP Data Validation Report Forms, in order to facilitate the end-user's' review of these data.

Very truly yours,
Environmental Quality Associates, Inc.

Chris W. Taylor
Vice President

25 January, 2012

Dresdner-Robin Environmental Management
Att: Mr. Douglas Neumann, Director
371 Warren Street
Jersey City, New Jersey 07302

Re: PPG – Site 108, Laboratory Job No. 460-28340-1

Dear Mr. Neumann,

This cover letter, and the attached documents, detail the data validation findings associated with the following sample analytical results contained in the above-referenced deliverables set:

Site Name: PPG – Site 108

Fractions		
Hexavalent chromium (Cr^{+6})	Laboratory:	TestAmerica Laboratories, Inc.
pH / Eh ; ORP		
Report No.: 460-28340-1	Matrix:	Non-Aqueous

Reviewer: Chris Taylor

Prepared By: Environmental Quality Associates, Inc.

SECTION A
Sample Information

The above-noted laboratory Job Number samples were analyzed by TestAmerica Laboratories, Inc., Edison, NJ (NJ Laboratory ID Cert. No. 12028). Hexavalent chromium (Cr^{+6}) samples were prepared and analyzed using USEPA SW-846 methods 3060A and 7196A. Total metals samples (if requested) were prepared and analyzed using USEPA SW-846 methods 3050B (3010A for aqueous samples) and 6010B. Oxidation / Reduction Potential (ORP) characteristics were determined by measurement of pH / Eh values for samples and subsequent extrapolation against the $HCrO_4$- / $Cr(OH)_3$ phase diagram; pH and Eh values were measured by Standard Methods 4500H-B and 2580B, respectively.

A summary table of samples analyzed is presented below. Please note that the number of 'Total Samples' listed below is exclusive of associated QC samples (MS / MD).

Sample ID: 108_	Laboratory ID: 460-28340-	Matrix	Date Collected	Analysis Hex. Cr
M018-N-07011	1	S	07/01/11	X
REP_070111	2	S	07/01/11	X
FB070111	3FB	A	07/01/11	X

S = Non-Aqueous Matrix Total Samples = 3 NR = not reported
A = Aqueous Matrix **Bold Type** indicates sample taken as a Batch QC sample
Italic type indicates samples are collocated field duplicates

All samples were received on the same day as collection. Samples were received on ice at recorded temperature of 1.5°C. The chain-of-custody indicated appropriate chemical preservation. The sample receipt log (p. 124) did not indicate the presence of a custody seal on the sample cooler. No action was taken; however, the data users should incorporate this information into their overall assessment of data utility.

SECTION C
Hexavalent Chromium (Cr^{+6})

Holding times from sample collection to analysis (≤30 days for non-aqueous matrix; <24 hours for aqueous matrix) were met for all samples.

All calibration criteria were met for this sample group, including: initial calibration linearity and continuing calibration frequency and accuracy. Method and calibration blanks for soils were free of contamination. Reported matrix spike recoveries, duplicate precision values, reported % moisture (% solids) and reported Cr^{+6} results were randomly verified from the raw data with no disparities between reported and calculated results found. Soil samples were analyzed at dilution volumes due to Cr^{+6} concentrations above calibrated range; reported RL values were adjusted accordingly for these dilution runs and are noted on the sample result forms.

The recovery of Cr^{+6} in the Post-Spike of batch QC sample M018_N_070111 (460-28340-1) exceeded the upper limit of 115%, at 117%; re-analysis of the re-spiked sample recovered within limits at 114%.
The recovery of Cr^{+6} in the soluble matrix pike of batch QC sample M018_N_070111 (460-28340-1) exceeded the upper limit of 125%, at 132%; this may be due to the native sample concentration being >4x the spike added. The sample was re-digested and re-spiked at appropriate concentration; re-analysis of the re-spiked sample recovered within limits at 93%. No data qualifiers were necessary. Since the re-digested, re-analyzed results are associated with compliant QC batch results, the reviewer suggests use of these re-analysis results.

SECTION D
pH / Eh (ORP)

Samples for pH analysis were analyzed outside the method-defined holding-time of 15 minutes, which is essentially a 'field-performed' analysis. The laboratory assigned all reported pH results an 'HF' qualifier flag to indicate this exception. No data validation qualifiers were assigned.

Calibrations for pH analysis were acceptable, as were required QC criteria (sample duplicates). Standard mV solution checks for Eh (Light's solution) were within acceptable ranges, as were sample duplicate measurements.

Reported pH and eH (ORP) values and resulting ReDox (reducing or oxidizing) characteristics were randomly verified from the $HCrO_4$- / $Cr(OH)_3$ phase diagram; no disparities relative to reported values and characteristics were found. These values are only used for data assessment purposes when Cr^{+6} sample matrix spike recoveries are outside acceptable recovery ranges.

SECTION E
COLLOCATED SAMPLES

REP070111-1 was identified as being collocated with 108_M018_N_070111. Precision results are tabulated below. Note: ND = Not Detected ; nc = not calculated ; * = absolute difference is shown if either sample <5x CRQL.

	REP070111	M018_N_070111	%RPD
Cr (VI)	256	306	17.8

The NJDEP DV guidance protocols do not provide qualification thresholds for field duplicate precision values; however, EPA Region II data validation guidance (SOP No. HW-2, Rev. 13, Sept. 2006) provides for a qualification range of >35%, <120% RPD for soils >5x CRQL values, and difference >2x CRQL if either sample is <5x CRQL. No QA action is necessary based on the above field duplicate precision results.

SECTION F
Overall Recommendations

The results of the review and validation process for the above analytical fractions and associated samples are summarized on the attached standard-format NJDEP Data Validation Report Forms, in order to facilitate the end-user's' review of these data.

Very truly yours,
Environmental Quality Associates, Inc.

Chris W. Taylor
Vice President

01 February, 2012

Dresdner-Robin Environmental Management
Att: Mr. Douglas Neumann, Director
371 Warren Street
Jersey City, New Jersey 07302

Re: PPG – Site 107, Laboratory Job No. 460-29983-1

Dear Mr. Neumann,

This cover letter, and the attached documents, detail the data validation findings associated with the following sample analytical results contained in the above-referenced deliverables set:

Site Name: PPG – Site 107

Fractions		
Hexavalent chromium (Cr^{+6})	Laboratory:	TestAmerica Laboratories, Inc.
pH / Eh ; ORP		
Report No.: 460-29983-1	Matrix:	Non-Aqueous

Reviewer: Chris Taylor

Prepared By: Environmental Quality Associates, Inc.

SECTION A
Sample Information

The above-noted laboratory Job Number samples were analyzed by TestAmerica Laboratories, Inc., Edison, NJ (NJ Laboratory ID Cert. No. 12028). Hexavalent chromium (Cr^{+6}) samples were prepared and analyzed using USEPA SW-846 methods 3060A and 7196A. Total metals samples (if requested) were prepared and analyzed using USEPA SW-846 methods 3050B (3010A for aqueous samples) and 6010B. Oxidation / Reduction Potential (ORP) characteristics were determined by measurement of pH / Eh values for samples and subsequent extrapolation against the $HCrO_4$- / $Cr(OH)_3$ phase diagram; pH and Eh values were measured by Standard Methods 4500H-B and 2580B, respectively. It is noted that the phase diagram plots for several SDG samples were not found in the deliverables; these were requested from the laboratory and received on 01/30/12.

A summary table of samples analyzed is presented below. Please note that the number of 'Total Samples' listed below is exclusive of associated QC samples (MS / MD).

Sample ID: 107_	Laboratory ID: 460-29983-	Matrix	Date Collected	Analysis Hex. Cr
F041E_5.0	4	S	08/15/11	X
F041E_5.5	5	S	08/15/11	X
F041E_6.0	6	S	08/15/11	X
F039W_4.5	7	S	08/15/11	X
F039W_5.0	8	S	08/15/11	X
F039W_6.0	9	S	08/15/11	X
F039W_6.5	10	S	08/15/11	X
F039W_7.5	11	S	08/15/11	X
F039W_8.5	12	S	08/15/11	X
F039W_9.0	13	S	08/15/11	X
F039W_10.0	14	S	08/15/11	X
F038_4.5	15	S	08/15/11	X
F038_5.0	16	S	08/15/11	X
F038_6.0	17	S	08/15/11	X
F038_6.5	18	S	08/15/11	X
F038_7.5	19	S	08/15/11	X
F038_9.0	20	S	08/15/11	X
F038_8.5	21	S	08/15/11	X
F038_10.0	22	S	08/15/11	X
F037E_4.5	23	S	08/15/11	X
F037E_6.0	24	S	08/15/11	X
F037E_5.0	25	S	08/15/11	X
F037E_6.5	26	S	08/15/11	X
F037E_7.5	27	S	08/15/11	X
F037E_8.5	28	S	08/15/11	X
REP081511-1	31	S	08/15/11	X
REP081511-2	32	S	08/15/11	X
FB081511	33FB	A	08/15/11	X

S = Non-Aqueous Matrix
A = Aqueous Matrix

Total Samples = 28

NR = not reported
Bold Type indicates sample taken as a Batch QC sample
Italic type indicates samples are collocated field duplicates

All samples were received one day following collection. Samples were received on ice at recorded temperature of 2.7^{o}C. The chain-of-custody indicated appropriate chemical preservation. The sample receipt log (p. 330) did not indicate the presence of a custody seal on the sample cooler. No action was taken; however, the data users should incorporate this information into their overall assessment of data utility.

SECTION C
Hexavalent Chromium (Cr^{+6})

Holding times from sample collection to analysis (≤30 days for non-aqueous matrix; <24 hours for aqueous matrix) were met for all samples.

All calibration criteria were met for this sample group, including: initial calibration linearity and continuing calibration frequency and accuracy. Method and calibration blanks for soils were free of contamination. Reported matrix spike recoveries, duplicate precision values, reported % moisture (% solids) and reported Cr^{+6} results were randomly verified from the raw data with no disparities between reported and calculated results found. Some samples were analyzed at dilution volumes due to Cr^{+6} concentrations above calibrated range; reported RL values were adjusted accordingly for these dilution runs and are noted on the sample result forms.

Soil samples in this SDG were extracted and analyzed in three separate QC batches; sample F039W_8.5 (Lab ID: 460-29983-12) and eight associated samples (460-29983-4-6, 8-11 and 31) were included in the SDG sample QC batch. Although the remainder of the SDG soils associated QC batch results were reported within acceptable limits, the parent QC batch samples were not from this site and may not be representative of this SDG's / site's matrix characteristics. No data validation qualifiers were assigned.

SECTION D
pH / Eh (ORP)

Samples for pH analysis were analyzed outside the method-defined holding-time of 15 minutes, which is essentially a 'field-performed' analysis. The laboratory assigned all reported pH results an 'HF' qualifier flag to indicate this exception. No data validation qualifiers were assigned.

Calibrations for pH analysis were acceptable, as were required QC criteria (sample duplicates). Standard mV solution checks for Eh (Light's solution) were within acceptable ranges, as were sample duplicate measurements.

Reported pH and eH (ORP) values and resulting ReDox (reducing or oxidizing) characteristics were randomly verified from the $HCrO_4$- / $Cr(OH)_3$ phase diagram; no disparities relative to reported values and characteristics were found. These values are only used for data assessment purposes when Cr^{+6} sample matrix spike recoveries are outside acceptable recovery ranges.

SECTION E
COLLOCATED SAMPLES

REP081511-1 and REP081511-1were identified as being collocated with F038_5.0 and F038_6.5, respectively. Precision results are tabulated below. Note: ND = Not Detected ; nc = not calculated ; * = absolute difference is shown if either sample <5x CRQL.

	REP081511-1	F038_5.0	%RPD	REP081511-2	F038_6.5	%RPD
Cr (VI)	16.9	22.1	27	3.0	2.8	0.2*

The NJDEP DV guidance protocols do not provide qualification thresholds for field duplicate precision values; however, EPA Region II data validation guidance (SOP No. HW-2, Rev. 13, Sept. 2006) provides for a qualification range of >35%, <120% RPD for soils >5x CRQL values, and difference >2x CRQL if either sample is <5x CRQL. No QA action is necessary based on the above field duplicate precision results.

SECTION F
Overall Recommendations

The results of the review and validation process for the above analytical fractions and associated samples are summarized on the attached standard-format NJDEP Data Validation Report Forms, in order to facilitate the end-user's' review of these data.

Very truly yours,
Environmental Quality Associates, Inc.

Chris W. Taylor
Vice President

01 February, 2012 *Revised 01 March, 2013*

Dresdner-Robin Environmental Management
Att: Mr. Douglas Neumann, Director
371 Warren Street
Jersey City, New Jersey 07302

Re: PPG – Site 107, Laboratory Job No. 460-30033-1

Dear Mr. Neumann,

This cover letter, and the attached documents, detail the data validation findings associated with the following sample analytical results contained in the above-referenced deliverables set:

Site Name: PPG – Sites 107 & 108

Fractions		
Hexavalent chromium (Cr^{+6})	Laboratory:	TestAmerica Laboratories, Inc.
pH / Eh ; ORP		
Report No.: 460-30033-1	Matrix:	Non-Aqueous

Reviewer: Chris Taylor

Prepared By: Environmental Quality Associates, Inc.

SECTION A
Sample Information

The above-noted laboratory Job Number samples were analyzed by TestAmerica Laboratories, Inc., Edison, NJ (NJ Laboratory ID Cert. No. 12028). Hexavalent chromium (Cr^{+6}) samples were prepared and analyzed using USEPA SW-846 methods 3060A and 7196A. Total metals samples (if requested) were prepared and analyzed using USEPA SW-846 methods 3050B (3010A for aqueous samples) and 6010B. Oxidation / Reduction Potential (ORP) characteristics were determined by measurement of pH / Eh values for samples and subsequent extrapolation against the $HCrO_4$- / $Cr(OH)_3$ phase diagram; pH and Eh values were measured by Standard Methods 4500H-B and 2580B, respectively. It is noted that the phase diagram plots for several SDG samples were not found in the deliverables; these were requested from the laboratory and received on 01/30/12.

A summary table of samples analyzed is presented below. Please note that the number of 'Total Samples' listed below is exclusive of associated QC samples (MS / MD).

Sample ID: 107_	Laboratory ID: 460-30033-	Matrix	Date Collected	Analysis Hex. Cr
F036E_3.5	2	S	08/16/11	X
F037_4.5	4	S	08/16/11	X
F037_5.0	5	S	08/16/11	X
F037_5.5	6	S	08/16/11	X
F035_3.0	7	S	08/16/11	X
F035_3.5	8	S	08/16/11	X
F035_4.0	9	S	08/16/11	X
G037N_4.5	10	S	08/16/11	X
G037N_5.0	11	S	08/16/11	X
G037N_5.5	12	S	08/16/11	X
G037S_5.0	14	S	08/16/11	X
H037_5.0	**17**	S	08/16/11	X
H037_5.5	18	S	08/16/11	X
F036S_3.0	19	S	08/16/11	X
F036S_3.5	20	S	08/16/11	X
F036S_4.0	21	S	08/16/11	X
E036_3.0	22	S	08/16/11	X
E036_3.5	23	S	08/16/11	X
E036_4.0	24	S	08/16/11	X
F036W_3.0	25	S	08/16/11	X
F036W_3.5	26	S	08/16/11	X
F036W_4.0	27	S	08/16/11	X
Sample ID: 108__	Laboratory ID: 460-30033-	Matrix	Date Collected	Analysis Hex. Cr
M018_A_1.0	28	S	08/16/11	X
M018_A_0.0	29	S	08/16/11	X
M018_A_2.0	30	S	08/16/11	X
M018_A_2.5	31	S	08/16/11	X
M018_A_3.0	32	S	08/16/11	X
M018_A_3.5	33	S	08/16/11	X
M018_A_4.0	**34**	S	08/16/11	X
M018_A_4.5	35	S	08/16/11	X
M018_B_0.0	38	S	08/16/11	X
M018_B_1.0	39	S	08/16/11	X
M018_B_2.0	40	S	08/16/11	X
M018_B_2.5	41	S	08/16/11	X
M018_B_3.0	42	S	08/16/11	X
M018_B_3.5	43	S	08/16/11	X
M018_B_4.5	44	S	08/16/11	X
M018_C_0.0	48	S	08/16/11	X
M018_C_1.0	49	S	08/16/11	X
M018_C_2.0	50	S	08/16/11	X
M018_C_2.5	51	S	08/16/11	X
REP081611-1	58	S	08/16/11	X
REP081611-2	59	S	08/16/11	X
REP081611-3	60	S	08/16/11	X
FB081611	62FB	A	08/16/11	X

S = Non-Aqueous Matrix
A = Aqueous Matrix

Total Samples = 45

NR = not reported
Bold Type indicates sample taken as a Batch QC sample
Italic type indicates samples are collocated field duplicates

All samples were received one day following collection. Samples were received on ice at recorded temperatures of 2.4 and 3.1°C. The chain-of-custody indicated appropriate chemical preservation. The sample receipt log (p. 502) did not indicate the presence of a custody seal on the sample cooler. No action was taken; however, the data users should incorporate this information into their overall assessment of data utility.

SECTION C
Hexavalent Chromium (Cr^{+6})

Holding times from sample collection to analysis (≤30 days for non-aqueous matrix; <24 hours for aqueous matrix) were met for all samples.

All calibration criteria were met for this sample group, including: initial calibration linearity and continuing calibration frequency and accuracy. Method and calibration blanks for soils were free of contamination. Reported matrix spike recoveries, duplicate precision values, reported % moisture (% solids) and reported Cr^{+6} results were randomly verified from the raw data with no disparities between reported and calculated results found. Some samples were analyzed at dilution volumes due to Cr^{+6} concentrations above calibrated range; reported RL values were adjusted accordingly for these dilution runs and are noted on the sample result forms.

Soil samples in this SDG were extracted and analyzed in four separate QC batches; samples 107_H037_5.0 (Lab ID: 460-30033-17) and 108_M018_A_4.0 (Lab ID: 460-30033-34) and associated samples were included in the SDG samples QC batches. The soluble matrix spike recoveries for 107_H037_5.0 were below 50% in both the initial and redigested analyses (42%; 38%); the insoluble and post-spike recoveries were within limits.

- QA Action: Reported Cr^{+6} results in soil samples 30033-(4-10), 12, (17-19) and 21 are flagged estimated, "UJ" or 'J', with indication of low bias due to sample matrix effects.

Although the remainder of the SDG soils associated QC batch results were reported within acceptable limits, the parent QC batch samples were not from this site and may not be representative of this SDG's / site's matrix characteristics. No other data validation qualifiers for Cr^{+6} were necessary.

SECTION D
pH / Eh (ORP)

Samples for pH analysis were analyzed outside the method-defined holding-time of 15 minutes, which is essentially a 'field-performed' analysis. The laboratory assigned all reported pH results an 'HF' qualifier flag to indicate this exception. No data validation qualifiers were assigned.

Calibrations for pH analysis were acceptable, as were required QC criteria (sample duplicates). Standard mV solution checks for Eh (Light's solution) were within acceptable ranges, as were sample duplicate measurements.

Reported pH and eH (ORP) values and resulting ReDox (reducing or oxidizing) characteristics were randomly verified from the $HCrO_4$- / $Cr(OH)_3$ phase diagram; no disparities relative to reported values and characteristics were found. These values are only used for data assessment purposes when Cr^{+6} sample matrix spike recoveries are outside acceptable recovery ranges.

SECTION E
COLLOCATED SAMPLES

REP081611-1, -2 and -3 were identified as being collocated with 107_G037N_5.0, 107_E036_3.5 and 108_M018A_2.5, respectively. Precision results are tabulated below. Note: ND = Not Detected ; nc = not calculated ; * = absolute difference is shown if either sample <5x CRQL.

	REP-1	G037N_5.0	%RPD	REP-2	E036_3.5	%RPD	REP-3	M018A_2.5	%RPD
Cr (VI)	40.9	40.4	1.2	35.9	39.5	9.5	9.1	9140	##

The disparity between Rep-3 and parent results indicates possible sample mis-identification. No action was taken based on these disparate results.

The NJDEP DV guidance protocols do not provide qualification thresholds for field duplicate precision values; however, EPA Region II data validation guidance (SOP No. HW-2, Rev. 13, Sept. 2006) provides for a qualification range of >35%, <120% RPD for soils >5x CRQL values, and difference >2x CRQL if either sample is <5x CRQL. No QA action was taken based on the above field duplicate precision results.

SECTION F
Overall Recommendations

The results of the review and validation process for the above analytical fractions and associated samples are summarized on the attached standard-format NJDEP Data Validation Report Forms, in order to facilitate the end-user's' review of these data.

Very truly yours,
Environmental Quality Associates, Inc.

Chris W. Taylor
Vice President

11 December, 2012

Dresdner-Robin Environmental Management
Att: Mr. Douglas Neumann, Director
371 Warren Street
Jersey City, New Jersey 07302

Re: CONRAIL - PPG Site , Laboratory Case No. E12-06877

Dear Mr. Neumann,

This cover letter, and the attached documents, detail the data validation findings associated with the following sample analytical results contained in the above-referenced deliverables set:

Site Name: CONRAIL - PPG Site

Fractions Hexavalent chromium (Cr^{+6}) Total Metals (Sb & V only) pH / Eh ; ORP	Laboratory:	Integrated Analytical Laboratories, LLC
Report No.: E12-06877	Matrix:	Non-Aqueous

Reviewer: Chris Taylor

Prepared By: Environmental Quality Associates, Inc.

SECTION A
Sample Information

The above-noted laboratory Job Number samples were analyzed by Integrated Analytical Laboratories, LLC (IAL), NJ Laboratory ID Cert. No. 14751. Hexavalent chromium (Cr^{+6}) samples were prepared and analyzed using USEPA SW-846 methods 3060A and 7196A. Total metals samples were prepared and analyzed using USEPA SW-846 methods 3050B (3010A for aqueous samples) and 6020B. Oxidation / Reduction Potential (ORP) characteristics were determined by measurement of pH / Eh values for samples and subsequent extrapolation against the $HCrO_4$- / $Cr(OH)_3$ phase diagram; pH and Eh values were measured by Standard Methods 4500H-B and 2580B, respectively.

A summary table of samples analyzed is presented below. Please note that the number of 'Total Samples' listed below is exclusive of associated QC samples (MS / MD).

Sample ID	Lab ID	Matrix	Date Collected	Analysis Hex. Cr	Analysis Metals
108_M016W _1_1-1.5	06877-001	S	07/10/12	X	X
108_M016W _1_1.5-2.0	06877-002	S	07/10/12	X	X
108_M016W _1_2.0-2.5	06877-003	S	07/10/12	X	X
108_M016 _1_1.0-1.5	06877-008	S	07/10/12	X	X
108_M016 _1_1.5-2.0	06877-009	S	07/10/12	X	X
108_M016 _1_2.0-2.5	06877-010	S	07/10/12	X	X
108_M018W2 _1_1.0-1.5	06877-015	S	07/10/12	X	X
108_M018W2 _1_1.5-2.0	06877-016	S	07/10/12	X	X
108_M018W2 _1_2.0-2.5	06877-017	S	07/10/12	X	X
108_M018W2 _1_3.0-3.5	06877-018	S	07/10/12	X	
108_M018W2 _1_4.0-4.5	06877-019	S	07/10/12	X	
REP071012-1	06877-022	S	07/10/12	X	X
108_M018N _1_1.0-1.5	06877-023	S	07/10/12	X	X
108_M018N _1_1.5-2.0	06877-024	S	07/10/12	X	X
108_M018N _1_2.0-2.5	06877-025	S	07/10/12	X	X
108_M018N _1_3.0-3.5	06877-026	S	07/10/12	X	X
108_M018N _1_3.5-4.0	06877-027	S	07/10/12	X	X
107_M022 _1_1.0-1.5	06877-030	S	07/10/12	X	
107_M022 _1_2.0-2.5	06877-031	S	07/10/12	X	
107_M022 _1_3.0-3.5	06877-032	S	07/10/12	X	
107_M022 _1_4.0-4.5	06877-033	S	07/10/12	X	
107_M024 _1_0.5-1.0	06877-036	S	07/10/12	X	
107_M024 _1_1.0-1.5	06877-037	S	07/10/12	X	
107_M024 _1_2.0-2.5	06877-038	S	07/10/12	X	
107_M024 _1_3.0-3.5	06877-039	S	07/10/12	X	
107_M024 _1_4.0-4.5	06877-040	S	07/10/12	X	
107_M018E2 _N_1.0-1.5	06877-044	S	07/10/12	X	X
107_M018E2 _N_1.5-2.0	06877-045	S	07/10/12	X	X
107_M018E2 _N_2.0-2.5	06877-046	S	07/10/12	X	X
107_M018E2 _N_3.0-3.5	06877-047	S	07/10/12	X	X
107_M018E2 _N_3.5-4.0	06877-048	S	07/10/12	X	X
107_M018E2 _N_5.5-6.0	06877-049	S	07/10/12	X	X
107_M020N _1_1.0-1.5	06877-050	S	07/10/12	X	X
107_M020N _1_2.0-2.5	06877-051	S	07/10/12	X	X
107_M020N _1_3.0-3.5	06877-052	S	07/10/12	X	X
107_M020N _1_4.0-4.5	06877-053	S	07/10/12	X	X
107_M020N _1_5.0-5.5	06877-054	S	07/10/12	X	X
107_M022N _1_1.0-1.5	06877-057	S	07/10/12	X	
107_M022N _1_2.0-2.5	06877-058	S	07/10/12	X	
107_M022N _1_3.0-3.5	06877-059	S	07/10/12	X	
107_M022N _1_4.0-4.5	06877-060	S	07/10/12	X	
_1_1.0-1.5 _1_1.0-1.5	06877-065	S	07/10/12	X	
_1_2.0-2.5 _1_2.0-2.5	06877-066	S	07/10/12	X	
_1_3.0-3.5 _1_3.0-3.5	06877-067	S	07/10/12	X	
_1_4.0-4.5 _1_4.0-4.5	06877-068	S	07/10/12	X	
REP07 102	06877-071	S	07/10/12	X	
FB071012	06877-072	A	07/10/12	X	X

S = Non-Aqueous Matrix
A = Aqueous Matrix

Total Samples = 47 (Cr+6) ; 26 (V) ; 3 (Sb)
Bold Type indicates sample taken as a Batch QC sample
Italic type indicates samples are collocated field duplicates

All samples were received one day from collection. Samples were received on ice at recorded temperature of 4°C. No sample condition issues were noted in the sample receipt log.

SECTION B
Hexavalent Chromium

Holding times from sample collection to analysis (≤24 hours for aqueous matrix; ≤30 days for non-aqueous matrix) were met for all samples.

All calibration criteria were met for this sample group, including: initial calibration linearity and continuing calibration frequency and accuracy. Method and calibration blanks for soils were free of contamination. Reported matrix spike recoveries, duplicate precision values, reported % moisture (% solids) and reported Cr^{+6} results were randomly verified from the raw data with no disparities between reported and calculated results found. Several samples were analyzed at dilution volumes due to Cr^{+6} concentrations above calibrated range; reported RL values were adjusted accordingly for these dilution runs and are noted on the sample result forms.

The soluble spike recoveries of Cr^{+6} in batch QC sample E12-06877-068 were below the lower limit of 75%, on initial and re-analysis. Since insoluble recoveries were >50%, the reported results for associated samples (-068, -071) were qualified as estimated 'J' for Cr^{+6}. The parent sample was subsequently analyzed for ORP, sulfide ($S^{=}$), TOC and ferrous iron (Fe^{++}). TOC result was positive (22400 mg/Kg), $S^{=}$ was non-detect and Fe^{++} was below RL value. Based on these ancillary results, it is indicated that the soil matrix is of a reductive nature that would not support the presence of hexavalent chromium.

SECTION C
Total Metals (V, Sb)

Holding times from sample collection to analysis were met for all total metals samples.

Calibration and QC criteria were met for this sample group, including: initial calibration linearity, continuing calibration frequency and accuracy, blanks, interference checks, matrix spike recoveries, duplicate precision, LCS recoveries and serial dilution sample precision. Reported % moisture (% solids) and reported metal results were randomly verified from the raw data with no disparities between reported and calculated results found.

No positive element results were reported for the field blank sample (FB071012).

SECTION D
ReDox Characteristics

Reported pH and eH (ORP) values and resulting ReDox (reducing or oxidizing) characteristics were randomly verified from the $HCrO_4$- / $Cr(OH)_3$ phase diagram; no disparities relative to reported values and characteristics were found.

SECTION E
COLLOCATED SAMPLES

The identity of the sample collocated with sample REP071012-4 was not found in the summary table.

SECTION F
Overall Recommendations

The results of the review and validation process for the above analytical fractions and associated samples are summarized on the attached standard-format NJDEP Data Validation Report Forms, in order to facilitate the end-user's' review of these data.

Very truly yours,
Environmental Quality Associates, Inc.

Chris W. Taylor
Vice President