ATTACHMENT 1: QUALITY ASSURANCE/QUALITY CONTROL SUMMARY

This attachment contains a summary of the field quality assurance, laboratory quality assurance, data verification and data validation procedures utilized for the JPL groundwater monitoring program. Data validation was performed by an independent subcontractor, Laboratory Data Consultants, Inc. (LDC), Carlsbad, California. Data verification and validation indicated that all of the sample results obtained from the August/September 2006 sampling event were acceptable for their intended use of characterizing aquifer quality.

ATTACHMENT 1: QUALITY ASSURANCE/QUALITY CONTROL SUMMARY

A comprehensive QA/QC plan for groundwater monitoring is described in detail in the Quality Assurance Project Plan for the Groundwater Monitoring Plan (Ebasco, 1993). QC checks, including both field and laboratory, are the specific operational techniques and activities used to fulfill QA requirements. Proper sample acquisition and handling procedures are necessary to ensure the integrity of the analytical results.

FIELD QUALITY ASSURANCE/QUALITY CONTROL

The field QA/QC samples collected for JPL groundwater monitoring included duplicate samples, equipment rinsate blanks and trip blanks. These QC sample results were used as part of a qualitative evaluation of the aquifer recovery.

Duplicate samples were used to evaluate the precision of the laboratory analyses. Duplicate samples for volatile organic compounds (VOCs), total chromium, hexavalent chromium [Cr(VI)], perchlorate, lead, arsenic, major cations and anions, alkalinity, total dissolved solids (TDS), and pH analyses were collected from monitoring wells MW-4 (Screen 1), MW-23 (Screen 2), MW-13, MW-16 MW-8, MW-6, and MW-15. Most of the analytical results for the duplicate samples were comparable to the results of the original groundwater samples (Tables 1 through 3). There were a few instances in which the relative percent difference (RPD) for the duplicate result exceeded the 25% criterion for total chromium; however all of the results were below the MCL of 50 µg/L.

Equipment rinsate blanks were collected each day that non-dedicated sampling equipment was used. The equipment rinsate blanks, consisting of distilled water run through the sampling equipment after decontamination, were analyzed for all contaminants of concern to monitor possible cross-contamination of samples due to inadequate decontamination. Table 1-1 presents a summary of contaminants detected in quality control samples collected during the August/September 2006 sampling event. Total Cr was detected in all of the equipment blanks. Hexavalent chromium was detected in low concentrations in 2 of 11 equipment blanks. The chromium detections indicate that the equipment decontamination process may have been insufficient in some cases. PCE was also detected at a low concentration in 1 of 11 equipment blanks. A few other VOCs were detected at low concentrations in 2 of 11 equipment blanks.

Trip blanks, which consisted of reagent-grade water placed in a vial and transported with the sample bottles to and from the field, were submitted to the laboratory with each daily shipment of groundwater samples. Trip blanks were used to help identify cross-contamination of groundwater samples during transport and/or deficiencies in the laboratory bottle cleaning and sample handling procedures. 2-butanone (MEK) was detected at a moderate concentration in 1 of 11 equipment blanks; however MEK was not detected in the associated well samples. Naphthalene and 1,2,3-trichlorobenzene were detected in 1 of 15 trip blanks; however these VOCs were not detected in the associated well samples.

A source blank was collected during the August/September 2006 sampling event. A source blank consists of distilled water used by sampling personnel for equipment decontamination. The source blank is collected at the sampling site and preserved, as appropriate. This QC sample serves as a check on contamination present in the source water. No contaminants were detected in the source blank.

All detections in the various blanks were compared to the sample results during the data validation process described below to determine the impact on the sample results.

LABORATORY QUALITY ASSURANCE/QUALITY CONTROL

Laboratory QC samples included surrogate compounds (for VOC analyses), matrix spike samples, blank spike samples, and method blanks. The results of the laboratory QC samples were used by the laboratory to determine the accuracy and precision of the analytical techniques with respect to the JPL groundwater matrix, and to identify anomalous results due to laboratory contamination or instrument malfunction.

DATA VERIFICATION AND VALIDATION

The purpose of data verification and validation is to assure that the data collected meet the data quality objectives (DQOs) outlined in the Quality Assurance Project Plan of the Groundwater Monitoring Plan (Ebasco, 1993). The process was intended to ensure that the data are of sufficient quality for use in meeting the objectives outlined in the Groundwater Monitoring Plan. Data verification and validation indicated that all of the sample results obtained from the August/September 2006 event were acceptable for their intended use of characterizing aquifer quality.

Data Verification. All data collected were subjected to data verification. Data verification included confirming that the sample identification numbers on laboratory reports matched those on the chain-of-custody records. Data verification also included reviewing analytical data reports to assure that all samples were analyzed and all required analytes were quantified for each sample.

Data Validation. Data validation is a systematic review of the analytical data that is used to determine the compliance of the established method performance criteria and determine whether the data quality is sufficient to support the data quality objectives. Validation of a data package included review of the technical holding time requirements, review of sample preparation, review of the initial and continuing calibration data, review and recalculation of the laboratory QC sample data, review of the equipment performance, reconciliation of the raw data with the reduced results, identification of data anomalies, and qualification of data to identify data usability limitations.

Data validation was performed by an independent subcontractor, Laboratory Data Consultants, Inc. (LDC), Carlsbad, CA. One hundred percent of all data analyzed by the analytical laboratories, Columbia Analytical Services, Inc. (CAS) and Laucks Laboratory were validated. Ninety percent of the data were subjected to Level III validation and ten percent of the data were subjected to Level IV validation in accordance with the EPA

Contract Laboratory Program National Functional Guidelines for Organic/Inorganic Data Review (U.S. EPA, 1999; 2004). The data were evaluated to ensure suitability and usability for the purpose of the groundwater monitoring report.

Data Validation Qualifiers. Analytical data were qualified based on data validation reviews. For chemical data, qualifiers were assigned in accordance with EPA guidelines. Individual laboratory data flags can be found in Attachment 2 (Data Validation Reports). There were a few major exceptions to the analytical criteria as noted in the laboratory validation reports.

- The holding time requirement was exceeded for Nitrate (NO_3-N), Nitrite and Orthophosphate for groundwater samples MW-7, MW-8 and DUPE-5-3Q06. The holding time requirement was 48 hours and the actual elapsed time between collection and analysis was 5 days.

- Chromium was detected in the laboratory preparation blank for groundwater samples from wells MW-3, MW-12, MW-14, MW-17, MW-18, MW-21, MW-22, MW-23, MW-24, MW-25, MW-26, associated field duplicates and field blanks. The Chromium results for these samples were qualified as "U" undetected due to the detections in the preparation blanks. The analytical laboratory indicated that the recent addition of HCl during sample preparation caused minor false positive results in the preparation blanks when analyzed using non-collision cell ICP/MS instruments. The laboratory has since implemented the use of collision cell ICP/MS instruments to resolve this problem. In addition, all of the flagged Cr results were at least ten times below the California Maximum Contaminant Level (MCL) of 50 µg/L.

- Cooler temperatures were exceeded for groundwater samples from wells MW-23, MW-25, MW-26 and associated field duplicates and field blanks. The temperature requirement was 4±2°C and the actual temperatures ranged from 14.0-14.3 °C. The analytical laboratory indicated that the cooler was delivered 3 days later than anticipated by the shipping company.

Exceptions to the analytical criteria resulted in the assignment of "J" flags to the results, unless otherwise noted, by Laboratory Data Consultants, Inc. The "J" flag indicates that the result is an estimated value.

No analytical data were rejected for non-compliance with method requirements during the data validation.

REFERENCES

Ebasco. 1993. *Work Plan for Performing a Remedial Investigation/Feasibility Study*. National Aeronautics and Space Administration Jet Propulsion Laboratory, Pasadena, California. December.

U.S. EPA. 1999. *Contract Laboratory Program National Functional Guidelines for Organic Data Review.* February.

U.S. EPA. 2004. *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review*. December.

ATTACHMENT 2: DATA VALIDATION REPORTS (SUMMARY SHEETS)

This attachment contains the summary sheets from the data validation performed by an independent subcontractor, Laboratory Data Consultants, Inc. (LDC), Carlsbad, CA. Complete data validation reports are available upon request.

LABORATORY DATA CONSULTANTS, INC.
7750 El Camino Real, Suite 2L Carlsbad, CA 92009 Phone: 760/634-0437 Fax: 760/634-0439

Battelle
505 King Avenue, Room 10-1-170
Columbus, OH 43201
ATTN: Ms. Betsy Cutie

September 18, 2006

SUBJECT: NASA JPL, Data Validation

Dear Ms. Cutie,

Enclosed are the final validation reports for the fractions listed below. This SDG was received on September 12, 2006. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project # 15474:

SDG #	Fraction
JPL16	Volatiles, Chromium, Perchlorate

The data validation was performed under EPA Level III and IV guidelines. The analyses were validated using the following documents, as applicable to each method:

- USEPA, Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999
- USEPA, Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, October 2004

Please feel free to contact us if you have any questions.

Sincerely,

Erlinda T. Rauto
Operations Manager/Senior Chemist

Attachment 1

PO 190288 10/90

LDC #15474 (Battelle-San Diego / NASA JPL)

LDC	SDG#	DATE REC'D	(3) DATE DUE	VOA (524.2)		Cr (200.8)		CLO_4 (314.0)																													
Matrix:	Water/Soil			W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	JPL16	09/12/06	10/03/06	22	0	14	0	20	0																												
A	JPL16	09/12/06	10/03/06	1	0	1	0	1	0																												
Total	B/LR			23	0	15	0	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	59

Shaded cells indicate Level IV validation (all other cells are Level III validation).

NASA JPL
Data Validation Reports
LDC# 15474

Volatiles

LDC Report# 15474A1

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: August 17 through August 18, 2006

LDC Report Date: September 18, 2006

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level III & IV

Laboratory: Laucks Testing Laboratories

Sample Delivery Group (SDG): JPL16

Sample Identification

MW-17-4	MW-17-3MSD
MW-17-3	MW-3-3MS
MW-17-2	MW-3-3MSD
EB-3-8/17/06	
MW-18-5	
MW-18-4	
MW-18-3	
MW-18-2	
TB-3-8/17/06	
MW-3-4**	
MW-3-3	
MW-3-2	
EB-4-8/18/06	
TB-4-8/18/06	
MW-19-5	
MW-19-4	
MW-19-3	
MW-19-2	
MW-19-1	
MW-17-3MS	

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 23 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 524.2 for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

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

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

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. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 20.0% for selected compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination (r^2) was greater than or equal to 0.990 .

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 30.0% .

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. 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:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
MW-17-3MS/MSD (MW-17-3)	2,2-Dichloropropane	58 (60-140)	-	-	J (all detects)	A
	tert-Butylbenzene	59 (60-140)	-	-	UJ (all non-detects)	
	Naphthalene	57 (60-140)	-	-		
	1,2,3-Trichlorobenzene	59.7 (60-140)	-	-		
MW-3-3MS/MSD (MW-3-3)	Dichlorodifluoromethane	-	53 (60-140)	-	J (all detects)	A
	2,2-Dichloropropane	-	49 (60-140)	-	UJ (all non-detects)	
	Benzene	-	59 (60-140)	-		
	Trichloroethene	-	57 (60-140)	-		
	Toluene	-	58 (60-140)	-		
	trans-1,3-Dichloropropene	-	55 (60-140)	-		
	Tetrachloroethene	-	59 (60-140)	-		
	Chlorobenzene	-	57 (60-140)	32 (≤30)		
	Ethylbenzene	-	56 (60-140)	-		
	1,1,1,2-Tetrachloroethane	-	-	31 (≤30)		
	m,p-Xylenes	-	58 (60-140)	-		
	o-Xylene	-	58 (60-140)	-		
	Styrene	-	57 (60-140)	33 (≤30)		
	Isopropylbenzene	-	59 (60-140)	-		
	n-Propylbenzene	-	58 (60-140)	-		
	Bromobenzene	-	53 (60-140)	32 (≤30)		
	2-Chlorotoluene	-	54 (60-140)	31 (≤30)		
	1,3,5-Trimethylbenzene	-	56 (60-140)	-		
	4-Chlorotoluene	-	56 (60-140)	-		
	tert-Butylbenzene	-	52 (60-140)	-		
	1,2,4-Trimethylbenzene	-	58 (60-140)	-		
	sec-Butylbenzene	-	59.6 (60-140)	-		
	p-Isopropyltoluene	-	57 (60-140)	-		
	1,3-Dichlorobenzene	-	53 (60-140)	-		
	1,4-Dichlorobenzene	-	56 (60-140)	-		
	n-Butylbenzene	-	55 (60-140)	-		
	1,2-Dichlorobenzene	-	55 (60-140)	31 (≤30)		
	1,2,4-Trichlorobenzene	-	58 (60-140)	-		
	Hexachlorobutadiene	-	57 (60-140)	-		
	Naphthalene	-	51 (60-140)	33 (≤30)		
	1,2,3-Trichlorobenzene	-	56 (60-140)	-		

VIII. Laboratory Control Samples (LCS)

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

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XIII. Tentatively Identified Compounds (TICs)

All tentatively identified compounds were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XIV. System Performance

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XV. Overall Assessment of Data

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

XVI. Field Duplicates

No field duplicates were identified in this SDG.

XVII. Field Blanks

Samples TB-3-8/17/06 and TB-4-8/18/06 were identified as trip blanks. No volatile contaminants were found in these blanks.

Samples EB-3-8/17/06 and EB-4-8/18/06 were identified as equipment blanks. No volatile contaminants were found in these blanks.

NASA JPL
Volatiles - Data Qualification Summary - SDG JPL16

SDG	Sample	Compound	Flag	A or P	Reason
JPL16	MW-17-3	2,2-Dichloropropane tert-Butylbenzene Naphthalene 1,2,3-Trichlorobenzene	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)
JPL16	MW-3-3	Dichlorodifluoromethane 2,2-Dichloropropane Benzene Trichloroethene Toluene trans-1,3-Dichloropropene Tetrachloroethene Ethylbenzene m,p-Xylenes o-Xylene Isopropylbenzene n-Propylbenzene 1,3,5-Trimethylbenzene 4-Chlorotoluene tert-Butylbenzene 1,2,4-Trimethylbenzene sec-Butylbenzene p-Isopropyltoluene 1,3-Dichlorobenzene 1,4-Dichlorobenzene n-Butylbenzene 1,2,4-Trichlorobenzene Hexachlorobutadiene 1,2,3-Trichlorobenzene	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)
JPL16	MW-3-3	Chlorobenzene Styrene Bromobenzene 2-Chlorotoluene 1,2-Dichlorobenzene Naphthalene	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)(RPD)
JPL16	MW-3-3	1,1,1,2-Tetrachloroethane	J (all detects) UJ (all non-detects)	P	Matrix spike/Matrix spike duplicates (RPD)

NASA JPL
Volatiles - Laboratory Blank Data Qualification Summary - SDG JPL16

No Sample Data Qualified in this SDG

NASA JPL
Data Validation Reports
LDC# 15474

Chromium

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: August 17 through August 18, 2006

LDC Report Date: September 14, 2006

Matrix: Water

Parameters: Chromium

Validation Level: EPA Level III & IV

Laboratory: Laucks Testing Laboratories

Sample Delivery Group (SDG): JPL16

Sample Identification

MW-17-4
MW-17-3
MW-17-2
EB-3-8/17/06
MW-18-4
MW-18-3
MW-18-2
MW-3-4**
MW-3-3
MW-3-2
EB-4-8/18/06
MW-17-3MS
MW-17-3MSD
MW-3-3MS
MW-3-3MSD

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 15 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 200.8 for Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

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

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

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. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

III. Blanks

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

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Chromium	1.0 ug/L	All samples in SDG JPL16

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-17-4	Chromium	2.89 ug/L	2.89U ug/L
MW-17-3	Chromium	3.99 ug/L	3.99U ug/L
MW-17-2	Chromium	2.94 ug/L	2.94U ug/L
EB-3-8/17/06	Chromium	2.65 ug/L	2.65U ug/L
MW-18-4	Chromium	3.11 ug/L	3.11U ug/L
MW-18-2	Chromium	1.80 ug/L	1.80U ug/L
MW-3-4**	Chromium	2.47 ug/L	2.47U ug/L

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-3-3	Chromium	1.99 ug/L	1.99U ug/L
MW-3-2	Chromium	1.80 ug/L	1.80U ug/L
EB-4-8/18/06	Chromium	2.06 ug/L	2.06U ug/L

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

V. 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.

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable.

VII. Laboratory Control Samples (LCS)

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

VIII. Internal Standards

All internal standard percent recoveries (%R) were within QC limits for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

XI. Sample Result Verification

All sample result verifications were acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XII. Overall Assessment of Data

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

XIII. Field Duplicates

No field duplicates were identified in this SDG.

XIV. Field Blanks

Samples EB-3-8/17/06 and EB-4-8/18/06 were identified as equipment blanks. No metal contaminants were found in these blanks with the following exceptions:

Equipment Blank ID	Analyte	Concentration (ug/L)
EB-3-8/17/06	Chromium	2.65
EB-4-8/18/06	Chromium	2.06

NASA JPL
Chromium - Data Qualification Summary - SDG JPL16

No Sample Data Qualified in this SDG

NASA JPL
Chromium - Laboratory Blank Data Qualification Summary - SDG JPL16

SDG	Sample	Analyte	Modified Final Concentration	A or P
JPL16	MW-17-4	Chromium	2.89U ug/L	A
JPL16	MW-17-3	Chromium	3.99U ug/L	A
JPL16	MW-17-2	Chromium	2.94U ug/L	A
JPL16	EB-3-8/17/06	Chromium	2.65U ug/L	A
JPL16	MW-18-4	Chromium	3.11U ug/L	A
JPL16	MW-18-2	Chromium	1.80U ug/L	A
JPL16	MW-3-4**	Chromium	2.47U ug/L	A
JPL16	MW-3-3	Chromium	1.99U ug/L	A
JPL16	MW-3-2	Chromium	1.80U ug/L	A
JPL16	EB-4-8/18/06	Chromium	2.06U ug/L	A

NASA JPL
Data Validation Reports
LDC# 15474

Perchlorate

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: August 17 through August 18, 2006

LDC Report Date: September 14, 2006

Matrix: Water

Parameters: Perchlorate

Validation Level: EPA Level III & IV

Laboratory: Laucks Testing Laboratories

Sample Delivery Group (SDG): JPL16

Sample Identification

MW-17-4
MW-17-3
MW-17-2
EB-3-8/17/06
MW-18-5
MW-18-4
MW-18-3
MW-18-2
MW-3-4**
MW-3-3
MW-3-2
EB-4-8/18/06
MW-19-5
MW-19-4
MW-19-3
MW-19-2
MW-19-1
MW-17-3MS
MW-17-3MSD
MW-3-3MS
MW-3-3MSD

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 21 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 314.0 for Perchlorate.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) as there are no current guidelines for the methods stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

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

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

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. Calibration

a. Initial Calibration

All criteria for the initial calibration were met.

b. Calibration Verification

Calibration verification frequency and analysis criteria were met.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No perchlorate was found in the method blanks.

IV. Matrix Spike/Matrix Spike Duplicates

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

V. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable.

VI. Laboratory Control Samples

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

VII. Sample Result Verification

All sample result verifications were acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

VIII. Overall Assessment of Data

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

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Field Blanks

Samples EB-3-8/17/06 and EB-4-8/18/06 were identified as equipment blanks. No contaminant concentrations were found in these blanks.

NASA JPL
Perchlorate - Data Qualification Summary - SDG JPL16

No Sample Data Qualified in this SDG

NASA JPL
Perchlorate - Laboratory Blank Data Qualification Summary - SDG JPL16

No Sample Data Qualified in this SDG

LABORATORY DATA CONSULTANTS, INC.
7750 El Camino Real, Suite 2L Carlsbad, CA 92009 Phone: 760/634-0437 Fax: 760/634-0439

Battelle
505 King Avenue, Room 10-1-170
Columbus, OH 43201
ATTN: Ms. Betsy Cutie

September 27, 2006

SUBJECT: NASA JPL, Data Validation

Dear Ms. Cutie,

Enclosed are the final validation reports for the fractions listed below. This SDG was received on September 15, 2006. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project # 15485:

SDG #	Fraction
JPL17	Volatiles, Chromium, Wet Chemistry

The data validation was performed under EPA Level III and IV guidelines. The analyses were validated using the following documents, as applicable to each method:

- USEPA, Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999
- USEPA, Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, October 2004

Please feel free to contact us if you have any questions.

Sincerely,

ERauto

Erlinda T. Rauto
Operations Manager/Senior Chemist

Attachment 1

PO 190288 10/90

LDC #15485 (Battelle-San Diego / NASA JPL)

LDC	SDG#	DATE REC'D	(3) DATE DUE	VOA (524.2)		Cr (200.8)		CLO_4 (314.0)		Anions (300.0)																									
Matrix:	Water/Soil			W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	JPL17	09/15/06	10/06/06	17	0	14	0	15	0	3	0																								
A	JPL17	09/15/06	10/06/06	2	0	2	0	2	0	0	0																								
Total	L/LR			19	0	16	0	17	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55

Shaded cells indicate Level IV validation (all other cells are Level III validation).

NASA JPL
Data Validation Reports
LDC# 15485

Volatiles

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: August 21 through August 22, 2006

LDC Report Date: September 26, 2006

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level III & IV

Laboratory: Laucks Testing Laboratories

Sample Delivery Group (SDG): JPL17

Sample Identification

MW-20-5
MW-20-4**
MW-20-3**
MW-20-2
MW-20-1
EB-5-8/21/06
TB-5-8/21/06
MW-4-3
MW-4-2
MW-4-1
DUPE-1-3Q06
EB-6-8/22/06
TB-6-8/22/06
MW-11-4
MW-11-3
MW-11-2
MW-11-1
MW-20-2MS
MW-20-2MSD

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 19 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 524.2 for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

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

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

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. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 20.0% for selected compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination (r^2) was greater than or equal to 0.990 .

Average relative response factors (RRF) for all volatile target compounds and system performance check compounds (SPCCs) were within method and validation criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 30.0% .

The percent differences (%D) of the second source calibration standard were less than or equal to 30.0% for all compounds.

All of the continuing calibration RRF values were within method and validation criteria

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. 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:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
MW-20-2MS/MSD (MW-20-2)	Naphthalene	-	58 (60-140)	-	J (all detects) UJ (all non-detects)	A

VIII. Laboratory Control Samples (LCS)

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

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XV. Overall Assessment of Data

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

XVI. Field Duplicates

Samples MW-4-1 and DUPE-1-3Q06 were identified as field duplicates. No volatiles were detected in any of the samples.

XVII. Field Blanks

Samples TB-5-8/21/06 and TB-6-8/22/06 were identified as trip blanks. No volatile contaminants were found in these blanks with the following exceptions:

Trip Blank ID	Compound	Concentration (ug/L)
TB-5-8/21/06	1,1,1-Trichloroethane	12

Samples EB-5-8/21/06 and EB-6-8/22/06 were identified as equipment blanks. No volatile contaminants were found in these blanks with the following exceptions:

Equipment Blank ID	Compound	Concentration (ug/L)
EB-6-8/22/06	Methylene chloride	1.1

NASA JPL
Volatiles - Data Qualification Summary - SDG JPL17

SDG	Sample	Compound	Flag	A or P	Reason
JPL17	MW-20-2	Naphthalene	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)

NASA JPL
Volatiles - Laboratory Blank Data Qualification Summary - SDG JPL17

No Sample Data Qualified in this SDG

NASA JPL
Data Validation Reports
LDC# 15485

Chromium

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: August 21 through August 22, 2006

LDC Report Date: September 24, 2006

Matrix: Water

Parameters: Chromium

Validation Level: EPA Level III & IV

Laboratory: Laucks Testing Laboratories

Sample Delivery Group (SDG): JPL17

Sample Identification

MW-20-4**
MW-20-3**
MW-20-2
MW-20-1
EB-5-8/21/06
MW-4-3
MW-4-2
MW-4-1
DUPE-1-3Q06
EB-6-8/22/06
MW-11-3
MW-11-2
MW-11-1
MW-20-2MS
MW-20-2MSD
MW-20-5

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 16 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 200.8 for Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

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

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

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. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

III. Blanks

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

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

V. 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 with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
MW-20-2MS/MSD (All samples in SDG JPL17)	Chromium	65.3 (70-130)	-	22.3 (≤20)	J (all detects) UJ (all non-detects)	A

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable.

VII. Laboratory Control Samples (LCS)

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

VIII. Internal Standards

All internal standard percent recoveries (%R) were within QC limits for samples on which a EPA Level IV review was performed with the following exceptions:

Sample	Internal Standard	%R (Limits)	Analyte	Flag	A or P
MW-20-3**	Scandium-45	181.273 (60-125)	Chromium	J (all detects) UJ (all non-detects)	P
MW-20-2	Scandium-45	179.952 (60-125)	Chromium	J (all detects) UJ (all non-detects)	P

Raw data were not evaluated for the samples reviewed by Level III criteria.

IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

XI. Sample Result Verification

All sample result verifications were acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XII. Overall Assessment of Data

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

XIII. Field Duplicates

Samples MW-4-1 and DUPE-1-3Q06 were identified as field duplicates. No chromium was detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	MW-4-1	DUPE-1-3Q06	
Chromium	1.73	1.76	2

XIV. Field Blanks

Samples EB-5-8/21/06 and EB-6-8/22/06 were identified as equipment blanks. No chromium was found in these blanks with the following exceptions:

Equipment Blank ID	Analyte	Concentration (ug/L)
EB-5-8/21/06	Chromium	1.46
EB-6-8/22/06	Chromium	2.29

NASA JPL
Chromium - Data Qualification Summary - SDG JPL17

SDG	Sample	Analyte	Flag	A or P	Reason
JPL17	MW-20-4** MW-20-3** MW-20-2 MW-20-1 EB-5-8/21/06 MW-4-3 MW-4-2 MW-4-1 DUPE-1-3Q06 EB-6-8/22/06 MW-11-3 MW-11-2 MW-11-1 MW-20-5	Chromium	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)
JPL17	MW-20-3** MW-20-2	Chromium	J (all detects) UJ (all non-detects)	A	Internal standards (%R)

NASA JPL
Chromium - Laboratory Blank Data Qualification Summary - SDG JPL17

No Sample Data Qualified in this SDG

NASA JPL
Data Validation Reports
LDC# 15485

Wet Chemistry

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: August 21 through August 22, 2006

LDC Report Date: September 24, 2006

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level III & IV

Laboratory: Laucks Testing Laboratories

Sample Delivery Group (SDG): JPL17

Sample Identification

MW-20-5
MW-20-4**
MW-20-3**
MW-20-2
MW-20-1
EB-5-8/21/06
MW-4-3
MW-4-2
MW-4-1
DUPE-1-3Q06
EB-6-8/22/06
MW-11-4
MW-11-3
MW-11-2
MW-11-1
MW-11-1MS
MW-11-1MSD
MW-20-2MS
MW-20-2MSD

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 19 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.0 for Chloride, Nitrate as Nitrogen, Nitrite as Nitrogen, Sulfate, and Orthophosphate and EPA Method 314.0 for Perchlorate.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) as there are no current guidelines for the methods stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

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

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

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. Calibration

a. Initial Calibration

All criteria for the initial calibration were met.

b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

IV. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
MW-11-1MS/MSD (MW-11-1)	Orthophosphate	87 (90-110)	-	-	J (all detects) UJ (all non-detects)	A

V. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable.

VI. Laboratory Control Samples

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

VII. Sample Result Verification

All sample result verifications were acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

VIII. Overall Assessment of Data

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

IX. Field Duplicates

Samples MW-4-1 and DUPE-1-3Q06 were identified as field duplicates. No contaminant concentrations were detected in any of the samples.

X. Field Blanks

Samples EB-5-8/21/06 and EB-6-8/22/06 were identified as equipment blanks. No contaminant concentrations were found in these blanks.

NASA JPL
Wet Chemistry - Data Qualification Summary - SDG JPL17

SDG	Sample	Analyte	Flag	A or P	Reason
JPL17	MW-11-1	Orthophosphate	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)

NASA JPL
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG JPL17

No Sample Data Qualified in this SDG

LABORATORY DATA CONSULTANTS, INC.
7750 El Camino Real, Suite 2L Carlsbad, CA 92009 Phone: 760/634-0437 Fax: 760/634-0439

Battelle
505 King Avenue, Room 10-1-170
Columbus, OH 43201
ATTN: Ms. Betsy Cutie

October 5, 2006

SUBJECT: NASA JPL, Data Validation

Dear Ms. Cutie,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on September 22, 2006. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project # 15515:

SDG #	Fraction
JPL18, JPL19	Volatiles, Chromium, Wet Chemistry

The data validation was performed under EPA Level III and IV guidelines. The analyses were validated using the following documents, as applicable to each method:

- USEPA, Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999
- USEPA, Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, October 2004

Please feel free to contact us if you have any questions.

Sincerely,

Erlinda T. Rauto
Operations Manager/Senior Chemist

Attachment 1

PO 190288 10/90

LDC #15515 (Battelle-San Diego / NASA JPL)

LDC	SDG#	DATE REC'D	(3) DATE DUE	VOA (524.2)		Cr (200.8)		Cl,SO_4 (300.0)		NO_3-N NO_2-N (300.0)		$O\text{-}PO_4$ (300.0)		CLO_4 (314.0)																							
Matrix:	Water/Soil			W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	JPL18	09/22/06	10/13/06	14	0	13	0	3	0	3	0	3	0	14	0																				
A	JPL18	09/22/06	10/13/06	2	0	2	0	0	0	0	0	0	0	2	0																				
B	JPL19	09/22/06	10/13/06	21	0	19	0	-	-	-	-	-	-	18	0																				
Total	B/LR			37	0	34	0	3	0	3	0	3	0	34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	114

Shaded cells indicate Level IV validation (all other cells are Level III validation).

NASA JPL
Data Validation Reports
LDC# 15515

Volatiles

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: August 23 through August 24, 2006

LDC Report Date: October 4, 2006

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level III & IV

Laboratory: Laucks Testing Laboratories

Sample Delivery Group (SDG): JPL18

Sample Identification

MW-24-3
MW-24-2**
MW-24-1
EB-7-8/23/06
SB-1-8/23/06
TB-7-8/23/06
MW-12-5
MW-12-4
MW-12-3
MW-12-2
MW-12-1
MW-22-3
MW-22-2
MW-22-1**
EB-8-8/24/06
TB-8-8/24/06

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 16 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 524.2 for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

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

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

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. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 20.0% for selected compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination (r^2) was greater than or equal to 0.990 .

Average relative response factors (RRF) for all volatile target compounds and system performance check compounds (SPCCs) were within method and validation criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 30.0% with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
9/1/06	Dichlorodifluoromethane	35.40	MW-24-3 MW-24-2** MW-24-1 EB-7-8/23/06 B090106MVOWY1	J (all detects) UJ (all non-detects)	A

The percent differences (%D) of the second source calibration standard were less than or equal to 30.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
8/31/06	Trichloroethene	31.0	All samples in SDG JPL18	J (all detects) UJ (all non-detects)	A
	trans-1,3-Dichloropropene	32.0			
	Ethylbenzene	30.9			
	Bromobenzene	31.8			
	Tetrachloroethene	31.1			
	tert-Butylbenzene	35.6			
	p-Isopropyltoluene	30.9			
	1,3-Dichlorobenzene	33.1			
	n-Butylbenzene	32.6			
	1,2-Dichlorobenzene	30.4			
	Naphthalene	35.9			
	1,2,3-Trichlorobenzene	30.6			

All of the continuing calibration RRF values were within method and validation criteria

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were not required by the method.

VIII. Laboratory Control Samples (LCS)

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

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XIII. Tentatively Identified Compounds (TICs)

All tentatively identified compounds were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XIV. System Performance

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XV. Overall Assessment of Data

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

XVI. Field Duplicates

No field duplicates were identified in this SDG.

XVII. Field Blanks

Samples TB-7-8/23/06 and TB-8-8/24/06 were identified as trip blanks. No volatile contaminants were found in these blanks.

Samples EB-7-8/23/06 and EB-8-8/24/06 were identified as equipment blanks. No volatile contaminants were found in these blanks with the following exceptions:

Equipment Blank ID	Compound	Concentration (ug/L)
EB-8-8/24/06	Tetrachloroethene 1,1-Dichloroethane Chloroform	1.5 0.26 0.27

Sample SB-1-8/23/06 was identified as a source blank. No volatile contaminants were found in this blank.

NASA JPL
Volatiles - Data Qualification Summary - SDG JPL18

SDG	Sample	Compound	Flag	A or P	Reason
JPL18	MW-24-3 MW-24-2** MW-24-1 EB-7-8/23/06	Dichlorodifluoromethane	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
JPL18	MW-24-3 MW-24-2** MW-24-1 EB-7-8/23/06 SB-1-8/23/06 TB-7-8/23/06 MW-12-5 MW-12-4 MW-12-3 MW-12-2 MW-12-1 MW-22-3 MW-22-2 MW-22-1** EB-8-8/24/06 TB-8-8/24/06	Trichloroethene trans-1,3-Dichloropropene Ethylbenzene Bromobenzene Tetrachloroethene tert-Butylbenzene p-Isopropyltoluene 1,3-Dichlorobenzene n-Butylbenzene 1,2-Dichlorobenzene Naphthalene 1,2,3-Trichlorobenzene	J (all detects) UJ (all non-detects)	A	Continuing calibration (ICV %D)

NASA JPL
Volatiles - Laboratory Blank Data Qualification Summary - SDG JPL18

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: August 25 through August 29, 2006

LDC Report Date: October 4, 2006

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level III

Laboratory: Laucks Testing Laboratories

Sample Delivery Group (SDG): JPL19

Sample Identification

MW-23-3
MW-23-2
MW-23-1
DUPE-2-3Q06
EB-9-8/25/06
TB-9-8/25/06
MW-25-5
MW-25-4
MW-25-3
MW-25-2
MW-25-1
EB-10-8/28/06
TB-10-8/28/06
MW-26-2
MW-26-1
EB-11-8/29/06
TB-11/8/29/06
MW-25-1MS
MW-25-1MSD
MW-26-1MS
MW-26-1MSD

Introduction

This data review covers 21 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 524.2 for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

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

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All samples were received in good condition.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
MW-23-3 MW-23-2 MW-23-1 DUPE-2-3Q06 EB-9-8/25/06 TB-9-8/25/06	All TCL compounds	Cooler temperature was reported at 14°C to 14.3°C upon receipt by the laboratory.	Cooler temperature must be 4±2°C .	J (all detects) UJ (all non-detects)	A

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 20.0% for selected compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination (r^2) was greater than or equal to 0.990 .

Average relative response factors (RRF) for all volatile target compounds and system performance check compounds (SPCCs) were within method and validation criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 30.0% .

The percent differences (%D) of the second source calibration standard were less than or equal to 30.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
9/8/06	Dichlorodifluoromethane	47.6	MW-25-5 MW-25-4 MW-25-3 MW-25-2 MW-25-1 EB-10-8/28/06 TB-10-8/28/06 MW-26-2 MW-26-1 EB-11-8/29/06 TB-11/8/29/06 MW-25-1MS MW-25-1MSD MW-26-1MS MW-26-1MSD B091106MVOWB1	J (all detects) UJ (all non-detects)	A
8/31/06	Trichloroethene trans-1,3-Dichloropropene Ethylbenzene Bromobenzene Tetrachloroethene tert-Butylbenzene p-Isopropyltoluene 1,3-Dichlorobenzene n-Butylbenzene 1,2-Dichlorobenzene Naphthalene 1,2,3-Trichlorobenzene	31.0 32.0 30.9 31.8 31.1 35.6 30.9 33.1 32.6 30.4 35.9 30.6	MW-23-3 MW-23-2 MW-23-1 DUPE-2-3Q06 EB-9-8/25/06 TB-9-8/25/06 B090706MVOWY1	J (all detects) UJ (all non-detects)	A

All of the continuing calibration RRF values were within method and validation criteria.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Although matrix spike (MS) and matrix spike duplicate (MSD) samples were not required by the method, MS and MSD samples were reported by the laboratory. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
MW-25-1MS/MSD (MW-25-1)	2,2-Dichloropropane	-	45 (60-140)	-	J (all detects) UJ (all non-detects)	A

VIII. Laboratory Control Samples (LCS)

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

LCS ID	Compound	%R (Limits)	Associated Samples	Flag	A or P
S091106MVOWB1	Dichlorodifluoromethane	152 (60-140)	MW-25-5 MW-25-4 MW-25-3 MW-25-2 MW-25-1 EB-10-8/28/06 TB-10-8/28/06 MW-26-2 MW-26-1 EB-11-8/29/06 TB-11/8/29/06 B091106MVOWB1	J (all detects)	P

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

XII. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

XIV. System Performance

Raw data were not reviewed for this SDG.

XV. Overall Assessment of Data

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

XVI. Field Duplicates

Samples MW-23-1 and DUPE-2-3Q06 were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	MW-23-1	DUPE-2-3Q06	
Trichloroethene	0.38	0.40	5
Tetrachloroethene	1.0	0.50U	200

XVII. Field Blanks

Samples TB-9-8/25/06, TB-10-8/28/06, and TB-11/8/29/06 were identified as trip blanks. No volatile contaminants were found in these blanks.

Samples EB-9-8/25/06, EB-10-8/28/06, and EB-11-8/29/06 were identified as equipment blanks. No volatile contaminants were found in these blanks.

NASA JPL
Volatiles - Data Qualification Summary - SDG JPL19

SDG	Sample	Compound	Flag	A or P	Reason
JPL19	MW-23-3 MW-23-2 MW-23-1 DUPE-2-3Q06 EB-9-8/25/06 TB-9-8/25/06	All TCL compounds	J (all detects) UJ (all non-detects)	A	Cooler temperature
JPL19	MW-25-5 MW-25-4 MW-25-3 MW-25-2 MW-25-1 EB-10-8/28/06 TB-10-8/28/06 MW-26-2 MW-26-1 EB-11-8/29/06 TB-11/8/29/06	Dichlorodifluoromethane	J (all detects) UJ (all non-detects)	A	Continuing calibration (ICV %D)
JPL19	MW-23-3 MW-23-2 MW-23-1 DUPE-2-3Q06 EB-9-8/25/06 TB-9-8/25/06	Trichloroethene trans-1,3-Dichloropropene Ethylbenzene Bromobenzene Tetrachloroethene tert-Butylbenzene p-Isopropyltoluene 1,3-Dichlorobenzene n-Butylbenzene 1,2-Dichlorobenzene Naphthalene 1,2,3-Trichlorobenzene	J (all detects) UJ (all non-detects)	A	Continuing calibration (ICV %D)
JPL19	MW-25-1	2,2-Dichloropropane	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)
JPL19	MW-25-5 MW-25-4 MW-25-3 MW-25-2 MW-25-1 EB-10-8/28/06 TB-10-8/28/06 MW-26-2 MW-26-1 EB-11-8/29/06 TB-11/8/29/06	Dichlorodifluoromethane	J (all detects)	P	Laboratory control samples (%R)

NASA JPL
Volatiles - Laboratory Blank Data Qualification Summary - SDG JPL19

No Sample Data Qualified in this SDG

NASA JPL
Data Validation Reports
LDC# 15515

Chromium

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: August 23 through August 24, 2006

LDC Report Date: October 4, 2006

Matrix: Water

Parameters: Chromium

Validation Level: EPA Level III & IV

Laboratory: Laucks Testing Laboratories

Sample Delivery Group (SDG): JPL18

Sample Identification

MW-24-4
MW-24-3
MW-24-2**
MW-24-1
EB-7-8/23/06
SB-1-8/23/06
MW-12-3
MW-12-2
MW-12-1
MW-22-3
MW-22-2
MW-22-1**
EB-8-8/24/06
MW-24-4MS
MW-24-4MSD

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 15 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 200.8 for Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

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

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

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. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

III. Blanks

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

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Chromium	1.18 ug/L	All samples in SDG JPL18

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-24-4	Chromium	3.31 ug/L	3.31U ug/L
MW-24-3	Chromium	4.31 ug/L	4.31U ug/L
MW-24-2**	Chromium	4.05 ug/L	4.05U ug/L
MW-24-1	Chromium	1.96 ug/L	1.96U ug/L
EB-7-8/23/06	Chromium	3.83 ug/L	3.83U ug/L
SB-1-8/23/06	Chromium	3.48 ug/L	3.48U ug/L

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-12-3	Chromium	1.94 ug/L	1.94U ug/L
MW-12-2	Chromium	2.06 ug/L	2.06U ug/L
MW-12-1	Chromium	3.64 ug/L	3.64U ug/L
MW-22-3	Chromium	3.42 ug/L	3.42U ug/L
MW-22-2	Chromium	3.23 ug/L	3.23U ug/L
MW-22-1**	Chromium	2.13 ug/L	2.13U ug/L
EB-8-8/24/06	Chromium	3.71 ug/L	3.71U ug/L

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

V. 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.

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable.

VII. Laboratory Control Samples (LCS)

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

VIII. Internal Standards

All internal standard percent recoveries (%R) were within QC limits for samples on which a EPA Level IV review was performed with the following exceptions:

Sample	Internal Standard	%R (Limits)	Analyte	Flag	A or P
MW-24-2**	Scandium-45	127.57 (60-125)	Chromium	J (all detects) UJ (all non-detects)	P

Raw data were not evaluated for the samples reviewed by Level III criteria.

IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

XI. Sample Result Verification

All sample result verifications were acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XII. Overall Assessment of Data

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

XIII. Field Duplicates

No field duplicates were identified in this SDG.

XIV. Field Blanks

Samples EB-7-8/23/06 and EB-8-8/24/06 were identified as equipment blanks. No chromium was detected in these blanks with the following exceptions:

Equipment Blank ID	Analyte	Concentration (ug/L)
EB-7-8/23/06	Chromium	3.83
EB-8-8/24/06	Chromium	3.71

Samples SB-1-8/23/06 was identified as a source blank. No chromium was detected in this blank with the following exceptions:

Source Blank ID	Analyte	Concentration (ug/L)
SB-1-8/23/06	Chromium	3.48

NASA JPL
Chromium - Data Qualification Summary - SDG JPL18

SDG	Sample	Analyte	Flag	A or P	Reason
JPL18	MW-24-2**	Chromium	J (all detects) UJ (all non-detects)	P	Internal standards (%R)

NASA JPL
Chromium - Laboratory Blank Data Qualification Summary - SDG JPL18

SDG	Sample	Analyte	Modified Final Concentration	A or P
JPL18	MW-24-4	Chromium	3.31U ug/L	A
JPL18	MW-24-3	Chromium	4.31U ug/L	A
JPL18	MW-24-2**	Chromium	4.05U ug/L	A
JPL18	MW-24-1	Chromium	1.96U ug/L	A
JPL18	EB-7-8/23/06	Chromium	3.83U ug/L	A
JPL18	SB-1-8/23/06	Chromium	3.48U ug/L	A
JPL18	MW-12-3	Chromium	1.94U ug/L	A
JPL18	MW-12-2	Chromium	2.06U ug/L	A
JPL18	MW-12-1	Chromium	3.64U ug/L	A
JPL18	MW-22-3	Chromium	3.42U ug/L	A
JPL18	MW-22-2	Chromium	3.23U ug/L	A
JPL18	MW-22-1**	Chromium	2.13U ug/L	A
JPL18	EB-8-8/24/06	Chromium	3.71U ug/L	A

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: August 25 through August 29, 2006

LDC Report Date: October 4, 2006

Matrix: Water

Parameters: Chromium

Validation Level: EPA Level III

Laboratory: Laucks Testing Laboratories

Sample Delivery Group (SDG): JPL19

Sample Identification

MW-23-4
MW-23-3
MW-23-2
MW-23-1
DUPE-2-3Q06
EB-9-8/25/06
MW-25-5
MW-25-4
MW-25-3
MW-25-2
MW-25-1
EB-10-8/28/06
MW-26-2
MW-26-1
EB-11-8/29/06
MW-25-1MS
MW-25-1MSD
MW-26-1MS
MW-26-1MSD

Introduction

This data review covers 19 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 200.8 for Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

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

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

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. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met with the following exceptions:

Date	Lab. Reference/ID	Analyte	%R (Limits)	Associated Samples	Flag	A or P
9/10/06	CCV9	Chromium	110.2 (90-110)	MW-25-2 MW-25-1 EB-10-8/28/06 MW-26-2 MW-26-1 EB-11-8/29/06 MW-25-1MS MW-25-1MSD MW-26-1MS MW-26-1MSD	J (all detects)	P
9/10/06	CCV10	Chromium	111.1 (90-110)	MW-26-1 EB-11-8/29/06 MW-26-1MS MW-26-1MSD	J (all detects)	P

III. Blanks

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

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Chromium	2.30 ug/L	All samples in SDG JPL19

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-23-4	Chromium	3.00 ug/L	3.00U ug/L
MW-23-3	Chromium	4.85 ug/L	4.85U ug/L
MW-23-2	Chromium	2.94 ug/L	2.94U ug/L
MW-23-1	Chromium	2.38 ug/L	2.38U ug/L
DUPE-2-3Q06	Chromium	2.99 ug/L	2.99U ug/L
EB-9-8/25/06	Chromium	2.97 ug/L	2.97U ug/L
MW-25-5	Chromium	2.67 ug/L	2.67U ug/L
MW-25-4	Chromium	3.08 ug/L	3.08U ug/L
MW-25-3	Chromium	4.46 ug/L	4.46U ug/L
MW-25-2	Chromium	3.45 ug/L	3.45U ug/L
MW-25-1	Chromium	2.67 ug/L	2.67U ug/L
EB-10-8/28/06	Chromium	2.70 ug/L	2.70U ug/L
MW-26-2	Chromium	3.73 ug/L	3.73U ug/L
MW-26-1	Chromium	1.97 ug/L	1.97U ug/L
EB-11-8/29/06	Chromium	3.44 ug/L	3.44U ug/L

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

V. 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.

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable.

VII. Laboratory Control Samples (LCS)

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

VIII. Internal Standards

Raw data were not reviewed for this SDG.

IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

XI. Sample Result Verification

Raw data were not reviewed for this SDG.

XII. Overall Assessment of Data

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

XIII. Field Duplicates

Samples MW-23-2 and DUPE-2-3Q06 were identified as field duplicates. No chromium was detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	MW-23-2	DUPE-2-3Q06	
Chromium	2.94	2.99	2

XIV. Field Blanks

Samples EB-9-8/25/06, EB-10-8/28/06, and EB-11-8/29/06 were identified as equipment blanks. No chromium was found in these blanks with the following exceptions:

Equipment Blank ID	Analyte	Concentration (ug/L)
EB-9-8/25/06	Chromium	2.97
EB-10-8/28/06	Chromium	2.70
EB-11-8/29/06	Chromium	3.44

NASA JPL
Chromium - Data Qualification Summary - SDG JPL19

SDG	Sample	Analyte	Flag	A or P	Reason
JPL19	MW-25-2 MW-25-1 EB-10-8/28/06 MW-26-2 MW-26-1 EB-11-8/29/06	Chromium	J (all detects)	P	Calibration (CCV %R)

NASA JPL
Chromium - Laboratory Blank Data Qualification Summary - SDG JPL19

SDG	Sample	Analyte	Modified Final Concentration	A or P
JPL19	MW-23-4	Chromium	3.00U ug/L	A
JPL19	MW-23-3	Chromium	4.85U ug/L	A
JPL19	MW-23-2	Chromium	2.94U ug/L	A
JPL19	MW-23-1	Chromium	2.38U ug/L	A
JPL19	DUPE-2-3Q06	Chromium	2.99U ug/L	A
JPL19	EB-9-8/25/06	Chromium	2.97U ug/L	A
JPL19	MW-25-5	Chromium	2.67U ug/L	A
JPL19	MW-25-4	Chromium	3.08U ug/L	A
JPL19	MW-25-3	Chromium	4.46U ug/L	A
JPL19	MW-25-2	Chromium	3.45U ug/L	A
JPL19	MW-25-1	Chromium	2.67U ug/L	A
JPL19	EB-10-8/28/06	Chromium	2.70U ug/L	A
JPL19	MW-26-2	Chromium	3.73U ug/L	A
JPL19	MW-26-1	Chromium	1.97U ug/L	A

SDG	Sample	Analyte	Modified Final Concentration	A or P
JPL19	EB-11-8/29/06	Chromium	3.44U ug/L	A

NASA JPL
Data Validation Reports
LDC# 15515

Wet Chemistry

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: August 23 through August 24, 2006

LDC Report Date: October 4, 2006

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level III & IV

Laboratory: Laucks Testing Laboratories

Sample Delivery Group (SDG): JPL18

Sample Identification

MW-24-3
MW-24-2**
MW-24-1
EB-7-8/23/06
SB-1-8/23/06
MW-12-5
MW-12-4
MW-12-3
MW-12-2
MW-12-1
MW-22-3
MW-22-2
MW-22-1**
EB-8-8/24/06
MW-24-1MS
MW-24-1MSD
EB-8-8/24/06MS
EB-8-8/24/06MSD

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 18 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.0 for Chloride, Nitrate as Nitrogen, Nitrite as Nitrogen, Sulfate, and Orthophosphate and EPA Method 314.0 for Perchlorate.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) as there are no current guidelines for the methods stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

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

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

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. Calibration

a. Initial Calibration

All criteria for the initial calibration were met.

b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable with the following exceptions:

Date	Lab. Reference/ID	Analyte	%R (Limits)	Associated Samples	Flag	A or P
9/14/06	ICV	Perchlorate	81.4 (85-115)	MW-22-3 MW-22-2 MW-22-1** EB-8-8/24/06	J (all detects) UJ (all non-detects)	P

III. Blanks

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

IV. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
MW-24-1MS/MSD (MW-24-1)	Orthophosphate	80 (90-110)	88 (90-110)	-	J (all detects) UJ (all non-detects)	A

V. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable.

VI. Laboratory Control Samples

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

VII. Sample Result Verification

All sample result verifications were acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

VIII. Overall Assessment of Data

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

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Field Blanks

Samples EB-7-8/23/06 and EB-8-8/24/06 were identified as equipment blanks. No contaminant concentrations were found in these blanks.

Sample SB-1-8/23/06 was identified as a source blank. No contaminant concentrations were found in this blank.

NASA JPL
Wet Chemistry - Data Qualification Summary - SDG JPL18

SDG	Sample	Analyte	Flag	A or P	Reason
JPL18	MW-22-3 MW-22-2 MW-22-1** EB-8-8/24/06	Perchlorate	J (all detects) UJ (all non-detects)	P	Calibration (ICV %R)
JPL18	MW-24-1	Orthophosphate	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)

NASA JPL
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG JPL18

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: August 25 through August 29, 2006

LDC Report Date: October 4, 2006

Matrix: Water

Parameters: Perchlorate

Validation Level: EPA Level III

Laboratory: Laucks Testing Laboratories

Sample Delivery Group (SDG): JPL19

Sample Identification

MW-23-3
MW-23-2
MW-23-1
DUPE-2-3Q06
EB-9-8/25/06
MW-25-5
MW-25-4
MW-25-3
MW-25-2
MW-25-1
EB-10-8/28/06
MW-26-2
MW-26-1
EB-11-8/29/06
MW-25-1MS
MW-25-1MSD
MW-26-1MS
MW-26-1MSD

Introduction

This data review covers 18 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 314.0 Perchlorate.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) as there are no current guidelines for the methods stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

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

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

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. Calibration

a. Initial Calibration

All criteria for the initial calibration were met.

b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

III. Blanks

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

IV. Matrix Spike/Matrix Spike Duplicates

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

V. Duplicates

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

VI. Laboratory Control Samples

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

VII. Sample Result Verification

Raw data were not reviewed for this SDG.

VIII. Overall Assessment of Data

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

IX. Field Duplicates

Samples MW-23-2 and DUPE-2-3Q06 were identified as field duplicates. No perchlorate was detected in any of the samples with the following exceptions:

Analyte	Concentration		RPD
	MW-23-2	DUPE-2-3Q06	
Perchlorate	5.6	5.1	9

X. Field Blanks

Samples EB-9-8/25/06, EB-10-8/28/06, and EB-11-8/29/06 were identified as equipment blanks. No perchlorate was found in these blanks.

NASA JPL
Perchlorate - Data Qualification Summary - SDG JPL19

No Sample Data Qualified in this SDG

NASA JPL
Perchlorate - Laboratory Blank Data Qualification Summary - SDG JPL19

No Sample Data Qualified in this SDG

LABORATORY DATA CONSULTANTS, INC.
7750 El Camino Real, Suite 2L Carlsbad, CA 92009 Phone: 760/634-0437 Fax: 760/634-0439

Battelle
505 King Avenue, Room 10-1-170
Columbus, OH 43201
ATTN: Ms. Betsy Cutie

October 10, 2006

SUBJECT: NASA JPL, Data Validation

Dear Ms. Cutie,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on September 29, 2006. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project # 15550:

SDG #	Fraction
JPL20	Volatiles, Chromium, Wet Chemistry

The data validation was performed under EPA Level III and IV guidelines. The analyses were validated using the following documents, as applicable to each method:

- USEPA, Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999
- USEPA, Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, October 2004

Please feel free to contact us if you have any questions.

Sincerely,

ERauto

Erlinda T. Rauto
Operations Manager/Senior Chemist

Attachment 1

PO 190288 10/90

LDC #15550 (Battelle-San Diego / NASA JPL)

LDC	SDG#	DATE REC'D	(3) DATE DUE	VOA (524.2)		Cr (200.8)		Cl,SO_4 (300.0)		NO_3-N NO_2-N (300.0)		$O\text{-}PO_4$ (300.0)		CLO_4 (314.0)																									
Matrix:	Water/Soil			W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	JPL20	09/29/06	10/20/06	15	0	13	0	10	0	10	0	10	0	11	0																								
A	JPL20	09/29/06	10/20/06	2	0	2	0	1	0	1	0	1	0	2	0																								
Total	B/LR			17	0	15	0	11	0	11	0	11	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	78

Shaded cells indicate Level IV validation (all other cells are Level III validation).

NASA JPL
Data Validation Reports
LDC# 15550

Volatiles

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: August 30 through September 5, 2006

LDC Report Date: October 9, 2006

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level III & IV

Laboratory: Laucks Testing Laboratories

Sample Delivery Group (SDG): JPL20

Sample Identification

MW-13
MW-16**
DUPE-3-3Q06
DUPE-4-3Q06
TB-12-8/30/06
MW-7
MW-8
DUPE-5-3Q05
TB-13-8/31/06
MW-10
MW-5
TB-14-9/1/06
MW-6**
DUPE-6-3Q06
TB-15-9/5/06
MW-10MS
MW-10MSD

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 17 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 524.2 for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

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

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures.

Cooler temperatures for samples MW-10, MW-5, and TB-14-9/1/06 were reported at 9.5°C upon receipt by the laboratory.

All other cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 20.0% for selected compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination (r^2) was greater than or equal to 0.990 .

Average relative response factors (RRF) for all volatile target compounds and system performance check compounds (SPCCs) were within method and validation criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 30.0% with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
9/12/06	2-Butanone	37.9	MW-13 MW-16** DUPE-3-3Q06 DUPE-4-3Q06 TB-12-8/30/06 MW-7 B091206MVOWB1	J (all detects) UJ (all non-detects)	A

The percent differences (%D) of the second source calibration standard were less than or equal to 30.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
9/8/06	Dichlorodifluoromethane	47.6	All samples in SDG JPL20	J (all detects) UJ (all non-detects)	A

All of the continuing calibration RRF values were within method and validation criteria

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
B091206MVOWB1	9/12/06	4-Methyl-2-pentanone	5.0 ug/L	MW-13 MW-16** DUPE-3-3Q06 DUPE-4-3Q06 TB-12-8/30/06 MW-7

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Although matrix spike (MS) and matrix spike duplicate (MSD) samples were not required by the method, MS and MSD samples were reported by the laboratory. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Laboratory Control Samples (LCS)

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

LCS ID	Compound	%R (Limits)	Associated Samples	Flag	A or P
S091306MVOWB1	2-Butanone	54 (60-140)	MW-8 DUPE-5-3Q05 TB-13-8/31/06 MW-10 MW-5 TB-14-9/1/06 MW-6** DUPE-6-3Q06 TB-15-9/5/06 B091306MVOWB1	J (all detects) UJ (all non-detects)	P

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XV. Overall Assessment of Data

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

XVI. Field Duplicates

Samples MW-13 and DUPE-3-3Q06, samples MW-16** and DUPE-4-3Q06, and samples MW-8 and DUPE-5-3Q05, and samples MW-6** and DUPE-6-3Q06 were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	MW-13	DUPE-3-3Q06	
Chloroform	4.6	4.8	4
Carbon tetrachloride	1.5	1.5	0
Trichloroethene	11	11	0
Toluene	043	0.62	36
1,1,2-Trichloroethane	0.37	0.42	13
Tetrachloroethene	0.37	0.36	3
Bromodichloromethane	0.39	0.36	8

Compound	Concentration (ug/L)		RPD
	MW-16**	DUPE-4-3Q06	
1,1-Dichloroethene	2.4	2.2	9
1,1,2-Trichloro-1,2,2-trifluoroethane	0.29	0.50U	200
Chloroform	14	13	7
Carbon tetrachloride	31	31	0
Trichloroethene	3.2	3.2	0
Tetrachloroethene	7.4	7.2	3

Compound	Concentration (ug/L)		RPD
	MW-6**	DUPE-6-3Q06	
1,1-Dichloroethane	0.52	0.48	8
Tetrachloroethene	0.91	0.83	9
Chloroform	0.50U	0.36	200

XVII. Field Blanks

Samples TB-12-8/30/06, TB-13-8/31/06, TB-14-9/1/06, and TB-15-9/5/06 were identified as trip blanks. No volatile contaminants were found in these blanks.

NASA JPL
Volatiles - Data Qualification Summary - SDG JPL20

SDG	Sample	Compound	Flag	A or P	Reason
JPL20	MW-13 MW-16** DUPE-3-3Q06 DUPE-4-3Q06 TB-12-8/30/06 MW-7	2-Butanone	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
JPL20	MW-13 MW-16** DUPE-3-3Q06 DUPE-4-3Q06 TB-12-8/30/06 MW-7 MW-8 DUPE-5-3Q05 TB-13-8/31/06 MW-10 MW-5 TB-14-9/1/06 MW-6** DUPE-6-3Q06 TB-15-9/5/06	Dichlorodifluoromethane	J (all detects) UJ (all non-detects)	A	Continuing calibration (ICV %D)
JPL20	MW-8 DUPE-5-3Q05 TB-13-8/31/06 MW-10 MW-5 TB-14-9/1/06 MW-6** DUPE-6-3Q06 TB-15-9/5/06	2-Butanone	J (all detects) UJ (all non-detects)	P	Laboratory control samples (%R)

NASA JPL
Volatiles - Laboratory Blank Data Qualification Summary - SDG JPL20

No Sample Data Qualified in this SDG

NASA JPL
Data Validation Reports
LDC# 15550

Chromium

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: August 30 through September 5, 2006

LDC Report Date: October 9, 2006

Matrix: Water

Parameters: Chromium

Validation Level: EPA Level III & IV

Laboratory: Laucks Testing Laboratories

Sample Delivery Group (SDG): JPL20

Sample Identification

MW-13
MW-16**
DUPE-3-3Q06
DUPE-4-3Q06
MW-7
MW-8
DUPE-5-3Q05
MW-10
MW-5
MW-6**
MW-15
DUPE-6-3Q06
DUPE-7-3Q06
MW-10MS
MW-10MSD

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 15 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 200.8 for Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

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

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

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. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

III. Blanks

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

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

V. 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.

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable.

VII. Laboratory Control Samples (LCS)

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

VIII. Internal Standards

All internal standard percent recoveries (%R) were within QC limits for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

XI. Sample Result Verification

All sample result verifications were acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XII. Overall Assessment of Data

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

XIII. Field Duplicates

Samples MW-13 and DUPE-3-3Q06, samples MW-16** and DUPE-4-3Q06, samples MW-8 and DUPE-5-3Q05, samples MW-6** and DUPE-6-3Q06, and samples MW-15 and DUPE-7-3Q06 were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	MW-13	DUPE-3-3Q06	
Chromium	14.8	15.7	6

Compound	Concentration (ug/L)		RPD
	MW-16**	DUPE-4-3Q06	
Chromium	8.39	2.06	121

Compound	Concentration (ug/L)		RPD
	MW-8	DUPE-5-3Q05	
Chromium	2.89	22.2	154

Compound	Concentration (ug/L)		RPD
	MW-6**	DUPE-6-3Q06	
Chromium	3.73	5.41	37

Compound	Concentration (ug/L)		RPD
	MW-15	DUPE-7-3Q06	
Chromium	6.00	2.00U	200

XIV. Field Blanks

No field blanks were identified in this SDG.

NASA JPL
Chromium - Data Qualification Summary - SDG JPL20

No Sample Data Qualified in this SDG

NASA JPL
Chromium - Laboratory Blank Data Qualification Summary - SDG JPL20

No Sample Data Qualified in this SDG

NASA JPL
Data Validation Reports
LDC# 15550

Wet Chemistry

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: August 30 through September 5, 2006

LDC Report Date: October 9, 2006

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level III & IV

Laboratory: Laucks Testing Laboratories

Sample Delivery Group (SDG): JPL20

Sample Identification

MW-13
MW-16**
DUPE-3-3Q06
DUPE-4-3Q06
MW-7
MW-8
DUPE-5-3Q05
MW-10
MW-5
MW-6**
DUPE-6-3Q06
DUPE-4-3Q06MS
DUPE-4-3Q06MSD
DUPE-5-3Q05MS
DUPE-5-3Q05MSD
MW-10MS
MW-10MSD

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 17 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.0 for Chloride, Nitrate as Nitrogen, Nitrite as Nitrogen, Sulfate, and Orthophosphate and EPA Method 314.0 for Perchlorate.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) as there are no current guidelines for the methods stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

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

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

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

Sample	Analyte	Total Time From Sample Collection Until Analysis	Required Holding Time From Sample Collection Until Analysis	Flag	A or P
DUPE-3-3Q06	Nitrate as N Nitrite as N Orthophosphate	48.5 hours 48.5 hours 48.5 hours	48 hours 48 hours 48 hours	J (all detects) UJ (all non-detects)	P
MW-7 MW-8 DUPE-5-3Q05 DUPE-5-3Q05MS DUPE-5-3Q05MSD	Nitrate as N Nitrite as N Orthophosphate	5 days 5 days 5 days	48 hours 48 hours 48 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. Calibration

a. Initial Calibration

All criteria for the initial calibration were met.

b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable with the following exceptions:

Date	Lab. Reference/ID	Analyte	%R (Limits)	Associated Samples	Flag	A or P
9/5/06	ICV	Orthophosphate	110.1 (90-110)	MW-7 MW-8 DUPE-5-3Q05	J (all detects)	P

III. Blanks

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

IV. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
DUPE-5-3Q05MS/MSD (MW-7 MW-8 DUPE-5-3Q05)	Chloride Sulfate Nitrate as N Nitrite as N Orthophosphate	87 (90-110) - 86 (90-110) 78 (90-110) 82 (90-110)	83 (90-110) 89 (90-110) 86 (90-110) 76 (90-110) 82 (90-110)	- - - - -	J (all detects) UJ (all non-detects)	A

V. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable.

VI. Laboratory Control Samples

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

Standard reference material results were within QC limits with the following exceptions:

SRM ID	Analyte	Concentration (Limits)	Associated Samples	Flag	A or P
SRM	Orthophosphate	54.2 mg/L (44.33-54.17)	MW-7 MW-8 DUPE-5-3Q05	J (all detects)	P

VII. Sample Result Verification

All sample result verifications were acceptable with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
MW-8	Nitrate as N	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	P

Raw data were not evaluated for the samples reviewed by Level III criteria.

VIII. Overall Assessment of Data

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

IX. Field Duplicates

Samples MW-13 and DUPE-3-3Q06, samples MW-16** and DUPE-4-3Q06, samples MW-8 and DUPE-5-3Q05, and samples MW-6** and DUPE-6-3Q06 were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration		RPD
	MW-13	DUPE-3-3Q06	
Nitrate as N	11 mg/L	11 mg/L	0
Sulfate	66 mg/L	67 mg/L	2
Chloride	29 mg/L	28 mg/L	4
Perchlorate	2100 ug/L	2100 ug/L	0

Analyte	Concentration		RPD
	MW-16**	DUPE-4-3Q06	
Nitrate as N	8.9 mg/L	8.8 mg/L	1
Sulfate	35 mg/L	33 mg/L	6
Chloride	25 mg/L	26 mg/L	4
Perchlorate	4600 ug/L	4900 ug/L	6

Analyte	Concentration		RPD
	MW-8	DUPE-5-3Q05	
Nitrate as N	2.8 mg/L	2.7 mg/L	4
Sulfate	39 mg/L	38 mg/L	3
Chloride	19 mg/L	19 mg/L	0
Perchlorate	4.0U ug/L	13 ug/L	200

X. Field Blanks

No field blanks were identified in this SDG.

NASA JPL
Wet Chemistry - Data Qualification Summary - SDG JPL20

SDG	Sample	Analyte	Flag	A or P	Reason
JPL20	DUPE-3-3Q06	Nitrate as N Nitrite as N Orthophosphate	J (all detects) UJ (all non-detects)	P	Technical holding times
JPL20	MW-7 MW-8 DUPE-5-3Q05	Nitrate as N Nitrite as N Orthophosphate	J (all detects) R (all non-detects)	P	Technical holding times
JPL20	MW-7 MW-8 DUPE-5-3Q05	Orthophosphate	J (all detects)	P	Calibration (ICV %R)
JPL20	MW-7 MW-8 DUPE-5-3Q05	Chloride Sulfate Nitrate as N Nitrite as N Orthophosphate	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)
JPL20	MW-7 MW-8 DUPE-5-3Q05	Orthophosphate	J (all detects)	P	Laboratory control samples (SRM %R)
JPL20	MW-8	Nitrate as N	J (all detects)	P	Sample result verification

NASA JPL
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG JPL20

No Sample Data Qualified in this SDG

LABORATORY DATA CONSULTANTS, INC.
7750 El Camino Real, Suite 2L Carlsbad, CA 92009 Phone: 760/634-0437 Fax: 760/634-0439

Battelle
505 King Avenue, Room 10-1-170
Columbus, OH 43201
ATTN: Ms. Betsy Cutie

October 10, 2006

SUBJECT: NASA JPL, Data Validation

Dear Ms. Cutie,

Enclosed are the final validation reports for the fraction listed below. These SDGs were received on October 2, 2006. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project # 15554:

SDG #	Fraction
L0601051, L0601071, L0601095	Hexavalent Chromium

The data validation was performed under EPA Level III and IV guidelines. The analyses were validated using the following documents, as applicable to each method:

- USEPA, Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, October 2004
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998

Please feel free to contact us if you have any questions.

Sincerely,

Erlinda T. Rauto
Operations Manager/Senior Chemist

Attachment 1

PO 190288 10/90

LDC #15554 (Battelle-San Diego / NASA JPL)

LDC	SDG#	DATE REC'D	(3) DATE DUE	Cr(VI) (7196A)																															
Matrix:	Water/Soil			W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	L0601051	10/02/06	10/23/06	28	0																														
A	L0601051	10/02/06	10/23/06	1	0																														
B	L0601071	10/02/06	10/23/06	40	0																														
B	L0601071	10/02/06	10/23/06	3	0																														
C	L0601095	10/02/06	10/23/06	32	0																														
C	L0601095	10/02/06	10/23/06	2	0																														
Total	B/LR			106	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	106

Shaded cells indicate Level IV validation (all other cells are Level III validation).

NASA JPL
Data Validation Reports
LDC# 15554

Hexavalent Chromium

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: August 15 through August 18, 2006

LDC Report Date: October 10, 2006

Matrix: Water

Parameters: Hexavalent Chromium

Validation Level: EPA Level III & IV

Laboratory: Columbia Analytical Services, Inc.

Sample Delivery Group (SDG): L0601051

Sample Identification

MW-21-5
MW-21-4
MW-21-3
MW-21-2
MW-21-1
EB-1-8/15/06
MW-14-3
MW-14-2
MW-14-1
EB-2-8/16/06
MW-17-4
MW-17-3
MW-17-2
EB-3-8/17/06
MW-18-4
MW-18-3
MW-18-2
MW-3-4**
MW-3-3
MW-3-2
EB-4-8/18/06
MW-21-5MS
MW-21-5MSD
MW-14-1MS
MW-14-1MSD
MW-17-3MS
MW-17-3MSD
MW-3-3MS
MW-3-3MSD

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 29 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 7196A for Hexavalent Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) as there are no current guidelines for the methods stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

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

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

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. Calibration

a. Initial Calibration

All criteria for the initial calibration were met.

b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

III. Blanks

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

IV. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
MW-21-5MS/MSD (MW-21-5 MW-21-4 MW-21-3 MW-21-2 MW-21-1 EB-1-8/15/06)	Hexavalent chromium	-	83 (85-115)	-	J (all detects) UJ (all non-detects)	A

V. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable.

VI. Laboratory Control Samples

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

VII. Sample Result Verification

All sample result verifications were acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

VIII. Overall Assessment of Data

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

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Field Blanks

Samples EB-1-8/15/06, EB-2-8/16/06, EB-3-8/17/06, and EB-4-8/18/06 were identified as equipment blanks. No hexavalent chromium was found in these blanks.

NASA JPL
Hexavalent Chromium - Data Qualification Summary - SDG L0601051

SDG	Sample	Analyte	Flag	A or P	Reason
L0601051	MW-21-5 MW-21-4 MW-21-3 MW-21-2 MW-21-1 EB-1-8/15/06	Hexavalent chromium	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)

NASA JPL
Hexavalent Chromium - Laboratory Blank Data Qualification Summary - SDG L0601051

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: August 21 through August 25, 2006

LDC Report Date: October 10, 2006

Matrix: Water

Parameters: Hexavalent Chromium

Validation Level: EPA Level III & IV

Laboratory: Columbia Analytical Services, Inc.

Sample Delivery Group (SDG): L0601071

Sample Identification

MW-20-5	MW-22-3	MW-22-3MSD
MW-20-4	MW-22-2	MW-23-4MS
MW-20-3	MW-22-1**	MW-23-4MSD
MW-20-2	EB-8-8/24/06	
MW-20-1	MW-12-3	
EB-5-8/21/06	MW-12-2	
MW-4-3**	MW-12-1	
MW-4-2	MW-23-4	
MW-4-1	MW-23-3	
DUPE-1-3Q06	MW-23-2	
EB-6-8/22/06	MW-23-1	
MW-11-3	DUPE-2-3Q06	
MW-11-2	EB-9-8/25/06	
MW-11-1	MW-20-2MS	
MW-24-4	MW-20-2MSD	
MW-24-3	MW-4-2MS	
MW-24-2**	MW-4-2MSD	
MW-24-1	MW-24-4MS	
EB-7-8/23/06	MW-24-4MSD	
SB-1-8/23/06	MW-22-3MS	

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 43 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 7196A for Hexavalent Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) as there are no current guidelines for the methods stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

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

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

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. Calibration

a. Initial Calibration

All criteria for the initial calibration were met.

b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

III. Blanks

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

IV. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
MW-24-4MS/MSD (MW-24-4 MW-24-3 MW-24-2** MW-24-1 EB-7-8/23/06 SB-1-8/23/06)	Hexavalent chromium	56 (85-115)	54 (85-115)	-	J (all detects) UJ (all non-detects)	A

V. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable.

VI. Laboratory Control Samples

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

VII. Sample Result Verification

All sample result verifications were acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

VIII. Overall Assessment of Data

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

IX. Field Duplicates

Samples MW-4-1 and DUPE-1-3Q06 and samples MW-23-2 and DUPE-2-3Q06 were identified as field duplicates. No hexavalent chromium was detected in any of the samples.

X. Field Blanks

Samples EB-5-8/21/06, EB-6-8/22/06, EB-7-8/23/06, EB-8-8/24/06, and EB-9-8/25/06 were identified as equipment blanks. No hexavalent chromium was found in these blanks with the following exceptions:

Equipment Blank ID	Analyte	Concentration (mg/L)
EB-5-8/21/06	Hexavalent chromium	0.004
EB-8-8/24/06	Hexavalent chromium	0.01

Sample SB-1-8/23/06 was identified as a source blank. No hexavalent chromium was found in this blank.

NASA JPL
Hexavalent Chromium - Data Qualification Summary - SDG L0601071

SDG	Sample	Analyte	Flag	A or P	Reason
L0601071	MW-24-4 MW-24-3 MW-24-2** MW-24-1 EB-7-8/23/06 SB-1-8/23/06	Hexavalent chromium	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)

NASA JPL
Hexavalent Chromium - Laboratory Blank Data Qualification Summary - SDG L0601071

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: August 28 through September 5, 2006

LDC Report Date: October 10, 2006

Matrix: Water

Parameters: Hexavalent Chromium

Validation Level: EPA Level III & IV

Laboratory: Columbia Analytical Services, Inc.

Sample Delivery Group (SDG): L0601095

Sample Identification

MW-25-5	DUPE-6-3Q06
MW-25-4	DUPE-7-3Q06
MW-25-3	MW-25-1MS
MW-25-2	MW-25-1MSD
MW-25-1	MW-26-1MS
EB-10-8/28/06	MW-26-1MSD
MW-26-2	MW-16MS
MW-26-1	MW-16MSD
EB-11-8/29/06	MW-7MS
MW-13	MW-7MSD
MW-16**	MW-10MS
DUPE-3-3Q06	MW-10MSD
DUPE-4-3Q06	MW-6MS
MW-7	MW-6MSD
MW-8	
DUPE-5-3Q06	
MW-10	
MW-5	
MW-6**	
MW-15	

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 34 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 7196A for Hexavalent Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) as there are no current guidelines for the methods stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

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

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

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. Calibration

a. Initial Calibration

All criteria for the initial calibration were met.

b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

III. Blanks

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

IV. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
MW-10MS/MSD (MW-10 MW-5)	Hexavalent chromium	138 (85-115)	140 (85-115)	-	J (all detects)	A
MW-6MS/MSD (MW-6** MW-15 DUPE-6-3Q06 DUPE-7-3Q06)	Hexavalent chromium	-	83 (85-115)	-	J (all detects) UJ (all non-detects)	A

V. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable.

VI. Laboratory Control Samples

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

VII. Sample Result Verification

All sample result verifications were acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

VIII. Overall Assessment of Data

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

IX. Field Duplicates

Samples MW-13 and DUPE-3-3Q06, samples MW-16** and DUPE-4-3Q06, samples MW-8 and DUPE-5-3Q06, samples MW-6** and DUPE-6-3Q06, and samples MW-15 and DUPE-7-3Q06 were identified as field duplicates. No hexavalent chromium was detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/L)		RPD
	MW-13	DUPE-3-3Q06	
Hexavalent chromium	0.008	0.008	0

X. Field Blanks

Samples EB-10-8/28/06 and EB-11-8/29/06 were identified as equipment blanks. No hexavalent chromium was found in these blanks.

NASA JPL
Hexavalent Chromium - Data Qualification Summary - SDG L0601095

SDG	Sample	Analyte	Flag	A or P	Reason
L0601095	MW-10 MW-5	Hexavalent chromium	J (all detects)	A	Matrix spike/Matrix spike duplicates (%R)
L0601095	MW-6** MW-15 DUPE-6-3Q06 DUPE-7-3Q06	Hexavalent chromium	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)

NASA JPL
Hexavalent Chromium - Laboratory Blank Data Qualification Summary - SDG L0601095

No Sample Data Qualified in this SDG

LABORATORY DATA CONSULTANTS, INC.
7750 El Camino Real, Suite 2L Carlsbad, CA 92009 Phone: 760/634-0437 Fax: 760/634-0439

Battelle
505 King Avenue, Room 10-1-170
Columbus, OH 43201
ATTN: Ms. Betsy Cutie

October 10, 2006

SUBJECT: NASA JPL, Data Validation

Dear Ms. Cutie,

Enclosed are the final validation reports for the fractions listed below. This SDG was received on October 6, 2006. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project # 15575:

SDG #	Fraction
JPL15	Volatiles, Chromium, Perchlorate

The data validation was performed under EPA Level III and IV guidelines. The analyses were validated using the following documents, as applicable to each method:

- USEPA, Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999
- USEPA, Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, October 2004

Please feel free to contact us if you have any questions.

Sincerely,

ERauto

Erlinda T. Rauto
Operations Manager/Senior Chemist

RUSH (2 WEEK TAT)

Attachment 1

PO 190288 10/90

LDC #15575 (Battelle-San Diego / NASA JPL)

LDC	SDG#	DATE REC'D	(3) DATE DUE	VOA (524.2)		Cr (200.8)		CLO_4 (314.0)																													
Matrix:	Water/Soil			W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	JPL15	10/06/06	10/20/06	15	0	11	0	13	0																												
A	JPL15	10/06/06	10/20/06	1	0	1	0	1	0																												
Total	B/LR			16	0	12	0	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42

Shaded cells indicate Level IV validation (all other cells are Level III validation).

NASA JPL
Data Validation Reports
LDC# 15575

Volatiles

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: August 15 through August 16, 2006

LDC Report Date: October 10, 2006

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level III & IV

Laboratory: Laucks Testing Laboratories

Sample Delivery Group (SDG): JPL15

Sample Identification

MW-21-5
MW-21-4
MW-21-3**
MW-21-2
MW-21-1
EB-1-8/15/06
TB-1-8/15/06
MW-14-5
MW-14-4
MW-14-3
MW-14-2
MW-14-1
EB-2-8/16/06
TB-2-8/16/06
MW-14-1MS
MW-14-1MSD

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 16 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 524.2 for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

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

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

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. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 20.0% for selected compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination (r^2) was greater than or equal to 0.990 .

Average relative response factors (RRF) for all volatile target compounds and system performance check compounds (SPCCs) were within method and validation criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 30.0% .

The percent differences (%D) of the second source calibration standard were less than or equal to 30.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
6/26/06	Dichlorodifluoromethane	52.2	All samples in SDG JPL15	J (all detects) UJ (all non-detects)	A

All of the continuing calibration RRF values were within method and validation criteria

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Although matrix spike (MS) and matrix spike duplicate (MSD) samples were not required by the method, MS and MSD samples were reported by the laboratory. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
MW-14-1MS/MSD (MW-14-1)	Dichlorodifluoromethane	-	143 (60-140)	-	J (all detects)	A

VIII. Laboratory Control Samples (LCS)

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

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XV. Overall Assessment of Data

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

XVI. Field Duplicates

No field duplicates were identified in this SDG.

XVII. Field Blanks

Samples TB-1-8/15/06 and TB-2-8/16/06 were identified as trip blanks. No volatile contaminants were found in these blanks.

Samples EB-1-8/15/06 and EB-2-8/16/06 were identified as equipment blanks. No volatile contaminants were found in these blanks.

NASA JPL
Volatiles - Data Qualification Summary - SDG JPL15

SDG	Sample	Compound	Flag	A or P	Reason
JPL15	MW-21-5 MW-21-4 MW-21-3** MW-21-2 MW-21-1 EB-1-8/15/06 TB-1-8/15/06 MW-14-5 MW-14-4 MW-14-3 MW-14-2 MW-14-1 EB-2-8/16/06 TB-2-8/16/06	Dichlorodifluoromethane	J (all detects) UJ (all non-detects)	A	Continuing calibration (ICV %D)
JPL15	MW-14-1	Dichlorodifluoromethane	J (all detects)	A	Matrix spike/Matrix spike duplicates (%R)

NASA JPL
Volatiles - Laboratory Blank Data Qualification Summary - SDG JPL15

No Sample Data Qualified in this SDG

NASA JPL
Data Validation Reports
LDC# 15575

Chromium

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: August 15 through August 16, 2006

LDC Report Date: October 9, 2006

Matrix: Water

Parameters: Chromium

Validation Level: EPA Level III & IV

Laboratory: Laucks Testing Laboratories

Sample Delivery Group (SDG): JPL15

Sample Identification

MW-21-5
MW-21-4
MW-21-3**
MW-21-2
MW-21-1
EB-1-8/15/06
MW-14-3
MW-14-2
MW-14-1
EB-2-8/16/06
MW-14-1MS
MW-14-1MSD

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 12 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 200.8 for Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

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

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

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. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

III. Blanks

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

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Chromium	1.03 ug/L	All samples in SDG JPL15

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-21-5	Chromium	2.89 ug/L	2.89U ug/L
MW-21-4	Chromium	3.88 ug/L	3.88U ug/L
MW-21-3**	Chromium	2.59 ug/L	2.59U ug/L
MW-21-2	Chromium	2.04 ug/L	2.04U ug/L
MW-21-1	Chromium	2.59 ug/L	2.59U ug/L
EB-1-8/15/06	Chromium	2.93 ug/L	2.93U ug/L

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-14-3	Chromium	2.18 ug/L	2.18U ug/L
MW-14-2	Chromium	2.76 ug/L	2.76U ug/L
MW-14-1	Chromium	2.28 ug/L	2.28U ug/L
EB-2-8/16/06	Chromium	3.15 ug/L	3.15U ug/L

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

V. 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.

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable.

VII. Laboratory Control Samples (LCS)

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

VIII. Internal Standards

All internal standard percent recoveries (%R) were within QC limits for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

X. ICP Serial Dilution

ICP serial dilution was not performed for this SDG.

XI. Sample Result Verification

All sample result verifications were acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XII. Overall Assessment of Data

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

XIII. Field Duplicates

No field duplicates were identified in this SDG.

XIV. Field Blanks

Samples EB-1-8/15/06 and EB-2-8/16/06 were identified as equipment blanks. No chromium was detected in these blanks with the following exceptions:

Equipment Blank ID	Analyte	Concentration (ug/L)
EB-1-8/15/06	Chromium	2.93
EB-2-8/16/06	Chromium	3.15

NASA JPL
Chromium - Data Qualification Summary - SDG JPL15

No Sample Data Qualified in this SDG

NASA JPL
Chromium - Laboratory Blank Data Qualification Summary - SDG JPL15

SDG	Sample	Analyte	Modified Final Concentration	A or P
JPL15	MW-21-5	Chromium	2.89U ug/L	A
JPL15	MW-21-4	Chromium	3.88U ug/L	A
JPL15	MW-21-3**	Chromium	2.59U ug/L	A
JPL15	MW-21-2	Chromium	2.04U ug/L	A
JPL15	MW-21-1	Chromium	2.59U ug/L	A
JPL15	EB-1-8/15/06	Chromium	2.93U ug/L	A
JPL15	MW-14-3	Chromium	2.18U ug/L	A
JPL15	MW-14-2	Chromium	2.76U ug/L	A
JPL15	MW-14-1	Chromium	2.28U ug/L	A
JPL15	EB-2-8/16/06	Chromium	3.15U ug/L	A

NASA JPL
Data Validation Reports
LDC# 15575

Perchlorate

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: August 15 through August 16, 2006

LDC Report Date: October 9, 2006

Matrix: Water

Parameters: Perchlorate

Validation Level: EPA Level III & IV

Laboratory: Laucks Testing Laboratories

Sample Delivery Group (SDG): JPL15

Sample Identification

MW-21-5
MW-21-4
MW-21-3**
MW-21-2
MW-21-1
EB-1-8/15/06
MW-14-5
MW-14-4
MW-14-3
MW-14-2
MW-14-1
EB-2-8/16/06
MW-14-1MS
MW-14-1MSD

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 14 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 314.0 for Perchlorate.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) as there are no current guidelines for the methods stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

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

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

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. Calibration

a. Initial Calibration

All criteria for the initial calibration were met.

b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

III. Blanks

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

IV. Matrix Spike/Matrix Spike Duplicates

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

V. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable.

VI. Laboratory Control Samples

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

VII. Sample Result Verification

All sample result verifications were acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

VIII. Overall Assessment of Data

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

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Field Blanks

Samples EB-1-8/15/06 and EB-2-8/16/06 were identified as equipment blanks. No perchlorate was found in these blanks.

NASA JPL
Perchlorate - Data Qualification Summary - SDG JPL15

No Sample Data Qualified in this SDG

NASA JPL
Perchlorate - Laboratory Blank Data Qualification Summary - SDG JPL15

No Sample Data Qualified in this SDG