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ATTN: Ms. Susan Crowley

March 7, 2011

**SUBJECT: Revised Data Validation Summary Report for the July to December 2010  
Semi-Annual Remedial Performance Sampling Tronox LLC Facility  
Henderson, Nevada**

Dear Ms. Crowley,

Enclosed is the Revised Data Validation Summary Report for the July to December 2010 Semi-Annual Remedial Performance Sampling Tronox LLC Facility Henderson, Nevada

We appreciate this opportunity to support Tronox, LLC in the performance of this project.

Please feel free to call me at (760) 634-0437 if you have any questions.

Sincerely,

Erlinda T. Rauto  
Operations Manager/Senior Chemist

**Data Validation Summary Report  
July to December 2010  
Semi-Annual Remedial Performance Sampling  
Tronox LLC Facility  
Henderson, Nevada**

Prepared for

**Tronox LLC**  
Henderson, Nevada

Prepared by

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March 7, 2011

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## LIST OF ACRONYMS AND ABBREVIATIONS

DQO	Data Quality Objectives
DUP	Duplicate
DVSR	Data Validation Summary Report
ICV	Initial Calibration Verification
LCS/LCSD	Laboratory Control Sample / Laboratory Control Sample Duplicate
LDC	Laboratory Data Consultants, Inc.
MS/MSD	Matrix Spike / Matrix Spike Duplicate
PARCC	Precision, Accuracy, Representativeness, Comparability, Completeness
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance / Quality Control
QAPP	Quality Assurance Project Plan
RPD	Relative Percent Difference
SDG	Sample Delivery Group
SQL	Sample Quantitation Limit
ug/L	Micrograms per Liter
ug/Kg	Micrograms per Kilogram
mg/L	Milligram per Liter
mg/Kg	Milligram per Kilogram
USEPA	United States Environmental Protection Agency
%D	Percent Difference
%R	Percent Recovery

## 1.0 INTRODUCTION

This data validation summary report (DVSR) has been prepared by Laboratory Data Consultants, Inc. (LDC) to assess the validity and usability of laboratory analytical data from the Semi-Annual Remedial Performance Sampling conducted at the Tronox LLC facility in Henderson, Nevada. The assessment was performed by Tronox LLC as a part of the *Revised Phase B Quality Assurance Project Plan Tronox LLC Facility, Henderson, Nevada* dated May 2009 and included the collection and analyses of 494 environmental and quality control (QC) samples. The analyses were performed by the following methods:

Chromium by EPA SW 846 Method 6010 and EPA Method 200.7

Wet Chemistry:

Hexavalent Chromium by EPA SW 846 Method 7196

Total Dissolved Solids by EPA Method 160.1 and Standard Method 2540C

Perchlorate by EPA Method 314.0 and EPA Method 331.0

Laboratory analytical services were provided by MWH Laboratories, Inc. The samples were grouped into sample delivery groups (SDGs). The water samples are associated with QA/QC samples designed to document the data quality of the entire SDG or a sub-group of samples within an SDG. Table I is a cross-reference table listing each sample, analysis, SDG, collection date, laboratory sample number, and matrix. All shaded samples in Table I were reviewed under Stage 4 validation guidelines.

The laboratory analytical data were validated in accordance with procedures described in the Nevada Division of Environmental Protection (NDEP) *Data Verification and Validation Requirements - Supplement* established for the BMI Plant Sites and Common Areas Projects, Henderson, Nevada, April 13, 2009. Consistent with the NDEP requirements, approximately ninety percent of the analytical data were validated according to Stage 2A data validation procedures and ten percent of the analytical data were validated according to Stage 4 data validation procedures. The analytical data were evaluated for quality assurance and quality control (QA/QC) based on the following documents: *Basic Remediation Company (BRC) Standard Operating Procedures (SOP) 40 Data Review/Validation*, Revision 1, July 2007, *Revised Phase B Quality Assurance Project Plan Tronox LLC Facility, Henderson, Nevada (QAPP)*, Revision, May 2009, *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review*, October 2004, and the *EPA SW 846 Third Edition, Test Methods for Evaluating Solid Waste*, update I, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IV, February 2007.

This report summarizes the QA/QC evaluation of the data according to precision, accuracy, representativeness, completeness, and comparability (PARCC) relative to the project data quality objectives (DQOs). This report provides a quantitative and qualitative assessment of the data and identifies potential sources of error, uncertainty, and bias that may affect the overall usability.

The PARCC summary report evaluates and summarizes the results of QA/QC data validation for the entire sampling program. Each analytical fraction has a separate section for each of the PARCC criteria. These sections interpret specific QC deviations and their effects on both individual data points and the analyses as a whole. Section 5.0 presents a summary of the PARCC criteria by comparing quantitative parameters with acceptability criteria defined in the project DQO's. Qualitative PARCC criteria are also summarized in this section.

## Precision and Accuracy of Environmental Data

Environmental data quality depends on sample collection procedures, analytical methods and instrumentation, documentation, and sample matrix properties. Both sampling procedures and laboratory analyses contain potential sources of uncertainty, error, and/or bias, which affect the overall quality of a measurement. Errors for sample data may result from incomplete equipment decontamination, inappropriate sampling techniques, sample heterogeneity, improper filtering, and improper preservation. The accuracy of analytical results is dependent on selecting appropriate analytical methods, maintaining equipment properly, and complying with QC requirements. The sample matrix also is an important factor in the ability to obtain precise and accurate results within a given media.

Environmental and laboratory QA/QC samples assess the effects of sampling procedures and evaluate laboratory contamination, laboratory performance, and matrix effects. QA/QC samples include: equipment blanks, field blanks, field duplicates, method blanks, laboratory control samples and laboratory control sample duplicates (LCS/LCSDs), laboratory duplicates (DUP), and matrix spike/matrix spike duplicates (MS/MSDs).

Before conducting the PARCC evaluation, the analytical data were validated according to the BRC SOP-40 (July 2007), QAPP (May 2009), Functional Guidelines (USEPA 2004), and EPA SW 846 Test Methods. Samples not meeting the acceptance criteria were qualified with a flag, an abbreviation indicating a deficiency with the data. The following are flags used in data validation.

- J- Estimated The associated numerical value is an estimated quantity with a negative bias. The analyte was detected but the reported value may not be accurate or precise.
- J+ Estimated The associated numerical value is an estimated quantity with a positive bias. The analyte was detected but the reported value may not be accurate or precise.
- J Estimated The associated numerical value is an estimated quantity. It is not possible to assess the direction of the potential bias. The analyte was detected but the reported value may not be accurate or precise. The "J" qualification indicates the data fell outside the QC limits, but the exceedance was not sufficient to cause rejection of the data.
- R Rejected The data is unusable (the compound or analyte may or may not be present). Use of the "R" qualifier indicates a significant variance from functional guideline acceptance criteria. Either resampling or reanalysis is necessary to determine the presence or absence of the rejected analyte. The "R" designation is also applied to yield only one complete set of data for a given sample and eliminate redundant data.
- U Nondetected Analyses were performed for the compound or analyte, but it was not detected. The "U" designation is also applied to suspected blank contamination. The "U" flag is used to qualify any result that is detected in an environmental sample and associated blank at less than the PQL.
- UJ Estimated/Nondetected Analyses were performed for the compound or analyte, but it was not detected and the sample quantitation or detection limit is an estimated quantity due to poor accuracy or precision. This qualification is also used to flag possible false negative results in the case where low bias in the analytical system is indicated by low calibration response, surrogate, or other spike recovery.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.
- A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

The hierarchy of flags is listed below:

R > J	The R flag will always take precedence over the J qualifier.
J > J+ or J-	A non-biased (J) flag will always supersede biased (J+ or J-) flags since it is not possible to assess the direction of the potential bias.
J = J+ plus J-	Adding biased (J+, J-) flags with opposite signs will result in a non-biased flag (J).
UJ = U plus J or J+ or J-	The UJ flag is used when a non-detected (U) flag is added to a biased (J+ or J-) or non-biased flag (J).

Table II lists the reason codes used. Reason codes explain why flags have been applied and identify possible limitations of data use. Reason codes are cumulative except when one of the flags is R then only the reason code associated to the R flag will be used.

Table III presents the overall qualified results after all the flags or validation qualifiers and associated reason codes have been applied.

Once the data are reviewed and qualified according to the BRC SOP-40, QAPP, functional guidelines, and EPA Test Methods, the data set is then evaluated using PARCC criteria. PARCC criteria provide an evaluation of overall data usability. The following is a discussion of PARCC criteria as related to the project DQOs.

**Precision** is a measure of the agreement or reproducibility of analytical results under a given set of conditions. It is a quantity that cannot be measured directly but is calculated from percent recovery data. Precision is expressed as the relative percent difference (RPD):

$$RPD = (D1-D2)/\{1/2(D1+D2)\} \times 100$$

where:

D1 = reported concentration for the sample

D2 = reported concentration for the duplicate

Precision is primarily assessed by calculating an RPD from the percent recoveries of the spiked compounds for each sample in the MS/MSD pair. In the absence of an MS/MSD pair, a laboratory duplicate or LCS/LCSD pair can be analyzed as an alternative means of assessing precision. An additional measure of sampling precision was obtained by collecting and analyzing field duplicate samples, which were compared using the RPD result as the evaluation criteria.

MS and MSD samples are field samples spiked by the laboratory with target analytes prior to preparation and analysis. These samples measure the overall efficiency of the analytical method in recovering target analytes from an environmental matrix. A LCS is similar to an MS/MSD sample in that the LCS is spiked with the same target analytes prior to preparation and analysis. However, the LCS is prepared using a controlled interference-free matrix instead of a field sample aliquot. Laboratory reagent water is used to prepare aqueous LCS. The LCS measures laboratory efficiency in recovering target analytes from either an aqueous matrix in the absence of matrix interferences.

One primary sample is analyzed and accompanied by an unspiked laboratory duplicate. The data reviewer compares the reported results of the primary analysis and the laboratory duplicate, then calculates RPDs, which are used to assess laboratory precision.



Laboratory and field sampling precision are evaluated by calculating RPDs for aqueous field sample duplicate pairs. The sampler collects two field samples at the same location and under identically controlled conditions. The laboratory then analyzes the samples under identical conditions.

An RPD outside the numerical QC limit in either MS/MSD samples or LCS/LCSD indicates imprecision. Imprecision is the variance in the consistency with which the laboratory arrives at a particular reported result. Thus, the actual analyte concentration may be higher or lower than the reported result.

Possible causes of poor precision include sample matrix interference, improper sample collection or handling, inconsistent sample preparation, and poor instrument stability. In some duplicate pairs, results may be reported in either the primary or duplicate samples at levels below the practical quantitation limit (PQL) or non-detected. Since these values are considered to be estimates, RPD exceedances from these duplicate pairs do not suggest a significant impact on the data quality.

**Accuracy** is a measure of the agreement of an experimental determination and the true value of the parameter being measured. It is used to identify bias in a given measurement system. Recoveries outside acceptable QC limits may be caused by factors such as instrumentation, analyst error, or matrix interference. Accuracy is assessed through the analysis of MS, MSD, LCS, and LCSD. In some cases, samples from multiple SDGs were within one QC batch and therefore are associated with the same laboratory QC samples. Accuracy of inorganic analyses is determined using the percent recoveries of MS and LCS analyses.

Percent recovery (%R) is calculated using the following equation:

$$\%R = (A-B)/C \times 100$$

where:

A = measured concentration in the spiked sample

B = measured concentration of the spike compound in the unspiked sample

C = concentration of the spike

The percent recovery of each analyte spiked in MS/MSD samples and LCS/LCSD is evaluated with the acceptance criteria specified by the previously noted documents. Spike recoveries outside the acceptable QC accuracy limits provide an indication of bias, where the reported data may overestimate or underestimate the actual concentration of compounds detected or quantitation limits reported for environmental samples.

**Representativeness** is a qualitative parameter that expresses the degree to which the sample data are characteristic of a population. It is evaluated by reviewing the QC results of blanks, samples and holding times. Positive detects of compounds in the blank samples identify compounds that may have been introduced into the samples during sample collection, transport, preparation, or analysis. The QA/QC blanks collected and analyzed are method blanks, equipment blanks and field blanks.

A method blank is a laboratory grade water or solid matrix that contains the method reagents and has undergone the same preparation and analysis as the environmental samples. The method blank provides a measure of the combined contamination derived from the laboratory source water, glassware, instruments, reagents, and sample preparation steps. Method blanks are prepared for each sample of a similar matrix extracted by the same method at a similar concentration level.

Initial and continuing calibration blanks consist of acidified laboratory grade water, which are injected at the beginning and at a regular frequency during each 12 - hour sample analysis run. These blanks estimate residual contaminants from the previous sample or standards analysis and measure baseline shifts that commonly occur in emission and absorption spectroscopy.

Equipment blanks consist of analyte-free water poured over or through the sample collection equipment. The water is collected in a sample container for laboratory analysis. These blanks are collected after the sampling equipment is decontaminated and measure efficiency of the decontamination procedure. Equipment blanks were collected and analyzed for all target analytes.

Field blanks consist of analyte-free source water stored at the sample collection site. The water is collected from each source water used during each sampling event. Field blanks were collected and analyzed for all target analytes.

Contaminants found in both the environmental sample and the blank samples are assumed to be laboratory artifacts if both values are less than the PQL.

Holding times are evaluated to assure that the sample integrity is intact for accurate sample preparation and analysis. Holding times will be specific for each method and matrix analyzed. Holding time exceedance can cause loss of sample constituents due to biodegradation, precipitation, volatilization, and chemical degradation. In accordance with EPA guidance (USEPA 2004), sample results for analyses that were performed after the method holding time but less than two times the method holding time were qualified as estimated (J- or UJ) and sample results for analyses that were performed after two times the method holding time were qualified as rejected (R).

**Comparability** is a qualitative expression of the confidence with which one data set may be compared to another. It provides an assessment of the equivalence of the analytical results to data obtained from other analyses. It is important that data sets be comparable if they are used in conjunction with other data sets. The factors affecting comparability include the following: sample collection and handling techniques, matrix type, and analytical method. If these aspects of sampling and analysis are carried out according to standard analytical procedures, the data are considered comparable. Comparability is also dependent upon other PARCC criteria, because only when precision, accuracy, and representativeness are known can data sets be compared with confidence.

**Completeness** is defined as the percentage of acceptable sample results compared to the total number of sample results. Completeness is evaluated to determine if an acceptable amount of usable data were obtained so that a valid scientific site assessment can be completed. Completeness equals the total number of sample results for each fraction minus the total number of rejected sample results divided by the total number of sample results multiplied by 100. As specified in the project DQOs, the goal for completeness for target analytes in each analytical fraction is 90 percent.

Percent completeness is calculated using the following equation:

$$\%C = (T - R)/T \times 100$$

where:

%C = percent completeness

T = total number of sample results

R = total number of rejected sample results

Completeness is also determined by comparing the planned number of samples per method and matrix as specified in the QAPP, with the number determined above.

The following sections present a review of QC data for each analytical method.

## **2.0 METALS**

A total of 294 water samples were analyzed for chromium by EPA SW 846 Method 6010 and EPA Method 200.7. All metal data were assessed to be valid since none of the 294 total results were rejected based on holding time and QC exceedances. This section discusses the QA/QC supporting documentation as defined by the PARCC criteria and evaluated based on the DQOs.

### **2.1 Precision and Accuracy**

#### **2.1.1 Instrument Calibration**

Initial and continuing calibration verification results provide a means of evaluating accuracy within a particular SDG. Correlation coefficient (r) and percent recovery (%R) are the two major parameters used to measure the effectiveness of instrument calibration. The correlation coefficient indicates the linearity of the calibration curve. %R is used to verify the ongoing calibration acceptability of the analytical system.

The most critical of the two calibration parameters, r, has the potential to affect data accuracy across an SDG when it is outside the acceptable QC limits. %R exceedances suggest more routine instrumental anomalies, which typically impact all sample results for the affected analytes.

The correlation coefficients in the initial calibrations were within the acceptance criteria of  $\geq 0.995$  and the %Rs in the continuing calibration verification met the acceptance criteria of 90-110%.

#### **2.1.2 MS/MSD Samples**

All MS/MSD %Rs and RPDs met acceptance criteria.

#### **2.1.3 LCS/LCSD Samples**

All LCS/LCSD %Rs and RPDs met acceptance criteria.

#### **2.1.4 Field Duplicate Samples**

The field duplicate samples were evaluated for acceptable precision with RPDs for the compounds. All RPDs or difference met the acceptance criteria.

#### **2.1.5 ICP Interference Check Sample**

All ICP interference check %Rs met acceptance criteria.

#### **2.1.6 Analyte Quantitation and Target Identification**

Raw data were evaluated for the Stage 4 samples. All analyte quantitation and target identifications were acceptable.

### **2.2 Representativeness**

#### **2.2.1 Sample Preservation and Holding Times**

The evaluation of holding times to verify compliance with the method was conducted. All samples met the 180-day analysis holding time criteria for chromium.

### 2.2.2 Blanks

Method blanks, equipment blanks, and field blanks were analyzed to evaluate representativeness. The concentration for an individual target compound in any of the three types of QA/QC blanks was used for data qualification.

If contaminants were detected in a blank, corrective actions were made for the chemical analytical data during data validation. The corrective action consisted of amending the laboratory reported results based on the following criteria.

Results Below the PQL If a sample result and blank contaminant value were less than the PQL, the sample result was amended as non-detected (U) at the concentration reported in the sample results.

Results Above the PQL If a sample result and blank contaminant value were greater than the PQL and less than 10 times the blank contaminant value, the sample result was qualified as detected estimated (J+) at the concentration reported in the sample results.

No Action If a sample result and blank contaminant values were greater than the PQL, the result was not amended.

#### 2.2.2.1 Method Blanks

As a result of contamination found in the laboratory blanks, five chromium results were qualified as non-detect (U). The details regarding the qualification of results are presented in Attachment A, Section IV.

#### 2.2.2.2 Equipment and Field Blanks

No data were qualified due to the contaminants detected in the equipment and field blanks for this analysis.

### 2.3 Comparability

The laboratory used standard analytical methods for all of the analyses. In all cases, the Sample Quantitation Limits (SQLs) attained were at or below the PQLs. Methods 6010 and 200.7 both utilize multielemental determinations by inductively coupled plasma-atomic emission spectrometry using simultaneous optical systems and axial or radial viewing of the plasma, the comparability of the metals data is regarded as acceptable.

### 2.4 Completeness

The completeness level attained for metal field samples was 100 percent. This percentage was calculated as the total number of accepted sample results divided by the total number of sample results multiplied by 100.

### **3.0 WET CHEMISTRY**

A total of 16 water samples were analyzed for hexavalent chromium by EPA SW 846 Method 7196; 485 water samples were analyzed for perchlorate by EPA Method 314.0; 45 water samples were analyzed for perchlorate by EPA Method 331.0; and 485 water samples were analyzed for total dissolved solids by EPA Method 160.1 and Standard Method 2540C. All wet chemistry data were assessed to be valid with the exception of one of the 1,031 total results which was rejected based on holding time exceedances. This section discusses the QA/QC supporting documentation as defined by the PARCC criteria and evaluated based on the DQOs.

#### **3.1 Precision and Accuracy**

##### **3.1.1 Instrument Calibration**

As previously discussed in Section 2.1.1, initial and continuing calibration results provide a means of evaluating accuracy.

The correlation coefficients in the initial calibrations were within the acceptance criteria of  $\geq 0.995$  and the %Rs in the continuing calibration verification met the acceptance criteria of 90-110%.

##### **3.1.2 MS/MSD Samples**

All MS/MSD %Rs and RPDs met the acceptance criteria.

##### **3.1.3 Duplicate (DUP) Samples**

All DUP RPDs met the acceptance criteria.

##### **3.1.4 LCS/LCSD Samples**

Due to LCS/LCSD %Rs and RPDs outside of the acceptance criteria, 22 perchlorate results were qualified as detected estimated (J). The details regarding the qualification of results are presented in Attachment B, Section VI.

##### **3.1.5 Field Duplicate Samples**

The field duplicate samples were evaluated for acceptable precision with RPDs for the compounds. Two hexavalent chromium results were qualified as detected estimated (J) due to RPD in field duplicate pair M-23 and VD080210. The details regarding the qualification of results are presented in Attachment B, Section IX.

##### **3.1.6 Analyte Quantitation and Target Identification**

Raw data were evaluated for the Stage 4 samples. All analyte quantitation and target identifications were acceptable.

#### **3.2 Representativeness**

##### **3.2.1 Sample Preservation and Holding Times**

The evaluation of holding times to verify compliance with the method was conducted. All water samples met the 7-day analysis holding time criteria for total dissolved solids.

Due to a severe holding time criteria exceedance the hexavalent chromium result for sample EB080310V was qualified as rejected (R). Additionally, fifty six results for hexavalent chromium and perchlorate were qualified as detected estimated (J-) or non-detected estimated (UJ). The analysis holding time criteria for water samples is 24 hours for hexavalent chromium and 28 days for perchlorate. The details regarding the qualification of results are presented in Attachment B, Section I.

### **3.2.2 Blanks**

As previously discussed in Section 2.2.2, method blanks, field blanks and equipment blanks were analyzed to evaluate representativeness.

#### **3.2.2.1 Method Blanks**

No contaminants were detected in the method blanks for this analysis.

#### **3.2.2.2 Equipment and Field Blanks**

As a result of contamination found in the equipment blanks, two perchlorate results for samples M-19 and M-92 were qualified as detected estimated (J+). The details regarding the qualification of results are presented in Attachment B, Section III.

### **3.3 Comparability**

The laboratory used standard analytical methods for all of the analyses. In all cases, the SQLs attained were at or below the PQLs. Methods 160.1 and 2540C both utilize a well-mixed sample filtered through a glass fiber filter and the residue retained on the filter is dried to constant weight at 103-105°C, the comparability of the total dissolved solids data is regarded as acceptable. EPA method 314.0 utilizes ion chromatography analysis technique while EPA method 331.0 utilized liquid chromatography which is connected to a mass spectrometer to determine perchlorate concentrations. Both methods for determining perchlorate are considered comparable, and therefore comparability of the perchlorate data is regarded as acceptable.

### **3.4 Completeness**

The completeness level attained for wet chemistry field samples was 99.9 percent. This percentage was calculated as the total number of accepted sample results divided by the total number of sample results multiplied by 100.

## **4.0 VARIANCES IN ANALYTICAL PERFORMANCE**

The laboratory used standard analytical methods for all of the analyses throughout the project. No systematic variances in analytical performance were noted in the laboratory case narratives.

## **5.0 SUMMARY OF PARCC CRITERIA**

The validation reports present the PARCC results for all SDGs. Each PARCC criterion is discussed in detail in the following sections.

### **5.1 Precision and Accuracy**

Precision and accuracy were evaluated using data quality indicators such as calibration, surrogates, MS/MSD, DUP, LCS/LCSD, and field duplicates. The precision and accuracy of the data set were considered acceptable after integration of result qualification.

All calibrations were performed as required and met the acceptance criteria. All surrogate, MS/MSD, DUP, LCS/LCSD, and field duplicate percent recoveries and RPDs met acceptance criteria with the exceptions noted in Sections 3.1.4 and 3.1.5. All ICP interference check sample %Rs met acceptance criteria.

## 5.2 Representativeness

All samples for each method and matrix were evaluated for holding time compliance. All samples were associated with a method blank in each individual SDG. The representativeness of the project data is considered acceptable after integration of result qualification.

## 5.3 Comparability

Sampling frequency requirements were met in obtaining necessary field blanks and field duplicates. The laboratory used standard analytical methods for the analyses. The analytical results were reported in correct standard units. Sample preservation, and sample integrity criteria were met. Holding times were within QC criteria with the exceptions noted in Section 3.2.1. The overall comparability is considered acceptable.

## 5.4 Completeness

Of the 1,325 total analytes reported, one sample result was rejected. The completeness for the SDG is as follows:

Parameter	Total Analytes	No. of Rejects	% Completeness
Metals	294	0	100
Wet Chemistry	1,031	1	99.9
<b>Total</b>	<b>1,325</b>	<b>1</b>	<b>99.9</b>

The completeness percentage based on rejected data met the 90 percent DQO goal.

## 6.0 CONCLUSIONS AND RECOMMENDATIONS

The analytical data quality assessment for the water sample laboratory analytical results generated during the Semi-Annual Remedial Performance Sampling at the Tronox LLC facility in Henderson, Nevada established that the overall project requirements and completeness levels were met. The sample result that was found to be rejected (R) is unusable for all purposes. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the Stage 2A and Stage 4 data validation all other results are considered valid and usable for all purposes.

## 7.0 REFERENCES

*NDEP Data Verification and Validation Requirements - Supplement* established for the BMI Plant Sites and Common Areas Projects, Henderson, Nevada, April, 13, 2009,

*Basic Remediation Company (BRC) Standard Operating Procedures, SOP-40 Data Review/Validation*, Revision 1, July 2007,

*Revised Phase B Quality Assurance Project Plan Tronox LLC Facility, Henderson, Nevada (QAPP)*, Revision, May 2009,

*Region 9 Superfund Data Evaluation/Validation Guidance, R6QA/006.1, Draft, December 2001,*

USEPA 2004. *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review*, October 2004.

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*Standard Method for the Examination of Water and Wastewater, 20th Edition, 1998*



**TABLE I**

SDG#: 337662		VALIDATION SAMPLE TABLE										LDC#: 24203A
Project Name: 2010 Annual Remedial Performance Sampling										Parameters/Analytical Method		
Client ID #	Lab ID #	Matrix	QC Type	Date Collected	ClO <sub>4</sub> (314.0)	TDS (160.1/2540C)						
ART-1	201007070526	water		07/05/10	X	X						
ART-2	201007070527	water		07/05/10	X	X						
ART-3	201007070528	water		07/05/10	X	X						
ART-4	201007070529	water		07/05/10	X	X						
ART-6	201007070530	water		07/05/10	X	X						
ART-7	201007070531	water		07/05/10	X	X						
ART-8	201007070532	water		07/05/10	X	X						
PC-99R2/R3	201007070533	water		07/05/10	X	X						
PC-115R	201007070534	water		07/05/10	X	X						
PC-116R	201007070535	water		07/05/10	X	X						
SF-1	201007070536	water		07/05/10	X	X						
PC-117	201007070538	water		07/05/10	X	X						
PC-118	201007070540	water		07/05/10	X	X						
PC-119	201007070541	water		07/05/10	X	X						
PC-120	201007070542	water		07/05/10	X	X						
PC-121	201007070543	water		07/05/10	X	X						

Shaded cells indicate sample underwent Stage 4  
 EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate  
 DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: 337662

**VALIDATION SAMPLE TABLE**

LDC#: 24203A

Project Name: 2010 Annual Remedial Performance Sampling Parameters/Analytical Method

Client ID #	Lab ID #	Matrix	QC Type	Date Collected	CLO <sub>4</sub> (314,0)	TDS (160.1/2540C)							
PC-133	201007070544	water		07/05/10	X	X							
ART-9	201007070545	water		07/05/10	X	X							

Shaded cells indicate sample underwent Stage 4  
 EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate  
 DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: 338619

VALIDATION SAMPLE TABLE

LDC#: 24203B

Project Name: 2010 Annual Remedial Performance Sampling		Parameters/Analytical Method																		
Client ID #	Lab ID #	Matrix	QC Type	Date Collected	CLO <sub>4</sub> (314.0)	TDS (160.1/2540C)														
M-83	201007170262	water		07/14/10	X	X														
M-87	201007170263	water		07/14/10	X	X														
PC-98R	201007170264	water		07/15/10	X	X														
PC-86	201007170265	water		07/13/10	X	X														
PC-90	201007170266	water		07/13/10	X	X														
PC-56	201007170267	water		07/13/10	X	X														
PC-58	201007170268	water		07/13/10	X	X														
PC-59	201007170269	water		07/13/10	X	X														
PC-60	201007170270	water		07/13/10	X	X														
PC-62	201007170271	water		07/13/10	X	X														
PC-68	201007170272	water		07/13/10	X	X														
PC-122	201007170273	water		07/14/10	X	X														
PC-91	201007170274	water		07/13/10	X	X														
PC-97	201007170275	water		07/13/10	X	X														
PC-18	201007170276	water		07/14/10	X	X														
PC-55	201007170277	water		07/13/10	X	X														
PC-101R	201007170278	water		07/13/10	X	X														

Shaded cells indicate sample underwent Stage 4  
 EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate  
 DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: 338619

## VALIDATION SAMPLE TABLE

LDC#: 24203B

Client ID #		Lab ID #			Matrix		QC Type		Date Collected		Parameters/Analytical Method	
Project Name: 2010 Annual Remedial Performance Sampling												
PC-144		201007170279		water				07/13/10	X	X		
ART-7B		201007170280		water				07/14/10	X	X		
I-AC		201007170281		water				07/14/10	X	X		
I-AD		201007170282		water				07/14/10	X	X		
MW-K4		201007170283		water				07/13/10	X	X		
ARP-1		201007170284		water				07/14/10	X	X		
ARP-2A		201007170285		water				07/14/10	X	X		
ARP-3A		201007170286		water				07/14/10	X	X		
ARP-4A		201007170287		water				07/14/10	X	X		
ARP-5A		201007170288		water				07/14/10	X	X		
ARP-6B		201007170289		water				07/14/10	X	X		
ARP-7		201007170290		water				07/14/10	X	X		
PC-53		201007170291		water				07/14/10	X	X		
PC-103		201007170292		water				07/15/10	X	X		
MW-K5		201007170293		water				07/14/10	X	X		
M-83DUP		201007170262DUP		water			DUP	07/14/10		X		
PC-68DUP		201007170272DUP		water			DUP	07/13/10		X		

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Shaded cells indicate sample underwent Stage 4

EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate  
DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: 339791

## VALIDATION SAMPLE TABLE

LDC#: 24203N

Project Name: 2010 Annual Remedial Performance Sampling		Parameters/Analytical Method											
Client ID #	Lab ID #	Matrix	QC Type	Date Collected	Cr (6010)	ClO <sub>2</sub> (331.0)	ClO <sub>4</sub> (314.0)	TDS (160.1/2540C)	Cr(VI) (7196A)				
I-O	201008030264	water		08/02/10	X	X	X	X					
I-P	201008030265	water		08/02/10	X	X	X	X					
I-H	201008030266	water		08/02/10	X	X	X	X					
I-U	201008030267	water		08/02/10	X	X	X	X					
I-T	201008030268	water		08/02/10	X	X	X	X					
I-G	201008030269	water		08/02/10	X	X	X	X					
I-F	201008030270	water		08/02/10	X	X	X	X					
I-N	201008030271	water		08/02/10	X	X	X	X					
I-E	201008030272	water		08/02/10	X	X	X	X					
I-M	201008030273	water		08/02/10	X	X	X	X					
I-D	201008030274	water		08/02/10	X	X	X	X					
PC-123	201008030275	water		08/01/10	X	X	X	X					
PC-124	201008030276	water		08/01/10	X	X	X	X					
PC-125	201008030277	water		08/01/10	X	X	X	X					
PC-126	201008030278	water		08/01/10	X	X	X	X					
PC-127	201008030279	water		08/01/10	X	X	X	X					

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Shaded cells indicate sample underwent Stage 4  
 EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate  
 DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: 339791

## VALIDATION SAMPLE TABLE

LDC#: 24203N

Client ID #		Lab ID #		Matrix	QC Type	Date Collected	Cr (6010)	ClO <sub>2</sub> (331.0)	ClO <sub>2</sub> (314.0)	TDS (160.1/2540C)	Cr(VI) (7196A)				
Project Name: 2010 Annual Remedial Performance Sampling												Parameters/Analytical Method			
PC-128		201008030280		water		08/01/10	X	X	X	X					
PC-129		201008030281		water		08/01/10	X	X	X	X					
PC-130		201008030282		water		08/01/10	X	X	X	X					
PC-131		201008030283		water		08/01/10	X		X	X					
PC-132		201008030284		water		08/01/10	X	X	X	X					
M-96		201008030285		water		08/01/10	X	X	X	X					
PC-54		201008030286		water		08/02/10	X	X	X	X					
PC-37		201008030287		water		08/02/10	X	X	X	X					
PC-71		201008030288		water		08/02/10	X	X	X	X					
PC-72		201008030289		water		08/02/10	X	X	X	X					
PC-73		201008030290		water		08/02/10	X	X	X	X					
M-23		201008030291		water	FD	08/02/10	X	X	X	X					
VD080210		201008030292		water	FD	08/02/10	X	X	X	X					
FB080210V		201008030293		water	FB	08/02/10	X	X	X	X	X				
I-OMS		201008030264MS		water	MS	08/02/10			X	X					
I-OMSD		201008030264MSD		water	MSD	08/02/10			X	X					
I-ODUP		201008030264DUP		water	DUP	08/02/10				X					

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Shaded cells indicate sample underwent Stage 4

EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate

DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: 339791

## VALIDATION SAMPLE TABLE

LDC#: 24203N

Project Name: 2010 Annual Remedial Performance Sampling		Parameters/Analytical Method											
Client ID #	Lab ID #	Matrix	QC Type	Date Collected	Cr (6010)	CLO <sub>2</sub> (331.0)	CLO <sub>2</sub> (314.0)	TDS (160.1/2540C)	Cr(VI) (7196A)				
I-DMS	201008030274MS	water	MS	08/02/10			X						
I-DMSD	201008030274MSD	water	MSD	08/02/10			X						
PC-125DUP	201008030277DUP	water	DUP	08/01/10				X					
PC-54DUP	201008030286DUP	water	DUP	08/02/10				X					
PC-71MS	201008030288MS	water	MS	08/02/10	X								
PC-71MSD	201008030288MSD	water	MSD	08/02/10	X								
PC-73MS	201008030290MS	water	MS	08/02/10	X								
PC-73MSD	201008030290MSD	water	MSD	08/02/10	X								
M-23MS	201008030291MS	water	MS	08/02/10	X								
M-23MSD	201008030291MSD	water	MSD	08/02/10	X								
VD080210MS	201008030292MS	water	MS	08/02/10	X								
VD080210MSD	201008030292MSD	water	MSD	08/02/10	X								
FB080210VMS	201008030293MS	water	MS	08/02/10		X			X				
FB080210VMSD	201008030293MSD	water	MSD	08/02/10		X			X				

Shaded cells indicate sample underwent Stage 4  
 EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate  
 DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate



SDG#: 339977

## VALIDATION SAMPLE TABLE

LDC#: 242030

Project Name: 2010 Annual Remedial Performance Sampling		Parameters/Analytical Method											
Client ID #	Lab ID #	Matrix	QC Type	Date Collected	Cr (6010)	CLO <sub>4</sub> (331.0)	CLO <sub>4</sub> (314.0)	TDS (160.1/2540C)	Cr(VI) (7196A)				
I-Q	201008040356	water		08/02/10	X	X	X	X					
I-C	201008040357	water		08/02/10	X	X	X	X					
I-S	201008040358	water		08/02/10	X	X	X	X					
I-L	201008040359	water		08/02/10	X	X	X	X					
I-R	201008040360	water		08/02/10	X	X	X	X					
I-B	201008040361	water		08/02/10	X	X	X	X					
I-AR	201008040362	water		08/02/10	X	X	X	X					
I-AB	201008040363	water		08/02/10	X	X	X	X					
I-AA	201008040364	water		08/02/10	X	X	X	X					
M-131	201008040365	water	FD	08/03/10	X	X	X	X					
M-57A	201008040366	water		08/03/10	X	X	X	X					
M-79	201008040367	water		08/03/10	X	X	X	X					
M-69	201008040368	water		08/03/10	X	X	X	X					
M-135	201008040369	water		08/03/10	X	X	X	X					
VD-080310	201008040370	water	FD	08/03/10	X	X	X	X					
EB080310V	201008040371	water	EB	08/03/10	X	X	X	X					X
I-CMS	201008040357MS	water	MS	08/02/10			X						

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Shaded cells indicate sample underwent Stage 4

EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate

DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: 339977

## VALIDATION SAMPLE TABLE

LDC#: 242030

Project Name: 2010 Annual Remedial Performance Sampling Parameters/Analytical Method

Client ID #	Lab ID #	Matrix	QC Type	Date Collected	Cr (6010)	ClO <sub>2</sub> (331.0)	ClO <sub>2</sub> (314.0)	TDS (160.1/2540G)	Cr(VI) (7196A)				
I-CMSD	201008040357MSD	water	MSD	08/02/10			X						
I-CDUP	201008040357DUP	water	DUP	08/02/10				X					
I-ABMS	201008040363MS	water	MS	08/02/10	X								
I-ABMSD	201008040363MSD	water	MSD	08/02/10	X								
M-79DUP	201008040367DUP	water	DUP	08/03/10				X					
M-135MS	201008040369MS	water	MS	08/03/10	X								
M-135MSD	201008040369MSD	water	MSD	08/03/10	X								
EB080310VMS	201008040371MS	water	MS	08/03/10		X			X				
EB080310VMSD	201008040371MSD	water	MSD	08/03/10		X			X				

Shaded cells indicate sample underwent Stage 4

EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate  
DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: 340066

## VALIDATION SAMPLE TABLE

LDC#: 24203C

Project Name: 2010 Annual Remedial Performance Sampling		Parameters/Analytical Method													
Client ID #	Lab ID #	Matrix	QC Type	Date Collected	Cr (6010)	ClO <sub>2</sub> (314.0)	TDS (160.1/2540C)								
M-99	201008050124	water		08/03/10	X	X	X								
M-25	201008050125	water		08/03/10	X	X	X								
M-92	201008050126	water		08/03/10	X	X	X								
M-97	201008050127	water		08/03/10	X	X	X								
M-14A	201008050128	water		08/03/10	X	X	X								
M-115	201008050129	water		08/03/10	X	X	X								
M-17A	201008050130	water		08/03/10	X	X	X								
M-34	201008050131	water		08/03/10	X	X	X								
M-35	201008050132	water		08/03/10	X	X	X								
M-19	201008050133	water	FD	08/04/10	X	X	X								
M-39	201008050134	water		08/04/10	X	X	X								
I-K	201008050135	water		08/04/10	X	X	X								
I-J	201008050136	water		08/04/10	X	X	X								
I-AD	201008050137	water		08/04/10	X	X	X								
I-Z	201008050138	water		08/04/10	X	X	X								
I-I	201008050139	water		08/04/10	X	X	X								
I-AC	201008050140	water		08/04/10	X	X	X								

Shaded cells indicate sample underwent Stage 4

EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate  
DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: 340066

## VALIDATION SAMPLE TABLE

LDC#: 24203C

Project Name: 2010 Annual Remedial Performance Sampling Parameters/Analytical Method

Client ID #	Lab ID #	Matrix	QC Type	Date Collected	Cr (6010)	ClO <sub>4</sub> (314.0)	TDS (160.1/2540C)											
M-68	201008050141	water		08/04/10	X	X	X											
M-74	201008050142	water		08/04/10	X	X	X											
M-73	201008050143	water		08/04/10	X	X	X											
M-88	201008050144	water		08/04/10	X	X	X											
I-V	201008050145	water		08/04/10	X	X	X											
VD080410	201008050146	water	FD	08/04/10	X	X	X											
M-115DUP	201008050129DUP	water	DUP	08/03/10			X											
M-19MS	201008050133MS	water	MS	08/04/10		X												
M-19MSD	201008050133MSD	water	MSD	08/04/10		X												
I-ADMS	201008050137MS	water	MS	08/04/10	X													
I-ADMSD	201008050137MSD	water	MSD	08/04/10	X													
I-ACMS	201008050140MS	water	MS	08/04/10	X													
I-ACMSD	201008050140MSD	water	MSD	08/04/10	X													

Shaded cells indicate sample underwent Stage 4

EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate

DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: 340161

## VALIDATION SAMPLE TABLE

LDC#: 24203D

Client ID #		Lab ID #		Matrix	QC Type	Date Collected	Cr (6010)	ClO <sub>2</sub> (314.0)	TDS (160.1/2540C)									
Project Name: 2010 Annual Remedial Performance Sampling Parameters/Analytical Method																		
ART-1		201008060013		water		08/04/10	X	X	X									
ART-2		201008060014		water		08/04/10	X	X	X									
ART-3		201008060015		water		08/04/10	X	X	X									
ART-4		201008060016		water		08/04/10	X	X	X									
ART-5		201008060017		water		08/04/10	X	X	X									
ART-6		201008060018		water		08/04/10	X	X	X									
ART-7		201008060019		water		08/04/10	X	X	X									
PC-99R2/R3		201008060020		water		08/04/10	X	X	X									
PC-10R		201008060021		water		08/04/10	X	X	X									
PC-11R		201008060022		water		08/04/10	X	X	X									
PC-17		201008060023		water		08/04/10	X	X	X									
PC-18		201008060024		water		08/04/10	X	X	X									
PC-119		201008060025		water		08/04/10	X	X	X									
PC-120		201008060026		water		08/04/10	X	X	X									
PC-121		201008060027		water		08/04/10	X	X	X									
PC-133		201008060028		water		08/04/10	X	X	X									
ART-9		201008060029		water		08/04/10	X	X	X									

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Shaded cells indicate sample underwent Stage 4

EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate

DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: 340161

## VALIDATION SAMPLE TABLE

LDC#: 24203D

Project Name: 2010 Annual Remedial Performance Sampling		Parameters/Analytical Method													
Client ID #	Lab ID #	Matrix	QC Type	Date Collected	Cr (6010)	ClO <sub>2</sub> (314.0)	TDS (160.1/2540C)								
ART-1MS	201008060013MS	water	MS	08/04/10											
ART-1MSD	201008060013MSD	water	MSD	08/04/10											
PC-117MS	201008060023MS	water	MS	08/04/10	X										
PC-117MSD	201008060023MSD	water	MSD	08/04/10	X										
PC-117DUP	201008060023DUP	water	DUP	08/04/10											
PC-118MS	201008060024MS	water	MS	08/04/10	X										
PC-118MSD	201008060024MSD	water	MSD	08/04/10	X										
PC-118DUP	201008060024DUP	water	DUP	08/04/10											
PC-119DUP	201008060025DUP	water	DUP	08/04/10											

Shaded cells indicate sample underwent Stage 4  
 EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate  
 DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: 340226		VALIDATION SAMPLE TABLE										LDC#: 24203E
Project Name: 2010 Annual Remedial Performance Sampling		Parameters/Analytical Method										
Client ID #	Lab ID #	Matrix	QC Type	Date Collected	TDS (160.1/2540C)							
M-5A	201008060260	water		08/05/10	X							

Shaded cells indicate sample underwent Stage 4  
 EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate  
 DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: 340229		VALIDATION SAMPLE TABLE							LDC#: 24203F
Project Name: 2010 Annual Remedial Performance Sampling		Parameters/Analytical Method							
Client ID #	Lab ID #	Matrix	QC Type	Date Collected	TDS (160.1/2540C)				
M7B	201008060268	water		08/05/10	X				

Shaded cells indicate sample underwent Stage 4  
 EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate  
 DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate



SDG#: 340275		VALIDATION SAMPLE TABLE										LDC#: 24203G	
Project Name: 2010 Annual Remedial Performance Sampling												Parameters/Analytical Method	
Client ID #	Lab ID #	Matrix	QC Type	Date Collected	TDS (160.1/2540C)								
H-28A	201008070110	water		08/06/10	X								

Shaded cells indicate sample underwent Stage 4  
 EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate  
 DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: 340276		VALIDATION SAMPLE TABLE										LDC#: 24203H
Project Name: 2010 Annual Remedial Performance Sampling		Parameters/Analytical Method										
Client ID #	Lab ID #	Matrix	QC Type	Date Collected	TDS (160.1/2540C)							
M-6A	201008070116	water		08/06/10	X							

Shaded cells indicate sample underwent Stage 4  
 EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate  
 DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: 340278 **VALIDATION SAMPLE TABLE** LDC#: 242031

Project Name: 2010 Annual Remedial Performance Sampling		Parameters/Analytical Method												
Client ID #	Lab ID #	Matrix	QC Type	Date Collected	TDS (160.1/2540C)									
M-10	201008070121	water		08/06/10	X									

Shaded cells indicate sample underwent Stage 4  
 EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate  
 DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: 340887

## VALIDATION SAMPLE TABLE

LDC#: 24203J

Project Name: 2010 Annual Remedial Performance Sampling Parameters/Analytical Method

Client ID #	Lab ID #	Matrix	QC Type	Date Collected	Cr (6010)	CLO <sub>4</sub> (314.0)	TDS (160.1/2540C)												
M-83	201008140002	water		08/11/10	X	X	X												
M-87	201008140003	water		08/11/10	X	X	X												
PC-86	201008140004	water		08/10/10	X	X	X												
PC-90	201008140005	water		08/10/10	X	X	X												
PC-56	201008140006	water		08/09/10	X	X	X												
PC-58	201008140007	water		08/09/10	X	X	X												
PC-59	201008140008	water		08/09/10	X	X	X												
PC-60	201008140009	water		08/09/10	X	X	X												
PC-62	201008140010	water		08/09/10	X	X	X												
PC-68	201008140011	water		08/09/10	X	X	X												
PC-122	201008140012	water		08/12/10	X	X	X												
MW-K4	201008140013	water		08/11/10	X	X	X												
ARP-1	201008140014	water		08/11/10	X	X	X												
ARP-2A	201008140015	water		08/11/10	X	X	X												
ARP-3A	201008140016	water		08/11/10	X	X	X												
ARP-4A	201008140017	water		08/11/10	X	X	X												
ARP-5A	201008140018	water		08/11/10	X	X	X												

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Shaded cells indicate sample underwent Stage 4

EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate  
 DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: 340887

## VALIDATION SAMPLE TABLE

LDC#: 24203J

Project Name: 2010 Annual Remedial Performance Sampling		Parameters/Analytical Method													
Client ID #	Lab ID #	Matrix	QC Type	Date Collected	Cr (6010)	ClO <sub>4</sub> (314.0)	TDS (160.1/2540C)								
ARP-6B	201008140019	water		08/11/10	X	X	X								
ARP-7	201008140020	water		08/11/10	X	X	X								
PC-53	201008140021	water		08/11/10	X	X	X								
MW-K5	201008140022	water		08/12/10	X	X	X								
PC-91	201008140023	water		08/10/10	X	X	X								
PC-97	201008140024	water		08/10/10	X	X	X								
PC-18	201008140025	water		08/10/10	X	X	X								
PC-55	201008140026	water		08/12/10	X	X	X								
PC-101R	201008140027	water		08/11/10	X	X	X								
ART-7B	201008140028	water		08/12/10	X	X	X								
PC-92	201008140029	water		08/10/10	X	X	X								
PC-94	201008140030	water		08/10/10	X	X	X								
M-83MS	201008140002MS	water	MS	08/11/10	X										
M-83MSD	201008140002MSD	water	MSD	08/11/10	X										
M-83DUP	201008140002DUP	water	DUP	08/11/10			X								
PC-86MS	201008140004MS	water	MS	08/10/10	X										
PC-86MSD	201008140004MSD	water	MSD	08/10/10	X										

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Shaded cells indicate sample underwent Stage 4

EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate

DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: 340887		VALIDATION SAMPLE TABLE										LDC#: 24203J
Project Name: 2010 Annual Remedial Performance Sampling										Parameters/Analytical Method		
Client ID #	Lab ID #	Matrix	QC Type	Date Collected	Cr (6010)	ClO <sub>4</sub> (314.0)	TDS (160.1/2540C)					
PC-86DUP	201008140004DUP	water	DUP	08/10/10			X					
MW-K5MS	201008140022MS	water	MS	08/12/10	X	X						
MW-K5MSD	201008140022MSD	water	MSD	08/12/10	X	X						

Shaded cells indicate sample underwent Stage 4  
 EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate  
 DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: 341684		VALIDATION SAMPLE TABLE										LDC#: 24203K	
Project Name: 2010 Annual Remedial Performance Sampling												Parameters/Analytical Method	
Client ID #	Lab ID #	Matrix	QC Type	Date Collected	Cr (6010)	ClO <sub>2</sub> (314.0)	TDS (160.1/2540C)						
PC-144	201008240154	water		08/23/10	X	X	X						
PC-145	201008240155	water		08/23/10	X	X	X						

Shaded cells indicate sample underwent Stage 4  
 EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate  
 DUP = Laboratory Duplicates, MS = Matrix Spike, MSD = Matrix Spike Duplicate





SDG#: 343130		VALIDATION SAMPLE TABLE										LDC#: 24203L					
Client ID #		Project Name: 2010 Annual Remedial Performance Sampling				Parameters/Analytical Method											
Lab ID #	Matrix	QC Type	Date Collected	CLO <sub>4</sub> (314.0)	TDS (160.1/2540C)												
201009090329	water		09/08/10	X	X												
ART-9																	

Shaded cells indicate sample underwent Stage 4  
 EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate  
 DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate



SDG#: 349913

## VALIDATION SAMPLE TABLE

LDC#: 24203M

Project Name: 2010 Annual Remedial Performance Sampling		Parameters/Analytical Method										
Client ID #	Lab ID #	Matrix	QC Type	Date Collected	GLO <sub>4</sub> (314.0)	TDS (150.1/2540C)						
ARP-5A	201009170303	water		09/16/10	X	X						
ARP-6B	201009170304	water		09/16/10	X	X						
ARP-7	201009170305	water		09/16/10	X	X						
PC-53	201009170306	water		09/16/10	X	X						
PC-103	201009170307	water		09/16/10	X	X						
MW-K5	201009170308	water		09/16/10	X	X						
PC-91	201009170309	water		09/15/10	X	X						
PC-97	201009170310	water		09/15/10	X	X						
PC-18	201009170311	water		09/15/10	X	X						
PC-55	201009170312	water		09/15/10	X	X						
PC-101R	201009170313	water		09/15/10	X	X						
M-83DUP	201009170283DUP	water	DUP	09/15/10								
PC-68DUP	201009170296DUP	water	DUP	09/14/10								
PC-53DUP	201009170306DUP	water	DUP	09/16/10								

Shaded cells indicate sample underwent Stage 4  
 EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate  
 DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: 345395

## VALIDATION SAMPLE TABLE

LDC#: 24670A

Project Name: 2010 Annual Remedial Performance Sampling Parameters/Analytical Method

Client ID #	Lab ID #	Matrix	QC Type	Date Collected	CLO <sub>4</sub> (314.0)	TDS (180.1/ 2540C)														
ART-1	201010050220	water		10/04/10	X	X														
ART-2	201010050221	water		10/04/10	X	X														
ART-3	201010050222	water		10/04/10	X	X														
ART-4	201010050223	water		10/04/10	X	X														
ART-6	201010050224	water		10/04/10	X	X														
ART-7	201010050225	water		10/04/10	X	X														
ART-8	201010050226	water		10/04/10	X	X														
PC-99R2/R3	201010050227	water		10/04/10	X	X														
PC-115R	201010050228	water		10/04/10	X	X														
PC-116R	201010050229	water		10/04/10	X	X														
SF-1	201010050230	water		10/04/10	X	X														
PC-117	201010050231	water		10/04/10	X	X														
PC-118	201010050232	water		10/04/10	X	X														
PC-119	201010050233	water		10/04/10	X	X														
PC-120	201010050234	water		10/04/10	X	X														
PC-121	201010050235	water		10/04/10	X	X														

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Shaded cells indicate sample underwent Stage 4

EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate

DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: 345395		VALIDATION SAMPLE TABLE										LDC#: 24670A
Project Name: 2010 Annual Remedial Performance Sampling										Parameters/Analytical Method		
Client ID #	Lab ID #	Matrix	QC Type	Date Collected	CLO <sub>4</sub> (314.0)	TDS (160.1/2540C)						
PC-133	201010050236	water		10/04/10	X	X						
ART-9	201010050237	water		10/04/10	X	X						
ART-1DUP	201010050220DUP	water	DUP	10/04/10		X						
SF-1DUP	201010050230DUP	water	DUP	10/04/10		X						
ART-3MS	201010050222MS	water	MS	10/04/10	X							
ART-3MSD	201010050222MSD	water	MSD	10/04/10	X							

Shaded cells indicate sample underwent Stage 4  
 EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate  
 DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: 345397										VALIDATION SAMPLE TABLE										LDC#: 24670B									
Project Name: 2010 Annual Remedial Performance Sampling										Parameters/Analytical Method																			
Client ID #	Lab ID #	Matrix	QC Type	Date Collected	Cr	TDS (160.1/2540C)																							
LVW UPGRADIENT	201010050240	water		10/04/10	X	X																							
LVW 6.05	201010050241	water		10/04/10	X	X																							
LVW 5.5	201010050242	water		10/04/10	X	X																							

Shaded cells indicate sample underwent Stage 4  
 EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate  
 DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: 345404		VALIDATION SAMPLE TABLE										LDC#: 24670C
Project Name: 2010 Annual Remedial Performance Sampling										Parameters/Analytical Method		
Client ID #	Lab ID #	Matrix	QC Type	Date Collected	ClO <sub>4</sub> (314.0)							
LVW UPGRADIENT	2010100502	water		10/04/10	X							
LVW 6.05	2010100503	water		10/04/10	X							
LVW 5.5	2010100504	water		10/04/10	X							
LVW 0.55	2010100505	water		10/04/10	X							

Shaded cells indicate sample underwent Stage 4  
 EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate  
 DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: 346581

## VALIDATION SAMPLE TABLE

LDC#: 24670D

Project Name: 2010 Annual Remedial Performance Sampling Parameters/Analytical Method

Client ID #	Lab ID #	Matrix	QC Type	Date Collected	CLO <sub>4</sub> (314.0)	TDS (160.1/2540C)														
PC-91	201010160149	water		10/13/10	X	X														
PC-97	201010160150	water		10/13/10	X	X														
PC-18	201010160151	water		10/13/10	X	X														
PC-55	201010160152	water		10/13/10	X	X														
PC-101R	201010160153	water		10/13/10	X	X														
PC-86	201010160154	water		10/13/10	X	X														
PC-90	201010160155	water		10/13/10	X	X														
ARP-1	201010160156	water		10/13/10	X	X														
M-87	201010160157	water		10/14/10	X	X														
PC-56	201010160158	water		10/12/10	X	X														
PC-58	201010160159	water		10/12/10	X	X														
PC-59	201010160160	water		10/12/10	X	X														
PC-60	201010160161	water		10/12/10	X	X														
PC-62	201010160162	water		10/12/10	X	X														
PC-68	201010160163	water		10/12/10	X	X														

Shaded cells indicate sample underwent Stage 4  
 EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate  
 DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate



SDG#: 346719

VALIDATION SAMPLE TABLE

LDC#: 24670E

Project Name: 2010 Annual Remedial Performance Sampling Parameters/Analytical Method

Client ID #	Lab ID #	Matrix	QC Type	Date Collected	ClO <sub>4</sub> (314.0)																
LWW UPGRADIENT	201010190103	water		10/18/10	X																
LWW 6.05	201010190106	water		10/18/10	X																
LWW 5.5	201010190107	water		10/18/10	X																
LWW 0.55	201010190108	water		10/18/10	X																

Shaded cells indicate sample underwent Stage 4  
 EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate  
 DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: 346730		VALIDATION SAMPLE TABLE										LDC#: 24670F
Project Name: 2010 Annual Remedial Performance Sampling		Parameters/Analytical Method										
Client ID #	Lab ID #	Matrix	QC Type	Date Collected	ClO <sub>4</sub> (314.0)							
LVW 0.55	201010190161	water		10/18/10	X							

Shaded cells indicate sample underwent Stage 4  
 EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate  
 DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: 347038

VALIDATION SAMPLE TABLE

LDC#: 24670G

Project Name: 2010 Annual Remedial Performance Sampling Parameters/Analytical Method

Client ID #	Lab ID #	Matrix	QC Type	Date Collected	CLO <sub>4</sub> (314.0)	TDS (160.1/2540C)														
PC-122	201010210354	water		10/20/10	X	X														
PC-53	201010210364	water		10/20/10	X	X														
MW-K5	201010210365	water		10/20/10	X	X														
ARP-7	201010210366	water		10/20/10	X	X														
ARP-6B	201010210367	water		10/20/10	X	X														
ARP-5A	201010210368	water		10/20/10	X	X														
ARP-4A	201010210369	water		10/20/10	X	X														
MW-K4	201010210370	water		10/20/10	X	X														
ARP-3A	201010210371	water		10/20/10	X	X														
ARP-2A	201010210372	water		10/20/10	X	X														
PC-103	201010210373	water		10/20/10	X	X														
PC-98R	201010210374	water		10/20/10	X	X														

Shaded cells indicate sample underwent Stage 4  
 EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate  
 DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: 347852		VALIDATION SAMPLE TABLE										LDC#: 24670H	
Project Name: 2010 Annual Remedial Performance Sampling												Parameters/Analytical Method	
Client ID #	Lab ID #	Matrix	QC Type	Date Collected	Cr (6010)	CLO <sub>4</sub> (314.0)	TDS (160.1/2540C)						
ART-1	201011020183	water		11/01/10	X	X	X						
ART-2	201011020184	water		11/01/10	X	X	X						
ART-3	201011020185	water		11/01/10	X	X	X						
ART-4	201011020186	water		11/01/10	X	X	X						
ART-6	201011020187	water		11/01/10	X	X	X						
ART-7	201011020188	water		11/01/10	X	X	X						
ART-8	201011020189	water		11/01/10	X	X	X						
PC-99R2/R3	201011020190	water		11/01/10	X	X	X						
PC-115R	201011020192	water		11/01/10	X	X	X						
PC-116R	201011020194	water		11/01/10	X	X	X						
SF-1	201011020196	water		11/01/10	X	X	X						
PC-117	201011020198	water		11/01/10	X	X	X						
PC-118	201011020199	water		11/01/10	X	X	X						
PC-119	201011020200	water		11/01/10	X	X	X						
PC-120	201011020201	water		11/01/10	X	X	X						
PC-121	201011020202	water		11/01/10	X	X	X						
PC-133	201011020203	water		11/01/10	X	X	X						

Shaded cells indicate sample underwent Stage 4

EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate  
 DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: 347852

## VALIDATION SAMPLE TABLE

LDC#: 24670H

Project Name: 2010 Annual Remedial Performance Sampling Parameters/Analytical Method

Client ID #	Lab ID #	Matrix	QC Type	Date Collected	Cr (6010)	CLO <sub>4</sub> (314.0)	TDS (160.1/2540C)											
ART-9	201011020204	water		11/01/10	X	X	X											
ART-1MS	201011020183MS	water	MS	11/01/10		X												
ART-1MSD	201011020183MSD	water	MSD	11/01/10		X												
PC-120DUP	201011020201DUP	water	DUP	11/01/10			X											
PC-99R2/R3MS	201011020190MS	water	MS	11/01/10	X													
PC-99R2/R3MSD	201011020190MSD	water	MSD	11/01/10	X													
PC-115RMS	201011020192MS	water	MS	11/01/10	X													
PC-115RMSD	201011020192MSD	water	MSD	11/01/10	X													

Shaded cells indicate sample underwent Stage 4  
 EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate  
 DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

Project Name: 2010 Annual Remedial Performance Sampling Parameters/Analytical Method

Client ID #	Lab ID #	Matrix	QC Type	Date Collected	Cr (6010)	CLO <sub>4</sub> (314.0)	TDS (160.1/2540C)	Cr(VI) (7196)						
M-79	201011020214	water		11/01/10	X	X	X							
M-69	201011020215	water		11/01/10	X	X	X							
M-135	201011020216	water		11/01/10	X	X	X							
M-131	201011020217	water		11/01/10	X	X	X							
M-57A	201011020218	water		11/01/10	X	X	X							
M-99	201011020219	water		11/01/10	X	X	X							
M-25	201011020220	water		11/01/10	X	X	X							
M-37	201011020221	water		11/01/10	X	X	X	X						
FB110110V	201011020222	water	FB	11/01/10	X	X	X	X						
EB110110V	201011020223	water	EB	11/01/10	X	X	X	X						
M-79DUP	201011020214DUP	water	DUP	11/01/10			X							
M-135MS	201011020216MS	water	MS	11/01/10	X	X								
M-135MSD	201011020216MSD	water	MSD	11/01/10	X	X								
M-135DUP	201011020216DUP	water	DUP	11/01/10			X							
M-131MS	201011020217MS	water	MS	11/01/10	X									
M-131MSD	201011020217MSD	water	MSD	11/01/10	X									
FB110110VMS	201011020222MS	water	MS	11/01/10				X						

Shaded cells indicate sample underwent Stage 4  
 EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate  
 DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: 347858		VALIDATION SAMPLE TABLE										LDC#: 246701
Project Name: 2010 Annual Remedial Performance Sampling		Parameters/Analytical Method										
Client ID #	Lab ID #	Matrix	QC Type	Date Collected	Cr (6010)	ClO <sub>4</sub> (314.0)	TDS (160.1/2540C)	Cr(VI) (7196)				
FB110110VMSD	20101102022MSD	water	MSD	11/01/10				X				

Shaded cells indicate sample underwent Stage 4  
 BB = Equipment Blank, FB = Field Blank, FD = Field Duplicate  
 DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate





SDG#: 347877		VALIDATION SAMPLE TABLE										LDC#: 24670J	
Project Name: 2010 Annual Remedial Performance Sampling												Parameters/Analytical Method	
Client ID #	Lab ID #	Matrix	QC Type	Date Collected	Cr (6010)	ClO <sub>4</sub> (314.0)	TDS (160.1/2540C)						
I-G	201011020316	water		11/01/10	X	X	X						
I-Q	201011020317	water		11/01/10	X	X	X						
I-N	201011020318	water		11/01/10	X	X	X						
I-F	201011020319	water		11/01/10	X	X	X						
I-E	201011020320	water		11/01/10	X	X	X						
I-M	201011020321	water		11/01/10	X	X	X						
I-D	201011020322	water		11/01/10	X	X	X						
PC-129DUP	201011020310DUP	water	DUP	11/01/10			X						
PC-123MS	201011020309MS	water	MS	11/01/10				X					
PC-123MSD	201011020309MSD	water	MSD	11/01/10					X				

Shaded cells indicate sample underwent Stage 4  
 EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate  
 DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: 347973

## VALIDATION SAMPLE TABLE

LDC#: 24670K

Project Name: 2010 Annual Remedial Performance Sampling Parameters/Analytical Method

Gillett ID #	Lab ID #	Matrix	QC Type	Date Collected	Cr (6010)	Cr(VI) (7196)	TDS (160.1/2540C)	CLO <sub>4</sub> (314.0)	Cr (VI) (7196)									
I-AB	201011030191	water		11/02/10	X		X											
I-AA	201011030204	water	FD2	11/02/10	X		X											
PC-124	201011030205	water		11/02/10	X		X											
PC-125	201011030206	water		11/02/10	X		X											
PC-126	201011030207	water		11/02/10	X		X											
PC-127	201011030208	water		11/02/10	X		X											
M-96	201011030209	water		11/02/10	X		X											
PC-54	201011030210	water		11/02/10	X		X											
M-48A	201011030211	water		11/02/10	X		X											
PC-71	201011030212	water		11/02/10	X		X											
PC-72	201011030213	water		11/02/10	X		X											
PC-73	201011030214	water		11/02/10	X		X											
PC-37	201011030215	water		11/02/10	X		X											
M-95	201011030216	water		11/02/10	X		X											
M-44	201011030217	water	FD1	11/02/10	X		X											
VD-1	201011030218	water	FD1	11/02/10	X		X											
VD-3	201011030219	water	FD2	11/02/10	X		X											

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Shaded cells indicate sample underwent Stage 4

EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate  
DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: 347973

## VALIDATION SAMPLE TABLE

LDC#: 24670K

Project Name: 2010 Annual Remedial Performance Sampling Parameters/Analytical Method

Client ID #	Lab ID #	Matrix	QC Type	Date Collected	Cr (6010)	ClO <sub>4</sub> (314.0)	TDS (160.1/2540C)	Cr(VI) (7196)										
I-ABMS	201011030191MS	water	MS	11/02/10	X													
I-ABMSD	201011030191MSD	water	MSD	11/02/10	X													
I-AAMS	201011030204MS	water	MS	11/02/10	X													
I-AAMSD	201011030204MSD	water	MSD	11/02/10	X													
PC-124MS	201011030205MS	water	MS	11/02/10	X													
PC-124MSD	201011030205MSD	water	MSD	11/02/10	X													
PC-125MS	201011030206MS	water	MS	11/02/10	X													
PC-125MSD	201011030206MSD	water	MSD	11/02/10	X													
PC-125DUP	201011030206DUP	water	DUP	11/02/10			X											
M-46ADUP	201011030211DUP	water	DUP	11/02/10			X											
VD-1MS	201011030218MS	water	MS	11/02/10				X										
VD-1MSD	201011030218MSD	water	MSD	11/02/10				X										

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Shaded cells indicate sample underwent Stage 4  
 EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate  
 DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: 348239

VALIDATION SAMPLE TABLE

LDC#: 24670L

Project Name: 2010 Annual Remedial Performance Sampling Parameters/Analytical Method

Client ID #	Lab ID #	Matrix	QC Type	Date Collected	Gr (6010)	ClO <sub>4</sub> (314.0)	TDS (160.1/2540C)	Cr(VI) (7196)										
MS4	20101040320	water		11/03/10	X	X	X											
MS5	20101040336	water	FD	11/03/10	X	X	X											
MS6	20101040337	water		11/03/10	X	X	X											
MS92	20101040338	water		11/03/10	X	X	X											
MS97	20101040339	water		11/03/10	X	X	X											
MS23	20101040340	water		11/03/10	X	X	X											
MS35	20101040341	water		11/03/10	X	X	X											
MS19	20101040342	water		11/03/10	X	X	X											
MS39	20101040343	water		11/03/10	X	X	X											
MS68	20101040344	water		11/03/10	X	X	X											
MS74	20101040345	water		11/03/10	X	X	X											
MS67	20101040346	water		11/03/10	X	X	X											
MSK	20101040347	water		11/03/10	X	X	X											
MS	20101040348	water		11/03/10	X	X	X											
MSZ	20101040349	water		11/03/10	X	X	X											
MSV	20101040350	water		11/03/10	X	X	X											
MS	20101040351	water		11/03/10	X	X	X											

Shaded cells indicate sample underwent Stage 4  
 EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate  
 DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: 348239		VALIDATION SAMPLE TABLE										LDC#: 24670L
Project Name: 2010 Annual Remedial Performance Sampling										Parameters/Analytical Method		
Client ID #	Lab ID #	Matrix	QC Type	Date Collected	Cr (6010)	ClO <sub>2</sub> (314.0)	TDS (160.1/2540C)	Cr(VI) (7196)				
M-73	201011040352	water		11/03/10	X	X	X					
M-100	201011040353	water		11/03/10	X	X	X	X				
EB110310V	201011040354	water	EB	11/03/10	X	X	X	X				
M-70	201011040355	water		11/03/10	X	X	X					
W04	201011040356	water	FD	11/03/10	X	X	X					
M-92MS	201011040336MS	water	MS	11/03/10	X							
M-92MSD	201011040336MSD	water	MSD	11/03/10	X							
M-92DUP	201011040336DUP	water	DUP	11/03/10			X					
M-91MS	201011040339MS	water	MS	11/03/10		X						
M-91MSD	201011040339MSD	water	MSD	11/03/10		X						
M-91MS	201011040342MS	water	MS	11/03/10	X							
M-91MSD	201011040342MSD	water	MSD	11/03/10	X							
EB110310VMS	201011040354MS	water	MS	11/03/10				X				
EB110310VMSD	201011040354MSD	water	MSD	11/03/10				X				
M-70DUP	201011040355DUP	water	DUP	11/03/10			X					

Shaded cells indicate sample underwent Stage 4  
 EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate  
 DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: 348296		VALIDATION SAMPLE TABLE										LDC#: 24670M		
Project Name: 2010 Annual Remedial Performance Sampling												Parameters/Analytical Method		
Client ID #	Lab ID #	Matrix	QC Type	Date Collected	Cr	TDS (160.1/2540C)								
M-10	201011060062	water		11/04/10	X	X								
M-10DUP	201011060062DUP	water	DUP	11/04/10		X								

Shaded cells indicate sample underwent Stage 4  
 EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate  
 DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: 348330

## VALIDATION SAMPLE TABLE

LDC#: 24670N

Project Name: 2010 Annual Remedial Performance Sampling Parameters/Analytical Method

Client ID #	Lab ID #	Matrix	QC Type	Date Collected	Cr (6010)	Cr(VI) (7196)	TDS (160.1/2540C)	Cr(VI) (7196)												
M-31A	201011050230	water		11/04/10	X		X													
M-52	201011050231	water		11/04/10	X		X													
I-AD	201011050232	water		11/04/10	X		X													
I-AC	201011050233	water		11/04/10	X		X													
M-71	201011050234	water	FD1	11/04/10	X		X													
M-72	201011050235	water		11/04/10	X		X													
M-22A	201011050236	water		11/04/10	X		X													
M-38	201011050237	water		11/04/10	X		X													
M-115	201011050238	water		11/04/10	X		X													
M-14A	201011050239	water		11/04/10	X		X													
M-36	201011050240	water		11/04/10	X		X													
M-11	201011050241	water		11/04/10	X		X													
M-12A	201011050242	water	FD2	11/04/10	X		X													
M-10	201011050243	water		11/04/10	X		X													
VD-5	201011050244	water		11/04/10	X		X													
VD-2	201011050245	water	FD2	11/04/10	X		X													
M-115DUP	201011050238DUP	water	DUP	11/04/10																

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Shaded cells indicate sample underwent Stage 4

EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate

DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: 348765

## VALIDATION SAMPLE TABLE

LDC#: 246700

Project Name: 2010 Annual Remedial Performance Sampling Parameters/Analytical Method

Client ID #	Lab ID #	Matrix	QC Type	Date Collected	Cr (6010)	CLO <sub>4</sub> (314.0)	TDS (160.1/2540C)												
PC-98R	201011110254	water		11/10/10	X	X	X												
PC-86	201011110255	water		11/09/10	X	X	X												
PC-90	201011110256	water		11/09/10	X	X	X												
PC-56	201011110257	water		11/09/10	X	X	X												
PC-58	201011110258	water		11/09/10	X	X	X												
PC-59	201011110259	water		11/09/10	X	X	X												
PC-60	201011110260	water		11/09/10	X	X	X												
PC-62	201011110261	water		11/09/10	X	X	X												
PC-68	201011110262	water		11/09/10	X	X	X												
PC-122	201011110263	water		11/10/10	X	X	X												
PC-91	201011110264	water		11/09/10	X	X	X												
PC-97	201011110265	water		11/09/10	X	X	X												
PC-18	201011110266	water		11/09/10	X	X	X												
PC-55	201011110267	water		11/09/10	X	X	X												
PC-101R	201011110268	water		11/09/10	X	X	X												
ART-7B	201011110269	water		11/09/10	X	X	X												

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Shaded cells indicate sample underwent Stage 4

EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate

DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate



SDG#: 348765

VALIDATION SAMPLE TABLE

LDC#: 246700

Project Name: 2010 Annual Remedial Performance Sampling Parameters/Analytical Method

Client ID #	Lab ID #	Matrix	QC Type	Date Collected	Cr (6010)	CLO <sub>4</sub> (314.0)	TDS (160.1/2540C)													
PC-92	20101110270	water		11/09/10	X	X	X													
PC-94	20101110271	water		11/09/10	X	X	X													
PC-136	20101110272	water		11/10/10	X	X	X													
MW-K4	20101110273	water		11/10/10	X	X	X													
ARP-1	20101110274	water		11/09/10	X	X	X													
ARP-2A	20101110275	water		11/10/10	X	X	X													
ARP-3A	20101110276	water		11/10/10	X	X	X													
ARP-4A	20101110277	water		11/10/10	X	X	X													
ARP-5A	20101110278	water		11/10/10	X	X	X													
ARP-6B	20101110279	water		11/10/10	X	X	X													
ARP-7	20101110280	water		11/10/10	X	X	X													
PC-53	20101110281	water		11/10/10	X	X	X													
PC-103	20101110282	water		11/10/10	X	X	X													
MW-K5	20101110283	water		11/10/10	X	X	X													
PC-137	20101110284	water		11/10/10	X	X	X													
PC-98RMS	20101110254MS	water	MS	11/10/10	X															
PC-98RMSD	20101110254MSD	water	MSD	11/10/10	X															

Shaded cells indicate sample underwent Stage 4  
 EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate  
 DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: 348765

## VALIDATION SAMPLE TABLE

LDC#: 246700

Client ID #	Lab ID #	Matrix	QC Type	Parameters/Analytical Method		Date Collected	Cr (6010)	CLO <sub>4</sub> (314.0)	TDS (160.1/2540C)										
				Sampling	Method														
PC-86MS	201011110255MS	water	MS			11/09/10	X												
PC-86MSD	201011110255MSD	water	MSD			11/09/10	X												
PC-86DUP	201011110255DUP	water	DUP			11/09/10			X										
PC-90MS	201011110256MS	water	MS			11/09/10	X												
PC-90MSD	201011110256MSD	water	MSD			11/09/10	X												
PC-56MS	201011110257MS	water	MS			11/08/10	X												
PC-56MSD	201011110257MSD	water	MSD			11/08/10	X												
PC-91DUP	201011110264DUP	water	DUP			11/09/10			X										
PC-137MS	201011110284MS	water	MS			11/10/10	X												
PC-137MSD	201011110284MSD	water	MSD			11/10/10	X												
PC-137DUP	201011110284DUP	water	DUP			11/10/10			X										

Shaded cells indicate sample underwent Stage 4  
 EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate  
 DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: 349052

## VALIDATION SAMPLE TABLE

LDC#: 24670P

Project Name: 2010 Annual Remedial Performance Sampling Parameters/Analytical Method

Client ID #	Lab ID #	Matrix	QC Type	Date Collected	Cr (6010)	ClO <sub>4</sub> (314.0)	TDS (160.1/2540C)											
M-70	201011170039	water		11/13/10	X	X	X											
M-71	201011170044	water		11/13/10	X	X	X											
M-179	201011170045	water		11/13/10	X	X	X											
M-69	201011170046	water		11/13/10	X	X	X											
M-73	201011170047	water		11/13/10	X													
M-70MS	201011170039MS	water	MS	11/13/10	X													
M-70MSD	201011170039MSD	water	MSD	11/13/10	X													

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Shaded cells indicate sample underwent Stage 4  
 EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate  
 DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: 349055		VALIDATION SAMPLE TABLE										LDC#: 24670Q		
Project Name: 2010 Annual Remedial Performance Sampling												Parameters/Analytical Method		
Client ID #	Lab ID #	Matrix	QC Type	Date Collected	Cr (6010)	ClO <sub>2</sub> (314.0)	TDS (160.1/2540C)							
M-72	201011170052	water		11/12/10	X	X	X							
M-178	201011170070	water		11/12/10	X	X	X							
M-171	201011170071	water		11/12/10	X	X	X							
M-140	201011170072	water		11/12/10	X	X	X							

Shaded cells indicate sample underwent Stage 4  
 EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate  
 DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: 349391		VALIDATION SAMPLE TABLE										LDC#: 24670R
Project Name: 2010 Annual Remedial Performance Sampling										Parameters/Analytical Method		
Client ID #	Lab ID #	Matrix	QC Type	Date Collected	Cr (6010)	ClO <sub>2</sub> (314.0)	TDS (160.1/2540C)					
M-171	201011190314	water		11/17/10	X	X	X					
M-140	201011190315	water		11/17/10	X	X	X					
M-178	201011190316	water		11/17/10	X	X	X					
M-179	201011190317	water		11/17/10	X	X	X					

Shaded cells indicate sample underwent Stage 4  
 EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate  
 DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: 349392

VALIDATION SAMPLE TABLE

LDC#: 24670S

Project Name: 2010 Annual Remedial Performance Sampling Parameters/Analytical Method

Client ID #	Lab ID #	Matrix	QC Type	Date Collected	Cr (6010)	CLO <sub>4</sub> (314.0)	TDS (160.1/2540C)											
M-72	201011190318	water		11/18/10	X	X	X											
M-71	201011190326	water		11/18/10	X	X	X											
M-70	201011190327	water		11/18/10	X	X	X											
M-69	201011190328	water		11/18/10	X	X	X											
M-73	201011190329	water		11/18/10	X	X	X											
M-70MS	201011190327MS	water	MS	11/18/10	X													
M-70MSD	201011190327MSD	water	MSD	11/18/10	X													
M-70DUP	201011190327DUP	water	DUP	11/18/10			X											
M-69MS	201011190328MS	water	MS	11/18/10	X													
M-69MSD	201011190328MSD	water	MSD	11/18/10	X													

Shaded cells indicate sample underwent Stage 4  
 EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate  
 DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: 349695

VALIDATION SAMPLE TABLE

LDC#: 24670T

Project Name: 2010 Annual Remedial Performance Sampling Parameters/Analytical Method

Client ID #	Lab ID #	Matrix	QC Type	Date Collected	Cr (6010)	ClO <sub>2</sub> (314.0)	TDS (160.1/2540C)											
M-179	201011240185	water		11/22/10	X	X	X											
M-171	201011240187	water		11/22/10	X	X	X											
M-178	201011240188	water		11/22/10	X	X	X											
M-140	201011240189	water		11/23/10	X	X	X											
M-72	201011240190	water		11/23/10	X	X	X											
M-71	201011240191	water		11/23/10	X	X	X											
M-70	201011240192	water		11/23/10	X	X	X											
M-69	201011240193	water		11/23/10	X	X	X											
M-73	201011240196	water	FD	11/23/10	X	X	X											
M-73_FD	201011240197	water	FD	11/23/10	X	X	X											
M-179DUP	201011240185DUP	water	DUP	11/22/10			X											
M-69MS	201011240193MS	water	MS	11/23/10	X	X												
M-69MSD	201011240193MSD	water	MSD	11/23/10	X	X												

Shaded cells indicate sample underwent Stage 4  
 EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate  
 DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: 350454		VALIDATION SAMPLE TABLE										LDC#: 24670U		
Project Name: 2010 Annual Remedial Performance Sampling												Parameters/Analytical Method		
Client ID #	Lab ID #	Matrix	QC Type	Date Collected	Cr (6010)	ClO <sub>4</sub> (314.0)	TDS (160.1/2540C)							
M-69	201012070462	water		12/04/10	X	X	X							
M-70	201012070470	water		12/04/10	X	X	X							
M-69MS	201012070462MS	water	MS	12/04/10	X									
M-69MSD	201012070462MSD	water	MSD	12/04/10	X									
M-70DUP	201012070470DUP	water	DUP	12/04/10			X							

Shaded cells indicate sample underwent Stage 4  
 EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate  
 DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate



SDG#: 350459		VALIDATION SAMPLE TABLE										LDC#: 24670V
Project Name: 2010 Annual Remedial Performance Sampling											Parameters/Analytical Method	
Client ID #	Lab ID #	Matrix	QC Type	Date Collected	Cr (6010)	CLO <sub>4</sub> (314.0)	TDS (160.1/2540C)					
M-140	201012070499	water		12/03/10	X	X	X					
M-171	201012070501	water		12/03/10	X	X	X					
M-178	201012070502	water	FD	12/03/10	X	X	X					
M-178_FD	201012070503	water	FD	12/03/10	X	X	X					
M-179	201012070504	water		12/03/10	X	X	X					
M-179DUP.	201012070504DUP	water	DUP	12/03/10			X					

Shaded cells indicate sample underwent Stage 4  
 EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate  
 DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: 350602

## VALIDATION SAMPLE TABLE

LDC#: 24670W

Project Name: 2010 Annual Remedial Performance Sampling Parameters/Analytical Method

Client ID #	Lab ID #	Matrix	QC Type	Date Collected	CLO <sub>4</sub> (314.0)	TDS (160.1/2540G)														
ART-1	201012080417	water		12/07/10	X	X														
ART-2	201012080418	water		12/07/10	X	X														
ART-3	201012080420	water		12/07/10	X	X														
ART-4	201012080421	water		12/07/10	X	X														
ART-6	201012080422	water		12/07/10	X	X														
ART-7	201012080423	water		12/07/10	X	X														
ART-8	201012080424	water		12/07/10	X	X														
PC-99R2/R3	201012080426	water		12/07/10	X	X														
PC-115R	201012080429	water		12/07/10	X	X														
PC-116R	201012080430	water		12/07/10	X	X														
SF-1	201012080431	water		12/07/10	X	X														
PC-117	201012080432	water		12/07/10	X	X														
PC-118	201012080433	water		12/07/10	X	X														
PC-119	201012080434	water		12/07/10	X	X														
PC-120	201012080435	water		12/07/10	X	X														
PC-121	201012080436	water		12/07/10	X	X														
PC-133	201012080437	water		12/07/10	X	X														

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Shaded cells indicate sample underwent Stage 4  
 EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate  
 DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: 350602		VALIDATION SAMPLE TABLE										LDC#: 24670W
Project Name: 2010 Annual Remedial Performance Sampling										Parameters/Analytical Method		
Client ID #	Lab ID #	Matrix	QC Type	Date Collected	ClO <sub>4</sub> (314.0)	TDS (160.1/2540C)						
ART-9	201012080438	water		12/07/10	X	X						
PC-120DUP	201012080435DUP	water	DUP	12/07/10		X						

Shaded cells indicate sample underwent Stage 4  
 BB = Equipment Blank, FB = Field Blank, FD = Field Duplicate  
 DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: 351562

## VALIDATION SAMPLE TABLE

LDC#: 24670X

Project Name: 2010 Annual Remedial Performance Sampling		Parameters/Analytical Method																		
Client ID #	Lab ID #	Matrix	QC Type	Date Collected	ClO <sub>4</sub> (314.0)	TDS (160.1/2540C)														
M-83	201012180129	water		12/16/10	X	X														
PC-98R	201012180134	water		12/16/10	X	X														
PC-86	201012180135	water		12/14/10	X	X														
PC-90	201012180136	water		12/14/10	X	X														
PC-56	201012180137	water		12/13/10	X	X														
PC-58	201012180138	water		12/13/10	X	X														
PC-59	201012180139	water		12/13/10	X	X														
PC-60	201012180140	water		12/13/10	X	X														
PC-82	201012180141	water		12/13/10	X	X														
PC-68	201012180142	water		12/13/10	X	X														
PC-122	201012180143	water		12/16/10	X	X														
MW-K4	201012180144	water		12/15/10	X	X														
ARP-1	201012180145	water		12/16/10	X	X														
ARP-2A	201012180146	water		12/15/10	X	X														
ARP-3A	201012180147	water		12/15/10	X	X														
ARP-4A	201012180148	water		12/15/10	X	X														
ARP-5A	201012180149	water		12/15/10	X	X														

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Shaded cells indicate sample underwent Stage 4

EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate

DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: 351562

## VALIDATION SAMPLE TABLE

LDC#: 24670X

Project Name: 2010 Annual Remedial Performance Sampling Parameters/Analytical Method

Client ID #	Lab ID #	Matrix	QC Type	Date Collected	CLO <sub>4</sub> (314.0)	TDS (160.1/2540C)															
ARP-6B	201012180150	water		12/15/10	X	X															
ARP-7	201012180151	water		12/15/10	X	X															
PC-53	201012180152	water		12/15/10	X	X															
PC-103	201012180153	water		12/16/10	X	X															
MW-K5	201012180154	water		12/15/10	X	X															
PC-91	201012180155	water		12/14/10	X	X															
PC-97	201012180156	water		12/14/10	X	X															
PC-18	201012180157	water		12/14/10	X	X															
PC-55	201012180158	water		12/16/10	X	X															
PC-101R	201012180159	water		12/14/10	X	X															
M-83DUP	201012180129DUP	water	DUP	12/16/10		X															
ARP-3ADUP	201012180147DUP	water	DUP	12/15/10		X															
PC-91DUP	201012180155DUP	water	DUP	12/14/10		X															

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Shaded cells indicate sample underwent Stage 4  
 EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate  
 DUP = Laboratory Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

**Table II. Qualification Codes and Definitions**

Reason Code	Explanation
a	qualified due to low abundance ( radiochemical activity)
be	qualified due to equipment blank contamination
bf	qualified due to field blank contamination
bl	qualified due to lab blank contamination
bt	qualified due to trip blank contamination
bp	qualified due to pump blank contamination (wells w/o dedicated pumps, when contamination is detected in the Pump Blk)
br	qualified due to filter blank contamination (aqueous Hexavalent Chromium and Dissolved sample fractions)
c	qualified due to calibration problems
cp	qualified due to insufficient ingrowth (radiochemical only)
dc	due1 column confirmation %D exceeded
e	concentration exceeded the calibration range
fd	qualified due to field duplicate imprecision
h	qualified due to holding time exceedance
i	qualified due to internal standard areas
k	qualified as Estimated Maximum Possible Concentrations (dioxins and PCB congeners)
l	qualified due to LCS recoveries
ld	qualified due to lab duplicate imprecision (matrix duplicate, MSD, LCSD)
m	qualified due to matrix spike recoveries
nb	qualified due to negative lab blank contamination (nondetect results only)
o	other
p	qualified as a false positive due to contamination during shipping
pH	sample preservation not within acceptance range
q	qualified due to quantitation problem
s	qualified due to surrogate recoveries
sd	serial dilution did not meet control criteria
sp	detected value reported >SQL <PQL
st	sample receipt temperature exceeded
t	qualified due to elevated helium tracer concentrations
vh	volatile headspace detected in aqueous sample containers submitted for VOC analysis
x	qualified due to low % solids
z	qualified due to ICS results

Table III. Overall Qualified Results

SDG	Client Sample ID	Sample Date	Method	Client Analyte ID	Lab Result	Lab Qualifier	Units	Validation Qualifier	Reason Code	Reason Code Definition	Qualification Finding
340161	PC-115R	8/4/2010	200.7	7440-47-3	Chromium Total ICAP	0.0019	J	U	bl	Laboratory Blank	0.0021 mg/L
340161	PC-116R	8/4/2010	200.7	7440-47-3	Chromium Total ICAP	0.0019	J	U	bl	Laboratory Blank	0.0021 mg/L
340161	PC-117	8/4/2010	200.7	7440-47-3	Chromium Total ICAP	0.0019	J	U	bl	Laboratory Blank	0.0021 mg/L
340161	PC-118	8/4/2010	200.7	7440-47-3	Chromium Total ICAP	0.0024	J	U	bl	Laboratory Blank	0.0021 mg/L
340161	PC-99R2/R3	8/4/2010	200.7	7440-47-3	Chromium Total ICAP	0.0031	J	U	bl	Laboratory Blank	0.0021 mg/L
339791	FE080210V	8/2/2010	314.0	14797-73-0	Perchlorate	0.254	J	J-	h	Holding Time	72 Days
339791	I-D	8/2/2010	314.0	14797-73-0	Perchlorate	820000		J-	h	Holding Time	71 Days
339791	I-E	8/2/2010	314.0	14797-73-0	Perchlorate	1.1e+006		J-	h	Holding Time	70 Days
339791	I-F	8/2/2010	314.0	14797-73-0	Perchlorate	1.5e+006		J-	h	Holding Time	70 Days
339791	I-G	8/2/2010	314.0	14797-73-0	Perchlorate	1.7e+006		J-	h	Holding Time	70 Days
339791	I-H	8/2/2010	314.0	14797-73-0	Perchlorate	1.7e+006		J-	h	Holding Time	70 Days
339791	I-M	8/2/2010	314.0	14797-73-0	Perchlorate	810000		J-	h	Holding Time	70 Days
339791	I-N	8/2/2010	314.0	14797-73-0	Perchlorate	1.5e+006		J-	h	Holding Time	70 Days
339791	I-O	8/2/2010	314.0	14797-73-0	Perchlorate	1.7e+006		J-	h	Holding Time	70 Days
339791	I-P	8/2/2010	314.0	14797-73-0	Perchlorate	1.7e+006		J-	h	Holding Time	70 Days
339791	I-T	8/2/2010	314.0	14797-73-0	Perchlorate	1.8e+006		J-	h	Holding Time	70 Days
339791	I-U	8/2/2010	314.0	14797-73-0	Perchlorate	1.9e+006		J-	h	Holding Time	70 Days
339791	M-23	8/2/2010	314.0	14797-73-0	Perchlorate	310000		J-	h	Holding Time	72 Days
339791	M-96	8/1/2010	314.0	14797-73-0	Perchlorate	280000		J-	h	Holding Time	72 Days
339791	PC-123	8/1/2010	314.0	14797-73-0	Perchlorate	390000		J-	h	Holding Time	72 Days
339791	PC-124	8/1/2010	314.0	14797-73-0	Perchlorate	6000		J-	h	Holding Time	72 Days
339791	PC-125	8/1/2010	314.0	14797-73-0	Perchlorate	930		J-	h	Holding Time	72 Days
339791	PC-126	8/1/2010	314.0	14797-73-0	Perchlorate	17000		J-	h	Holding Time	72 Days
339791	PC-127	8/1/2010	314.0	14797-73-0	Perchlorate	410000		J-	h	Holding Time	72 Days
339791	PC-128	8/1/2010	314.0	14797-73-0	Perchlorate	260000		J-	h	Holding Time	72 Days
339791	PC-129	8/1/2010	314.0	14797-73-0	Perchlorate	470000		J-	h	Holding Time	72 Days
339791	PC-130	8/1/2010	314.0	14797-73-0	Perchlorate	530000		J-	h	Holding Time	72 Days
339791	PC-132	8/1/2010	314.0	14797-73-0	Perchlorate	1700		J-	h	Holding Time	72 Days
339791	PC-37	8/2/2010	314.0	14797-73-0	Perchlorate	370000		J-	h	Holding Time	71 Days
339791	PC-54	8/2/2010	314.0	14797-73-0	Perchlorate	270000		J-	h	Holding Time	71 Days
339791	PC-71	8/2/2010	314.0	14797-73-0	Perchlorate	370000		J-	h	Holding Time	71 Days
339791	PC-72	8/2/2010	314.0	14797-73-0	Perchlorate	240000		J-	h	Holding Time	71 Days
339791	PC-73	8/2/2010	314.0	14797-73-0	Perchlorate	360000		J-	h	Holding Time	71 Days
339791	VD080210	8/2/2010	314.0	14797-73-0	Perchlorate	310000		J-	h	Holding Time	72 Days
339977	I-AA	8/2/2010	314.0	14797-73-0	Perchlorate	90000		J-	h	Holding Time	73 Days
339977	I-AB	8/2/2010	314.0	14797-73-0	Perchlorate	410000		J-	h	Holding Time	72 Days
339977	I-AR	8/2/2010	314.0	14797-73-0	Perchlorate	2.5e+006		J-	h	Holding Time	72 Days
339977	I-B	8/2/2010	314.0	14797-73-0	Perchlorate	710000		J-	h	Holding Time	72 Days

Table III. Overall Qualified Results

SDG	Client Sample ID	Sample Date	Method	Client Analyte ID	Analyte	Lab Result	Lab Units	Validation Qualifier	Reason Code	Reason Code Definition	Qualification Finding
339977	I-C	8/2/2010	314.0	14797-73-0	Perchlorate	860000	ug/L	J	h	Holding Time	72 Days
339977	I-L	8/2/2010	314.0	14797-73-0	Perchlorate	1.7e+006	ug/L	J	h	Holding Time	72 Days
339977	I-Q	8/2/2010	314.0	14797-73-0	Perchlorate	1.5e+006	ug/L	J	h	Holding Time	72 Days
339977	I-R	8/2/2010	314.0	14797-73-0	Perchlorate	2.3e+006	ug/L	J	h	Holding Time	72 Days
339977	I-S	8/2/2010	314.0	14797-73-0	Perchlorate	840000	ug/L	J	h	Holding Time	72 Days
339977	M-131	8/3/2010	314.0	14797-73-0	Perchlorate	60000	ug/L	J	h	Holding Time	72 Days
339977	M-135	8/3/2010	314.0	14797-73-0	Perchlorate	57000	ug/L	J	h	Holding Time	72 Days
339977	M-57A	8/3/2010	314.0	14797-73-0	Perchlorate	23000	ug/L	J	h	Holding Time	71 Days
339977	M-69	8/3/2010	314.0	14797-73-0	Perchlorate	1.2e+006	ug/L	J	h	Holding Time	71 Days
339977	M-79	8/3/2010	314.0	14797-73-0	Perchlorate	13000	ug/L	J	h	Holding Time	71 Days
339977	VD-080310	8/3/2010	314.0	14797-73-0	Perchlorate	60000	ug/L	J	h	Holding Time	71 Days
340887	ARP-1	8/11/2010	314.0	14797-73-0	Perchlorate	8100	ug/l	J	l,d	LCS %R	79%
340887	ARP-2A	8/11/2010	314.0	14797-73-0	Perchlorate	2900	ug/l	J	l,d	LCS RPD	26%
340887	ARP-3A	8/11/2010	314.0	14797-73-0	Perchlorate	4100	ug/l	J	l,d	LCS %R	79%
340887	ARP-4A	8/11/2010	314.0	14797-73-0	Perchlorate	24000	ug/l	J	l,d	LCS RPD	26%
340887	ARP-5A	8/11/2010	314.0	14797-73-0	Perchlorate	19000	ug/l	J	l,d	LCS %R	79%
340887	ARP-6B	8/11/2010	314.0	14797-73-0	Perchlorate	27000	ug/l	J	l,d	LCS RPD	26%
340887	ARP-7	8/11/2010	314.0	14797-73-0	Perchlorate	4600	ug/l	J	l,d	LCS %R	79%
340887	MW-K4	8/11/2010	314.0	14797-73-0	Perchlorate	240000	ug/l	J	l,d	LCS RPD	26%
340887	MW-K5	8/12/2010	314.0	14797-73-0	Perchlorate	19000	ug/l	J	l,d	LCS %R	79%
340887	PC-101R	8/11/2010	314.0	14797-73-0	Perchlorate	180000	ug/l	J	h	Holding Time	29 Days
340887	PC-122	8/12/2010	314.0	14797-73-0	Perchlorate	14000	ug/l	J	l,d	LCS %R	79%
340887	PC-18	8/10/2010	314.0	14797-73-0	Perchlorate	190000	ug/l	J	l,d	LCS %R	79%
340887	PC-53	8/11/2010	314.0	14797-73-0	Perchlorate	3800	ug/l	J	l,d	LCS RPD	26%
340887	PC-90	8/10/2010	314.0	14797-73-0	Perchlorate	6300	ug/l	J	l,d	LCS %R	79%
										LCS RPD	26%



Table III. Overall Qualified Results

SDG	Client Sample ID	Sample Date	Method	Client Analyte ID	Analyte	Lab Result	Units	Validation Channel	Reason Code	Reason Code Definition	Qualification Finding
340887	PC-91	8/10/2010	314.0	14797-73-0	Perchlorate	6800	ug/l	J	I,ld	LCS %R	79 %
340887	PC-92	8/10/2010	314.0	14797-73-0	Perchlorate	4500	ug/l	J	I,ld	LCS RPD	26 %
340887	PC-94	8/10/2010	314.0	14797-73-0	Perchlorate	6000	ug/l	J	I,ld	LCS %R	79 %
340887	PC-97	8/10/2010	314.0	14797-73-0	Perchlorate	4300	ug/l	J	I,ld	LCS RPD	26 %
343913	M-87	9/15/2010	314.0	14797-73-0	Perchlorate	330000	ug/l	J	I,ld	LCS %R	79 %
343913	PC-59	9/14/2010	314.0	14797-73-0	Perchlorate	6600	ug/l	J	I,ld	LCS RPD	26 %
343913	PC-60	9/13/2010	314.0	14797-73-0	Perchlorate	6400	ug/l	J	I,ld	LCS %R	79 %
343913	PC-62	9/14/2010	314.0	14797-73-0	Perchlorate	2000	ug/l	J	I,ld	LCS RPD	26 %
343913	PC-98R	9/16/2010	314.0	14797-73-0	Perchlorate	8700	ug/l	J	I,ld	LCS %R	79 %
348239	M-19	11/3/2010	314.0	14797-73-0	Perchlorate	2800	ug/l	J+	be	LCS RPD	23 %
348239	M-92	11/3/2010	314.0	14797-73-0	Perchlorate	910	ug/l	J+	be	Equipment Blank	550 ug/L
339791	M-23	8/2/2010	331.0	14797-73-0	Perchlorate	4.6e+008	ng/L	J	fd	Equipment Blank	550 ug/L
339791	VD080210	8/2/2010	331.0	14797-73-0	Perchlorate	3.2e+008	ng/L	J	fd	Field Duplicate RPD	36 %
339791	FB080210V	8/2/2010	7196	18540-29-9	Hexavalent chromium (Cr VI)	0.006	mg/L	J-	h	Field Duplicate RPD	36 %
339977	EB080310V	8/3/2010	7196	18540-29-9	Hexavalent chromium (Cr VI)	0.0035	mg/L	R	h	Holding Time	34.75 Hours
347973	M-44	11/2/2010	7196	18540-29-9	Hexavalent chromium (Cr VI)	0.65	mg/l	J-	h	Holding Time	61 Hours
347973	M-95	11/2/2010	7196	18540-29-9	Hexavalent chromium (Cr VI)	0.84	mg/l	J-	h	Holding Time	28 Hours
347973	VD-1	11/2/2010	7196	18540-29-9	Hexavalent chromium (Cr VI)	0.66	mg/l	J-	h	Holding Time	27.75 Hours
348239	I-J	11/3/2010	7196	18540-29-9	Hexavalent chromium (Cr VI)	2.6	mg/l	J	h	Holding Time	32.25 Hours
348239	M-100	11/3/2010	7196	18540-29-9	Hexavalent chromium (Cr VI)	0.091	mg/l	J	h	Holding Time	27 Hours
348330	M-10	11/4/2010	7196	18540-29-9	Hexavalent chromium (Cr VI)	0.0035	mg/l	UJ	h	Holding Time	25 Hours
348330	M-11	11/4/2010	7196	18540-29-9	Hexavalent chromium (Cr VI)	3.8	mg/l	J-	h	Holding Time	25 Hours
348330	M-12A	11/4/2010	7196	18540-29-9	Hexavalent chromium (Cr VI)	10	mg/l	J-	h	Holding Time	26.75 Hours
348330	M-36	11/4/2010	7196	18540-29-9	Hexavalent chromium (Cr VI)	32	mg/l	J-	h	Holding Time	27 Hours
348330	VD-2	11/4/2010	7196	18540-29-9	Hexavalent chromium (Cr VI)	9.7	mg/l	J-	h	Holding Time	30.25 Hours

**ATTACHMENT A**

**Metals Data Validation Report**

Chromium by EPA SW 846 Method 6010 and EPA Method 200.7

### I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

### II. ICPMS Tune

ICP-MS was not utilized in these SDGs.

### III. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met for samples on which a Stage 4 review was performed.

Calibration data were not evaluated for the samples reviewed by Stage 2A criteria.

### IV. Blanks

Method blanks were reviewed for each matrix as applicable. No chromium was found in the initial, continuing and preparation blanks with the following exceptions:

SDG	Method Blank ID	Analyte	Maximum Concentration	Associated Samples
340161	ICB/CCB	Chromium	0.0021 mg/L	ART-7** ART-8** PC-99R2/R3** PC-115R** PC-116R** PC-117** PC-118**

Sample concentrations were compared to concentrations detected in the method blanks as required by the QAPP. No sample data was qualified with the following exceptions:

SDG	Sample	Analyte	Reported Concentration	Modified Final Concentration
340161	PC-99R2/R3**	Chromium	0.0031 mg/L	0.02U mg/L
340161	PC-115R**	Chromium	0.0019 mg/L	0.02U mg/L
340161	PC-116R**	Chromium	0.0019 mg/L	0.02U mg/L
340161	PC-117**	Chromium	0.0017 mg/L	0.01U mg/L
340161	PC-118**	Chromium	0.0024 mg/L	0.01U mg/L

Samples EB080310V (from SDG 339977), EB110110V (from SDG 347858), and EB110310V (from SDG 348239) were identified as equipment blanks. No chromium was found in this blank with the following exceptions:

SDG	Equipment Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
339977	EB080310V	8/3/10	Chromium	0.0014 mg/L	M-131 M-57A M-79 M-69 M-135 VD-080310
348239	EB110310V	11/3/10	Chromium	0.0042 mg/L	M-64 M-65 M-66 M-92 M-97 M-23 M-35 M-19 M-39 M-68 M-74 M-67 I-K I-J I-Z I-V I-I M-73 M-100 M-70 VD-4

Samples FB080210V (from SDG 339791), FB080210V (from SDG 339977), and FB110110V (from SDG 347858), were identified as field blanks. No chromium was found in these blanks with the following exceptions:

SDG	Field Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
339791	FB080210V	8/2/10	Chromium	0.006 mg/L	I-O I-P I-H I-U I-T I-G I-F I-N I-E I-M I-D PC-54 PC-37 PC-71 PC-72 PC-73 M-23 VD080210
339977	FB080210V	8/2/10	Chromium	0.006 mg/L	I-Q I-C I-S I-L I-R I-B I-AR I-AB I-AA

Sample concentrations were compared to concentrations detected in the field blanks as required by the QAPP. No sample data was qualified.

#### V. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis and criteria were met for samples on which a Stage 4 review was performed.

ICP Interference check sample analysis data were not evaluated for the samples reviewed by Stage 2A criteria.

#### VI. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### VII. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in all SDGs, and therefore duplicate analyses were not performed.

### VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

### IX. Internal Standards (ICP-MS)

ICP-MS was not utilized in these SDGs.

### X. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in these SDGs.

### XI. ICP Serial Dilution

ICP serial dilution was not performed for these SDGs.

### XII. Sample Result Verification

All sample result verifications were acceptable for samples on which a Stage 4 review was performed. Raw data were not evaluated for the samples reviewed by Stage 2A criteria.

### XIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XIV. Field Duplicates

Samples M-19 and VD080410 (from SDG 34006), M-23 and VD080210 (from SDG 339791), samples M-131 and VD-080310 (from SDG 339977), samples I-AA and VD-3 (from SDG 347973), samples M-44 and VD-1 (from SDG 347973), samples M-65 and VD-4 (from SDG 348239), samples M-71 and VD-5 (from SDG 348330), samples M-12A and VD-2 (from SDG 248330), samples M-73 and M-73\_FD (from 349695), and samples M-178 and M-178\_FD (from SDG 350459) were identified as field duplicates. No metal contaminants were detected in any of the samples with the following exceptions:

SDG	Analyte	Concentration (mg/L)		RPD (Limits)	Difference (Limits)	Flags	A or P
		M-19	VD080410				
340066	Chromium	0.32	0.34	6 (≤30)	-	-	-

SDG	Analyte	Concentration (mg/L)		RPD (Limits)	Difference (Limits)	Flags	A or P
		M-23	VD080210				
339791	Chromium	0.54	0.51	6 (≤30)	-	-	-

SDG	Analyte	Concentration (mg/L)		RPD (Limits)	Difference (Limits)	Flags	A or P
		M-131	VD-080310				
339977	Chromium	0.11	0.098	12 (≤30)	-	-	-

SDG	Analyte	Concentration (mg/L)		RPD (Limits)	Difference (Limits)	Flags	A or P
		I-AA	VD-3				
347973	Chromium	0.060	0.058	-	0.002 (≤0.02)	-	-

SDG	Analyte	Concentration (mg/L)		RPD (Limits)	Difference (Limits)	Flags	A or P
		M-44	VD-1				
347973	Chromium	0.62	0.62	0 (≤30)	-	-	-

SDG	Analyte	Concentration (mg/L)		RPD (Limits)	Difference (Limits)	Flags	A or P
		M-65	VD-4				
348239	Chromium	28	29	4 (≤30)	-	-	-

SDG	Analyte	Concentration (mg/L)		RPD (Limits)	Difference (Limits)	Flags	A or P
		M-71	VD-5				
348330	Chromium	3.2	3.5	9 (≤30)	-	-	-

SDG	Analyte	Concentration (mg/L)		RPD (Limits)	Difference (Limits)	Flags	A or P
		M-12A	VD-2				
348330	Chromium	9.2	9.2	0 (≤30)	-	-	-

SDG	Analyte	Concentration (mg/L)		RPD (Limits)	Difference (Limits)	Flags	A or P
		M-73	M-73_FD				
349695	Chromium	9.7	10	3 (≤30)	-	-	-

SDG	Analyte	Concentration (mg/L)		RPD (Limits)	Difference (Limits)	Flags	A or P
		M-178	M-178_FD				
350459	Chromium	4.9	4.9	0 (≤30)	-	-	-



**2010 Annual Remedial Performance Sampling**

**Metals - Data Qualification Summary - SDGs 340066, 340161, 340887, 341684, 339791, 339977, 345397, 347858, 347877, 347973, 348239, 348296, 348330, 348765, 349052, 349055, 349391, 349392, 349695, 350454, and 350459**

No Sample Data Qualified in these SDGs

**2010 Annual Remedial Performance Sampling**

**Metals - Laboratory Blank Data Qualification Summary - SDGs 340066, 340161, 340887, 341684, 339791, 339977, 345397, 347858, 347877, 347973, 348239, 348296, 348330, 348765, 349052, 349055, 349391, 349392, 349695, 350454, and 350459**

SDG	Sample	Analyte	Modified Final Concentration	A or P
340161	PC-99R2/R3**	Chromium	0.02U mg/L	A
340161	PC-115R**	Chromium	0.02U mg/L	A
340161	PC-116R**	Chromium	0.02U mg/L	A
340161	PC-117**	Chromium	0.01U mg/L	A
340161	PC-118**	Chromium	0.01U mg/L	A

**2010 Annual Remedial Performance Sampling**

**Metals - Field Blank Data Qualification Summary – SDGs 340066, 340161, 340887, 341684, 339791, 339977, 345397, 347858, 347877, 347973, 348239, 348296, 348330, 348765, 349052, 349055, 349391, 349392, 349695, 350454, and 350459**

No Sample Data Qualified in this SDG

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**ATTACHMENT B**

**Wet Chemistry Data Validation Report**

Hexavalent Chromium by EPA SW 846 Method 7196  
 Perchlorate by EPA Method 314.0 and EPA Method 331.0  
 Total Dissolved Solids by EPA Method 160.1 and Standard Method 2540C

I. Technical Holding Times

All technical holding time requirements were met with the following exceptions:

SDG	Sample	Analyte	Total Time From Sample Collection Until Analysis	Required Holding Time From Sample Collection Until Analysis	Flag	A or P
340887	PC-101R	Perchlorate	29 days	28 days	J- (all detects) UJ (all non-detects)	A
339791	I-O I-P I-H I-U I-T I-G I-F I-N I-E I-M I-OMS I-OMSD	Perchlorate	70 days	28 days	J- (all detects) R (all non-detects)	P
339791	I-D PC-54 PC-37 PC-71 PC-72 PC-73 I-DMS I-DMSD	Perchlorate	71 days	28 days	J- (all detects) R (all non-detects)	P
339791	PC-123 PC-124 PC-125 PC-126 PC-127 PC-128 PC-129 PC-130 PC-132 M-96 M-23 VD080210 FB080210V	Perchlorate	72 days	28 days	J- (all detects) R (all non-detects)	P
339791	FB080210V FB080210VMS FB080210VMSD	Hexavalent chromium	34.75 hours	24 hours	J- (all detects) UJ (all non-detects)	P

SDG	Sample	Analyte	Total Time From Sample Collection Until Analysis	Required Holding Time From Sample Collection Until Analysis	Flag	A or P
339977	I-Q I-C I-S I-L I-R I-B I-AR I-AB I-CMS I-CMSD M-131	Perchlorate	72 days	28 days	J- (all detects) R (all non-detects)	P
339977	I-AA	Perchlorate	73 days	28 days	J- (all detects) R (all non-detects)	P
339977	M-57A M-79 M-69 M-135 VD-080310	Perchlorate	71 days	28 days	J- (all detects) R (all non-detects)	P
339977	EB080310V EB080310VMS EB080310VMSD	Hexavalent chromium	61 hours	24 hours	J- (all detects) R (all non-detects)	P
347973	M-95	Hexavalent chromium	27.75 hours	24 hours	J- (all detects) UJ (all non-detects)	P
347973	M-44	Hexavalent chromium	28 hours	24 hours	J- (all detects) UJ (all non-detects)	P
347973	VD-1 VD-1MS VD-1MSD	Hexavalent chromium	32.25 hours	24 hours	J- (all detects) UJ (all non-detects)	P
348239	I-J	Hexavalent chromium	27 hours	24 hours	J- (all detects) UJ (all non-detects)	P
348239	M-100	Hexavalent chromium	25 hours	24 hours	J- (all detects) UJ (all non-detects)	P
348330	M-36	Hexavalent chromium	27 hours	24 hours	J- (all detects) UJ (all non-detects)	P
348330	M-11	Hexavalent chromium	26 hours	24 hours	J- (all detects) UJ (all non-detects)	P
348330	M-12A	Hexavalent chromium	26.75 hours	24 hours	J- (all detects) UJ (all non-detects)	P

SDG	Sample	Analyte	Total Time From Sample Collection Until Analysis	Required Holding Time From Sample Collection Until Analysis	Flag	A or P
348330	M-10	Hexavalent chromium	25 hours	24 hours	J- (all detects) UJ (all non-detects)	P
348330	VD-2	Hexavalent chromium	30.25hours	24 hours	J- (all detects) UJ (all non-detects)	P

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Calibration

### a. Initial Calibration

All criteria for the initial calibration of each method were met for samples on which a Stage 4 review was performed.

Initial calibration data were not evaluated for the samples reviewed by Stage 2A criteria.

### b. Calibration Verification

Calibration verification frequency and analysis criteria were met for samples on which a Stage 4 review was performed.

Calibration verification data were not evaluated for the samples reviewed by Stage 2A criteria.

## III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the initial, continuing and preparation blanks.

Samples EB080310V (from SDG 339977), EB110110V (from SDG 347858), and EB110310V (from SDG 348239) were identified as equipment blanks. No contaminant concentrations were found in these blanks with the following exceptions:

SDG	Equipment Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
33977	EB080310V	8/3/10	Perchlorate	8.5 ug/L	M-131 M-57A M-79 M-69 M-135 VD-080310
347852	EB110110V	11/1/10	Perchlorate	9.3 ug/L	All samples in SDG 347852
347858	EB110110V	11/1/10	Perchlorate	9.3 ug/L	All samples in SDG 347858
347877	EB110110V	11/1/10	Perchlorate	9.3 ug/L	All samples in SDG 347877
348239	EB110310V	11/3/10	Perchlorate	550 ug/L	M-64 M-65 M-66 M-92 M-97 M-23 M-35 M-19 M-39 M-68 M-74 M-67 I-K I-J I-Z I-V I-I M-73 M-100 M-70 VD-4
348239	EB110310V	11/3/10	Hexavalent chromium	0.0050 mg/L	I-J M-100

Samples FB080210V (from SDG 339791) and FB110110V (from SDG 347858) were identified as field blanks. No contaminant concentrations were found in these blanks with the following exceptions:

SDG	Field Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
339791	FB080210V	8/2/10	Perchlorate	1.63 ug/L	I-O I-P I-H I-U I-T I-G I-F I-N I-E I-M I-D PC-54 PC-37 PC-71 PC-72 PC-73 M-23 VD080210
339977	FB080210V	8/2/10	Perchlorate	1.63 ug/L	I-Q I-C I-S I-L I-R I-B I-AR I-AB I-AA

Sample concentrations were compared to concentrations detected in the field blanks as required by the QAPP. No sample data was qualified with the following exceptions:

SDG	Sample	Analyte	Reported Concentration	Modified Final Concentration
348239	M-92	Perchlorate	910 ug/L	910J+ ug/L
348239	M-19	Perchlorate	2800 ug/L	2800J+ ug/L

#### IV. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## V. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

SDG	LCS ID (Associated Samples)	Analyte	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Flag	A or P
340887	LCS/LCSD (PC-90 PC-122 MW-K4 ARP-1 ARP-2A ARP-3A ARP-4A ARP-5A ARP-6B ARP-7 PC-53 MW-K5 PC-91 PC-97 PC-18 PC-92 PC-94)	Perchlorate	79 (85-115)	-	26 (≤20)	J (all detects) UJ (all non-detects)	P
343913	LCS/LCSD (M-87 PC-98R PC-59 PC-60 PC-62)	Perchlorate	-	83 (84-115)	23 (≤20)	J (all detects) UJ (all non-detects)	P

## VII. Sample Result Verification

All sample result verifications were acceptable for samples on which a Stage 4 review was performed. Raw data were not evaluated for the samples reviewed by Stage 2A criteria.

## VIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.



IX. Field Duplicates

Samples M-19 and VD080410 (from SDG 340066), samples M-23 and VD080210 (from SDG 339791), samples M-131 and VD-080310 (from SDG 339977), samples M-44 and VD-1, (from SDG 347973) samples I-AA and VD-3 (from SDG 347973), samples M-65 and VD-4 (from SDG 348239), samples M-71 and VD-5 (from SDG 348330), samples M-12A and VD-2 (from SDG 348330), samples M-73 and M-73\_FD (from SDG 349695), and samples M-178 and M-178\_FD (from SDG 350459) were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

SDG	Analyte	Concentration		RPD (Limits)	Difference (Limits)	Flags	A or P
		M-121	ND-6				
340066	Perchlorate	1600 ug/L	1700 ug/L	-	100 (≤400)	-	-
340066	Total dissolved solids	3900 mg/L	3900 mg/L	0 (≤30)	-	-	-

SDG	Analyte	Concentration		RPD (Limits)	Difference (Limits)	Flags	A or P
		M-23	VD080210				
339791	Perchlorate	310000 ug/L	310000 ug/L	0 (≤30)	-	-	-
339791	Total dissolved solids	4600 mg/L	4600 mg/L	0 (≤30)	-	-	-

SDG	Analyte	Concentration		RPD (Limits)	Difference (Limits)	Flags	A or P
		M-131	VD-080310				
339977	Perchlorate	60000 ug/L	60000 ug/L	0 (≤30)	-	-	-
339977	Total dissolved solids	3200 mg/L	3200 mg/L	0 (≤30)	-	-	-

SDG	Analyte	Concentration		RPD (Limits)	Difference (Limits)	Flags	A or P
		I-AA	VD-3				
347973	Total dissolved solids	3600 mg/L	3600 mg/L	0 (≤30)	-	-	-
347973	Perchlorate	84000 ug/L	78000 ug/L	7 (≤30)	-	-	-

SDG	Analyte	Concentration		RPD (Limits)	Difference (Limits)	Flags	A or P
		M-44	VD-1				
347973	Total dissolved solids	6200 mg/L	6600 mg/L	6 (≤30)	-	-	-
347973	Hexavalent chromium	0.65 mg/L	0.66 mg/L	2 (≤30)	-	-	-
347973	Perchlorate	550000 ug/L	530000 ug/L	4 (≤30)	-	-	-

SDG	Analyte	Concentration		RPD (Limits)	Difference (Limits)	Flags	A or P
		M-65	VD-4				
348239	Total dissolved solids	15000 mg/L	15000 mg/L	0 (≤30)	-	-	-
348239	Perchlorate	1200000 ug/L	1200000 ug/L	0 (≤30)	-	-	-

SDG	Analyte	Concentration		RPD (Limits)	Difference (Limits)	Flags	A or P
		M-71	VD-5				
348330	Total dissolved solids	5500 mg/L	5500 mg/L	0 (≤30)	-	-	-
348330	Perchlorate	420000 ug/L	410000 ug/L	2 (≤30)	-	-	-

SDG	Analyte	Concentration		RPD (Limits)	Difference (Limits)	Flags	A or P
		M-12A	VD-2				
348330	Total dissolved solids	6300 mg/L	6100 mg/L	3 (≤30)	-	-	-
348330	Hexavalent chromium	10 mg/L	9.7 mg/L	3 (≤30)	-	-	-
348330	Perchlorate	210000 ug/L	210000 ug/L	0 (≤30)	-	-	-

SDG	Analyte	Concentration		RPD (Limits)	Difference (Limits)	Flags	A or P
		M-73	M-73_FD				
349695	Total dissolved solids	7700 mg/L	7400 mg/L	4 (≤30)	-	-	-
349695	Perchlorate	510000 ug/L	510000 ug/L	0 (≤30)	-	-	-

SDG	Analyte	Concentration		RPD (Limits)	Difference (Limits)	Flags	A or P
		M-178	M-178_FD				
350459	Total dissolved solids	6300 mg/L	6200 mg/L	2 (≤30)	-	-	-
350459	Perchlorate	880000 ug/L	850000 ug/L	3 (≤30)	-	-	-

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Wet Chemistry - Data Qualification Summary - SDGs 337662, 338619, 340066, 340161, 340161, 340226, 340229, 340275, 340276, 340278, 340887, 341684, 343130, 343913, 339791, 339977, 345395, 345397, 345404, 346581, 346719, 346730, 347038, 347852, 347858, 347877, 347973, 348239, 348296, 348330, 348765, 349052, 349055, 349391, 349392, 349695, 350454, 350459, 350602, and 351562

SDG	Sample	Analyte	Flag	A or P	Reason
340887	PC-101R	Perchlorate	J- (all detects) UJ (all non-detects)	A	Technical holding times
347973	M-95 M-44 VD-1	Hexavalent chromium	J- (all detects) UJ (all non-detects)	P	Technical holding times
348239	I-J M-100	Hexavalent chromium	J- (all detects) UJ (all non-detects)	P	Technical holding times
348330	M-36 M-11 M-12A M-10 VD-2	Hexavalent chromium	J- (all detects) UJ (all non-detects)	P	Technical holding times
340887	PC-90 PC-122 MW-K4 ARP-1 ARP-2A ARP-3A ARP-4A ARP-5A ARP-6B ARP-7 PC-53 MW-K5 PC-91 PC-97 PC-18 PC-92 PC-94	Perchlorate	J (all detects) UJ (all non-detects)	P	Laboratory control samples (%R)(RPD)
343913	M-87 PC-98R PC-59 PC-60 PC-62	Perchlorate	J (all detects) UJ (all non-detects)	P	Laboratory control samples (%R) (RPD)

SDG	Sample	Analyte	Flag	A or P	Reason
339791	I-O I-P I-H I-U I-T I-G I-F I-N I-E I-M I-D PC-54 PC-37 PC-71 PC-72 PC-73 PC-123 PC-124 PC-125 PC-126 PC-127 PC-128 PC-129 PC-130 PC-132 M-98 M-23 VD080210 FB080210V	Perchlorate	J- (all detects) R (all non-detects)	P	Technical holding times
339791	FB080210V	Hexavalent chromium	J- (all detects) UJ (all non-detects)	P	Technical holding times
339977	I-Q I-C I-S I-L I-R I-B I-AR I-AB I-AA M-131 M-57A M-79 M-69 M-135 VD-080310	Perchlorate	J- (all detects) R (all non-detects)	P	Technical holding times
339977	EB080310V	Hexavalent chromium	J- (all detects) R (all non-detects)	P	Technical holding times

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**Wet Chemistry - Laboratory Blank Data Qualification Summary - SDGs 337662, 338619, 340066, 340161, 340161, 340226, 340229, 340275, 340276, 340278, 340887, 341684, 343130, 343913, 339791, 339977, 345395, 345397, 345404, 346581, 346719, 346730, 347038, 347852, 347858, 347877, 347973, 348239, 348296, 348330, 348765, 349052, 349055, 349391, 349392, 349695, 350454, 350459, 350602, and 351562**

**No Sample Data Qualified in these SDGs**

**2010 Annual Remedial Performance Sampling**

**Wet Chemistry - Field Blank Data Qualification Summary - SDGs 337662, 338619, 340066, 340161, 340161, 340226, 340229, 340275, 340276, 340278, 340887, 341684, 343130, 343913, 339791, 339977, 345395, 345397, 345404, 346581, 346719, 346730, 347038, 347852, 347858, 347877, 347973, 348239, 348296, 348330, 348765, 349052, 349055, 349391, 349392, 349695, 350454, 350459, 350602, and 351562**

<b>SDG</b>	<b>Sample</b>	<b>Analyte</b>	<b>Modified Final Concentration</b>	<b>A or P</b>
348239	M-92	Perchlorate	910J+ ug/L	A
348239	M-19	Perchlorate	2800J+ ug/L	A