

Prepared for:
Tronox LLC
Henderson, Nevada

Data Validation Summary Report

ENSR Corporation
May 2007
Document No.: 04020-023-110

Prepared for:
Tronox LLC
Henderson, Nevada

Data Validation Summary Report

Prepared By Robert Kennedy
Senior Project Chemist
ENSR International

Reviewed By Marie Wojtas

ENSR Corporation
May 2007
Document No.: 04020-023-110

Contents

1.0 INTRODUCTION1

2.0 DATA VALIDATION PROCESS.....1

3.0 DATA VALIDATION RESULTS2

 3.1 Holding Times and Sample Preservation2

 3.4 Blank Contamination3

 3.6 Laboratory Control Samples3

 3.7 Matrix Spikes3

 3.9 Laboratory Duplicates.....3

 3.10 Field Duplicates3

 3.12 Quantitation.....3

 3.14 Rejected Results.....3

4.0 EVALUATION OF DATA QUALITY INDICATORS.....3

 4.1 Precision3

 4.2 Accuracy4

 4.3 Representativeness.....4

 4.4 Completeness.....4

 4.5 Comparability4

 4.6 Sensitivity.....4

5.0 CONCLUSIONS5

6.0 REFERENCES5

TABLES

Table E-1 Data Validation Qualifiers

Table E-2 Data Validation Qualifier Reason Codes

Table E-3 Qualifications Based on DQI Exceedances

1.0 INTRODUCTION

The purpose of limited data validation performed on laboratory results for the first quarter of 2007 was to determine the suitability of the data for future on-site environmental assessments, including the Quarterly Performance Perchlorate Report on the Perchlorate Recovery System for January – March of 2007.

MWH Laboratories in Monrovia, CA was the lab contracted by Tronox for the chemical analyses discussed below as a part of the routine monitoring program at the Tronox facility in Henderson, Nevada.

The specific analyses performed by the laboratory and reviewed in this report include all analyses provided by MWH in the selected analytical reports and not just the perchlorate or hexavalent chromium results.

2.0 DATA VALIDATION PROCESS

The results contained in the lab reports listed in the data validation memorandum were subjected to thorough data review rather than formal full data validation as recommended in the guidance on data validation provided by NDEP for the BMI Plant Sites (NDEP, 2006). MWH did not provide complete data packages with raw data for the reviewed results and therefore, verification of the initial and continuing calibrations and other elements in the Tier 2 list beyond batch quality control (QC) were not available for review. The laboratory did submit sample and batch QC results with narratives in pdf format and EQUIS format EDDs. The EDDs were imported into an EQUIS database at Tronox specifically created for the ongoing monitoring at the Henderson site. ENSR performed a limited validation on the data using the hard copy data package and subsequently entered the qualifiers into the database.

Limited validation consisted of reviewing the following data elements to the level of summary data forms.

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Laboratory blanks/equipment blanks/ field blanks
- Laboratory control sample (LCS)/ laboratory control sample duplicate (LCSD) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Laboratory duplicate results
- Field duplicate results
- Quantitation limits and sample results

Analytical data were evaluated with reference to the National Functional Guidelines (EPA, 1999 and 2004) and other method appropriate validation guidance documents, as well as the Region 9 Superfund Data Evaluation/Validation Guidance (EPA, 2001), the above mentioned NDEP Guidance on Data Validation (NDEP, 2006), the quality control (QC) criteria provided by the laboratory. The Regional and National Functional Guidelines were modified to accommodate the non-CLP methodologies. The specific guidelines used for the various methods were as follows:

- Inorganic analytical data were evaluated with reference to "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review" (EPA, 2004)

In general, the validation qualifiers and definitions employed were based on those used by EPA in the document mentioned above. Validation qualifiers and definitions are listed in **Table E-1**. A reason code was assigned to all the applications of validation qualifiers for this project. The reason codes and their explanations are listed in **Table E-2**. These codes were entered in the project database for each application of a validation qualifier that changed a lab qualifier or result value to indicate the primary reason(s) for data qualification. Conversions of the laboratory reported "ND" for not detected to the U qualifier in the database and the laboratory-applied "J" qualifier to indicate results less than the reporting limit but greater than the method detection limit are not further discussed in this report.

Data validation was organized by MWH Laboratory Report which is also identified as the sample delivery group (SDG) in the tables. A combined data validation memorandum for all the reviewed reports was written by a data validator and reviewed by a peer at ENSR's Westford office. This memorandum is included on CD-ROM as a pdf document and includes a list of the data reviewed by the laboratory SDGs listed in Appendix A of the memorandum.

3.0 DATA VALIDATION RESULTS

The data validation qualifiers and reason codes were used to select all the data in the database where results were qualified as a result of validation. This information was sorted by the quality control (QC) review elements listed below:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Laboratory blanks/equipment blanks/ field blanks
- Laboratory control sample (LCS)/ laboratory control sample duplicate (LCSD) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Laboratory duplicate results
- Field duplicate results
- Quantitation limits and sample results

Tables E-3 lists all the results which were qualified based on quality control issues identified with regard to holding times and equipment blank results. No QC issues were identified that resulted in qualification of results based on LCS/LCSD results, MS/MSD results, lab duplicate results, or field duplicate results. Reason codes, Data Quality Indicators (DQI), and the nonconforming DQI results are listed in the table as requested by NDEP.

3.1 Holding Times and Sample Preservation

Holding times were derived from the EPA methods utilized and were calculated beginning from the time of sample collection. The majority of analyses were performed within the method-specified holding times. Exceptions are listed in **Table E-3** and summarized in the validation memorandum. The DQI result value for holding time in Table E-3 is the time elapsed between sample collection and analysis. The holding time for hexavalent chromium in water is 24 hours from collection to analysis. The holding time for perchlorate in water is 28 days from collection to analysis. The holding time for TDS in water is 7 days from collection to analysis. The holding time for laboratory pH is "analyze immediately". No data were rejected on the basis of holding time exceedances but some results were qualified as estimated. Results for hexavalent chromium, pH, and TDS required qualification on the basis of holding time issues as discussed in the data review memorandum.

3.2 Blank Contamination

In general, laboratory and field blanks were free of contamination. The equipment blank collected on 1/30/07 and analyzed for perchlorate appeared to be contaminated and the associated perchlorate result for M-92 was qualified as estimated and possibly biased high (J+). No other data required qualification due to blank contamination.

3.3 Laboratory Control Samples

LCS and LCSD recoveries met QC acceptance criteria for all of the analyses reviewed

3.4 Matrix Spike Samples

MS and MSD recoveries met the QC acceptance criteria for all the analyses reviewed in this report.

3.5 Laboratory Duplicates

The evaluation of laboratory duplicate precision included an assessment of the agreement between LCS and LCSDs, MS and MSDs, and matrix duplicates, as measured through relative percent difference (RPD). None of the results required qualification during validation based on laboratory duplicate precision.

3.6 Field Duplicates

The results of the four groundwater sample duplicate pairs collected during the first quarter of 2007 were evaluated during validation. RPDs were compared to the objectives of 30% maximum RPD for aqueous samples. No results were qualified during validation based on field duplicate precision nonconformances.

3.7 Quantitation Limits and Sample Results

No results were qualified based on QC related to quantitation limits or sample results reported.

3.8 Rejected Results

No results in the reviewed dataset were rejected based on validation criteria or QC nonconformances.

4.0 EVALUATION OF DATA QUALITY INDICATORS

Data validation information was used to evaluate the data quality indicators (DQI) of precision, accuracy, representativeness, comparability, completeness, and sensitivity for results in the dataset for the Henderson Quarterly Performance Perchlorate Report. Each of these DQI parameters is discussed in sections below.

4.1 Precision

Precision is the measure of agreement among repeated measurements of the same property under identical or substantially similar conditions. Field precision was assessed through the collection and measurement of field duplicates and expressed as the RPD of the sample and field duplicate pair results. In general the field duplicate precision was acceptable for all analytes reported.

Laboratory precision was assessed through the RPD results for matrix duplicates, LSC/LCSD pairs, and MS/MSD pairs. No nonconformances which resulted in the application of validation qualifiers were discovered. In general, the laboratory duplicate precision was acceptable.

4.2 Accuracy

Accuracy is the degree of agreement between an observed value and an accepted reference or true value. Laboratory accuracy was assessed during the validation using the recoveries of positive control samples (i.e., MS and MSD, LCS and LCSD, and surrogate spikes). Accuracy is also indirectly addressed via the negative control samples for field activities (i.e. trip, equipment, and field blanks), as well as laboratory negative control samples (i.e., method blanks and calibration blanks). All negative control sample results were acceptable with the exceptions discussed above in Section 3.2.

Bias as a component of accuracy is also evaluated with the validation of holding time results discussed in Section 3.1 of this report. These evaluations resulted in the minor qualification of some results as described in the data validation memo and Section 3.1 above.

4.3 Representativeness

Representativeness is the measure of the degree to which data suitably represent a characteristic of a population, parameter variations at a sampling point, a process condition, or an environmental condition. Aspects of representativeness addressed during validation include the review of sample collection information in the chain-of-custody (COC) documentation, conformity of laboratory analyses to workplan intentions, adherence of the documented laboratory procedures to method requirements, and completeness of the laboratory data packages. Most of the issues identified during this evaluation did not result in the qualification of laboratory data but did involve re-submittals of data from the laboratories to correct problems that were discovered during the validation process. All of these issues were resolved or were judged to have no impact on data validation. Other aspects of data representativeness such as adherence to recommended holding times are discussed in Section 3.1 of this report.

4.4 Completeness

Completeness is a measure of the amount of valid data obtained from a measurement system, expressed as a percentage of the number of valid measurements that were or should have been collected. Valid data is defined as all the data points judged to be valid (i.e. not rejected), as a result of the validation process.

Field completeness is defined as the percentage of samples actually collected versus those intended to be collected in accordance with the plan for routine monitoring. All intended samples were collected in accordance with the monitoring schedule. All COC requests were faithfully executed by the laboratories with the minor exceptions discussed in the validation memorandum.

Laboratory completeness is defined as percentage of valid data points versus the total expected from the laboratory analyses. Actual laboratory completeness was 100% on the basis of sample analysis (i.e., all requested analyses were performed and reported by the laboratories), and 100% completeness based on valid data as a percentage of the total data points attempted.

4.5 Comparability

Comparability is a qualitative expression of the measure of confidence that two or more data sets may contribute to a common analysis. Comparability of data within the investigation was maximized by using standard methods for sampling and analysis, reporting data, and data validation. Standard water/wastewater program methods from EPA were employed by the MWH laboratory for all analyses.

4.6 Sensitivity

Sensitivity is the capability of a method or instrument to discriminate between measurement responses representing different levels of the variable of interest and particularly the capability of measuring a

constituent at low levels. For the EPA methods employed in this project sensitivity is measured by the method detection limit (MDL) and reporting limit (RL). Reporting limits in general were sample quantitation limits based on the low point of calibration and adjusted for sample-specific factors such as exact aliquot size, dilutions, etc. Sensitivity of the methods employed was adequate for the routine monitoring needs and consistent with the historical data for the site.

5.0 CONCLUSIONS

One hundred percent of the laboratory data for the Quarterly Performance Report for the Perchlorate Recovery System covering January to March 2007 were subjected to a limited validation using standardized guidelines and procedures recommended by EPA and NDEP. Ninety percent of the results for this project were accepted as reported by the laboratory without additional qualification based on validation actions and should be considered valid for all decision making purposes. A subset of the laboratory results were qualified based on issues discovered during the validation and those results are summarized in Tables E-3. The qualified data are grouped in this table based on the reason for qualification (see Table E-2), the Data Quality Indicator (DQI) involved, and the qualifier flags applied (see Table E-1). Ten percent of the results for this project were qualified as estimated due to QC problems with sample holding time and blank contamination. These estimated results should be considered usable for decision making purposes provided the potential bias is considered when the data are used. No results were rejected as unusable due to serious QC problems. Based on the results of data validation the overall goals for data quality were achieved for the dataset used in the Quarterly Performance Report for the Perchlorate Recovery System covering January to March 2007.

6.0 REFERENCES

EPA, 1999 USEPA "Contract Laboratory Program National Functional Guidelines for Organic Data Review"

EPA, 2001 USEPA "Draft Region 9 Superfund Data Evaluation/Validation Guidance"

EPA, 2004 USEPA "Contract Laboratory Program National Functional Guidelines for Inorganic Data Review"

ENSR, August 2006 DRAFT Quality Assurance Project Plan, Tronox LLC Facility Henderson, Nevada

NDEP, 2006 NDEP "Guidance on Data Validation, BMI Pant Sites and Common Areas Projects, Henderson, Nevada"

TABLES

Table E-1
Data Validation Qualifiers
 Quarterly Performance Report
 Perchlorate Recovery System, January - March 2007
 Tronox Facility, Henderson, Nevada

Validation Qualifier	Definition
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity and the result may be biased high. This qualifier is applied only to inorganic analyte results.
J-	The result is an estimated quantity and the result may be biased low. This qualifier is applied only to inorganic analyte results.
UJ	The analyte was not detected above the sample reporting limit and the reporting limit is approximate.
U	The analyte was analyzed for, but was not detected above the sample reporting limit
R	The result is rejected and unusable due to serious data deficiencies. The presence or absence of the analyte cannot be verified.
B	The result may be a false positive totally attributable to blank contamination. This qualifier is applied only to radiochemical results.
JB	The result may be biased high and partially attributable to blank contamination. This qualifier is applied only to radiochemical results.
Z	The result is a probable false positive due to cross-contamination during shipping.
Note: See Table E-2 for reason code definitions	

Table E-2
Data Validation Qualifier Reason Codes
Quarterly Performance Report
Perchlorate Recovery System, January - March 2007
Tronox Facility, Henderson, Nevada

Code	Explanation
j-b	estimated due to blank contamination
j-bl	estimated due to lab blank contamination
j-be	estimated due to equipment blank contamination
j-d	estimated due to lab duplicate imprecision (matrix duplicate, MSD, LCSD)
j-f	estimated due to field duplicate imprecision
j-s	estimated due to surrogate recoveries
j-m	estimated due to matrix spike recoveries
j-h	estimated due to holding time exceedance
j-l	estimated due to LCS recoveries
j-c	estimated due to calibration problems
j-x	estimated due to low % solids
j-y	estimated due to serial dilution results
j-i	estimated due to internal standard areas
j-z	estimated due to ICS results
j-r	estimated due to quantitation problem
u-be	negated due to equipment blank contamination
u-bl	negated due to lab blank contamination
u-q	nondetected level changed due to quantitation problem
uj-a	estimated nondetect due to low abundance (radiochemical activity)
uj-b	estimated nondetect due to negative blank contamination (nondetect results only)
uj-bl	estimated nondetect due to negative lab blank contamination (nondetect results only)
uj-be	estimated nondetect due to negative equipment blank contamination (nondetect results only)
uj-cp	estimated nondetect due to insufficient ingrowth (radiochemical only)
uj-d	estimated nondetect due to lab duplicate imprecision (matrix duplicate, MSD, LCSD)
uj-f	estimated nondetect due to field duplicate imprecision
uj-s	estimated nondetect due to surrogate recoveries
uj-m	estimated nondetect due to matrix spike recoveries
uj-h	estimated nondetect due to holding time exceedance
uj-l	estimated nondetect due to LCS recoveries
uj-c	estimated nondetect due to calibration issues
uj-x	estimated nondetect due to low % solids
uj-z	estimated nondetect due to ICS results
uj-i	estimated nondetect due to internal standard areas
uj-q	estimated nondetect level changed due to quantitation problem
r-s	rejected due to surrogate recoveries
r-m	rejected due to matrix spike recoveries
r-h	rejected due to holding time exceedance
r-l	rejected due to LCS recoveries
r-c	rejected due to calibration
r-p	rejected as a false positive due to contamination during shipping
z-p	qualified as a probable false positive due to contamination during shipping

Table E-3
Qualifications Based on DQI Exceedances
Quarterly Performance Report
Perchlorate Recovery System
Henderson, Nevada
January - March 2007

Sample ID	SDG	Method	Analyte	Result	Units	Validation Qualifier	Reason Code	DQI	DQI Result
FB-1_01/29/07	194600	SW 846 7196	Chromium (VI)	0.005	mg/l	UJ	uj-h	Holding time	30.5 hours
FB-1_01/29/07	194600	SW 846 9040B	Laboratory pH	6.2	s.u.	J	j-h	Holding time	2 days
M-23_01/29/07	194600	SW 846 9040B	Laboratory pH	8.0	s.u.	J	j-h	Holding time	2 days
M-44_01/29/07	194600	SW 846 7196	Chromium (VI)	1.0	mg/l	J	j-h	Holding time	30.5 hours
M-44_01/29/07	194600	SW 846 9040B	Laboratory pH	7.9	s.u.	J	j-h	Holding time	2 days
M-48_01/29/07	194600	EPA 160.1	Total Dissolved Solids	7260	mg/l	J-	j-h	Holding time	17 days
M-48_01/29/07	194600	SW 846 9040B	Laboratory pH	8.1	s.u.	J	j-h	Holding time	2 days
M-94_01/29/07	194600	SW 846 7196	Chromium (VI)	0.89	mg/l	J	j-h	Holding time	30.25 hours
M-94_01/29/07	194600	SW 846 9040B	Laboratory pH	7.9	s.u.	J	j-h	Holding time	2 days
M-95_01/29/07	194600	EPA 160.1	Total Dissolved Solids	7830	mg/l	J-	j-h	Holding time	17 days
M-95_01/29/07	194600	SW 846 9040B	Laboratory pH	8.0	s.u.	J	j-h	Holding time	2 days
M-96_01/29/07	194600	EPA 160.1	Total Dissolved Solids	7310	mg/l	J-	j-h	Holding time	17 days
M-96_01/29/07	194600	SW 846 9040B	Laboratory pH	8.0	s.u.	J	j-h	Holding time	2 days
MD-3_01/29/07	194600	SW 846 9040B	Laboratory pH	8.1	s.u.	J	j-h	Holding time	2 days
PC-123_01/29/07	194600	SW 846 9040B	Laboratory pH	7.9	s.u.	J	j-h	Holding time	2 days
PC-124_01/29/07	194600	SW 846 9040B	Laboratory pH	7.9	s.u.	J	j-h	Holding time	2 days
PC-125_01/29/07	194600	SW 846 9040B	Laboratory pH	7.9	s.u.	J	j-h	Holding time	2 days
PC-126_01/29/07	194600	SW 846 9040B	Laboratory pH	7.8	s.u.	J	j-h	Holding time	2 days
PC-127_01/29/07	194600	SW 846 9040B	Laboratory pH	7.9	s.u.	J	j-h	Holding time	2 days
PC-128_01/29/07	194600	SW 846 9040B	Laboratory pH	8.1	s.u.	J	j-h	Holding time	2 days
PC-129_01/29/07	194600	SW 846 9040B	Laboratory pH	8.0	s.u.	J	j-h	Holding time	2 days
PC-130_01/29/07	194600	SW 846 9040B	Laboratory pH	8.0	s.u.	J	j-h	Holding time	2 days
PC-131_01/29/07	194600	SW 846 9040B	Laboratory pH	8.2	s.u.	J	j-h	Holding time	2 days
PC-132_01/29/07	194600	SW 846 9040B	Laboratory pH	8.2	s.u.	J	j-h	Holding time	2 days
PC-37_01/29/07	194600	SW 846 9040B	Laboratory pH	7.9	s.u.	J	j-h	Holding time	2 days
PC-54_01/29/07	194600	SW 846 9040B	Laboratory pH	8.1	s.u.	J	j-h	Holding time	2 days
PC-71_01/29/07	194600	SW 846 9040B	Laboratory pH	7.9	s.u.	J	j-h	Holding time	2 days
PC-72_01/29/07	194600	EPA 160.1	Total Dissolved Solids	7240	mg/l	J-	j-h	Holding time	17 days
PC-72_01/29/07	194600	SW 846 9040B	Laboratory pH	7.9	s.u.	J	j-h	Holding time	2 days
PC-73_01/29/07	194600	SW 846 9040B	Laboratory pH	7.9	s.u.	J	j-h	Holding time	2 days
EB-2_01/31/07	194964	SW 846 7196	Chromium (VI)	0.005	mg/l	UJ	uj-h	Holding time	27 hours
EB-2_01/31/07	194964	SW 846 9040B	Laboratory pH	6.5	s.u.	J	j-h	Holding time	2 days

Table E-3
Qualifications Based on DQI Exceedances
Quarterly Performance Report
Perchlorate Recovery System
Henderson, Nevada
January - March 2007

Sample ID	SDG	Method	Analyte	Result	Units	Validation Qualifier	Reason Code	DQI	DQI Result
I-I_01/31/07	194964	SW 846 9040B	Laboratory pH	7.6	s.u.	J	j-h	Holding time	2 days
I-J_01/31/07	194964	SW 846 9040B	Laboratory pH	7.8	s.u.	J	j-h	Holding time	2 days
I-K_01/31/07	194964	SW 846 9040B	Laboratory pH	7.9	s.u.	J	j-h	Holding time	2 days
I-V_01/31/07	194964	SW 846 9040B	Laboratory pH	8.0	s.u.	J	j-h	Holding time	5 days
I-Z_01/31/07	194964	SW 846 9040B	Laboratory pH	7.8	s.u.	J	j-h	Holding time	2 days
M-10_01/31/07	194964	SW 846 7196	Chromium (VI)	0.010	mg/l	UJ	uj-h	Holding time	31.25 hours
M-10_01/31/07	194964	SW 846 9040B	Laboratory pH	7.7	s.u.	J	j-h	Holding time	2 days
M-11_01/31/07	194964	SW 846 7196	Chromium (VI)	2.6	mg/l	J	j-h	Holding time	30 hours
M-11_01/31/07	194964	SW 846 9040B	Laboratory pH	8.0	s.u.	J	j-h	Holding time	2 days
M-19_01/31/07	194964	SW 846 9040B	Laboratory pH	8.0	s.u.	J	j-h	Holding time	2 days
M-31A_01/31/07	194964	SW 846 9040B	Laboratory pH	7.7	s.u.	J	j-h	Holding time	2 days
M-34_01/31/07	194964	SW 846 9040B	Laboratory pH	7.6	s.u.	J	j-h	Holding time	2 days
M-35_01/31/07	194964	SW 846 9040B	Laboratory pH	7.7	s.u.	J	j-h	Holding time	2 days
M-39_01/31/07	194964	SW 846 9040B	Laboratory pH	7.7	s.u.	J	j-h	Holding time	2 days
M-50_01/31/07	194964	SW 846 9040B	Laboratory pH	7.7	s.u.	J	j-h	Holding time	2 days
M-52_01/31/07	194964	SW 846 9040B	Laboratory pH	7.8	s.u.	J	j-h	Holding time	2 days
M-61_01/31/07	194964	SW 846 9040B	Laboratory pH	7.8	s.u.	J	j-h	Holding time	2 days
M-67_01/31/07	194964	SW 846 9040B	Laboratory pH	7.7	s.u.	J	j-h	Holding time	5 days
M-68_01/31/07	194964	SW 846 9040B	Laboratory pH	7.7	s.u.	J	j-h	Holding time	2 days
M-92_01/31/07	194964	EPA 314	Perchlorate	674	ug/l	J+	j-be	Equipment Blank	152 ug/L
M-92_01/31/07	194964	SW 846 9040B	Laboratory pH	7.9	s.u.	J	j-h	Holding time	2 days
M-93_01/31/07	194964	SW 846 9040B	Laboratory pH	7.9	s.u.	J	j-h	Holding time	2 days
M-97_01/31/07	194964	SW 846 9040B	Laboratory pH	7.9	s.u.	J	j-h	Holding time	2 days
MD-1_01/31/07	194964	SW 846 7196	Chromium (VI)	0.010	mg/l	UJ	uj-h	Holding time	31.25 hours
MD-1_01/31/07	194964	SW 846 9040B	Laboratory pH	7.4	s.u.	J	j-h	Holding time	2 days
EB-1_01/30/07	194743	SW 846 7196	Chromium (VI)	0.005	mg/l	UJ	uj-h	Holding time	29 hrs
EB-1_01/30/07	194743	SW 846 9040B	Laboratory pH	6.3	s.u.	J	j-h	Holding time	3 days
I-AR_01/30/07	194743	SW 846 9040B	Laboratory pH	7.4	s.u.	J	j-h	Holding time	3 days
I-B_01/30/07	194743	SW 846 9040B	Laboratory pH	8.0	s.u.	J	j-h	Holding time	3 days
I-C_01/30/07	194743	SW 846 9040B	Laboratory pH	8.1	s.u.	J	j-h	Holding time	3 days
I-D_01/30/07	194743	SW 846 9040B	Laboratory pH	8.0	s.u.	J	j-h	Holding time	3 days
I-E_01/30/07	194743	SW 846 9040B	Laboratory pH	7.9	s.u.	J	j-h	Holding time	3 days

Table E-3
Qualifications Based on DQI Exceedances
Quarterly Performance Report
Perchlorate Recovery System
Henderson, Nevada
January - March 2007

Sample ID	SDG	Method	Analyte	Result	Units	Validation Qualifier	Reason Code	DQI	DQI Result
I-F_01/30/07	194743	SW 846 9040B	Laboratory pH	7.8	s.u.	J	j-h	Holding time	3 days
I-H_01/30/07	194743	SW 846 9040B	Laboratory pH	7.6	s.u.	J	j-h	Holding time	3 days
I-L_01/30/07	194743	SW 846 9040B	Laboratory pH	7.8	s.u.	J	j-h	Holding time	3 days
I-M_01/30/07	194743	SW 846 9040B	Laboratory pH	7.9	s.u.	J	j-h	Holding time	3 days
I-N_01/30/07	194743	SW 846 9040B	Laboratory pH	7.9	s.u.	J	j-h	Holding time	3 days
I-O_01/30/07	194743	SW 846 9040B	Laboratory pH	7.7	s.u.	J	j-h	Holding time	6 days
I-P_01/30/07	194743	SW 846 9040B	Laboratory pH	7.7	s.u.	J	j-h	Holding time	3 days
I-Q_01/30/07	194743	SW 846 9040B	Laboratory pH	7.8	s.u.	J	j-h	Holding time	3 days
I-R_01/30/07	194743	SW 846 9040B	Laboratory pH	7.7	s.u.	J	j-h	Holding time	3 days
I-S_01/30/07	194743	EPA 160.1	Total Dissolved Solids	6120	mg/l	J-	j-h	Holding time	22 days
I-S_01/30/07	194743	SW 846 9040B	Laboratory pH	7.9	s.u.	J	j-h	Holding time	3 days
I-U_01/30/07	194743	SW 846 9040B	Laboratory pH	7.6	s.u.	J	j-h	Holding time	3 days
M-25_01/30/07	194743	SW 846 9040B	Laboratory pH	8.0	s.u.	J	j-h	Holding time	3 days
M-37_01/30/07	194743	SW 846 7196	Chromium (VI)	0.050	mg/l	J	j-h	Holding time	28.5 hrs
M-37_01/30/07	194743	SW 846 9040B	Laboratory pH	7.4	s.u.	J	j-h	Holding time	3 days
M-57A_01/30/07	194743	SW 846 9040B	Laboratory pH	7.9	s.u.	J	j-h	Holding time	3 days
M-64_01/30/07	194743	SW 846 9040B	Laboratory pH	8.0	s.u.	J	j-h	Holding time	3 days
M-65_01/30/07	194743	SW 846 9040B	Laboratory pH	7.6	s.u.	J	j-h	Holding time	6 days
M-66_01/30/07	194743	SW 846 9040B	Laboratory pH	7.7	s.u.	J	j-h	Holding time	3 days
M-69_01/30/07	194743	SW 846 9040B	Laboratory pH	7.8	s.u.	J	j-h	Holding time	3 days
M-79_01/30/07	194743	SW 846 9040B	Laboratory pH	7.9	s.u.	J	j-h	Holding time	3 days
M-98_01/30/07	194743	SW 846 9040B	Laboratory pH	8.0	s.u.	J	j-h	Holding time	3 days
M-99_01/30/07	194743	SW 846 9040B	Laboratory pH	8.0	s.u.	J	j-h	Holding time	3 days
MD-4_01/30/07	194743	SW 846 9040B	Laboratory pH	8.3	s.u.	J	j-h	Holding time	6 days
ART-2_01/29/07	194651	EPA 160.1	Total Dissolved Solids	9340	mg/l	J	j-h	Holding time	12 days
ART-3_01/29/07	194651	EPA 160.1	Total Dissolved Solids	8780	mg/l	J	j-h	Holding time	12 days
ART-7_01/29/07	194651	EPA 160.1	Total Dissolved Solids	9980	mg/l	J	j-h	Holding time	12 days
M-115_02/02/07	195091	SW 846 9040B	Laboratory pH	8.0	s.u.	J	j-h	Holding time	3 days
M-14A_02/02/07	195091	SW 846 9040B	Laboratory pH	7.9	s.u.	J	j-h	Holding time	3 days
M-17A_02/02/07	195091	SW 846 9040B	Laboratory pH	7.7	s.u.	J	j-h	Holding time	3 days
M-75_02/02/07	195091	SW 846 9040B	Laboratory pH	8.0	s.u.	J	j-h	Holding time	3 days
M-76_02/02/07	195091	SW 846 9040B	Laboratory pH	8.0	s.u.	J	j-h	Holding time	3 days

Table E-3
Qualifications Based on DQI Exceedances
Quarterly Performance Report
Perchlorate Recovery System
Henderson, Nevada
January - March 2007

Sample ID	SDG	Method	Analyte	Result	Units	Validation Qualifier	Reason Code	DQI	DQI Result
M-100_02/01/07	195035	SW 846 7196	Chromium (VI)	0.24	mg/l	J	j-h	Holding time	24.5 hrs
M-100_02/01/07	195035	SW 846 9040B	Laboratory pH	7.9	s.u.	J	j-h	Holding time	4 days
M-101_02/01/07	195035	SW 846 9040B	Laboratory pH	8.0	s.u.	J	j-h	Holding time	4 days
M-102_02/01/07	195035	SW 846 9040B	Laboratory pH	8.1	s.u.	J	j-h	Holding time	4 days
M-12A_02/01/07	195035	SW 846 7196	Chromium (VI)	13	mg/l	J	j-h	Holding time	25 hrs
M-12A_02/01/07	195035	SW 846 9040B	Laboratory pH	8.2	s.u.	J	j-h	Holding time	4 days
M-22A_02/01/07	195035	SW 846 9040B	Laboratory pH	7.6	s.u.	J	j-h	Holding time	4 days
M-36_02/01/07	195035	SW 846 7196	Chromium (VI)	39	mg/l	J	j-h	Holding time	25 hrs
M-36_02/01/07	195035	SW 846 9040B	Laboratory pH	7.6	s.u.	J	j-h	Holding time	4 days
M-38_02/01/07	195035	SW 846 9040B	Laboratory pH	7.6	s.u.	J	j-h	Holding time	4 days
M-70_02/01/07	195035	SW 846 9040B	Laboratory pH	7.7	s.u.	J	j-h	Holding time	4 days
M-71_02/01/07	195035	SW 846 9040B	Laboratory pH	7.7	s.u.	J	j-h	Holding time	4 days
M-72_02/01/07	195035	SW 846 9040B	Laboratory pH	7.7	s.u.	J	j-h	Holding time	4 days
M-73_02/01/07	195035	SW 846 9040B	Laboratory pH	7.9	s.u.	J	j-h	Holding time	4 days
M-74_02/01/07	195035	SW 846 9040B	Laboratory pH	7.9	s.u.	J	j-h	Holding time	4 days
M-84_02/01/07	195035	SW 846 7196	Chromium (VI)	0.051	mg/l	J	j-h	Holding time	24.5 hrs
M-84_02/01/07	195035	SW 846 9040B	Laboratory pH	8.0	s.u.	J	j-h	Holding time	4 days
M-85_02/01/07	195035	SW 846 9040B	Laboratory pH	8.1	s.u.	J	j-h	Holding time	4 days
M-86_02/01/07	195035	SW 846 9040B	Laboratory pH	7.9	s.u.	J	j-h	Holding time	4 days
M-87_02/01/07	195035	SW 846 9040B	Laboratory pH	7.9	s.u.	J	j-h	Holding time	4 days
M-88_02/01/07	195035	SW 846 9040B	Laboratory pH	7.9	s.u.	J	j-h	Holding time	4 days
M-89_02/01/07	195035	SW 846 9040B	Laboratory pH	7.6	s.u.	J	j-h	Holding time	4 days
MD-2_02/01/07	195035	SW 846 7196	Chromium (VI)	0.048	mg/l	J	j-h	Holding time	24.5 hrs
MD-2_02/01/07	195035	SW 846 9040B	Laboratory pH	7.9	s.u.	J	j-h	Holding time	4 days
ARP-4_03/09/07	198847	EPA 160.1	Total Dissolved Solids	5380	mg/l	J-	j-h	Holding time	10 days
ARP-6A_03/09/07	198847	EPA 160.1	Total Dissolved Solids	10800	mg/l	J-	j-h	Holding time	10 days