

Data Validation Summary Report  
January to June 2012  
Annual Remedial Performance Sampling  
Nevada Environmental Response Trust (NERT)  
Henderson, Nevada

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July 24, 2012

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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 Annual Remedial Performance Sampling conducted at the Nevada Environmental Response Trust (NERT) site in Henderson, Nevada. The assessment was performed by ENVIRON 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 577 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

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 maybe 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 388 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 388 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 or difference in instances the results were less than five times the reporting limit for the compounds. Two chromium results were qualified as detected estimated (J) due to RPD in field duplicate pairs VD-5 and M-14A. The details regarding the qualification of results are presented in Attachment A, Section XIV.

#### **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 estimated (J) 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**

No chromium was detected in the method blanks for this analysis.

#### **2.2.2.2 Equipment and Field Blanks**

As a result of contamination found in the equipment and field blanks, 33 chromium results were qualified as detect estimated (J). The details regarding the qualification of results are presented in Attachment A, Section IV.

## **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 24 water samples were analyzed for hexavalent chromium by EPA SW 846 Method 7196; 575 water samples were analyzed for perchlorate by EPA Method 314.0; and 577 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 since none of the 1,176 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.

#### **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**

Due to MS/MSD %Rs outside of the acceptance criteria, the hexavalent chromium results in samples VD-3 and M-37 were qualified as detected estimated (J). The details regarding the qualification of results are presented in Attachment B, Section V.

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

All DUP RPDs met the acceptance criteria.

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

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

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

The field duplicate samples were evaluated for acceptable precision with RPDs or difference in instances the results were less than five times the reporting limit for the compounds. Two hexavalent chromium results were qualified as detected estimated (J) due to difference in field duplicate pair VD-3 and M-37. The details regarding the qualification of results are presented in Attachment B, Section X.

##### **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 28-day analysis holding time criteria for perchlorate and the 7-day analysis holding time criteria for total dissolved solids.

Due to holding time criteria exceedance, 24 results for hexavalent chromium detected estimated (J-) or non-detected estimated (UJ). The analysis holding time criteria for water samples is 24 hours for hexavalent chromium. 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, equipment blanks, and field 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**

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

### **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.

### **3.4 Completeness**

The completeness level attained for wet chemistry 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.

## **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, RPDs, and difference met acceptance criteria with the exceptions noted in Sections 2.1.4, 3.1.2, 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 equipment blanks, 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 1,564 total analytes reported, none of the sample results were rejected. The completeness for the SDGs are as follows:

<b>Parameter</b>	<b>Total Analytes</b>	<b>No. of Rejects</b>	<b>% Completeness</b>
Metals	388	0	100
Wet Chemistry	1,176	0	100
<b>Total</b>	<b>1,564</b>	<b>0</b>	<b>100</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 Annual Remedial Performance Sampling at the Nevada Environmental Response Trust (NERT) site in Henderson, Nevada established that the overall project requirements and completeness levels were met. 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.

\_\_\_\_\_,1983. *EPA Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Cincinnati, Ohio*, March 1983

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

TABLE I



SDG#: 384959

## VALIDATION SAMPLE TABLE

LDC#: 27928A

Project Name: 2012 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)								
ART-1	201201050294	water		01/04/12	X	X	X								
ART-2	201201050295	water		01/04/12	X	X	X								
ART-3	201201050296	water		01/04/12	X	X	X								
ART-4	201201050297	water		01/04/12	X	X	X								
ART-6	201201050298	water		01/04/12	X	X	X								
ART-7	201201050299	water		01/04/12	X	X	X								
ART-8	201201050300	water		01/04/12	X	X	X								
PC-99R2/R3	201201050301	water		01/04/12	X	X	X								
PC-115R	201201050302	water		01/04/12	X	X	X								
PC-116R	201201050303	water		01/04/12	X	X	X								
SF-1	201201050304	water		01/04/12	X	X	X								
PC-117	201201050305	water		01/04/12	X	X	X								
PC-118	201201050306	water		01/04/12	X	X	X								
PC-119	201201050307	water		01/04/12	X	X	X								
PC-120	201201050308	water		01/04/12	X	X	X								
PC-121	201201050309	water		01/04/12	X	X	X								
PC-133	201201050310	water		01/04/12	X	X	X								
ART-9	201201050311	water		01/04/12	X	X	X								
ART-2MS	201201050295MS	water	MS	01/04/12		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#: 384959

**VALIDATION SAMPLE TABLE**

LDC#: 27928A

**Project Name:** 2012 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)								
ART-2MSD	201201050295MSD	water	MSD	01/04/12		X									
PC-118MS	201201050306MS	water	MS	01/04/12	X										
PC-118MSD	201201050306MSD	water	MSD	01/04/12	X										
PC-119MS	201201050307MS	water	MS	01/04/12	X										
PC-119MSD	201201050307MSD	water	MSD	01/04/12	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#: 385707

## VALIDATION SAMPLE TABLE

LDC#: 27928B

Project Name: 2012 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)									
MW-K4	201201140183	water		01/12/11	X	X									
ARP-1	201201140184	water		01/12/11	X	X									
ARP-2A	201201140185	water		01/12/11	X	X									
ARP-3A	201201140186	water		01/12/11	X	X									
ARP-4A	201201140187	water		01/12/11	X	X									
ARP-5A	201201140188	water		01/12/11	X	X									
ARP-6B	201201140189	water		01/12/11	X	X									
ARP-7	201201140190	water		01/12/11	X	X									
PC-53	201201140191	water		01/12/11	X	X									
PC-103	201201140192	water		01/12/11	X	X									
MW-K5	201201140193	water		01/12/11	X	X									
ART-7B	201201140194	water		01/12/11	X	X									
M-83	201201140195	water		01/12/11	X	X									
PC-98R	201201140196	water		01/12/11	X	X									
PC-86	201201140197	water		01/11/12	X	X									
PC-90	201201140198	water		01/11/12	X	X									
PC-56	201201140199	water		01/11/12	X	X									
PC-58	201201140200	water		01/11/12	X	X									
PC-59	201201140201	water		01/11/12	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#: 385707

## VALIDATION SAMPLE TABLE

LDC#: 27928B

Project Name: 2012 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)									
PC-60	201201140202	water		01/11/12	X	X									
PC-62	201201140203	water		01/11/12	X	X									
PC-68	201201140204	water		01/11/12	X	X									
PC-122	201201140205	water		01/12/12	X	X									
PC-91	201201140206	water		01/11/12	X	X									
PC-97	201201140207	water		01/11/12	X	X									
PC-18	201201140208	water		01/11/12	X	X									
PC-55	201201140209	water		01/11/12	X	X									
PC-101R	201201140210	water		01/12/12	X	X									
PC-103MS	201201140192MS	water	MS	01/12/11	X										
PC-103MSD	201201140192MSD	water	MSD	01/12/11	X										
M-83DUP	201201140195DUP	water	DUP	01/12/11		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#: 387619

## VALIDATION SAMPLE TABLE

LDC#: 27928C

Project Name: 2012 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)	Cr(VI) (7196)							
PC-123	201202070189	water	FD	02/06/12	X	X	X								
PC-128	201202070200	water		02/06/12	X	X	X								
PC-129	201202070201	water		02/06/12	X	X	X								
PC-130	201202070202	water		02/06/12	X	X	X								
PC-131	201202070203	water		02/06/12	X	X	X								
PC-132	201202070204	water		02/06/12	X	X	X								
PC-124	201202070205	water		02/06/12	X	X	X								
PC-125	201202070206	water		02/06/12	X	X	X								
PC-126	201202070207	water		02/06/12	X	X	X								
PC-127	201202070208	water		02/06/12	X	X	X								
M-96	201202070209	water		02/06/12	X	X	X								
PC-54	201202070210	water		02/06/12	X	X	X								
M-48A	201202070211	water		02/06/12	X	X	X								
M-44	201202070212	water		02/06/12	X	X	X	X							
PC-71	201202070213	water		02/06/12	X	X	X								
PC-72	201202070214	water		02/06/12	X	X	X								
PC-73	201202070215	water		02/06/12	X	X	X								
PC-37	201202070216	water		02/06/12	X	X	X								
M-23	201202070217	water		02/06/12	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#: 387619

## VALIDATION SAMPLE TABLE

LDC#: 27928C

Project Name: 2012 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)	Cr(VI) (7196)							
VD-1	201202070218	water	FD	02/06/12	X	X	X								
EB-1	201202070219	water	EB	02/06/12	X	X	X	X							
PC-128MS	201202070200MS	water	MS	02/06/12	X										
PC-128MSD	201202070200MSD	water	MSD	02/06/12	X										
PC-125DUP	201202070206DUP	water	DUP	02/06/12			X								
M-96DUP	201202070209DUP	water	DUP	02/06/12			X								
M-44MS	201202070212MS	water	MS	02/06/12				X							
M-44MSD	201202070212MSD	water	MSD	02/06/12				X							
PC-73MS	201202070215MS	water	MS	02/06/12	X										
PC-73MSD	201202070215MSD	water	MSD	02/06/12	X										
PC-37MS	201202070216MS	water	MS	02/06/12		X									
PC-37MSD	201202070216MSD	water	MSD	02/06/12		X									
EB-1MS	201202070219MS	water	MS	02/06/12	X										
EB-1MSD	201202070219MSD	water	MSD	02/06/12	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#: 387631

## VALIDATION SAMPLE TABLE

LDC#: 27928D

Project Name: 2012 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)								
ART-1	201202070284	water		02/06/12	X	X	X								
ART-2	201202070285	water		02/06/12	X	X	X								
ART-3	201202070286	water		02/06/12	X	X	X								
ART-4	201202070287	water		02/06/12	X	X	X								
ART-6	201202070289	water		02/06/12	X	X	X								
ART-7	201202070290	water		02/06/12	X	X	X								
ART-8	201202070291	water		02/06/12	X	X	X								
PC-99R2/R3	201202070292	water		02/06/12	X	X	X								
PC-115R	201202070293	water		02/06/12	X	X	X								
PC-116R	201202070294	water		02/06/12	X	X	X								
SF-1	201202070295	water		02/06/12	X	X	X								
PC-117	201202070296	water		02/06/12	X	X	X								
PC-118	201202070297	water		02/06/12	X	X	X								
PC-119	201202070298	water		02/06/12	X	X	X								
PC-120	201202070299	water		02/06/12	X	X	X								
PC-121	201202070300	water		02/06/12	X	X	X								
PC-133	201202070301	water		02/06/12	X	X	X								
ART-9	201202070302	water		02/06/12	X	X	X								
ART-4MS	201202070287MS	water	MS	02/06/12	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#: 387631

VALIDATION SAMPLE TABLE

LDC#: 27928D

Project Name: 2012 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)								
ART-4MSD	201202070287MSD	water	MSD	02/06/12	X										
PC-119DUP	201202070298DUP	water	DUP	02/06/12			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#: 387722

## VALIDATION SAMPLE TABLE

LDC#: 27928E

Project Name: 2012 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)	Cr(VI) (7196)							
I-O	201202080223	water		02/07/12	X	X	X								
I-P	201202080340	water		02/07/12	X	X	X								
I-H	201202080341	water		02/07/12	X	X	X								
I-U	201202080342	water		02/07/12	X	X	X								
I-T	201202080343	water		02/07/12	X	X	X								
I-Q	201202080344	water		02/07/12	X	X	X								
I-F	201202080345	water		02/07/12	X	X	X								
I-N	201202080346	water		02/07/12	X	X	X								
I-E	201202080347	water		02/07/12	X	X	X								
I-M	201202080348	water		02/07/12	X	X	X								
I-D	201202080349	water		02/07/12	X	X	X								
I-C	201202080350	water		02/07/12	X	X	X								
I-S	201202080351	water		02/07/12	X	X	X								
I-L	201202080352	water		02/07/12	X	X	X								
I-R	201202080353	water		02/07/12	X	X	X								
I-B	201202080354	water		02/07/12	X	X	X								
I-AR	201202080355	water		02/07/12	X	X	X								
PC-136	201202080356	water		02/07/12	X	X	X								
PC-144	201202080357	water	FD1	02/07/12	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#: 387722

## VALIDATION SAMPLE TABLE

LDC#: 27928E

Project Name: 2012 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)	Cr(VI) (7196)							
PC-135A	201202080358	water		02/07/12	X	X	X								
PC-150	201202080359	water		02/07/12	X	X	X								
M-37	201202080360	water	FD2	02/07/12	X	X	X	X							
M-25	201202080361	water		02/07/12	X	X	X								
M-65	201202080362	water		02/07/12	X	X	X								
M-66	201202080363	water		02/07/12	X	X	X								
M-79	201202080364	water		02/07/12	X	X	X								
M-69	201202080365	water		02/07/12	X	X	X								
M-135	201202080366	water		02/07/12	X	X	X								
M-131	201202080367	water		02/07/12	X	X	X								
M-57A	201202080368	water		02/07/12	X	X	X								
VD-2	201202080369	water	FD1	02/07/12	X	X	X								
VD-3	201202080370	water	FD2	02/07/12	X	X	X	X							
EB-2	201202080371	water	EB	02/07/12	X	X	X	X							
I-G	201202080372	water		02/07/12	X	X	X								
I-RDUP	201202080353DUP	water	DUP	02/07/12			X								
I-BMS	201202080354MS	water	MS	02/07/12	X										
I-BMSD	201202080354MSD	water	MSD	02/07/12	X										
I-BDUP	201202080354DUP	water	DUP	02/07/12			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#: 387722

## VALIDATION SAMPLE TABLE

LDC#: 27928E

Project Name: 2012 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)	Cr(VI) (7196)							
PC-144MS	201202080357MS	water	MS	02/07/12	X										
PC-144MSD	201202080357MSD	water	MSD	02/07/12	X										
M-37MS	201202080360MS	water	MS	02/07/12				X							
M-37MSD	201202080360MSD	water	MSD	02/07/12				X							
M-135MS	201202080366MS	water	MS	02/07/12	X										
M-135MSD	201202080366MSD	water	MSD	02/07/12	X										
M-135DUP	201202080366DUP	water	DUP	02/07/12			X								
M-131MS	201202080367MS	water	MS	02/07/12	X										
M-131MSD	201202080367MSD	water	MSD	02/07/12	X										
M-131DUP	201202080367DUP	water	DUP	02/07/12			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#: 387723

## VALIDATION SAMPLE TABLE

LDC#: 27928F

Project Name: 2012 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)	Cr(VI) (7196)							
M-64	201202090316	water		02/08/12	X	X	X								
M-97	201202090317	water		02/08/12	X	X	X								
PC-148	201202090318	water		02/08/12	X	X	X								
PC-149	201202090319	water		02/08/12	X	X	X								
M-35	201202090320	water		02/08/12	X	X	X								
M-19	201202090321	water		02/08/12	X	X	X								
M-68	201202090322	water		02/08/12	X	X	X								
M-67	201202090323	water		02/08/12	X	X	X								
I-V	201202090324	water		02/08/12	X	X	X								
I-K	201202090325	water		02/08/12	X	X	X								
I-I	201202090326	water		02/08/12	X	X	X								
I-Z	201202090327	water		02/08/12	X	X	X								
I-J	201202090328	water		02/08/12	X	X	X								
FB-1	201202090329	water	FB	02/08/12	X	X	X	X							
M-74	201202090330	water		02/08/12	X	X	X								
M-73	201202090331	water		02/08/12	X	X	X								
FB-1MS	201202090329MS	water	MS	02/08/12	X										
FB-1MSD	201202090329MSD	water	MSD	02/08/12	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#: 388075

VALIDATION SAMPLE TABLE

LDC#: 27928G

Project Name: 2012 Annual Remedial Performance Sampling

Parameters/Analytical Method

Client ID #	Lab ID #	Matrix	QC Type	Date Collected	Cr (200.7)	TDS (160.1)									
M-10	201202110151	water		02/09/12	X	X									
M-10DUP	201202110151DUP	water	DUP	02/09/12		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#: 388090

## VALIDATION SAMPLE TABLE

LDC#: 27928H

Project Name: 2012 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)	Cr(VI) (7196)							
M-83	201202110184	water		02/09/12	X	X	X								
M-81A	201202110185	water		02/09/12	X	X	X								
M-70	201202110186	water		02/09/12	X	X	X								
M-71	201202110187	water		02/09/12	X	X	X								
M-72	201202110188	water		02/09/12	X	X	X								
M-14A	201202110189	water	FD	02/09/12	X	X	X								
M-10	201202110190	water		02/09/12	X	X	X	X							
VD-5	201202110191	water	FD	02/09/12	X	X	X								
M-11	201202110192	water		02/09/12	X	X	X	X							
M-83MS	201202110184MS	water	MS	02/09/12	X										
M-83MSD	201202110184MSD	water	MSD	02/09/12	X										
M-83DUP	201202110184DUP	water	DUP	02/09/12			X								
M-10MS	201202110190MS	water	MS	02/09/12				X							
M-10MSD	201202110190MSD	water	MSD	02/09/12				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#: 388255

## VALIDATION SAMPLE TABLE

LDC#: 27928I

Project Name: 2012 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)	Cr(VI) (7196)							
M-31A	201202140193	water		02/13/12	X	X	X								
M-52	201202140194	water		02/13/12	X	X	X								
M-12A	201202140195	water	FD	02/13/12	X	X	X	X							
M-22A	201202140196	water		02/13/12	X	X	X								
M-36	201202140197	water		02/13/12	X	X	X	X							
M-38	201202140198	water		02/13/12	X	X	X								
VD-4	201202140199	water	FD	02/13/12	X	X	X	X							
M-36MS	201202140197MS	water	MS	02/13/12				X							
M-36MSD	201202140197MSD	water	MSD	02/13/12				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#: 388517

VALIDATION SAMPLE TABLE

LDC#: 27928J

Project Name: 2012 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)								
M-80	201202160195	water		02/14/12	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#: 388739

## VALIDATION SAMPLE TABLE

LDC#: 27928K

Project Name: 2012 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)								
ARP-1	201202170295	water		02/16/12	X	X	X								
ART-7B	201202170296	water		02/16/12	X	X	X								
PC-122	201202170297	water		02/16/12	X	X	X								
PC-53	201202170298	water		02/16/12	X	X	X								
ARP-6B	201202170300	water		02/16/12	X	X	X								
ARP-5A	201202170301	water		02/16/12	X	X	X								
ARP-4A	201202170302	water		02/16/12	X	X	X								
MW-K4	201202170303	water		02/16/12	X	X	X								
ARP-3A	201202170304	water		02/16/12	X	X	X								
ARP-2A	201202170305	water		02/16/12	X	X	X								
PC-97	201202170306	water		02/15/12	X	X	X								
PC-90	201202170307	water		02/15/12	X	X	X								
PC-86	201202170308	water		02/15/12	X	X	X								
PC-91	201202170309	water		02/15/12	X	X	X								
PC-58	201202170310	water		02/15/12	X	X	X								
PC-56	201202170311	water		02/15/12	X	X	X								
PC-60	201202170312	water		02/15/12	X	X	X								
PC-59	201202170313	water		02/15/12	X	X	X								
PC-62	201202170314	water		02/15/12	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#: 388739

## VALIDATION SAMPLE TABLE

LDC#: 27928K

Project Name: 2012 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)								
PC-68	201202170315	water		02/15/12	X	X	X								
PC-18	201202170316	water		02/16/12	X	X	X								
PC-101R	201202170317	water		02/16/12	X	X	X								
PC-103	201202170318	water		02/16/12	X	X	X								
PC-98R	201202170319	water		02/16/12	X	X	X								
PC-94	201202170320	water		02/16/12	X	X	X								
MW-K5	201202170345	water		02/16/12	X	X	X								
ARP-7	201202170346	water		02/16/12	X	X	X								
ARP-4AMS	201202170302MS	water	MS	02/16/12	X										
ARP-4AMSD	201202170302MSD	water	MSD	02/16/12	X										
ARP-2AMS	201202170305MS	water	MS	02/16/12		X									
ARP-2AMSD	201202170305MSD	water	MSD	02/16/12		X									
PC-97MS	201202170306MS	water	MS	02/15/12	X										
PC-97MSD	201202170306MSD	water	MSD	02/15/12	X										
PC-56MS	201202170311MS	water	MS	02/15/12	X										
PC-56MSD	201202170311MSD	water	MSD	02/15/12	X										
PC-62DUP	201202170314DUP	water	DUP	02/15/12			X								
PC-68DUP	201202170315DUP	water	DUP	02/15/12			X								
PC-98RMS	201202170319MS	water	MS	02/16/12	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#: 388739

**VALIDATION SAMPLE TABLE**

LDC#: 27928K

**Project Name:** 2012 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)								
PC-98RMSD	201202170319MSD	water	MSD	02/16/12	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#: 388854

VALIDATION SAMPLE TABLE

LDC#: 27928L

Project Name: 2012 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)								
PC-55	201202210037	water		02/20/12	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#: 390258

## VALIDATION SAMPLE TABLE

LDC#: 27928M

Project Name: 2012 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)									
ART-1	201203070176	water		03/06/12	X	X									
ART-2	201203070177	water		03/06/12	X	X									
ART-3	201203070178	water		03/06/12	X	X									
ART-4	201203070179	water		03/06/12	X	X									
ART-6	201203070180	water		03/06/12	X	X									
ART-7	201203070181	water		03/06/12	X	X									
ART-8	201203070182	water		03/06/12	X	X									
PC-99R2/R3	201203070183	water		03/06/12	X	X									
PC-115R	201203070184	water		03/06/12	X	X									
PC-116R	201203070185	water		03/06/12	X	X									
SF-1	201203070186	water		03/06/12	X	X									
PC-117	201203070187	water		03/06/12	X	X									
PC-118	201203070188	water		03/06/12	X	X									
PC-119	201203070189	water		03/06/12	X	X									
PC-120	201203070190	water		03/06/12	X	X									
PC-121	201203070191	water		03/06/12	X	X									
PC-133	201203070192	water		03/06/12	X	X									
ART-9	201203070193	water		03/06/12	X	X									
SF-1MS	201203070186MS	water	MS	03/06/12	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#: 390258

VALIDATION SAMPLE TABLE

LDC#: 27928M

Project Name: 2012 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)									
SF-1MSD	201203070186MSD	water	MSD	03/06/12	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#: 391160

## VALIDATION SAMPLE TABLE

LDC#: 27928N

Project Name: 2012 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)									
MW-K4	201203160053	water		03/13/12	X	X									
ARP-1	201203160054	water		03/13/12	X	X									
ARP-2A	201203160055	water		03/13/12	X	X									
ARP-3A	201203160056	water		03/13/12	X	X									
ARP-4A	201203160057	water		03/13/12	X	X									
ARP-5A	201203160058	water		03/13/12	X	X									
ARP-6B	201203160059	water		03/13/12	X	X									
ARP-7	201203160060	water		03/13/12	X	X									
PC-53	201203160061	water		03/13/12	X	X									
PC-103	201203160062	water		03/14/12	X	X									
MW-K5	201203160063	water		03/13/12	X	X									
M-83	201203160064	water		03/14/12	X	X									
PC-98R	201203160065	water		03/14/12	X	X									
PC-86	201203160066	water		03/12/12	X	X									
PC-90	201203160067	water		03/12/12	X	X									
PC-56	201203160068	water		03/12/12	X	X									
PC-58	201203160069	water		03/12/12	X	X									
PC-59	201203160070	water		03/12/12	X	X									
PC-60	201203160071	water		03/12/12	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#: 391160

## VALIDATION SAMPLE TABLE

LDC#: 27928N

Project Name: 2012 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)									
PC-62	201203160072	water		03/12/12	X	X									
PC-68	201203160073	water		03/12/12	X	X									
PC-122	201203160074	water		03/13/12	X	X									
PC-91	201203160075	water		03/12/12	X	X									
PC-97	201203160076	water		03/12/12	X	X									
PC-18	201203160077	water		03/12/12	X	X									
PC-55	201203160078	water		03/13/12	X	X									
PC-101R	201203160079	water		03/13/12	X	X									
M-83DUP	201203160064DUP	water	DUP	03/14/12		X									
PC-86DUP	201203160066DUP	water	DUP	03/12/12		X									
PC-58DUP	201203160069DUP	water	DUP	03/12/12		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#: 393671

## VALIDATION SAMPLE TABLE

LDC#: 279280

Project Name: 2012 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)									
ART-1	201204110803	water		04/10/12	X	X									
ART-2	201204110804	water		04/10/12	X	X									
ART-3	201204110805	water		04/10/12	X	X									
ART-4	201204110806	water		04/10/12	X	X									
ART-6	201204110807	water		04/10/12	X	X									
ART-7	201204110808	water		04/10/12	X	X									
ART-8	201204110809	water		04/10/12	X	X									
PC-99R2/R3	201204110810	water		04/10/12	X	X									
PC-115R	201204110811	water		04/10/12	X	X									
PC-116R	201204110812	water		04/10/12	X	X									
SF-1	201204110813	water		04/10/12	X	X									
PC-117	201204110814	water		04/10/12	X	X									
PC-118	201204110815	water		04/10/12	X	X									
PC-119	201204110816	water		04/10/12	X	X									
PC-120	201204110817	water		04/10/12	X	X									
PC-121	201204110818	water		04/10/12	X	X									
PC-133	201204110819	water		04/10/12	X	X									
ART-9	201204110820	water		04/10/12	X	X									
ART-2MS	201204110804MS	water	MS	04/10/12	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#: 393671

**VALIDATION SAMPLE TABLE**

LDC#: 279280

**Project Name:** 2012 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)									
ART-2MSD	201204110804MSD	water	MSD	04/10/12	X										
PC-118DUP	201204110815DUP	water	DUP	04/10/12		X									
PC-119DUP	201204110816DUP	water	DUP	04/10/12		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#: 393938

## VALIDATION SAMPLE TABLE

LDC#: 27928P

Project Name: 2012 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)									
PC-91	201204130287	water		04/11/12	X	X									
PC-97	201204130288	water		04/11/12	X	X									
PC-18	201204130289	water		04/11/12	X	X									
PC-55	201204130290	water		04/11/12	X	X									
PC-101R	201204130291	water		04/12/12	X	X									
MW-K4	201204130292	water		04/12/12	X	X									
ARP-1	201204130293	water		04/12/12	X	X									
ARP-2A	201204130294	water		04/12/12	X	X									
ARP-3A	201204130295	water		04/12/12	X	X									
ARP-4A	201204130296	water		04/12/12	X	X									
ARP-5A	201204130297	water		04/12/12	X	X									
ARP-6B	201204130298	water		04/12/12	X	X									
ARP-7	201204130299	water		04/12/12	X	X									
PC-53	201204130300	water		04/12/12	X	X									
PC-103	201204130301	water		04/12/12	X	X									
MW-K5	201204130302	water		04/12/12	X	X									
M-83	201204130303	water		04/12/12	X	X									
PC-98R	201204130304	water		04/12/12	X	X									
PC-86	201204130305	water		04/11/12	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#: 393938

## VALIDATION SAMPLE TABLE

LDC#: 27928P

Project Name: 2012 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)									
PC-90	201204130306	water		04/11/12	X	X									
PC-56	201204130307	water		04/11/12	X	X									
PC-58	201204130308	water		04/11/12	X	X									
PC-59	201204130309	water		04/11/12	X	X									
PC-60	201204130310	water		04/11/12	X	X									
PC-62	201204130311	water		04/11/12	X	X									
PC-68	201204130312	water		04/11/12	X	X									
PC-122	201204130313	water		04/12/12	X	X									
ARP-5AMS	201204130297MS	water	MS	04/12/12	X										
ARP-5AMSD	201204130297MSD	water	MSD	04/12/12	X										
M-83DUP	201204130303DUP	water	DUP	04/12/12		X									
PC-86DUP	201204130305DUP	water	DUP	04/11/12		X									
PC-68DUP	201204130312DUP	water	DUP	04/11/12		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#: 396070

## VALIDATION SAMPLE TABLE

LDC#: 27928Q

Project Name: 2012 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)								
PC-123	201205090034	water		05/07/12	X	X	X								
PC-124	201205090035	water		05/07/12	X	X	X								
PC-125	201205090036	water		05/07/12	X	X	X								
PC-126	201205090037	water		05/07/12	X	X	X								
PC-24	201205090038	water		05/07/12	X	X	X								
PC-127	201205090039	water		05/07/12	X	X	X								
PC-129	201205090040	water		05/07/12	X	X	X								
PC-130	201205090041	water		05/07/12	X	X	X								
PC-50	201205090042	water		05/07/12	X	X	X								
PC-131	201205090043	water		05/07/12	X	X	X								
PC-132	201205090044	water		05/07/12	X	X	X								
PC-82	201205090045	water		05/07/12		X	X								
PC-79	201205090046	water		05/07/12	X	X	X								
PC-125MS	201205090036MS	water	MS	05/07/12	X										
PC-125MSD	201205090036MSD	water	MSD	05/07/12	X										
PC-129DUP	201205090040DUP	water	DUP	05/07/12			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#: 396219

## VALIDATION SAMPLE TABLE

LDC#: 27928R

Project Name: 2012 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)	Cr(VI) (7196)							
PC-128	201205090650	water		05/08/12	X	X	X								
PC-77	201205090651	water		05/08/12		X	X								
PC-74	201205090652	water		05/08/12		X	X								
PC-96	201205090653	water		05/08/12		X	X								
PC-108	201205090654	water		05/08/12		X	X								
PC-110	201205090655	water		05/08/12		X	X								
M-95	201205090656	water		05/08/12	X	X	X	X							
PC-54	201205090657	water		05/08/12	X	X	X								
M-48A	201205090658	water		05/08/12	X	X	X								
PC-21A	201205090659	water		05/08/12	X	X	X								
M-44	201205090660	water		05/08/12	X	X	X	X							
PC-71	201205090661	water		05/08/12	X	X	X								
PC-72	201205090662	water		05/08/12	X	X	X								
PC-73	201205090663	water		05/08/12	X	X	X								
PC-40	201205090664	water		05/08/12	X	X	X								
PC-37	201205090665	water		05/08/12	X	X	X								
PC-128MS	201205090650MS	water	MS	05/08/12		X									
PC-128MSD	201205090650MSD	water	MSD	05/08/12		X									
PC-128DUP	201205090650DUP	water	DUP	05/08/12			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#: 396219

## VALIDATION SAMPLE TABLE

LDC#: 27928R

Project Name: 2012 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)	Cr(VI) (7196)							
M-95MS	201205090656MS	water	MS	05/08/12	X										
M-95MSD	201205090656MSD	water	MSD	05/08/12	X										
PC-72MS	201205090662MS	water	MS	05/08/12	X										
PC-72MSD	201205090662MSD	water	MSD	05/08/12	X										
PC-40MS	201205090664MS	water	MS	05/08/12	X										
PC-40MSD	201205090664MSD	water	MSD	05/08/12	X										
PC-37MS	201205090665MS	water	MS	05/08/12	X										
PC-37MSD	201205090665MSD	water	MSD	05/08/12	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#: 396300

## VALIDATION SAMPLE TABLE

LDC#: 27928S

Project Name: 2012 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)								
ART-1	201205100329	water		05/08/12	X	X	X								
ART-2	201205100330	water		05/08/12	X	X	X								
ART-3	201205100331	water		05/08/12	X	X	X								
ART-4	201205100332	water		05/08/12	X	X	X								
ART-6	201205100333	water		05/08/12	X	X	X								
ART-7	201205100334	water		05/08/12	X	X	X								
ART-8	201205100335	water		05/08/12	X	X	X								
PC-99R2/R3	201205100336	water		05/08/12	X	X	X								
PC-115R	201205100337	water		05/08/12	X	X	X								
PC-116R	201205100338	water		05/08/12	X	X	X								
SF-1	201205100339	water		05/08/12	X	X	X								
PC-117	201205100340	water		05/08/12	X	X	X								
PC-118	201205100341	water		05/08/12	X	X	X								
PC-119	201205100342	water		05/08/12	X	X	X								
PC-120	201205100343	water		05/08/12	X	X	X								
PC-121	201205100344	water		05/08/12	X	X	X								
PC-133	201205100345	water		05/08/12	X	X	X								
ART-9	201205100346	water		05/08/12	X	X	X								
ART-4MS	201205100332MS	water	MS	05/08/12		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#: 396300

**VALIDATION SAMPLE TABLE**

LDC#: 27928S

**Project Name:** 2012 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)								
ART-4MSD	201205100332MSD	water	MSD	05/08/12		X									
PC-118DUP	201205100341DUP	water	DUP	05/08/12			X								
PC-119DUP	201205100342DUP	water	DUP	05/08/12			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#: 396399

## VALIDATION SAMPLE TABLE

LDC#: 27928T

Project Name: 2012 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)	Cr(VI) (7196)							
AA-01	201205100598	water		05/09/12		X	X								
H-58A	201205100599	water		05/09/12	X	X	X								
H-48	201205100600	water		05/09/12	X	X	X								
I-O	201205100601	water		05/09/12	X	X	X								
I-P	201205100602	water		05/09/12	X	X	X								
PC-107	201205100603	water		05/09/12		X	X								
PC-28	201205100604	water		05/09/12	X	X	X								
PC-64	201205100605	water		05/09/12	X	X	X								
PC-65	201205100606	water		05/09/12	X	X	X								
PC-66	201205100607	water		05/09/12	X	X	X								
PC-67	201205100608	water		05/09/12	X	X	X								
FB-1	201205100609	water	FB	05/09/12	X	X	X	X							
EB-1	201205100610	water	EB	05/09/12	X	X	X	X							
MC-7	201205100611	water		05/09/12		X	X								
MC-6	201205100612	water		05/09/12		X	X								
MC-45	201205100613	water		05/09/12		X	X								
MC-29	201205100614	water		05/09/12		X	X								
MC-3	201205100615	water		05/09/12		X	X								
AA-01MS	201205100598MS	water	MS	05/09/12		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#: 396399

## VALIDATION SAMPLE TABLE

LDC#: 27928T

Project Name: 2012 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)	Cr(VI) (7196)							
AA-01MSD	201205100598MSD	water	MSD	05/09/12		X									
AA-01DUP	201205100598DUP	water	DUP	05/09/12			X								
H-58AMS	201205100599MS	water	MS	05/09/12	X										
H-58AMSD	201205100599MSD	water	MSD	05/09/12	X										
PC-107DUP	201205100603DUP	water	DUP	05/09/12			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#: 396604

## VALIDATION SAMPLE TABLE

LDC#: 27928U

Project Name: 2012 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)	Cr(VI) (7196)							
I-H	201205120161	water		05/10/12	X	X	X								
I-U	201205120162	water		05/10/12	X	X	X								
I-T	201205120163	water		05/10/12	X	X	X								
I-G	201205120164	water		05/10/12	X	X	X								
I-Q	201205120165	water		05/10/12	X	X	X								
I-F	201205120166	water		05/10/12	X	X	X								
I-E	201205120167	water		05/10/12	X	X	X								
I-M	201205120168	water		05/10/12	X	X	X								
I-D	201205120169	water		05/10/12	X	X	X								
I-C	201205120170	water		05/10/12	X	X	X								
I-S	201205120171	water		05/10/12	X	X	X								
I-L	201205120172	water		05/10/12	X	X	X								
I-R	201205120173	water		05/10/12	X	X	X								
I-B	201205120174	water		05/10/12	X	X	X								
I-AR	201205120175	water		05/10/12	X	X	X								
PC-31	201205120176	water		05/10/12	X	X	X								
MC-65	201205120177	water		05/10/12	X	X	X								
MC-50	201205120178	water		05/10/12		X	X								
MC-51	201205120179	water		05/10/12		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#: 396604

## VALIDATION SAMPLE TABLE

LDC#: 27928U

Project Name: 2012 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)	Cr(VI) (7196)							
MC-69	201205120180	water		05/10/12		X	X								
MC-53	201205120181	water		05/10/12	X	X	X								
MC-93	201205120182	water		05/10/12		X	X								
MC-97	201205120183	water		05/10/12		X	X								
M-65	201205120184	water		05/10/12	X	X	X								
M-66	201205120185	water		05/10/12	X	X	X								
M-79	201205120186	water		05/10/12	X	X	X								
M-69	201205120187	water		05/10/12	X	X	X								
M-57A	201205120188	water		05/10/12	X	X	X								
M-131	201205120189	water		05/10/12	X	X	X								
EB-2	201205120190	water	EB	05/10/12	X	X	X	X							
I-LMS	201205120172MS	water	MS	05/10/12	X										
I-LMSD	201205120172MSD	water	MSD	05/10/12	X										
I-BDUP	201205120174DUP	water	DUP	05/10/12			X								
I-ARMS	201205120175MS	water	MS	05/10/12		X									
I-ARMSD	201205120175MSD	water	MSD	05/10/12		X									
PC-31MS	201205120176MS	water	MS	05/10/12	X										
PC-31MSD	201205120176MSD	water	MSD	05/10/12	X										
M-69DUP	201205120187DUP	water	DUP	05/10/12			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#: 396830

## VALIDATION SAMPLE TABLE

LDC#: 27928V

Project Name: 2012 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)									
M-64	201205160015	water		05/14/12	X	X	X									
M-135	201205160016	water		05/14/12	X	X	X									
M-134	201205160017	water		05/14/12	X	X	X									
I-N	201205160018	water		05/14/12	X	X	X									
I-K	201205160019	water		05/14/12	X	X	X									
I-J	201205160020	water		05/14/12	X	X	X									
I-Z	201205160021	water		05/14/12	X	X	X									
I-I	201205160022	water		05/14/12	X	X	X									
I-V	201205160023	water		05/14/12	X	X	X									
M-136	201205160024	water		05/14/12	X	X	X									
M-126	201205160025	water		05/14/12	X	X	X									
MW-16	201205160026	water		05/14/12	X	X	X									
M-81A	201205160027	water	FD	05/14/12	X	X	X									
M-80	201205160028	water		05/14/12	X	X	X									
M-70	201205160029	water		05/14/12	X	X	X									
M-71	201205160030	water		05/14/12	X	X	X									
M-72	201205160031	water		05/14/12	X	X	X									
M-68	201205160032	water		05/14/12	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#: 396830

## VALIDATION SAMPLE TABLE

LDC#: 27928V

Project Name: 2012 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)								
M-74	201205160033	water		05/14/12	X	X	X								
M-133	201205160034	water		05/14/12	X	X	X								
M-73	201205160035	water		05/14/12	X	X	X								
VD-1	201205160036	water	FD	05/14/12	X	X	X								
M-134DUP	201205160017DUP	water	DUP	05/14/12			X								
M-136MS	201205160024MS	water	MS	05/14/12	X										
M-136MSD	201205160024MSD	water	MSD	05/14/12	X										
M-136DUP	201205160024DUP	water	DUP	05/14/12			X								
MW-16MS	201205160026MS	water	MS	05/14/12	X										
MW-16MSD	201205160026MSD	water	MSD	05/14/12	X										
M-81AMS	201205160027MS	water	MS	05/14/12		X									
M-81AMSD	201205160027MSD	water	MSD	05/14/12		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#: 396992

**VALIDATION SAMPLE TABLE**

LDC#: 27928W

**Project Name:** 2012 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)								
M-5A	201205170186	water		05/15/12	X	X	X								
M-7B	201205170190	water		05/15/12	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#: 396993

## VALIDATION SAMPLE TABLE

LDC#: 27928X

Project Name: 2012 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)	Cr(VI) (7196)							
M-67	201205170194	water		05/15/12	X	X	X								
M-35	201205170195	water	FD1	05/15/12	X	X	X								
M-19	201205170196	water		05/15/12	X	X	X								
M-2A	201205170197	water		05/15/12	X	X	X								
M-75	201205170198	water		05/15/12	X	X	X								
M-76	201205170199	water		05/15/12	X	X	X								
M-115	201205170200	water		05/15/12	X	X	X								
M-14A	201205170201	water		05/15/12	X	X	X								
VD-2	201205170202	water	FD1	05/15/12	X	X	X								
M-83	201205170203	water		05/15/12	X	X	X								
M-22A	201205170204	water	FD2	05/15/12	X	X	X								
M-36	201205170205	water		05/15/12	X	X	X	X							
M-38	201205170206	water		05/15/12	X	X	X								
M-37	201205170207	water		05/15/12	X	X	X								
M-25	201205170208	water		05/15/12	X	X	X								
M-92	201205170209	water		05/15/12	X	X	X								
M-97	201205170210	water		05/15/12	X	X	X								
FB-2	201205170211	water	FB	05/15/12	X	X	X	X							
VD-3	201205170212	water	FD2	05/15/12	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#: 396993

## VALIDATION SAMPLE TABLE

LDC#: 27928X

Project Name: 2012 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)	Cr(VI) (7196)							
M-115DUP	201205170200DUP	water	DUP	05/15/12			X								
M-14AMS	201205170201MS	water	MS	05/15/12	X										
M-14AMSD	201205170201MSD	water	MSD	05/15/12	X										
M-36MS	201205170205MS	water	MS	05/15/12				X							
M-36MSD	201205170205MSD	water	MSD	05/15/12				X							
M-92DUP	201205170209DUP	water	DUP	05/15/12			X								
M-97MS	201205170210MS	water	MS	05/15/12		X									
M-97MSD	201205170210MSD	water	MSD	05/15/12		X									
FB-2MS	201205170211MS	water	MS	05/15/12	X										
FB-2MSD	201205170211MSD	water	MSD	05/15/12	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#: 397132

**VALIDATION SAMPLE TABLE**

LDC#: 27928Y

**Project Name:** 2012 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)								
H28A	201205180161	water		05/16/12	X	X	X								
M-6A	201205180165	water		05/16/12	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#: 397133

## VALIDATION SAMPLE TABLE

LDC#: 27928Z

Project Name: 2012 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)	Cr(VI) (7196)							
M-23	201205180169	water		05/16/12	X	X	X								
M-123	201205180170	water		05/16/12		X	X								
M-124	201205180171	water		05/16/12	X	X	X								
M-128	201205180172	water		05/16/12		X	X								
M-125	201205180173	water		05/16/12		X	X								
M-142	201205180174	water	FD1	05/16/12	X	X	X								
M-138	201205180175	water		05/16/12	X	X	X								
M-137	201205180176	water		05/16/12	X	X	X								
M-77	201205180177	water		05/16/12	X	X	X								
VD-4	201205180178	water	FD1	05/16/12	X	X	X								
M-148A	201205180179	water		05/16/12	X	X	X								
M-141	201205180180	water		05/16/12	X	X	X								
M-52	201205180181	water		05/16/12	X	X	X								
M-31A	201205180182	water		05/16/12	X	X	X								
M-21	201205180183	water		05/16/12	X	X	X								
M-12A	201205180184	water	FD2	05/16/12	X	X	X	X							
M-144	201205180185	water		05/16/12	X	X	X								
M-146	201205180186	water		05/16/12	X	X	X								
M-139	201205180187	water		05/16/12	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#: 397133

## VALIDATION SAMPLE TABLE

LDC#: 27928Z

Project Name: 2012 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)	Cr(VI) (7196)							
EB-3	201205180188	water	EB	05/16/12	X	X	X	X							
M-145	201205180189	water		05/16/12	X	X	X								
VD-5	201205180190	water	FD2	05/16/12	X	X	X								
M-137MS	201205180176MS	water	MS	05/16/12		X									
M-137MSD	201205180176MSD	water	MSD	05/16/12		X									
M-146MS	201205180186MS	water	MS	05/16/12	X										
M-146MSD	201205180186MSD	water	MSD	05/16/12	X										
M-139MS	201205180187MS	water	MS	05/16/12	X										
M-139MSD	201205180187MSD	water	MSD	05/16/12	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#: 397254

## VALIDATION SAMPLE TABLE

LDC#: 27937A

Project Name: 2012 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)								
PC-150	201205190115	water		05/17/12	X	X	X								
PC-148	201205190116	water		05/17/12	X	X	X								
PC-149	201205190117	water		05/17/12	X	X	X								
PC-137	201205190118	water		05/17/12	X	X	X								
PC-136	201205190119	water		05/17/12	X	X	X								
PC-2	201205190120	water		05/17/12	X	X	X								
PC-4	201205190121	water		05/17/12	X	X	X								
HM-2	201205190122	water		05/17/12		X	X								
PC-134A	201205190123	water		05/17/12	X	X	X								
PC-135A	201205190124	water		05/17/12	X	X	X								
HMW-16	201205190125	water		05/17/12		X	X								
M-96	201205190126	water		05/17/12	X	X	X								
PC-137MS	201205190118MS	water	MS	05/17/12	X										
PC-137MSD	201205190118MSD	water	MSD	05/17/12	X										
PC-137DUP	201205190118DUP	water	DUP	05/17/12			X								
PC-134AMS	201205190123MS	water	MS	05/17/12		X									
PC-134AMSD	201205190123MSD	water	MSD	05/17/12		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#: 397417

VALIDATION SAMPLE TABLE

LDC#: 27937B

Project Name: 2012 Annual Remedial Performance Sampling

Parameters/Analytical Method

Client ID #	Lab ID #	Matrix	QC Type	Date Collected	Cr (200.7)	TDS (160.1)									
M-10	201205220379	water		05/21/12	X	X									
M-10DUP	201205220379DUP	water	DUP	05/21/12		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#: 397510

## VALIDATION SAMPLE TABLE

LDC#: 27937C

Project Name: 2012 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)	Cr(VI) (7196)							
M-13	201205230087	water	FD1	05/21/12	X	X	X								
M-11	201205230088	water		05/21/12	X	X	X	X							
M-10	201205230089	water	FD2	05/21/12	X	X	X	X							
H-11	201205230090	water		05/21/12	X	X	X								
VD-6	201205230091	water	FD1	05/21/12	X	X	X								
VD-7	201205230092	water	FD2	05/21/12	X	X	X	X							
M-10MS	201205230089MS	water	MS	05/21/12				X							
M-10MSD	201205230089MSD	water	MSD	05/21/12				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#: 397685

## VALIDATION SAMPLE TABLE

LDC#: 27937D

Project Name: 2012 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)								
PC-97	201205240130	water		05/22/12	X	X	X								
PC-90	201205240131	water		05/22/12	X	X	X								
PC-86	201205240132	water		05/22/12	X	X	X								
PC-91	201205240133	water		05/22/12	X	X	X								
PC-92	201205240134	water		05/22/12	X	X	X								
PC-94	201205240135	water		05/22/12	X	X	X								
PC-143	201205240136	water		05/22/12	X	X	X								
APR-1	201205240137	water		05/22/12	X	X	X								
PC-97MS	201205240130MS	water	MS	05/22/12	X										
PC-97MSD	201205240130MSD	water	MSD	05/22/12	X										
PC-86DUP	201205240132DUP	water	DUP	05/22/12			X								
PC-92MS	201205240134MS	water	MS	05/22/12	X										
PC-92MSD	201205240134MSD	water	MSD	05/22/12	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#: 397687

## VALIDATION SAMPLE TABLE

LDC#: 27937E

Project Name: 2012 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)								
PC-59	201205240147	water		05/22/12	X	X	X								
PC-60	201205240148	water		05/22/12	X	X	X								
PC-56	201205240149	water		05/22/12	X	X	X								
PC-58	201205240150	water		05/22/12	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#: 397866

## VALIDATION SAMPLE TABLE

LDC#: 27937F

Project Name: 2012 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)								
PC-145	201205250212	water		05/23/12	X	X	X								
PC-68	201205250213	water		05/23/12	X	X	X								
PC-62	201205250214	water		05/23/12	X	X	X								
ART-7B	201205250215	water		05/23/12	X	X	X								
PC-122	201205250216	water		05/23/12	X	X	X								
PC-53	201205250217	water		05/23/12	X	X	X								
MW-K5	201205250218	water		05/23/12	X	X	X								
ARP-7	201205250219	water		05/23/12	X	X	X								
ARP-6A	201205250220	water		05/23/12	X	X	X								
ARP-5A	201205250221	water		05/23/12	X	X	X								
ARP-4A	201205250222	water		05/23/12	X	X	X								
ARP-3A	201205250223	water		05/23/12	X	X	X								
ARP-2A	201205250224	water		05/23/12	X	X	X								
PC-55	201205250225	water		05/23/12	X	X	X								
PC-145MS	201205250212MS	water	MS	05/23/12		X									
PC-145MSD	201205250212MSD	water	MSD	05/23/12		X									
PC-68DUP	201205250213DUP	water	DUP	05/23/12			X								
PC-62DUP	201205250214DUP	water	DUP	05/23/12			X								
ARP-7MS	201205250219MS	water	MS	05/23/12	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#: 397866

**VALIDATION SAMPLE TABLE**

LDC#: 27937F

**Project Name:** 2012 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)								
ARP-7MSD	201205250219MSD	water	MSD	05/23/12	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#: 397885

## VALIDATION SAMPLE TABLE

LDC#: 27937G

Project Name: 2012 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)								
M-120	201205250270	water		05/21/12	X	X	X								
M-118	201205250271	water		05/21/12	X	X	X								
M-121	201205250272	water		05/21/12	X	X	X								
TR-10	201205250273	water		05/21/12	X	X	X								
TR-9	201205250274	water		05/21/12	X	X	X								
M-117	201205250275	water		05/21/12	X	X	X								
M-103	201205250276	water		05/21/12	X	X	X								
E-EB-1	201205250277	water	EB	05/21/12	X	X	X								
M-161	201205250278	water		05/21/12	X	X	X								
TR-2	201205250279	water		05/22/12	X	X	X								
TR-1	201205250280	water		05/22/12	X	X	X								
TR-3	201205250281	water		05/22/12	X	X	X								
TR-4	201205250282	water		05/22/12	X	X	X								
TR-6	201205250283	water		05/22/12	X	X	X								
TR-5	201205250284	water		05/22/12	X	X	X								
TR-8	201205250285	water		05/22/12	X	X	X								
TR-7	201205250286	water	FD	05/22/12	X	X	X								
ED-1	201205250287	water	FD	05/22/12	X	X	X								
M-150	201205250288	water		05/22/12	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#: 397885

## VALIDATION SAMPLE TABLE

LDC#: 27937G

Project Name: 2012 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)								
E-EB-2	201205250289	water	EB	05/22/12	X	X	X								
M-154	201205250290	water		05/22/12	X	X	X								
M-162	201205250291	water		05/23/12	X	X	X								
M-163	201205250292	water		05/23/12	X	X	X								
M-118DUP	201205250271DUP	water	DUP	05/21/12			X								
E-EB-1MS	201205250277MS	water	MS	05/21/12	X										
E-EB-1MSD	201205250277MSD	water	MSD	05/21/12	X										
TR-2MS	201205250279MS	water	MS	05/22/12	X	X									
TR-2MSD	201205250279MSD	water	MSD	05/22/12	X	X									
TR-4DUP	201205250282DUP	water	DUP	05/22/12			X								
M-162DUP	201205250291DUP	water	DUP	05/23/12			X								
M-163MS	201205250292MS	water	MS	05/23/12	X										
M-163MSD	201205250292MSD	water	MSD	05/23/12	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#: 397964

## VALIDATION SAMPLE TABLE

LDC#: 27937H

Project Name: 2012 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)								
M-147	201205260058	water		05/24/12	X	X	X								
PC-142	201205260059	water		05/24/12	X	X	X								
PC-18	201205260060	water		05/24/12	X	X	X								
PC-144	201205260061	water		05/24/12	X	X	X								
PC-101R	201205260062	water		05/24/12	X	X	X								
MW-K4	201205260063	water		05/24/12	X	X	X								
HMW-15	201205260064	water		05/24/12		X	X								
HMW-14	201205260065	water		05/24/12		X	X								
HMW-13	201205260066	water		05/24/12		X	X								
PC-98R	201205260067	water		05/24/12	X	X	X								
PC-103	201205260068	water		05/24/12	X	X	X								
HMW-14DUP	201205260065	water	DUP	05/24/12			X								
PC-98RMS	201205260067MS	water	MS	05/24/12	X										
PC-98RMSD	201205260067MSD	water	MSD	05/24/12	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#: 398056

## VALIDATION SAMPLE TABLE

LDC#: 27937I

Project Name: 2012 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)								
M-129	201205300223	water		05/23/12	X	X	X								
M-130	201205300224	water		05/23/12	X	X	X								
E-EB-3	201205300225	water	EB	05/23/12	X	X	X								
M-165	201205300226	water	FD1	05/23/12	X	X	X								
ED-2	201205300227	water	FD1	05/23/12	X	X	X								
M-181	201205300228	water		05/23/12	X	X	X								
M-182	201205300229	water		05/23/12	X	X	X								
TR-11	201205300230	water		05/24/12	X	X	X								
TR-12	201205300231	water		05/24/12	X	X	X								
M-156	201205300232	water	FD2	05/24/12	X	X	X								
ED-3	201205300233	water	FD2	05/24/12	X	X	X								
M-152	201205300234	water		05/24/12	X	X	X								
M-155	201205300235	water	FD3	05/24/12	X	X	X								
ED-4	201205300236	water	FD3	05/24/12	X	X	X								
M-151	201205300237	water		05/24/12	X	X	X								
M-186	201205300238	water		05/24/12	X	X	X								
E-EB-4	201205300239	water	EB	05/24/12	X	X	X								
M-164	201205300240	water		05/24/12	X	X	X								
M-153	201205300241	water		05/24/12	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#: 398056

## VALIDATION SAMPLE TABLE

LDC#: 27937I

Project Name: 2012 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)								
M-149	201205300242	water		05/24/12	X	X	X								
M-165MS	201205300226MS	water	MS	05/23/12		X									
M-165MSD	201205300226MSD	water	MSD	05/23/12		X									
TR-11MS	201205300230MS	water	MS	05/24/12	X										
TR-11MSD	201205300230MSD	water	MSD	05/24/12	X										
ED-4DUP	201205300236DUP	water	DUP	05/24/12			X								
E-EB-4MS	201205300239MS	water	MS	05/24/12	X										
E-EB-4MSD	201205300239MSD	water	MSD	05/24/12	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#: 398900

## VALIDATION SAMPLE TABLE

LDC#: 27937J

Project Name: 2012 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)									
ART-1	201206070206	water		06/05/12	X	X									
ART-2	201206070207	water		06/05/12	X	X									
ART-3	201206070208	water		06/05/12	X	X									
ART-4	201206070209	water		06/05/12	X	X									
ART-6	201206070210	water		06/05/12	X	X									
ART-7	201206070211	water		06/05/12	X	X									
ART-8	201206070212	water		06/05/12	X	X									
PC-99R2/R3	201206070213	water		06/05/12	X	X									
PC-115R	201206070214	water		06/05/12	X	X									
PC-116R	201206070215	water		06/05/12	X	X									
SF-1	201206070216	water		06/05/12	X	X									
PC-117	201206070217	water		06/05/12	X	X									
PC-118	201206070218	water		06/05/12	X	X									
PC-119	201206070219	water		06/05/12	X	X									
PC-120	201206070220	water		06/05/12	X	X									
PC-121	201206070221	water		06/05/12	X	X									
PC-133	201206070222	water		06/05/12	X	X									
ART-9	201206070223	water		06/05/12	X	X									
ART-1MS	201206070206MS	water	MS	06/05/12	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#: 398900

**VALIDATION SAMPLE TABLE**

LDC#: 27937J

**Project Name:** 2012 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)								
ART-1MSD	201206070206MSD	water	MSD	06/05/12	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#: 399789

## VALIDATION SAMPLE TABLE

LDC#: 27937K

Project Name: 2012 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)									
PC-97	201206140692	water		06/11/12	X	X									
PC-90	201206140693	water		06/11/12	X	X									
PC-86	201206140694	water		06/11/12	X	X									
PC-91	201206140695	water		06/11/12	X	X									
PC-58	201206140696	water		06/11/12	X	X									
PC-56	201206140697	water		06/11/12	X	X									
PC-60	201206140698	water		06/11/12	X	X									
PC-59	201206140699	water		06/11/12	X	X									
PC-62	201206140700	water		06/11/12	X	X									
PC-68	201206140701	water		06/11/12	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#: 400574

## VALIDATION SAMPLE TABLE

LDC#: 28041A

Project Name: 2012 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)									
PC-122	201206230084	water		06/21/12	X	X									
PC-53	201206230085	water		06/21/12	X	X									
MW-K5	201206230086	water		06/21/12	X	X									
ARP-7	201206230087	water		06/21/12	X	X									
ARP-6B	201206230088	water		06/21/12	X	X									
ARP-5A	201206230089	water		06/21/12	X	X									
ARP-4A	201206230090	water		06/21/12	X	X									
MW-K4	201206230091	water		06/21/12	X	X									
ARP-3A	201206230092	water		06/21/12	X	X									
ARP-2A	201206230093	water		06/21/12	X	X									
ARP-1	201206230094	water		06/21/12	X	X									
PC-101R	201206230095	water		06/21/12	X	X									
PC-18	201206230096	water		06/21/12	X	X									
PC-55	201206230097	water		06/21/12	X	X									
PC-103	201206230098	water		06/21/12	X	X									
PC-98R	201206230099	water		06/21/12	X	X									
M-83	201206230100	water		06/21/12	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

TABLE II

**Table II. Qualification Codes and Definitions**

<b>Reason Code</b>	<b>Explanation</b>
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	duel 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)
nd	qualified due to non-detected target analyte
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



Table III. Overall Qualified Results

SDG	Client Sample ID	Sample Date	Method	Client Analyte ID	Analyte	Lab Result	Lab Qualifier	Units	Validator Qualifier	Reason Code	Reason Code Definition	Qualification Finding
387619	PC-125	2/6/2012	6010	7440-47-3	Chromium Total ICAP	0.011	J	mg/L	J	be	Equipment Blank	0.00049 mg/L
387619	PC-131	2/6/2012	6010	7440-47-3	Chromium Total ICAP	0.0046	J	mg/L	J	be	Equipment Blank	0.00049 mg/L
387619	PC-132	2/6/2012	6010	7440-47-3	Chromium Total ICAP	0.0032	J	mg/L	J	be	Equipment Blank	0.00049 mg/L
387631	ART-1	2/6/2012	6010	7440-47-3	Chromium Total ICAP	0.0022	J	mg/L	J	be	Equipment Blank	0.00049 mg/L
387631	PC-115R	2/6/2012	6010	7440-47-3	Chromium Total ICAP	0.0015	J	mg/L	J	be	Equipment Blank	0.00049 mg/L
387631	PC-116R	2/6/2012	6010	7440-47-3	Chromium Total ICAP	0.0012	J	mg/L	J	be	Equipment Blank	0.00049 mg/L
387631	PC-117	2/6/2012	6010	7440-47-3	Chromium Total ICAP	0.0035	J	mg/L	J	be	Equipment Blank	0.00049 mg/L
387631	PC-119	2/6/2012	6010	7440-47-3	Chromium Total ICAP	0.0023	J	mg/L	J	be	Equipment Blank	0.00049 mg/L
387631	PC-120	2/6/2012	6010	7440-47-3	Chromium Total ICAP	0.0019	J	mg/L	J	be	Equipment Blank	0.00049 mg/L
387631	PC-133	2/6/2012	6010	7440-47-3	Chromium Total ICAP	0.001	J	mg/L	J	be	Equipment Blank	0.00049 mg/L
387631	PC-99R2/R3	2/6/2012	6010	7440-47-3	Chromium Total ICAP	0.0022	J	mg/L	J	be	Equipment Blank	0.00049 mg/L
387631	SF-1	2/6/2012	6010	7440-47-3	Chromium Total ICAP	0.013	J	mg/L	J	be	Equipment Blank	0.00049 mg/L
388090	M-14A	2/9/2012	6010	7440-47-3	Chromium Total ICAP	0.32		mg/L	J	fd	Field Duplicate	84 %
388090	VD-5	2/9/2012	6010	7440-47-3	Chromium Total ICAP	0.13		mg/L	J	fd	Field Duplicate	84 %
396399	H-48	5/9/2012	6010	7440-47-3	Chromium Total ICAP	0.036	J	mg/L	J	bf	Field Blank	0.0010 mg/L
396399	H-58A	5/9/2012	6010	7440-47-3	Chromium Total ICAP	0.0029	J	mg/L	J	bf	Field Blank	0.0010 mg/L
397510	H-11	5/21/2012	6010	7440-47-3	Chromium Total ICAP	0.19	J	mg/l	J	be	Equipment Blank	0.00053 mg/L
397685	ARP-1	5/22/2012	6010	7440-47-3	Chromium Total ICAP	0.00096	J	mg/L	J	be	Equipment Blank	0.0014 mg/L
397685	PC-143	5/22/2012	6010	7440-47-3	Chromium Total ICAP	0.0019	J	mg/L	J	be	Equipment Blank	0.0014 mg/L
397685	PC-90	5/22/2012	6010	7440-47-3	Chromium Total ICAP	0.002	J	mg/L	J	be	Equipment Blank	0.0014 mg/L
397685	PC-91	5/22/2012	6010	7440-47-3	Chromium Total ICAP	0.0025	J	mg/L	J	be	Equipment Blank	0.0014 mg/L
397685	PC-92	5/22/2012	6010	7440-47-3	Chromium Total ICAP	0.0012	J	mg/L	J	be	Equipment Blank	0.0014 mg/L
397685	PC-97	5/22/2012	6010	7440-47-3	Chromium Total ICAP	0.0018	J	mg/L	J	be	Equipment Blank	0.0014 mg/L
397687	PC-56	5/22/2012	6010	7440-47-3	Chromium Total ICAP	0.0051	J	mg/L	J	be	Equipment Blank	0.0014 mg/L
397687	PC-59	5/22/2012	6010	7440-47-3	Chromium Total ICAP	0.0022	J	mg/L	J	be	Equipment Blank	0.0014 mg/L
397885	ED-1	5/22/2012	6010	7440-47-3	Chromium Total ICAP	0.013	J	mg/l	J	be	Equipment Blank	0.0014 mg/L
397885	M-103	5/21/2012	6010	7440-47-3	Chromium Total ICAP	0.01	J	mg/l	J	be	Equipment Blank	0.00053 mg/L
397885	M-117	5/21/2012	6010	7440-47-3	Chromium Total ICAP	0.016	J	mg/l	J	be	Equipment Blank	0.00053 mg/L
397885	M-120	5/21/2012	6010	7440-47-3	Chromium Total ICAP	0.0056	J	mg/l	J	be	Equipment Blank	0.00053 mg/L
397885	TR-1	5/22/2012	6010	7440-47-3	Chromium Total ICAP	0.017	J	mg/l	J	be	Equipment Blank	0.0014 mg/L
397885	TR-3	5/22/2012	6010	7440-47-3	Chromium Total ICAP	0.016	J	mg/l	J	be	Equipment Blank	0.0014 mg/L
397885	TR-5	5/22/2012	6010	7440-47-3	Chromium Total ICAP	0.016	J	mg/l	J	be	Equipment Blank	0.0014 mg/L
397885	TR-7	5/22/2012	6010	7440-47-3	Chromium Total ICAP	0.013	J	mg/l	J	be	Equipment Blank	0.0014 mg/L
397885	TR-8	5/22/2012	6010	7440-47-3	Chromium Total ICAP	0.015	J	mg/l	J	be	Equipment Blank	0.0014 mg/L
397885	TR-9	5/21/2012	6010	7440-47-3	Chromium Total ICAP	0.013	J	mg/l	J	be	Equipment Blank	0.00053 mg/L

Table III. Overall Qualified Results

SDG	Client Sample ID	Sample Date	Method	Client Analyte ID	Analyte	Lab Result	Lab Qualifier	Units	Validator Qualifier	Reason Code	Reason Code Definition	Qualification Finding
387619	EB-1	2/6/2012	7196	18540-29-9	Hexavalent chromium (Cr VI)		u	mg/L	UJ	h	Holding Time	46.25 Hours
387619	M-44	2/6/2012	7196	18540-29-9	Hexavalent chromium (Cr VI)	0.79		mg/L	J-	h	Holding Time	47.75 Hours
387722	EB-2	2/7/2012	7196	18540-29-9	Hexavalent chromium (Cr VI)		u	mg/L	UJ	h	Holding Time	44.25 Hours
387722	M-37	2/7/2012	7196	18540-29-9	Hexavalent chromium (Cr VI)	0.025		mg/L	J	h,fd,m	Holding Time	45 Hours
											Field Duplicate	0.012 mg/L
											MS/MSD %R	16 %
387722	VD-3	2/7/2012	7196	18540-29-9	Hexavalent chromium (Cr VI)	0.037		mg/L	J	h,fd,m	Holding Time	45 Hours
											Field Duplicate	0.012 mg/L
											MS/MSD %R	16 %
387923	FB-1	2/8/2012	7196	18540-29-9	Hexavalent chromium (Cr VI)		u	mg/L	UJ	h	Holding Time	48 Hours
388090	M-10	2/9/2012	7196	18540-29-9	Hexavalent chromium (Cr VI)	0.021		mg/L	J-	h	Holding Time	44.25 Hours
388090	M-11	2/9/2012	7196	18540-29-9	Hexavalent chromium (Cr VI)	2.4		mg/L	J-	h	Holding Time	43 Hours
388255	M-12A	2/13/2012	7196	18540-29-9	Hexavalent chromium (Cr VI)	11		mg/L	J-	h	Holding Time	30.5 Hours
388255	M-36	2/13/2012	7196	18540-29-9	Hexavalent chromium (Cr VI)	29		mg/L	J-	h	Holding Time	29 Hours
388255	VD-4	2/13/2012	7196	18540-29-9	Hexavalent chromium (Cr VI)	10		mg/L	J-	h	Holding Time	30.5 Hours
396219	M-44	5/8/2012	7196	18540-29-9	Hexavalent chromium (Cr VI)	0.84		mg/L	J-	h	Holding Time	27.25 Hours
396219	M-95	5/8/2012	7196	18540-29-9	Hexavalent chromium (Cr VI)	0.66		mg/L	J-	h	Holding Time	29.75 Hours
396399	EB-1	5/9/2012	7196	18540-29-9	Hexavalent chromium (Cr VI)	0.004	J	mg/L	J-	h	Holding Time	29 Hours
396399	FB-1	5/9/2012	7196	18540-29-9	Hexavalent chromium (Cr VI)		u	mg/L	UJ	h	Holding Time	29.25 Hours
396604	EB-2	5/10/2012	7196	18540-29-9	Hexavalent chromium (Cr VI)		u	mg/L	UJ	h	Holding Time	26.25 Hours
396993	FB-2	5/15/2012	7196	18540-29-9	Hexavalent chromium (Cr VI)		u	mg/L	UJ	h	Holding Time	28 Hours
396993	M-36	5/15/2012	7196	18540-29-9	Hexavalent chromium (Cr VI)	28		mg/L	J-	h	Holding Time	29 Hours
397133	EB-3	5/16/2012	7196	18540-29-9	Hexavalent chromium (Cr VI)		u	mg/l	UJ	h	Holding Time	24.75 Hours
397133	M-12A	5/16/2012	7196	18540-29-9	Hexavalent chromium (Cr VI)	9.4		mg/l	J-	h	Holding Time	26.25 Hours
397133	VD-5	5/16/2012	7196	18540-29-9	Hexavalent chromium (Cr VI)	9.1		mg/l	J-	h	Holding Time	26.25 Hours
397510	M-10	5/21/2012	7196	18540-29-9	Hexavalent chromium (Cr VI)	0.032		mg/l	J-	h	Holding Time	54.75 Hours
397510	M-11	5/21/2012	7196	18540-29-9	Hexavalent chromium (Cr VI)	2.0		mg/l	J-	h	Holding Time	56.25 Hours
397510	VD-7	5/21/2012	7196	18540-29-9	Hexavalent chromium (Cr VI)	0.035		mg/l	J-	h	Holding Time	55 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.

Samples EB-1 (from SDG 387619), EB-2 (from SDG 387722), EB-1 (from SDG 396399), EB-2 (from SDG 396604), EB-3 (from SDG 397133), E-EB-1 and E-EB-2 (both from SDG 397885), and E-EB-3 and E-EB-4 (both from SDG 398056) were identified as equipment blanks. No chromium was found with the following exceptions:

SDG	Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
387619 387631	EB-1	2/6/12	Chromium	0.00049 mg/L	PC-123 PC-128 PC-129 PC-130 PC-131 PC-132 PC-124 PC-125 PC-126 PC-127 M-96 PC-54 M-48A M-44 PC-71 PC-72 PC-73 PC-37 M-23 VD-1 ART-1 ART-2 ART-3 ART-4 ART-6 ART-7 ART-8 PC-99R2/R3 PC-115R PC-116R SF-1 PC-117 PC-118 PC-119 PC-120 PC-121 PC-133 ART-9

SDG	Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
387722	EB-2	2/7/12	Chromium	0.0022 mg/L	I-O I-P I-H I-U I-T I-Q I-F I-N I-E I-M I-D I-C I-S I-L I-R I-B I-AR PC-136 PC-144 PC-135A PC-150 M-37 M-25 M-65 M-6 M-79 M-69 M-135 M-131 M-57A VD-2 VD-3 I-G
397417 397510 397885	E-EB-1	5/21/12	Chromium	0.00053 mg/L	M-10 M-13 M-11 M-10 H-11 VD-6 VD-7 M-120 M-118 M-121 TR-10 TR-9 M-117 M-103 M-161

SDG	Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
397685 397687 397885	E-EB-2	5/21/12	Chromium	0.0014 mg/L	PC-97 PC-90 PC-86 PC-91 PC-92 PC-94 PC-143 APR-1 PC-59 PC-60 PC-56 PC-58 TR-2 TR-1 TR-3 TR-4 TR-6 TR-5 TR-8 TR-7 ED-1 M-150 M-154 M-162 M-163

Samples FB-1 (from SDG 387923), FB-1 (from SDG 396399), and FB-2 (from SDG 396993) were identified as field blanks. No chromium was found with the following exceptions:

SDG	Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
396399	FB-1	5/9/12	Chromium	0.0010 mg/L	H-58A H-48 I-O I-P PC-28 PC-64 PC-65 PC-66 PC-67

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
387619	PC-131	Chromium	0.0046 mg/L	0.0046J mg/L

<b>SDG</b>	<b>Sample</b>	<b>Analyte</b>	<b>Reported Concentration</b>	<b>Modified Final Concentration</b>
387619	PC-132	Chromium	0.0032 mg/L	0.0032J mg/L
387619	PC-125	Chromium	0.011 mg/L	0.011J mg/L
387631	ART-1	Chromium	0.0022 mg/L	0.0022J mg/L
387631	PC-99R2/R3	Chromium	0.0022 mg/L	0.0022J mg/L
387631	PC-115R	Chromium	0.0015 mg/L	0.0015J mg/L
387631	PC-116R	Chromium	0.0012 mg/L	0.0012J mg/L
387631	SF-1	Chromium	0.013 mg/L	0.013J mg/L
387631	PC-117	Chromium	0.0035 mg/L	0.0035J mg/L
387631	PC-119	Chromium	0.0023 mg/L	0.0023J mg/L
387631	PC-120	Chromium	0.0019 mg/L	0.0019J mg/L
387631	PC-133	Chromium	0.0010 mg/L	0.0010J mg/L
396399	H-58A	Chromium	0.0029 mg/L	0.0029J mg/L
396399	H-48	Chromium	0.036 mg/L	0.036J mg/L
397510	H-11	Chromium	0.19 mg/L	0.19J mg/L
397685	PC-97	Chromium	0.0018 mg/L	0.0018J mg/L
397685	PC-90	Chromium	0.0020 mg/L	0.0020J mg/L
397685	PC-91	Chromium	0.0025 mg/L	0.0025J mg/L
397685	PC-92	Chromium	0.0012 mg/L	0.0012J mg/L
397685	PC-143	Chromium	0.0019 mg/L	0.0019J mg/L
397685	APR-1	Chromium	0.00096 mg/L	0.00096J mg/L
397687	PC-59	Chromium	0.0022 mg/L	0.0022J mg/L



SDG	Sample	Analyte	Reported Concentration	Modified Final Concentration
397687	PC-56	Chromium	0.0051 mg/L	0.0051J mg/L
397885	M-120	Chromium	0.0056 mg/L	0.0056J mg/L
397885	TR-9	Chromium	0.013 mg/L	0.013J mg/L
397885	M-117	Chromium	0.016 mg/L	0.016J mg/L
397885	M-103	Chromium	0.010 mg/L	0.010J mg/L
397885	TR-1	Chromium	0.017 mg/L	0.017J mg/L
397885	TR-3	Chromium	0.016 mg/L	0.016J mg/L
397885	TR-5	Chromium	0.016 mg/L	0.016J mg/L
397885	TR-8	Chromium	0.015 mg/L	0.015J mg/L
397885	TR-7	Chromium	0.013 mg/L	0.013J mg/L
397885	ED-1	Chromium	0.013 mg/L	0.013J mg/L

## 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 PC-123 and VD-1 (from SDG 387619), samples PC-144 and VD-2 and samples M-37 and VD-3 (from SDG 387722), samples M-14A and VD-5 (from SDG 388090), samples M-12A and VD-4 (from SDG 388255), samples M-81A and VD-1 (from SDG 396830), samples M-35 and VD-2 and samples M-22A and VD-3 (from SDG 396993), samples M-142 and VD-4 and samples M-12A and VD-5 (from SDG 397133), samples M-13 and VD-6 and samples M-10 and VD-7 (from SDG 397510), samples TR-7 and ED-1 (from SDG 397885), and samples M-165 and ED-2, samples M-156 and ED-3, and samples M-155 and ED-4 (from SDG 398056) were identified as field duplicates. No chromium was detected in any of the samples with the following exceptions:

SDG	Analyte	Concentration (mg/L)		RPD (Limits)	Difference (Limits)	Flags	A or P
		PC-123	VD-1				
387619	Chromium	1.3	1.3	0 (≤30)	-	-	-

SDG	Analyte	Concentration (mg/L)		RPD (Limits)	Difference (Limits)	Flags	A or P
		PC-144	VD-2				
387722	Chromium	0.52	0.51	2 ( $\leq 30$ )	-	-	-

SDG	Analyte	Concentration (mg/L)		RPD (Limits)	Difference (Limits)	Flags	A or P
		M-37	VD-3				
387722	Chromium	0.022	0.024	-	0.002 ( $\leq 0.02$ )	-	-

SDG	Analyte	Concentration (mg/L)		RPD (Limits)	Difference (Limits)	Flags	A or P
		M-14A	VD-5				
388090	Chromium	0.32	0.13	84 ( $\leq 30$ )	-	J (all detects)	A

SDG	Analyte	Concentration (mg/L)		RPD (Limits)	Difference (Limits)	Flags	A or P
		M-12A	VD-4				
388255	Chromium	10	10	0 ( $\leq 30$ )	-	-	-

SDG	Analyte	Concentration (mg/L)		RPD (Limits)	Difference (Limits)	Flags	A or P
		M-81A	VD-1				
396830	Chromium	3.2	3.2	0 ( $\leq 30$ )	-	-	-

SDG	Analyte	Concentration (mg/L)		RPD (Limits)	Difference (Limits)	Flags	A or P
		M-35	VD-2				
396993	Chromium	4.6	4.8	4 ( $\leq 30$ )	-	-	-

SDG	Analyte	Concentration (mg/L)		RPD (Limits)	Difference (Limits)	Flags	A or P
		M-22A	VD-3				
396993	Chromium	23	22	4 ( $\leq 30$ )	-	-	-

SDG	Analyte	Concentration (mg/L)		RPD (Limits)	Difference (Limits)	Flags	A or P
		M-142	VD-4				
397133	Chromium	0.044	0.041	-	0.003 ( $\leq 0.02$ )	-	-

SDG	Analyte	Concentration (mg/L)		RPD (Limits)	Difference (Limits)	Flags	A or P
		M-12A	VD-5				
397133	Chromium	8.5	9.0	6 ( $\leq 30$ )	-	-	-

SDG	Analyte	Concentration (mg/L)		RPD (Limits)	Difference (Limits)	Flags	A or P
		M-13	VD-6				
397510	Chromium	0.70	0.70	0 ( $\leq 30$ )	-	-	-

SDG	Analyte	Concentration (mg/L)		RPD (Limits)	Difference (Limits)	Flags	A or P
		M-156	ED-3				
397510	Chromium	0.52	0.58	11 ( $\leq 30$ )	-	-	-

SDG	Analyte	Concentration (mg/L)		RPD (Limits)	Difference (Limits)	Flags	A or P
		TR-7	ED-1				
397885	Chromium	0.013	0.013	-	0 ( $\leq 0.02$ )	-	-

SDG	Analyte	Concentration (mg/L)		RPD (Limits)	Difference (Limits)	Flags	A or P
		M-165	ED-2				
398056	Chromium	0.030	0.024	-	0.006 ( $\leq 0.02$ )	-	-

SDG	Analyte	Concentration (mg/L)		RPD (Limits)	Difference (Limits)	Flags	A or P
		M-156	ED-3				
398056	Chromium	0.012	0.0086	-	0.0034 ( $\leq 0.02$ )	-	-

SDG	Analyte	Concentration (mg/L)		RPD (Limits)	Difference (Limits)	Flags	A or P
		M-155	ED-4				
398056	Chromium	0.018	0.016	-	0.002 ( $\leq 0.02$ )	-	-

**2012 Annual Remedial Performance Sampling**

**Chromium - Data Qualification Summary - SDGs 384959, 387619, 387631, 387722, 387923, 388075, 388090, 388255, 388517, 388739, 388854, 396070, 396219, 396399, 396604, 396830, 396992, 396993, 397132, 397133, 397254, 397417, 397510, 397685, 397687, 397866, 397885, 397964, 398056**

SDG	Sample	Analyte	Flag	A or P	Reason
388090	M-14A VD-5	Chromium	J (all detects)	A	Field duplicates (RPD)

**2012 Annual Remedial Performance Sampling**

**Chromium - Laboratory Blank Data Qualification Summary - SDGs 384959, 387619, 387631, 387722, 387923, 388075, 388090, 388255, 388517, 388739, 388854, 396070, 396219, 396399, 396604, 396830, 396992, 396993, 397132, 397133, 397254, 397417, 397510, 397685, 397687, 397866, 397885, 397964, 398056**

No Sample Data Qualified in these SDGs

**2012 Annual Remedial Performance Sampling**

**Chromium - Field Blank Data Qualification Summary – SDGs 384959, 387619, 387631, 387722, 387923, 388075, 388090, 388255, 388517, 388739, 388854, 396070, 396219, 396399, 396604, 396830, 396992, 396993, 397132, 397133, 397254, 397417, 397510, 397685, 397687, 397866, 397885, 397964, 398056**

SDG	Sample	Analyte	Modified Final Concentration	A or P
387619	PC-131	Chromium	0.0046J mg/L	A
387619	PC-132	Chromium	0.0032J mg/L	A
387619	PC-125	Chromium	0.011J mg/L	A
387631	ART-1	Chromium	0.0022J mg/L	A
387631	PC-99R2/R3	Chromium	0.0022J mg/L	A
387631	PC-115R	Chromium	0.0015J mg/L	A
387631	PC-116R	Chromium	0.0012J mg/L	A

<b>SDG</b>	<b>Sample</b>	<b>Analyte</b>	<b>Modified Final Concentration</b>	<b>A or P</b>
387631	SF-1	Chromium	0.013J mg/L	A
387631	PC-117	Chromium	0.0035J mg/L	A
387631	PC-119	Chromium	0.0023J mg/L	A
387631	PC-120	Chromium	0.0019J mg/L	A
387631	PC-133	Chromium	0.0010J mg/L	A
396399	H-58A	Chromium	0.0029J mg/L	A
396399	H-48	Chromium	0.036J mg/L	A
397510	H-11	Chromium	0.19J mg/L	A
397685	PC-97	Chromium	0.0018J mg/L	A
397685	PC-90	Chromium	0.0020J mg/L	A
397685	PC-91	Chromium	0.0025J mg/L	A
397685	PC-92	Chromium	0.0012J mg/L	A
397685	PC-143	Chromium	0.0019J mg/L	A
397685	APR-1	Chromium	0.00096J mg/L	A
397687	PC-59	Chromium	0.0022J mg/L	A
397687	PC-56	Chromium	0.0051J mg/L	A
397885	M-120	Chromium	0.0056J mg/L	A
397885	TR-9	Chromium	0.013J mg/L	A
397885	M-117	Chromium	0.016J mg/L	A
397885	M-103	Chromium	0.010J mg/L	A
397885	TR-1	Chromium	0.017J mg/L	A

<b>SDG</b>	<b>Sample</b>	<b>Analyte</b>	<b>Modified Final Concentration</b>	<b>A or P</b>
397885	TR-3	Chromium	0.016J mg/L	A
397885	TR-5	Chromium	0.016J mg/L	A
397885	TR-8	Chromium	0.015J mg/L	A
397885	TR-7	Chromium	0.013J mg/L	A
397885	ED-1	Chromium	0.013J mg/L	A



ATTACHMENT B

Wet Chemistry Data Validation Report

**Hexavalent Chromium by EPA SW 846 Method 7196**  
**Perchlorate by EPA Method 314.0**  
**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
387619	M-44	Hexavalent chromium	47.75 hours	24 hours	J- (all detects) UJ (all non-detects)	P
387619	EB-1	Hexavalent chromium	46.25 hours	24 hours	J- (all detects) UJ (all non-detects)	P
387722	M-37 VD-3	Hexavalent chromium	45 hours	24 hours	J- (all detects) UJ (all non-detects)	P
387722 388090	EB-2 M-10	Hexavalent chromium	44.25 hours	24 hours	J- (all detects) UJ (all non-detects)	P
387923	FB-1	Hexavalent chromium	48 hours	24 hours	J- (all detects) UJ (all non-detects)	P
388090	M-11	Hexavalent chromium	43 hours	24 hours	J- (all detects) UJ (all non-detects)	P
388255	M-12A VD-4	Hexavalent chromium	30.5 hours	24 hours	J- (all detects) UJ (all non-detects)	P
388255 396399 396993	M-36 EB-1 M-36	Hexavalent chromium	29 hours	24 hours	J- (all detects) UJ (all non-detects)	P
396219	M-95	Hexavalent chromium	29.75 hours	24 hours	J- (all detects) UJ (all non-detects)	A
396219	M-44	Hexavalent chromium	27.25 hours	24 hours	J- (all detects) UJ (all non-detects)	A
396399	FB-1	Hexavalent chromium	29.25 hours	24 hours	J- (all detects) UJ (all non-detects)	P
396604 397133	EB-2 M-12A VD-5	Hexavalent chromium	26.25 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
396993	FB-2	Hexavalent chromium	28 hours	24 hours	J- (all detects) UJ (all non-detects)	P
397133	EB-3	Hexavalent chromium	24.75 hours	24 hours	J- (all detects) UJ (all non-detects)	P
397510	M-11	Hexavalent chromium	56.25 hours	24 hours	J- (all detects) R (all non-detects)	P
397510	M-10	Hexavalent chromium	54.75 hours	24 hours	J- (all detects) R (all non-detects)	P
397510	VD-7	Hexavalent chromium	55 hours	24 hours	J- (all detects) R (all non-detects)	P

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

## II. 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.

## III. 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.

## IV. Blanks

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

Samples EB-1 (from SDG 387619), EB-2 (from SDG 387722), EB-1 (from SDG 396399), EB-2 (from SDG 396604), EB-3 (from SDG 397133), E-EB-1 and E-EB-2 (both from SDG 397885), and E-EB-3 and E-EB-4 (both from SDG 398056) 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
387619 387631	EB-1	2/6/12	Perchlorate Total dissolved solids	8.4 ug/L 16 mg/L	PC-123 PC-128 PC-129 PC-130 PC-131 PC-132 PC-124 PC-125 PC-126 PC-127 M-96 PC-54 M-48A M-44 PC-71 PC-72 PC-73 PC-37 M-23 VD-1 ART-1 ART-2 ART-3 ART-4 ART-6 ART-7 ART-8 PC-99R2/R3 PC-115R PC-116R SF-1 PC-117 PC-118 PC-119 PC-120 PC-121 PC-133 ART-9

SDG	Equipment Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
387722	EB-2	2/7/12	Perchlorate Total dissolved solids	150 ug/L 10 mg/L	I-O I-P I-H I-U I-T I-Q I-F I-N I-E I-M I-D I-C I-S I-L I-R I-B I-AR PC-136 PC-144 PC-135A PC-150 M-37 M-25 M-65 M-6 M-79 M-69 M-135 M-131 M-57A VD-2 VD-3 I-G
396399	EB-1	5/9/12	Perchlorate Total dissolved solids	29 ug/L 6.0 mg/L	AA-01 H-58A H-48 I-O I-P PC-107 PC-28 PC-64 PC-65 PC-66 PC-67 MC-6 MC-45
396399	EB-1	5/9/12	Hexavalent chromium	0.0040 mg/L	No associated samples

SDG	Equipment Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
396604	EB-2	5/10/12	Perchlorate Total dissolved solids	12 ug/L 5.0 mg/L	I-H I-U I-T I-G I-Q I-F I-E I-M I-D I-C I-S I-L I-R I-B I-AR PC-31 MC-65 MC-50 MC-51 MC-69 MC-53 MC-93 MC-97 M-65 M-66 M-79 M-69 M-57A M-131

SDG	Equipment Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
397132 397133	EB-3	5/16/12	Perchlorate Total dissolved solids	5.6 ug/L 12 mg/L	H28A M-6A M-23 M-123 M-124 M-128 M-125 M-142 M-138 M-137 M-77 VD-4 M-148A M-141 M-52 M-31A M-21 M-12A M-144 M-146 M-139 M-145 VD-5 M-52 M-31A M-21 M-12A M-144 M-146 M-139 M-145 VD-5
397685 397687 397885	E-EB-2	5/22/12	Total dissolved solids	5.0 mg/L	PC-97 PC-90 PC-86 PC-91 PC-92 PC-94 PC-143 APR-1 PC-59 PC-60 PC-56 PC-58 TR-2 TR-1 TR-3 TR-4 TR-6 TR-5 TR-8 TR-7 ED-1 M-150 M-154 M-162 M-163

SDG	Equipment Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
397964 398056	E-EB-4	5/24/12	Perchlorate	6.3 ug/L	M-147 PC-142 PC-18 PC-144 PC-101R MW-K4 HMW-15 HMW-14 HMW-13 PC-98R PC-103 TR-11 TR-12 M-156 ED-3 M-152 M-155 ED-4 M-151 M-186 M-164 M-153 M-149
398056	E-EB-3	5/23/12	Total dissolved solids	7.0 mg/L	M-129 M-130 M-165 M-181 M-182

Samples FB-1 (from SDG 387923), FB-1 (from SDG 396399), and FB-2 (from SDG 396993) 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
387923	FB-1	2/8/12	Perchlorate Total dissolved solids	1.2 ug/L 10 mg/L	M-64 M-97 PC-148 PC-149 M-35 M-19 M-68 M-67 I-V I-K I-I I-Z I-J M-74 M-73



SDG	Field Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
396399	FB-1	5/9/12	Perchlorate Total dissolved solids	22 ug/L 5.0 mg/L	AA-01 H-58A H-48 I-O I-P PC-107 PC-28 PC-64 PC-65 PC-66 PC-67 MC-6 MC-45
396992 396993	FB-2	5/15/12	Perchlorate	1.6 ug/L	M-5A M-7B M-67 M-35 M-19 M-2A M-75 M-76 M-115 M-14A VD-2 M-83 M-22A M-36 M-38 M-37 M-25 M-92 M-97 VD-3

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

#### V. 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 with the following exceptions:

SDG	Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
387722	M-37MS/MSD (M-37 VD-3)	Hexavalent chromium	16 (75-125)	16 (75-125)	-	J- (all detects) R (all non-detects)	A

## VI. Duplicates

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

## VII. 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.

## VIII. 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.

## IX. Overall Assessment of Data

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

## X. Field Duplicates

Samples PC-123 and VD-1 (from SDG 387619), samples PC-144 and VD-2 and samples M-37 and VD-3 (from SDG 387722), samples M-14A and VD-5 (from SDG 388090), samples M-12A and VD-4 (from SDG 388255), samples M-81A and VD-1 (from SDG 396830), samples M-35 and VD-2 and samples M-22A and VD-3 (from SDG 396993), samples M-142 and VD-4 and samples M-12A and VD-5 (from SDG 397133), samples M-13 and VD-6 and samples M-10 and VD-7 (from SDG 397510), samples TR-7 and ED-1 (from SDG 397885), and samples M-165 and ED-2, samples M-156 and ED-3, and samples M-155 and ED-4 (from SDG 398056) 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
		PC-123	VD-1				
387619	Perchlorate	340000 ug/L	350000 ug/L	3 ( $\leq 30$ )	-	-	-
387619	Total dissolved solids	6800 mg/L	6900 mg/L	1 ( $\leq 30$ )	-	-	-

SDG	Analyte	Concentration		RPD (Limits)	Difference (Limits)	Flags	A or P
		PC-144	VD-2				
387722	Perchlorate	330000 ug/L	310000 ug/L	6 (≤30)	-	-	-
387722	Total dissolved solids	6200 mg/L	6200 mg/L	0 (≤30)	-	-	-

SDG	Analyte	Concentration		RPD (Limits)	Difference (Limits)	Flags	A or P
		M-37	VD-3				
387722	Perchlorate	1200000 ug/L	1200000 ug/L	0 (≤30)	-	-	-
387722	Total dissolved solids	3700 mg/L	3700 mg/L	0 (≤30)	-	-	-
387722	Hexavalent chromium	0.025 mg/L	0.037 mg/L	-	0.012 (≤0.01)	J (all detects)	A

SDG	Analyte	Concentration		RPD (Limits)	Difference (Limits)	Flags	A or P
		M-14A	VD-5				
388090	Perchlorate	28000 ug/L	28000 ug/L	0 (≤30)	-	-	-
388090	Total dissolved solids	3100 mg/L	3100 mg/L	0 (≤30)	-	-	-

SDG	Analyte	Concentration		RPD (Limits)	Difference (Limits)	Flags	A or P
		M-12A	VD-4				
388255	Perchlorate	210000 ug/L	220000 ug/L	5 (≤30)	-	-	-
388255	Total dissolved solids	6500 mg/L	6500 mg/L	0 (≤30)	-	-	-
388255	Hexavalent chromium	11 mg/L	10 mg/L	10 (≤30)	-	-	-

SDG	Analyte	Concentration		RPD (Limits)	Difference (Limits)	Flags	A or P
		M-81A	VD-1				
396830	Perchlorate	910000 ug/L	880000 ug/L	3 (≤30)	-	-	-
396830	Total dissolved solids	5500 mg/L	5800 mg/L	5 (≤30)	-	-	-

SDG	Analyte	Concentration		RPD (Limits)	Difference (Limits)	Flags	A or P
		M-35	VD-2				
396993	Perchlorate	210000 ug/L	210000 ug/L	0 (≤30)	-	-	-
396993	Total dissolved solids	4500 mg/L	4700 mg/L	4 (≤30)	-	-	-

SDG	Analyte	Concentration		RPD (Limits)	Difference (Limits)	Flags	A or P
		M-22A	VD-3				
396993	Perchlorate	160000 ug/L	160000 ug/L	0 (≤30)	-	-	-
396993	Total dissolved solids	12000 mg/L	12000 mg/L	0 (≤30)	-	-	-

SDG	Analyte	Concentration		RPD (Limits)	Difference (Limits)	Flags	A or P
		M-142	VD-4				
397133	Perchlorate	12000 ug/L	11000 ug/L	9 (≤30)	-	-	-
397133	Total dissolved solids	2400 mg/L	2400 mg/L	0 (≤30)	-	-	-

SDG	Analyte	Concentration		RPD (Limits)	Difference (Limits)	Flags	A or P
		M-12A	VD-5				
397133	Perchlorate	200000 ug/L	190000 ug/L	5 (≤30)	-	-	-
397133	Total dissolved solids	5800 mg/L	6100 mg/L	5 (≤30)	-	-	-
397133	Hexavalent chromium	9.4 mg/L	9.1 mg/L	3 (≤30)	-	-	-

SDG	Analyte	Concentration		RPD (Limits)	Difference (Limits)	Flags	A or P
		M-13	VD-6				
397510	Perchlorate	21000 ug/L	20000 ug/L	5 (≤30)	-	-	-
397510	Total dissolved solids	3200 mg/L	3200 mg/L	0 (≤30)	-	-	-

SDG	Analyte	Concentration		RPD (Limits)	Difference (Limits)	Flags	A or P
		M-10	VD-7				
397510	Perchlorate	13000 ug/L	14000 ug/L	7 (≤30)	-	-	-
397510	Total dissolved solids	2800 mg/L	2800 mg/L	0 (≤30)	-	-	-
397510	Hexavalent chromium	0.032 mg/L	0.035 mg/L	9 (≤30)	-	-	-

SDG	Analyte	Concentration		RPD (Limits)	Difference (Limits)	Flags	A or P
		TR-7	ED-1				
397885	Total dissolved solids	830	820	1 (≤30)	-	-	-

SDG	Analyte	Concentration		RPD (Limits)	Difference (Limits)	Flags	A or P
		M-165	ED-2				
398056	Perchlorate	240 ug/L	210 ug/L	13 (≤30)	-	-	-
398056	Total dissolved solids	530 mg/L	530 mg/L	0 (≤30)	-	-	-

SDG	Analyte	Concentration		RPD (Limits)	Difference (Limits)	Flags	A or P
		M-156	ED-3				
398056	Total dissolved solids	540	530	2 (≤30)	-	-	-

SDG	Analyte	Concentration		RPD (Limits)	Difference (Limits)	Flags	A or P
		M-155	ED-4				
398056	Total dissolved solids	540	530	2 (≤30)	-	-	-

**2012 Annual Remedial Performance Sampling**

**Wet Chemistry - Data Qualification Summary - SDGs 384959, 385707, 387619, 387631, 387722, 387923, 388075, 388090, 388255, 388517, 388739, 388854, 390258, 391160, 393671, 393938, 396070, 396219, 396300, 396399, 396604, 396830, 396992, 396993, 397132, 397133, 397254, 397417, 397510, 397685, 397687, 397866, 397885, 397964, 398056, 398900, 399789, 400574**

SDG	Sample	Analyte	Flag	A or P	Reason
387619 387722 387923 388090 388255 396219 396399 396604 396993 397133	M-44 EB-1 M-37 VD-3 EB-2 FB-1 M-10 M-11 M-12A M-36 VD-4 M-95 M-44 FB-1 EB-1 EB-2 M-36 FB-2 M-12A VD-5 EB-3	Hexavalent chromium	J- (all detects) UJ (all non-detects)	P	Technical holding times
397510	M-11 M-10 VD-7	Hexavalent chromium	J- (all detects) R (all non-detects)	P	Technical holding times
387722	M-37 VD-3	Hexavalent chromium	J- (all detects) R (all non-detects)	A	Matrix spike/Matrix spike duplicate (%R)
387722	M-37 VD-3	Hexavalent chromium	J (all detects)	A	Field duplicates (difference)

**2012 Annual Remedial Performance Sampling**

**Wet Chemistry - Laboratory Blank Data Qualification Summary - SDGs 384959, 385707, 387619, 387631, 387722, 387923, 388075, 388090, 388255, 388517, 388739, 388854, 390258, 391160, 393671, 393938, 396070, 396219, 396300, 396399, 396604, 396830, 396992, 396993, 397132, 397133, 397254, 397417, 397510, 397685, 397687, 397866, 397885, 397964, 398056, 398900, 399789, 400574**

No Sample Data Qualified in these SDGs

**2012 Annual Remedial Performance Sampling**

**Wet Chemistry - Field Blank Data Qualification Summary - SDGs 384959, 385707, 387619, 387631, 387722, 387923, 388075, 388090, 388255, 388517, 388739, 388854, 390258, 391160, 393671, 393938, 396070, 396219, 396300, 396399, 396604, 396830, 396992, 396993, 397132, 397133, 397254, 397417, 397510, 397685, 397687, 397866, 397885, 397964, 398056, 398900, 399789, 400574**

No Sample Data Qualified in these SDGs