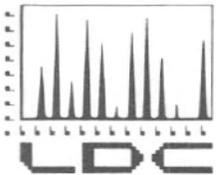


ATTACHMENT 2: DATA VALIDATION REPORTS (SUMMARY SHEETS)

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

August 31, 2005

SUBJECT: NASA JPL, Data Validation

Dear Ms. Cutie,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on August 12, 2005. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project # 13866:

<u>SDG #</u>	<u>Fraction</u>
05-3443, 05-3444, 05-3455, 05-3456	Volatiles, Chromium, Perchlorate & Hexavalent Chromium

The data validation was performed under EPA Level III & 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
- 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

**NASA JPL
Data Validation Reports
LDC# 13866**

Volatiles

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL
Collection Date: July 19, 2005
LDC Report Date: August 18, 2005
Matrix: Water
Parameters: Volatiles
Validation Level: EPA Level III
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 05-3444

Sample Identification

EB-1-7/19/05
MW-25-1
MW-25-2
MW-25-3
MW-25-4
MW-25-5
TB-1-7/19/05
MW-25-2MS
MW-25-2MSD

Introduction

This data review covers 9 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 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

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.

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

No field duplicates were identified in this SDG.

XVII. Field Blanks

Sample TB-1-7/19/05 was identified as a trip blank. No volatile contaminants were found in this blank.

Sample EB-1-7/19/05 was identified as an equipment blank. No volatile contaminants were found in this blank.

NASA JPL
Volatiles - Data Qualification Summary - SDG 05-3444

No Sample Data Qualified in this SDG

NASA JPL
Volatiles - Laboratory Blank Data Qualification Summary - SDG 05-3444

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL
Collection Date: July 20, 2005
LDC Report Date: August 18, 2005
Matrix: Water
Parameters: Volatiles
Validation Level: EPA Level III & IV
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 05-3456

Sample Identification

EB-2-7/20/05
MW-19-1
MW-19-2
MW-19-3**
MW-19-4
MW-19-5
TB-2-7/20/05

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 7 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) 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)

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

Sample TB-2-7/20/05 was identified as a trip blank. No volatile contaminants were found in this blank.

Sample EB-2-7/20/05 was identified as an equipment blank. No volatile contaminants were found in this blank.

NASA JPL
Volatiles - Data Qualification Summary - SDG 05-3456

No Sample Data Qualified in this SDG

NASA JPL
Volatiles - Laboratory Blank Data Qualification Summary - SDG 05-3456

No Sample Data Qualified in this SDG

**NASA JPL
Data Validation Reports
LDC# 13866**

Chromium

Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name: NASA JPL, 3Q05
Collection Date: July 19, 2005
LDC Report Date: August 24, 2005
Matrix: Water
Parameters: Chromium
Validation Level: EPA Level III
Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 05-3444

Sample Identification

EB-1-7/19/05
MW-25-1
MW-25-2
MW-25-3
MW-25-4
MW-25-5
MW-25-5MS
MW-25-5MSD
MW-25-5DUP

Introduction

This data review covers 9 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.

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
ICB/CCB	Chromium	0.064 ug/L	All samples in SDG 05-3444

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
EB-1-7/19/05	Chromium	0.15 ug/L	0.15U ug/L

IV. ICP Interference Check Sample (ICS) Analysis

ICP interference check sample analysis was not required.

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. Results were within QC limits.

VII. Laboratory Control Samples (LCS)

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

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

No field duplicates were identified in this SDG.

XIV. Field Blanks

Sample EB-1-7/19/05 was identified as an equipment blank. No chromium contaminants were found in this blank with the following exceptions:

Equipment Blank ID	Analyte	Concentration (ug/L)
EB-1-7/19/05	Chromium	0.15

NASA JPL, 3Q05
Chromium - Data Qualification Summary - SDG 05-3444

No Sample Data Qualified in this SDG

NASA JPL, 3Q05
Chromium - Laboratory Blank Data Qualification Summary - SDG 05-3444

SDG	Sample	Analyte	Modified Final Concentration	A or P
05-3444	EB-1-7/19/05	Chromium	0.15U ug/L	A

**NASA JPL
Data Validation Reports
LDC# 13866**

Perchlorate & Hexavalent Chromium

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL, 3Q05
Collection Date: July 19, 2005
LDC Report Date: August 24, 2005
Matrix: Water
Parameters: Perchlorate
Validation Level: EPA Level III
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 05-3443

Sample Identification

MW-25-1
MW-25-3
MW-25-4
MW-25-4MS
MW-25-4MSD

Introduction

This data review covers 5 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.

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 contaminants 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.

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) and relative percent differences (RPD) 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

No field duplicates were identified in this SDG.

X. Field Blanks

No field blanks were identified in this SDG.

NASA JPL, 3Q05

Perchlorate - Data Qualification Summary - SDG 05-3443

No Sample Data Qualified in this SDG

NASA JPL, 3Q05

Perchlorate - Laboratory Blank Data Qualification Summary - SDG 05-3443

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL, 3Q05
Collection Date: July 20, 2005
LDC Report Date: August 24, 2005
Matrix: Water
Parameters: Perchlorate
Validation Level: EPA Level III
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 05-3455

Sample Identification

MW-19-2

Introduction

This data review covers one water sample 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.

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 contaminants 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.

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) and relative percent differences (RPD) 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

No field duplicates were identified in this SDG.

X. Field Blanks

No field blanks were identified in this SDG.

NASA JPL, 3Q05

Perchlorate - Data Qualification Summary - SDG 05-3455

No Sample Data Qualified in this SDG

NASA JPL, 3Q05

Perchlorate - Laboratory Blank Data Qualification Summary - SDG 05-3455

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL, 3Q05
Collection Date: July 20, 2005
LDC Report Date: August 30, 2005
Matrix: Water
Parameters: Perchlorate
Validation Level: EPA Level III & IV
Laboratory: Severn Trent Laboratories
Sample Delivery Group (SDG): 05-3456

Sample Identification

EB-2-7/20/05
MW-19-1
MW-19-3**
MW-19-4
MW-19-5

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 5 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 contaminants 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.

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) and relative percent differences (RPD) 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

Sample EB-2-7/20/05 was identified as an equipment blank. No perchlorate contaminants were found in this blank.

NASA JPL, 3Q05
Perchlorate - Data Qualification Summary - SDG 05-3456

No Sample Data Qualified in this SDG

NASA JPL, 3Q05
Perchlorate - Laboratory Blank Data Qualification Summary - SDG 05-3456

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

August 29, 2005

SUBJECT: NASA JPL, Data Validation

Dear Ms. Cutie,

Enclosed are the final validation reports for the fractions listed below. This SDG was received on August 16, 2005. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project # 13876:

<u>SDG #</u>	<u>Fraction</u>
05-3472	Volatiles, Chromium, Perchlorate & Hexavalent Chromium, 1,2,3-Trichloropropane

The data validation was performed under EPA Level III 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
- 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

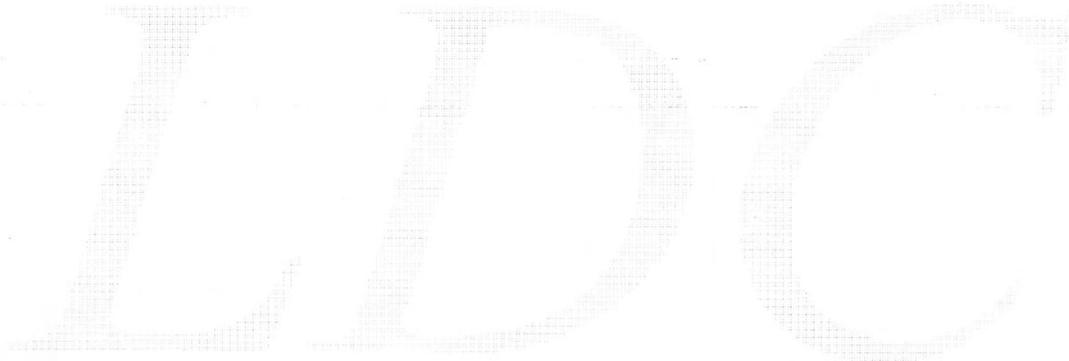
Please feel free to contact us if you have any questions.

Sincerely,

Erlinda T. Rauto
Operations Manager/Senior Chemist

**NASA JPL
Data Validation Reports
LDC# 13876**

Volatiles



**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL
Collection Date: July 21, 2005
LDC Report Date: August 24, 2005
Matrix: Water
Parameters: Volatiles
Validation Level: EPA Level III
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 05-3472

Sample Identification

EB-3-7/21/05
MW-18-1
MW-18-2
MW-18-3
MW-18-4
MW-18-5
TB-3-7/21/05
MW-18-5MS
MW-18-5MSD

Introduction

This data review covers 9 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 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% with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
7/26/05	Trichlorofluoromethane	32.67	All samples in SDG 05-3472	J (all detects) UJ (all non-detects)	P

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.

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

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

No field duplicates were identified in this SDG.

XVII. Field Blanks

Sample TB-3-7/21/05 was identified as a trip blank. No volatile contaminants were found in this blank.

Sample EB-3-7/21/05 was identified as an equipment blank. No volatile contaminants were found in this blank.

NASA JPL
Volatiles - Data Qualification Summary - SDG 05-3472

SDG	Sample	Compound	Flag	A or P	Reason
05-3472	EB-3-7/21/05 MW-18-1 MW-18-2 MW-18-3 MW-18-4 MW-18-5 TB-3-7/21/05	Trichlorofluoromethane	J (all detects) UJ (all non-detects)	P	Continuing calibration (%D)

NASA JPL
Volatiles - Laboratory Blank Data Qualification Summary - SDG 05-3472

No Sample Data Qualified in this SDG

**NASA JPL
Data Validation Reports
LDC# 13876**

Perchlorate & Hexavalent Chromium



**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL, 3Q05
Collection Date: July 21, 2005
LDC Report Date: August 24, 2005
Matrix: Water
Parameters: Perchlorate & Hexavalent Chromium
Validation Level: EPA Level III
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 05-3472

Sample Identification

EB-3-7/21/05
MW-18-2
MW-18-3
MW-18-4
MW-18-5
MW-18-2MS
MW-18-2MSD

Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 314.0 for Perchlorate and EPA SW 846 Method 7196 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.

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 or hexavalent chromium contaminants 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.

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) and relative percent differences (RPD) 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

No field duplicates were identified in this SDG.

X. Field Blanks

Sample EB-3-7/21/05 was identified as an equipment blank. No perchlorate or hexavalent chromium contaminants were found in this blank.

NASA JPL, 3Q05

Perchlorate & Hexavalent Chromium - Data Qualification Summary - SDG 05-3472

No Sample Data Qualified in this SDG

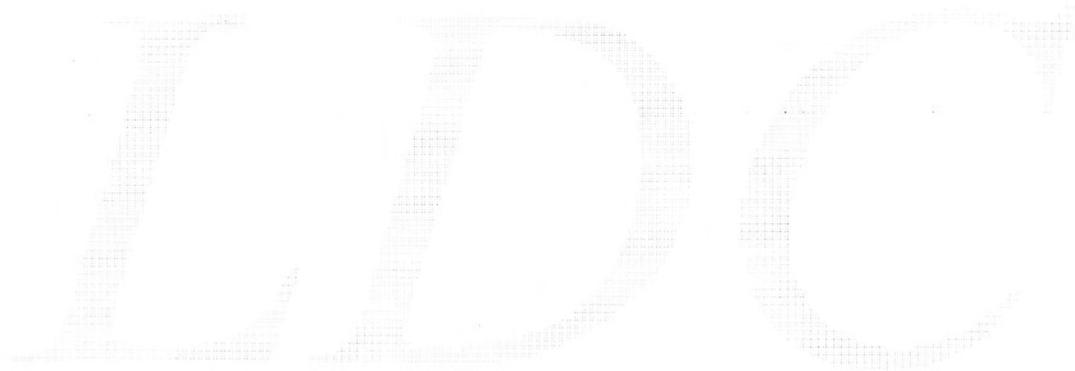
NASA JPL, 3Q05

**Perchlorate & Hexavalent Chromium - Laboratory Blank Data Qualification Summary
- SDG 05-3472**

No Sample Data Qualified in this SDG

**NASA JPL
Data Validation Reports
LDC# 13876**

1,2,3-Trichloropropane



**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL
Collection Date: June 21, 2005
LDC Report Date: August 24, 2005
Matrix: Water
Parameters: 1,2,3-Trichloropropane
Validation Level: EPA Level III
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 05-3472

Sample Identification

EB-3-7/21/05
MW-18-1
MW-18-2
MW-18-3
MW-18-4
MW-18-5

Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 504.1 for 1,2,3-Trichloropropane.

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 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

Initial calibration of compounds was performed for the primary (quantitation) column and confirmation column as required by this method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

b. Calibration Verification

Calibration verification was performed at the required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 20.0% QC limits.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No 1,2,3-Trichloropropane was found in the method blanks.

IV. Accuracy and Precision Data

a. Surrogate Recovery

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

b. Matrix Spike/(Matrix Spike) Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

c. Laboratory Control Samples

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

V. Target Compound Identification

Raw data were not reviewed for this SDG.

VI. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

VII. System Performance

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

No field duplicates were identified in this SDG.

X. Field Blanks

Sample EB-3-7/21/05 was identified as an equipment blank. No 1,2,3-Trichloropropane contaminants were found in this blank.

NASA JPL

1,2,3-Trichloropropane - Data Qualification Summary - SDG 05-3472

No Sample Data Qualified in this SDG

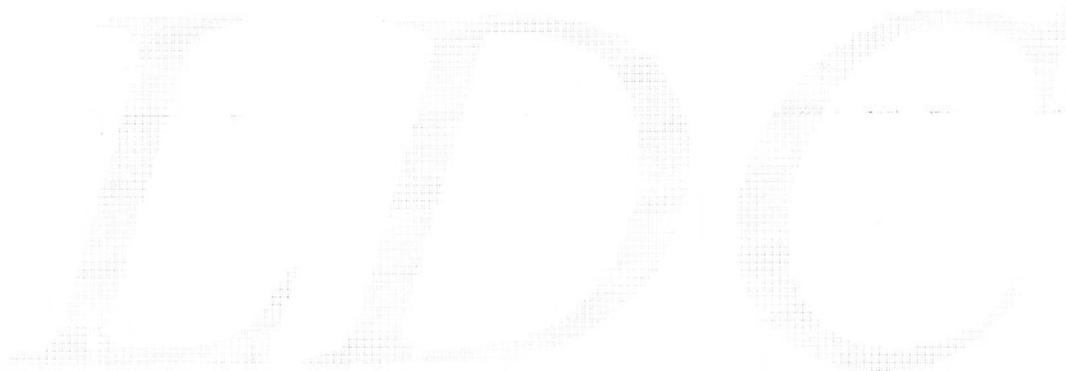
NASA JPL

**1,2,3-Trichloropropane - Laboratory Blank Data Qualification Summary - SDG
05-3472**

No Sample Data Qualified in this SDG

**NASA JPL
Data Validation Reports
LDC# 13876**

Chromium



**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL, 3Q05
Collection Date: July 21, 2005
LDC Report Date: August 24, 2005
Matrix: Water
Parameters: Chromium
Validation Level: EPA Level III
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 05-3472

Sample Identification

EB-3-7/21/05
MW-18-2
MW-18-3
MW-18-4

Introduction

This data review covers 4 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.

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
ICB/CCB	Chromium	0.064 ug/L	All samples in SDG 05-3472

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
EB-3-7/21/05	Chromium	0.16 ug/L	0.16U ug/L

IV. ICP Interference Check Sample (ICS) Analysis

ICP interference check sample analysis was not required.

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. Results were within QC limits.

VII. Laboratory Control Samples (LCS)

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

VIII. Internal Standards

ICP-MS was 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

No field duplicates were identified in this SDG.

XIV. Field Blanks

Sample EB-3-7/21/05 was identified as an equipment blank. No chromium contaminants were found in this blank with the following exceptions:

Equipment Blank ID	Analyte	Concentration (ug/L)
EB-3-7/21/05	Chromium	0.16

NASA JPL, 3Q05
Chromium - Data Qualification Summary - SDG 05-3472

No Sample Data Qualified in this SDG

NASA JPL, 3Q05
Chromium - Laboratory Blank Data Qualification Summary - SDG 05-3472

SDG	Sample	Analyte	Modified Final Concentration	A or P
05-3472	EB-3-7/21/05	Chromium	0.16U ug/L	A



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 7, 2005

SUBJECT: NASA JPL, Data Validation

Dear Ms. Cutie,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on August 22, 2005. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project # 13910:

<u>SDG #</u>	<u>Fraction</u>
05-3511, 05-3510,	Volatiles, N-Nitrosodimethylamine, Chromium, Wet
05-3529, 05-3541,	Chemistry, 1,2,3-Trichloropropane
05-3553	

The data validation was performed under EPA Level III and Level 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
- 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

**NASA JPL
Data Validation Reports
LDC# 13910**

Volatiles

DDC

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL
Collection Date: July 25, 2005
LDC Report Date: September 1, 2005
Matrix: Water
Parameters: Volatiles
Validation Level: EPA Level III
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 05-3511

Sample Identification

EB-4-7/25/05
MW-24-1
MW-24-2
MW-24-3
TB-4-7/25/05

Introduction

This data review covers 5 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 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% with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
7/26/05	Trichlorofluoromethane	32.67	All samples in SDG 05-3511	J (all detects) UJ (all non-detects)	P

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 25.0% for all compounds.

V. Blanks

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

**NASA JPL
Volatiles - Data Qualification Summary - SDG 05-3511**

SDG	Sample	Compound	Flag	A or P	Reason
05-3511	EB-4-7/25/05 MW-24-1 MW-24-2 MW-24-3 TB-4-7/25/05	Trichlorofluoromethane	J (all detects) UJ (all non-detects)	P	Continuing calibration (%D)

**NASA JPL
Volatiles - Laboratory Blank Data Qualification Summary - SDG 05-3511**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL
Collection Date: July 26, 2005
LDC Report Date: September 1, 2005
Matrix: Water
Parameters: Volatiles
Validation Level: EPA Level III
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 05-3529

Sample Identification

EB-5-7/26/05
MW-21-1
MW-21-2
MW-21-3
MW-21-4
MW-21-5
TB-5-7/26/05

Introduction

This data review covers 7 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.
- UU 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% with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
7/29/05	Trichlorofluoromethane	36.66	All samples in SDG 05-3529	J (all detects)	P
	Bromoform	30.06		UJ (all non-detects)	
				J (all detects)	
				UJ (all non-detects)	

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 25.0% for all compounds.

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

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

No field duplicates were identified in this SDG.

XVII. Field Blanks

Sample TB-5-7/26/05 was identified as a trip blank. No volatile contaminants were found in this blank.

Sample EB-5-7/26/05 was identified as an equipment blank. No volatile contaminants were found in this blank.

**NASA JPL
Volatiles - Data Qualification Summary - SDG 05-3529**

SDG	Sample	Compound	Flag	A or P	Reason
05-3529	EB-5-7/26/05 MW-21-1 MW-21-2 MW-21-3 MW-21-4 MW-21-5 TB-5-7/26/05	Trichlorofluoromethane Bromoform	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P	Continuing calibration (%D)

**NASA JPL
Volatiles - Laboratory Blank Data Qualification Summary - SDG 05-3529**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL
Collection Date: July 27, 2005
LDC Report Date: September 1, 2005
Matrix: Water
Parameters: Volatiles
Validation Level: EPA Level III & IV
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 05-3541

Sample Identification

EB-6-7/27/05
MW-3-2
MW-3-3
MW-3-4**
TB-6-7/27/05
MW-3-2MS
MW-3-2MSD

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 7 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% with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
7/29/05	Trichlorofluoromethane	36.66	All samples in SDG 05-3541	J (all detects)	P
	Bromoform	30.06		UJ (all non-detects)	
				J (all detects)	
				UJ (all non-detects)	

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.

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

Sample TB-6-7/27/05 was identified as a trip blank. No volatile contaminants were found in this blank.

Sample EB-6-7/27/05 was identified as an equipment blank. No volatile contaminants were found in this blank.

**NASA JPL
Volatiles - Data Qualification Summary - SDG 05-3541**

SDG	Sample	Compound	Flag	A or P	Reason
05-3541	EB-6-7/27/05 MW-3-2 MW-3-3 MW-3-4** TB-6-7/27/05	Trichlorofluoromethane Bromoform	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P	Continuing calibration (%D)

**NASA JPL
Volatiles - Laboratory Blank Data Qualification Summary - SDG 05-3541**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL
Collection Date: July 28, 2005
LDC Report Date: September 1, 2005
Matrix: Water
Parameters: Volatiles
Validation Level: EPA Level III
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 05-3553

Sample Identification

EB-7-7/28/05
MW-12-1
MW-12-2
MW-12-3
MW-12-4
MW-12-5
TB-7-7/28/05
MW-12-2MS
MW-12-2MSD

Introduction

This data review covers 9 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 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% .

Initial calibration verification (ICV) percent differences (%D) were less than or equal to 25.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
8/5/05	2,2-Dichloropropane	44.53	All samples in SDG 05 3553	J (all detects)	P
	1,2,3-Trichloropropane	36.99		UJ (all non-detects)	
				J (all detects)	
				UJ (all non-detects)	

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
05G2740MB01	8/9/05	Methylene chloride	1.4 ug/L	All samples in SDG 05-3553

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 with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
EB-7-7/28/05	Methylene chloride	2.0 ug/L	2.0U ug/L
MW-12-1	Methylene chloride	1.2 ug/L	1.2U ug/L
MW-12-2	Methylene chloride	1.4 ug/L	1.4U ug/L
MW-12-3	Methylene chloride	1.3 ug/L	1.3U ug/L
MW-12-4	Methylene chloride	1.3 ug/L	1.3U ug/L
MW-12-5	Methylene chloride	1.4 ug/L	1.4U ug/L
TB-7-7/28/05	Methylene chloride	1.4 ug/L	1.4U ug/L

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.

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

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

No field duplicates were identified in this SDG.

XVII. Field Blanks

Sample TB-7-7/28/05 was identified as a trip blank. No volatile contaminants were found in this blank with the following exceptions:

Trip Blank ID	Compound	Concentration (ug/L)
TB-7-7/28/05	Methylene chloride	1.4

Sample EB-7-7/28/05 was identified as an equipment blank. No volatile contaminants were found in this blank with the following exceptions:

Equipment Blank ID	Compound	Concentration (ug/L)
EB-7-7/28/05	Methylene chloride	2.0 ug/L

**NASA JPL
Volatiles - Data Qualification Summary - SDG 05-3553**

SDG	Sample	Compound	Flag	A or P	Reason
05-3553	EB-7-7/28/05 MW-12-1 MW-12-2 MW-12-3 MW-12-4 MW-12-5 TB-7-7/28/05	2,2-Dichloropropane 1,2,3-Trichloropropane	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P	Continuing calibration (ICV %D)

**NASA JPL
Volatiles - Laboratory Blank Data Qualification Summary - SDG 05-3553**

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
05-3553	EB-7-7/28/05	Methylene chloride	2.0U ug/L	A
05-3553	MW-12-1	Methylene chloride	1.2U ug/L	A
05-3553	MW-12-2	Methylene chloride	1.4U ug/L	A
05-3553	MW-12-3	Methylene chloride	1.3U ug/L	A
05-3553	MW-12-4	Methylene chloride	1.3U ug/L	A
05-3553	MW-12-5	Methylene chloride	1.4U ug/L	A
05-3553	TB-7-7/28/05	Methylene chloride	1.4U ug/L	A

**NASA JPL
Data Validation Reports
LDC# 13910**

N-Nitrosodimethylamine

DDC

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL
Collection Date: July 27, 2005
LDC Report Date: September 6, 2005
Matrix: Water
Parameters: N-Nitrosodimethylamine
Validation Level: EPA Level III & IV
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 05-3541

Sample Identification

MW-3-1
MW-3-2
MW-3-3
MW-3-4**
MW-3-5
MW-3-2MS
MW-3-2MSD

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 1625C for N-Nitrosodimethylamine.

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.

A curve fit, based on the initial calibration, was established for quantitation. 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 20.0% .

V. Blanks

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

VI. Surrogate Spikes

Surrogates were not required by the method.

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.

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 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.

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

No field blanks were identified in this SDG.

**NASA JPL
N-Nitrosodimethylamine - Data Qualification Summary - SDG 05-3541**

No Sample Data Qualified in this SDG

**NASA JPL
N-Nitrosodimethylamine - Laboratory Blank Data Qualification Summary - SDG 05-3541**

No Sample Data Qualified in this SDG

**NASA JPL
Data Validation Reports
LDC# 13910**

Chromium

DDC

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL
Collection Date: July 25, 2005
LDC Report Date: September 1, 2005
Matrix: Water
Parameters: Chromium
Validation Level: EPA Level III
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 05-3511

Sample Identification

EB-4-7/25/05
MW-24-1
MW-24-2
MW-24-3
MW-24-4

VI. Duplicate Sample Analysis

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

VII. Laboratory Control Samples (LCS)

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

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

No field duplicates were identified in this SDG.

XIV. Field Blanks

Sample EB-4-7/25/05 was identified as an equipment blank. No chromium contaminants were found in this blank with the following exceptions:

Equipment Blank ID	Analyte	Concentration (ug/L)
EB-4-7/25/05	Chromium	0.36

**NASA JPL
Chromium - Data Qualification Summary - SDG 05-3511**

No Sample Data Qualified in this SDG

**NASA JPL
Chromium - Laboratory Blank Data Qualification Summary - SDG 05-3511**

SDG	Sample	Analyte	Modified Final Concentration	A or P
05-3511	EB-4-7/25/05	Chromium	0.36U ug/L	A

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL
Collection Date: July 26, 2005
LDC Report Date: September 1, 2005
Matrix: Water
Parameters: Chromium
Validation Level: EPA Level III
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 05-3529

Sample Identification

EB-5-7/26/05
MW-21-1
MW-21-2
MW-21-3
MW-21-4
MW-21-5

Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Methods 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.

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
ICB/CCB	Chromium	0.145 ug/L	All samples in SDG 05-3529

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
EB-5-7/26/05	Chromium	0.36 ug/L	0.36U ug/L

IV. ICP Interference Check Sample (ICS) Analysis

ICP interference check sample analysis was not required.

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. Results were within QC limits.

VII. Laboratory Control Samples (LCS)

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

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

No field duplicates were identified in this SDG.

XIV. Field Blanks

Sample EB-5-7/26/05 was identified as an equipment blank. No chromium contaminants were found in this blank with the following exceptions:

Equipment Blank ID	Analyte	Concentration (ug/L)
EB-5-7/26/05	Chromium	0.36

**NASA JPL
Chromium - Data Qualification Summary - SDG 05-3529**

No Sample Data Qualified in this SDG

**NASA JPL
Chromium - Laboratory Blank Data Qualification Summary - SDG 05-3529**

SDG	Sample	Analyte	Modified Final Concentration	A or P
05-3529	EB-5-7/26/05	Chromium	0.36U ug/L	A

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL
Collection Date: July 27, 2005
LDC Report Date: September 1, 2005
Matrix: Water
Parameters: Chromium
Validation Level: EPA Level III & IV
Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 05-3541

Sample Identification

EB-6-7/27/05
MW-3-2
MW-3-3
MW-3-4**
MW-3-2MS
MW-3-2MSD
MW-3-2DUP

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Methods 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
ICB/CCB	Chromium	0.081 ug/L	All samples in SDG 05-3541

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
EB-6-7/27/05	Chromium	0.24 ug/L	0.24U ug/L

IV. ICP Interference Check Sample (ICS) Analysis

ICP interference check sample analysis was not required.

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. Results were within QC limits.

VII. Laboratory Control Samples (LCS)

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

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

Sample EB-6-7/27/05 was identified as an equipment blank. No chromium contaminants were found in this blank with the following exceptions:

**NASA JPL
Chromium - Data Qualification Summary - SDG 05-3541**

No Sample Data Qualified in this SDG

**NASA JPL
Chromium - Laboratory Blank Data Qualification Summary - SDG 05-3541**

SDG	Sample	Analyte	Modified Final Concentration	A or P
05-3541	EB-6-7/27/05	Chromium	0.24U ug/L	A

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL
Collection Date: July 28, 2005
LDC Report Date: September 1, 2005
Matrix: Water
Parameters: Chromium
Validation Level: EPA Level III
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 05-3553

Sample Identification

EB-7-7/28/05
MW-12-1
MW-12-2
MW-12-3
MW-12-2MS
MW-12-2MSD
MW-12-2DUP

Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Methods 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.

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	0.067 ug/L	All samples in SDG 05-3553
ICB/CCB	Chromium	0.145 ug/L	All samples in SDG 05-3553

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
ED-7-7/28/05	Chromium	0.18 ug/L	0.48U ug/L

IV. ICP Interference Check Sample (ICS) Analysis

ICP interference check sample analysis was not required.

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. Results were within QC limits.

VII. Laboratory Control Samples (LCS)

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

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

No field duplicates were identified in this SDG.

XIV. Field Blanks

Sample EB-7-7/28/05 was identified as an equipment blank. No chromium contaminants were found in this blank with the following exceptions:

Equipment Blank ID	Analyte	Concentration (ug/L)
EB-7-7/28/05	Chromium	0.48

**NASA JPL
Chromium - Data Qualification Summary - SDG 05-3553**

No Sample Data Qualified in this SDG

**NASA JPL
Chromium - Laboratory Blank Data Qualification Summary - SDG 05-3553**

SDG	Sample	Analyte	Modified Final Concentration	A or P
05-3553	EB-7-7/28/05	Chromium	0.48U ug/L	A

**NASA JPL
Data Validation Reports
LDC# 13910**

Wet Chemistry

LDC

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL
Collection Date: June 25, 2005
LDC Report Date: September 1, 2005
Matrix: Water
Parameters: Wet Chemistry
Validation Level: EPA Level III
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 05-3511

Sample Identification

EB-4-7/25/05
MW-24-1
MW-24-2
MW-24-3
MW-24-4
MW-24-1MS
MW-24-1MSD

Introduction

This data review covers 7 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, Nitrate as Nitrogen, Orthophosphate as Phosphorus, and Sulfate, EPA Method 314.0 for Perchlorate, and EPA SW 846 Method 7196 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.

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 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.

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) and relative percent differences (RPD) 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

No field duplicates were identified in this SDG.

X. Field Blanks

Sample EB-4-7/25/05 was identified as an equipment blank. No contaminant concentrations were found in this blank.

**NASA JPL
Wet Chemistry - Data Qualification Summary - SDG 05-3511**

No Sample Data Qualified in this SDG

**NASA JPL
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 05-3511**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL
Collection Date: July 25, 2005
LDC Report Date: September 1, 2005
Matrix: Water
Parameters: Perchlorate
Validation Level: EPA Level III
Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 05-3510

Sample Identification

DUPE-1-3Q05
MW-24-1
MW-24-2

Introduction

This data review covers 3 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.

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.

IX. Field Duplicates

Samples DUPE-1-3Q05 and MW-24-1 were identified as field duplicates. No perchlorate was detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	DUPE-1-3Q05	MW-24-1	
Perchlorate	670	683	2

X. Field Blanks

No field blanks were identified in this SDG.

**NASA JPL
Perchlorate - Data Qualification Summary - SDG 05-3510**

No Sample Data Qualified in this SDG

**NASA JPL
Perchlorate - Laboratory Blank Data Qualification Summary - SDG 05-3510**

No Sample Data Qualified in this SDG

3

Applied P & CH Laboratories

Wet Analysis Results for Method 314.0

Client Name: Battelle - Columbus Operations Project No: G486090 Anal. Method 314.0
 Project ID: JPL GW Mon-3Q05 Service ID: 053510 Collected by: MM

Component Name: Perchlorate

CAS No:

Lab ID	Sample ID	Matrix	Coll. Date	Rcv Date	Anal. Date	Batch	Unit	RL	Result	Q
05-3510-1	DUPE-1-3Q05	Water	07/25/05	07/25/05	07/26/05	05W3104	µg/L	40	670	
05-3510-2	MW-24-1	Water	07/25/05	07/25/05	07/26/05	05W3104	µg/L	40	683	
05-3510-3	MW-24-2	Water	07/25/05	07/25/05	07/26/05	05W3104	µg/L	4	79.1	
05W3104MB01		Water	07/26/05	07/26/05	07/26/05	05W3104	µg/L	4	<0.69	U

Not Detected is shown as MDL, with dilution and moisture corrected if applicable.

Note: Q - Qualifier.

Qualifier: U - Not Detected or less than MDL

B - Less than RL (PQL, EQL or CRDL), but greater than MDL.

Handwritten signature
9/6/05

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL
Collection Date: July 26, 2005
LDC Report Date: September 1, 2005
Matrix: Water
Parameters: Perchlorate & Hexavalent Chromium
Validation Level: EPA Level III
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 05-3529

Sample Identification

DUPE-2-3Q05
EB-5-7/26/05
MW-21-1
MW-21-2
MW-21-3
MW-21-4
MW-21-5
MW-21-1MS
MW-21-1MSD

Introduction

This data review covers 9 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 314.0 for Perchlorate and EPA SW 846 Method 7196 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.

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 or hexavalent chromium contaminants 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.

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) and relative percent differences (RPD) 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 DUPE-2-3Q05 and MW-21-3 were identified as field duplicates. No hexavalent chromium and perchlorate were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	DUPE-2-3Q05	MW-21-3	
Perchlorate	3.2	3.0	6

X. Field Blanks

Sample EB-5-7/26/05 was identified as an equipment blank. No perchlorate or hexavalent chromium contaminants were found in this blank.

**NASA JPL
Perchlorate & Hexavalent Chromium - Data Qualification Summary - SDG 05-3529**

No Sample Data Qualified in this SDG

**NASA JPL
Perchlorate & Hexavalent Chromium - Laboratory Blank Data Qualification Summary
- SDG 05-3529**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL
Collection Date: July 27, 2005
LDC Report Date: September 1, 2005
Matrix: Water
Parameters: Perchlorate & Hexavalent Chromium
Validation Level: EPA Level III & IV
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 05-3541

Sample Identification

EB-6-7/27/05
MW-3-2
MW-3-3
MW-3-4**
MW-3-2MS
MW-3-2MSD

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 314.0 for Perchlorate and EPA SW 846 Method 7196 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 perchlorate or hexavalent chromium contaminants 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.

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) and relative percent differences (RPD) 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

Sample EB-6-7/27/05 was identified as an equipment blank. No perchlorate or hexavalent chromium contaminants were found in this blank.

**NASA JPL
Perchlorate & Hexavalent Chromium - Data Qualification Summary - SDG 05-3541**

No Sample Data Qualified in this SDG

**NASA JPL
Perchlorate & Hexavalent Chromium - Laboratory Blank Data Qualification Summary
- SDG 05-3541**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL
Collection Date: July 28, 2005
LDC Report Date: September 1, 2005
Matrix: Water
Parameters: Perchlorate & Hexavalent Chromium
Validation Level: EPA Level III
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 05-3553

Sample Identification

EB-7-7/28/05
MW-12-1
MW-12-2
MW-12-3
MW-12-4
MW-12-5
MW-12-2MS
MW-12-2MSD

Introduction

This data review covers 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 314.0 for Perchlorate and EPA SW 846 Method 7196 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.

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 or hexavalent chromium contaminants 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.

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) and relative percent differences (RPD) 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

No field duplicates were identified in this SDG.

X. Field Blanks

Sample EB-7-7/28/05 was identified as an equipment blank. No perchlorate or hexavalent chromium contaminants were found in this blank.

**NASA JPL
Perchlorate & Hexavalent Chromium - Data Qualification Summary - SDG 05-3553**

No Sample Data Qualified in this SDG

**NASA JPL
Perchlorate & Hexavalent Chromium - Laboratory Blank Data Qualification Summary
- SDG 05-3553**

No Sample Data Qualified in this SDG

**NASA JPL
Data Validation Reports
LDC# 13910**

1,2,3-Trichloropropane

DDO

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL
Collection Date: July 28, 2005
LDC Report Date: September 1, 2005
Matrix: Water
Parameters: 1,2,3-Trichloropropane
Validation Level: EPA Level III
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 05-3553

Sample Identification

MW-12-1
MW-12-2
MW-12-3
MW-12-4
MW-12-5
MW-12-2MS
MW-12-2MSD

Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 504.1 for 1,2,3-Trichloropropane.

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 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

Initial calibration of compounds was performed for the primary (quantitation) column and confirmation column as required by this method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

b. Calibration Verification

Calibration verification was performed at the required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 20.0% QC limits.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No 1,2,3-Trichloropropane was found in the method blanks.

IV. Accuracy and Precision Data

a. Surrogate Recovery

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

b. 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.

c. Laboratory Control Samples

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

V. Target Compound Identification

Raw data were not reviewed for this SDG.

VI. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

VII. System Performance

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

No field duplicates were identified in this SDG.

X. Field Blanks

No field blanks were identified in this SDG.

NASA JPL

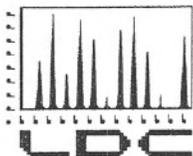
1,2,3-Trichloropropane - Data Qualification Summary - SDG 05-3553

No Sample Data Qualified in this SDG

NASA JPL

**1,2,3-Trichloropropane - Laboratory Blank Data Qualification Summary - SDG
05-3553**

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 7, 2005

SUBJECT: NASA JPL, Data Validation

Dear Ms. Cutie,

Enclosed are the final validation reports for the fractions listed below. This SDG was received on August 24, 2005. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project # 13920:

<u>SDG #</u>	<u>Fraction</u>
05-3591	Volatiles, Chromium, Perchlorate & Hexavalent Chromium

The data validation was performed under EPA Level III and Level 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
- 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

**NASA JPL
Data Validation Reports
LDC# 13920**

Volatiles

DDO

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL
Collection Date: August 1, 2005
LDC Report Date: September 4, 2005
Matrix: Water
Parameters: Volatiles
Validation Level: EPA Level III & IV
Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 05-3591

Sample Identification

EB-8-8/1/05
MW-20-1
MW-20-2
MW-20-3**
MW-20-4
MW-20-5
TB-8-8/1/05
MW-20-2MS
MW-20-2MSD

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 9 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% with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
8/5/05	2,2-Dichloropropane 1,2,3-Trichloropropane	44.53 36.99	EB-8-8/1/05 MW-20-1 MW-20-2 MW-20-3** MW-20-4 MW-20-5 MW-20-2MS MW-20-2MSD 05G2728MB01	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P

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
05G2728MB01	8/5/05	Methylene chloride	1.5 ug/L	EB-8-8/1/05 MW-20-1 MW-20-2 MW-20-3** MW-20-4 MW-20-5
05G2746MB01	8/9/05	Methylene chloride	1.4 ug/L	TB-8-8/1/05

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 with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
EB-8-8/1/05	Methylene chloride	1.8 ug/L	1.8U ug/L
MW-20-1	Methylene chloride	1.3 ug/L	1.3U ug/L
MW-20-2	Methylene chloride	1.3 ug/L	1.3U ug/L
MW-20-3**	Methylene chloride	1.3 ug/L	1.3U ug/L
MW-20-4	Methylene chloride	1.3 ug/L	1.3U ug/L
MW-20-5	Methylene chloride	1.3 ug/L	1.3U ug/L
TB-8-8/1/05	Methylene chloride	1.3 ug/L	1.3U ug/L

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.

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

Sample TB-8-8/1/05 was identified as a trip blank. No volatile contaminants were found in this blank with the following exceptions:

Trip Blank ID	Compound	Concentration (ug/L)
TB-8-8/1/05	Methylene chloride	1.3

Sample EB-8-8/1/05 was identified as an equipment blank. No volatile contaminants were found in this blank with the following exceptions:

Equipment Blank ID	Compound	Concentration (ug/L)
EB-8-8/1/05	2-Butanone Methylene chloride	5 1.8

**NASA JPL
Volatiles - Data Qualification Summary - SDG 05-3591**

SDG	Sample	Compound	Flag	A or P	Reason
05-3591	EB-8-8/1/05 MW-20-1 MW-20-2 MW-20-3** MW-20-4 MW-20-5	2,2-Dichloropropane 1,2,3-Trichloropropane	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P	Continuing calibration (%D)

**NASA JPL
Volatiles - Laboratory Blank Data Qualification Summary - SDG 05-3591**

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
05-3591	EB-8-8/1/05	Methylene chloride	1.8U ug/L	A
05-3591	MW-20-1	Methylene chloride	1.3U ug/L	A
05-3591	MW-20-2	Methylene chloride	1.3U ug/L	A
05-3591	MW-20-3**	Methylene chloride	1.3U ug/L	A
05-3591	MW-20-4	Methylene chloride	1.3U ug/L	A
05-3591	MW-20-5	Methylene chloride	1.3U ug/L	A
05-3591	TB-8-8/1/05	Methylene chloride	1.3U ug/L	A

**NASA JPL
Data Validation Reports
LDC# 13920**

Chromium

LDC

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL
Collection Date: August 1, 2005
LDC Report Date: September 4, 2005
Matrix: Water
Parameters: Chromium
Validation Level: EPA Level III & IV
Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 05-3591

Sample Identification

EB-8-8/1/05
MW-20-1
MW-20-2
MW-20-3**
MW-20-4
MW-20-5

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Methods 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	0.062 ug/L	All samples in SDG 05-3591
ICB/CCB	Chromium	0.071 ug/L	All samples in SDG 05-3591

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.

IV. ICP Interference Check Sample (ICS) Analysis

ICP interference check sample analysis was not required.

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. Results were within QC limits.

VII. Laboratory Control Samples (LCS)

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

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

Sample EB-8-8/1/05 was identified as an equipment blank. No chromium contaminants were found in this blank with the following exceptions:

Equipment Blank ID	Analyte	Concentration (ug/L)
EB-8-8/1/05	Chromium	0.64

**NASA JPL
Chromium - Data Qualification Summary - SDG 05-3591**

No Sample Data Qualified in this SDG

**NASA JPL
Chromium - Laboratory Blank Data Qualification Summary - SDG 05-3591**

No Sample Data Qualified in this SDG

**NASA JPL
Data Validation Reports
LDC# 13920**

Perchlorate & Hexavalent Chromium

DDO

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL
Collection Date: August 1, 2005
LDC Report Date: September 4, 2005
Matrix: Water
Parameters: Perchlorate & Hexavalent Chromium
Validation Level: EPA Level III & IV
Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 05-3591

Sample Identification

EB-8-8/1/05
MW-20-1
MW-20-2
MW-20-3**
MW-20-4
MW-20-5
MW-20-1MS
MW-20-1MSD

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 314.0 for Perchlorate and EPA SW 846 Method 7196 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 perchlorate or hexavalent chromium contaminants 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.

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) and relative percent differences (RPD) 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

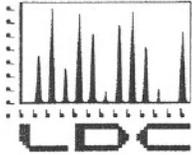
Sample EB-8-8/1/05 was identified as an equipment blank. No perchlorate or hexavalent chromium contaminants were found in this blank.

**NASA JPL
Perchlorate & Hexavalent Chromium - Data Qualification Summary - SDG 05-3591**

No Sample Data Qualified in this SDG

**NASA JPL
Perchlorate & Hexavalent Chromium - Laboratory Blank Data Qualification Summary
- SDG 05-3591**

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 14, 2005

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 1, 2005. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project # 13961:

<u>SDG #</u>	<u>Fraction</u>
05-3618, 05-3638	Volatiles, Chromium, Wet Chemistry

The data validation was performed under EPA Level III and Level 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
- 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

**NASA JPL
Data Validation Reports
LDC# 13961**

Volatiles

DDO

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL
Collection Date: August 3, 2005
LDC Report Date: September 13, 2005
Matrix: Water
Parameters: Volatiles
Validation Level: EPA Level III & IV
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 05-3618

Sample Identification

DUPE-5-3Q05
EB-10-8/3/05
MW-14-1
MW-14-2**
MW-14-3
MW-14-4
MW-14-5
MW-22-1
MW-22-2
MW-22-3
TB-10-8/3/05

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 11 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% .

The percent differences (%D) of the second source calibration standard were less than or equal to 25.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
7/26/05	2,2-Dichloropropane 1,2,3-Trichloropropane	44.53 36.99	All samples in SDG 05-3618	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A

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
05G2775MB01	8/11/05	Methylene chloride	1.6 ug/L	All samples in SDG 05-3618

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 with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
DUPE-5-3Q05	Methylene chloride	1.2 ug/L	1.2U ug/L
EB-10-8/3/05	Methylene chloride	1.2 ug/L	1.2U ug/L
MW-14-1	Methylene chloride	1.2 ug/L	1.2U ug/L
MW-14-2**	Methylene chloride	1.2 ug/L	1.2U ug/L
MW-14-3	Methylene chloride	1.2 ug/L	1.2U ug/L
MW-14-4	Methylene chloride	1.2 ug/L	1.2U ug/L
MW-14-5	Methylene chloride	1.2 ug/L	1.2U ug/L
MW-22-1	Methylene chloride	1.2 ug/L	1.2U ug/L
MW-22-2	Methylene chloride	1.2 ug/L	1.2U ug/L
MW-22-3	Methylene chloride	1.2 ug/L	1.2U ug/L
TB-10-8/3/05	Methylene chloride	1.2 ug/L	1.2U ug/L

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)

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 DUPE-5-3Q05 and MW-22-3 were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	DUPE-5-3Q05	MW-22-3	
Methylene chloride	1.2	1.2	0

XVII. Field Blanks

Sample TB-10-8/3/05 was identified as a trip blank. No volatile contaminants were found in this blank with the following exceptions:

Trip Blank ID	Compound	Concentration (ug/L)
TB-10-8/3/05	Methylene chloride	1.2

Sample EB-10-8/3/05 was identified as an equipment blank. No volatile contaminants were found in this blank with the following exceptions:

Equipment Blank ID	Compound	Concentration (ug/L)
EB 10-8/3/05	Methylene chloride	1.2

**NASA JPL
Volatiles - Data Qualification Summary - SDG 05-3618**

SDG	Sample	Compound	Flag	A or P	Reason
05-3618	DUPE-5-3Q05 EB-10-8/3/05 MW-14-1 MW-14-2** MW-14-3 MW-14-4 MW-14-5 MW-22-1 MW-22-2 MW-22-3 TB-10-8/3/05	2,2-Dichloropropane 1,2,3-Trichloropropane	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Continuing calibration (ICV %D)

**NASA JPL
Volatiles - Laboratory Blank Data Qualification Summary - SDG 05-3618**

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
05-3618	DUPE-5-3Q05	Methylene chloride	1.2U ug/L	A
05-3618	EB-10-8/3/05	Methylene chloride	1.2U ug/L	A
05-3618	MW-14-1	Methylene chloride	1.2U ug/L	A
05-3618	MW-14-2**	Methylene chloride	1.2U ug/L	A
05-3618	MW-14-3	Methylene chloride	1.2U ug/L	A
05-3618	MW-14-4	Methylene chloride	1.2U ug/L	A
05-3618	MW-14-5	Methylene chloride	1.2U ug/L	A
05-3618	MW-22-1	Methylene chloride	1.2U ug/L	A
05-3618	MW-22-2	Methylene chloride	1.2U ug/L	A
05-3618	MW-22-3	Methylene chloride	1.2U ug/L	A
05-3618	TB-10-8/3/05	Methylene chloride	1.2U ug/L	A

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL
Collection Date: August 4, 2005
LDC Report Date: September 14, 2005
Matrix: Water
Parameters: Volatiles
Validation Level: EPA Level III & IV
Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 05-3638

Sample Identification

DUPE-6-3Q05
EB-11-8/4/05
MW-23-1
MW-23-2
MW-23-3
MW-26-1
MW-26-2**
TB-11-8/4/05
MW-23-3MS
MW-23-3MSD

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 10 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% with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
8/10/05	2,2-Dichloropropane	32.38	All samples in SDG 05-3638	J (all detects) UJ (all non-detects)	A

The percent differences (%D) of the second source calibration standard were less than or equal to 25.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
7/26/05	2,2-Dichloropropane	44.53	All samples in SDG 05-3638	J (all detects) UJ (all non-detects)	A
	1,2,3-Trichloropropane	36.99		J (all detects) UJ (all non-detects)	

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
05G2765MB01	8/10/05	Methylene chloride	1.2 ug/L	All samples in SDG 05-3638

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 with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
DUPE-6-3Q05	Methylene chloride	1.4 ug/L	1.4U ug/L
EB-11-8/4/05	Methylene chloride	1.3 ug/L	1.3U ug/L
MW-23-1	Methylene chloride	1.3 ug/L	1.3U ug/L
MW-23-2	Methylene chloride	1.3 ug/L	1.3U ug/L
MW-23-3	Methylene chloride	1.3 ug/L	1.3U ug/L
MW-26-1	Methylene chloride	1.4 ug/L	1.4U ug/L
MW-26-2**	Methylene chloride	1.4 ug/L	1.4U ug/L
TB-11-8/4/05	Methylene chloride	1.4 ug/L	1.4U ug/L

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.

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 DUPE-6-3Q05 and MW-26-1 were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	DUPE-6-3Q05	MW-26-1	
Methylene chloride	1.4	1.4	0

XVII. Field Blanks

Sample TB-11-8/4/05 was identified as a trip blank. No volatile contaminants were found in this blank with the following exceptions:

Trip Blank ID	Compound	Concentration (ug/L)
TB-11-8/4/05	Methylene chloride	1.3

Sample EB-11-8/4/05 was identified as an equipment blank. No volatile contaminants were found in this blank with the following exceptions:

Equipment Blank ID	Compound	Concentration (ug/L)
EB-11-8/4/05	Methylene chloride	1.4

NASA JPL
Volatiles - Data Qualification Summary - SDG 05-3638

SDG	Sample	Compound	Flag	A or P	Reason
05-3638	DUPE-6-3Q05 EB-11-8/4/05 MW-23-1 MW-23-2 MW-23-3 MW-26-1 MW-26-2** TB-11-8/4/05	2,2-Dichloropropane	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
05-3638	DUPE-6-3Q05 EB-11-8/4/05 MW-23-1 MW-23-2 MW-23-3 MW-26-1 MW-26-2** TB-11-8/4/05	2,2-Dichloropropane 1,2,3-Trichloropropane	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Continuing calibration (ICV %D)

NASA JPL
Volatiles - Laboratory Blank Data Qualification Summary - SDG 05-3638

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
05-3638	DUPE-6-3Q05	Methylene chloride	1.4U ug/L	A
05-3638	EB-11-8/4/05	Methylene chloride	1.3U ug/L	A
05-3638	MW-23-1	Methylene chloride	1.3U ug/L	A
05-3638	MW-23-2	Methylene chloride	1.3U ug/L	A
05-3638	MW-23-3	Methylene chloride	1.3U ug/L	A
05-3638	MW-26-1	Methylene chloride	1.4U ug/L	A
05-3638	MW-26-2**	Methylene chloride	1.4U ug/L	A
05-3638	TB-11-8/4/05	Methylene chloride	1.4U ug/L	A

**NASA JPL
Data Validation Reports
LDC# 13961**

Chromium

LDC

Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name: NASA JPL
Collection Date: August 3, 2005
LDC Report Date: September 13, 2005
Matrix: Water
Parameters: Chromium
Validation Level: EPA Level III & IV
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 05-3618

Sample Identification

DUPE-5-3Q05
EB-10-8/3/05
MW-14-1
MW-14-2**
MW-14-3
MW-22-1
MW-22-2
MW-22-3
MW-22-3MS
MW-22-3MSD
MW-22-3DUP

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 11 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Methods 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
ICB/CCB	Chromium	0.173 ug/L	All samples in SDG 05-3618

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.

IV. ICP Interference Check Sample (ICS) Analysis

ICP interference check sample analysis was not required.

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. Results were within QC limits.

VII. Laboratory Control Samples (LCS)

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

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 DUPE-5-3Q05 and MW-22-3 were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	DUPE-5-3Q05	MW-22-3	
Chromium	7.7	8.2	6

XIV. Field Blanks

Sample EB-10-8/3/05 was identified as an equipment blank. No chromium contaminants were found in this blank with the following exceptions:

Equipment Blank ID	Analyte	Concentration (ug/L)
EB-10-8/3/05	Chromium	1.5

**NASA JPL
Chromium - Data Qualification Summary - SDG 05-3618**

No Sample Data Qualified in this SDG

**NASA JPL
Chromium - Laboratory Blank Data Qualification Summary - SDG 05-3618**

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name: NASA JPL
Collection Date: August 4, 2005
LDC Report Date: September 13, 2005
Matrix: Water
Parameters: Chromium
Validation Level: EPA Level III & IV
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 05-3638

Sample Identification

DUPE-6-3Q05
EB-11-8/4/05
MW-23-1
MW-23-2
MW-23-3
MW-23-4
MW-26-1
MW-26-2**
MW-23-3MS
MW-23-3MSD
MW-23-3DUP

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 11 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Methods 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	0.062 ug/L	All samples in SDG 05-3638
ICB/CCB	Chromium	0.071 ug/L	All samples in SDG 05-3638

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.

IV. ICP Interference Check Sample (ICS) Analysis

ICP interference check sample analysis was not required.

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. Results were within QC limits.

VII. Laboratory Control Samples (LCS)

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

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 DUPE-6-3Q05 and MW-26-1 were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	DUPE-6-3Q05	MW-26-1	
Chromium	15.0	13.2	13

XIV. Field Blanks

Sample EB-11-8/4/05 was identified as an equipment blank. No chromium contaminants were found in this blank with the following exceptions:

Equipment Blank ID	Analyte	Concentration (ug/L)
EB-11-8/4/05	Chromium	2.0

**NASA JPL
Chromium - Data Qualification Summary - SDG 05-3638**

No Sample Data Qualified in this SDG

**NASA JPL
Chromium - Laboratory Blank Data Qualification Summary - SDG 05-3638**

No Sample Data Qualified in this SDG

**NASA JPL
Data Validation Reports
LDC# 13961**

Wet Chemistry



**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL
Collection Date: August 3, 2005
LDC Report Date: September 13, 2005
Matrix: Water
Parameters: Perchlorate & Hexavalent Chromium
Validation Level: EPA Level III & IV
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 05-3618

Sample Identification

DUPE-5-3Q05
EB-10-8/3/05
MW-14-1
MW-14-2**
MW-14-3
MW-14-4
MW-14-5
MW-22-1
MW-22-2
MW-22-3
DUPE-5-3Q05MS
DUPE-5-3Q05MSD

**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 314.0 for Perchlorate and EPA SW 846 Method 7196 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 perchlorate or hexavalent chromium contaminants 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.

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) and relative percent differences (RPD) 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 DUPE-5-3Q05 and MW-22-3 were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	DUPE-5-3Q05	MW-22-3	
Perchlorate	1.6	2.2	32

X. Field Blanks

Sample EB-10-8/3/05 was identified as an equipment blank. No perchlorate or hexavalent chromium contaminants were found in this blank.

**NASA JPL
Perchlorate & Hexavalent Chromium - Data Qualification Summary - SDG 05-3618**

No Sample Data Qualified in this SDG

**NASA JPL
Perchlorate & Hexavalent Chromium - Laboratory Blank Data Qualification Summary
- SDG 05-3618**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL
Collection Date: August 4, 2005
LDC Report Date: September 13, 2005
Matrix: Water
Parameters: Perchlorate & Hexavalent Chromium
Validation Level: EPA Level III & IV
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 05-3638

Sample Identification

DUPE-6-3Q05
EB-11-8/4/05
MW-23-1
MW-23-2
MW-23-3
MW-23-4
MW-26-1
MW-26-2**
MW-23-3MS
MW-23-3MSD

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 10 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 314.0 for Perchlorate and EPA SW 846 Method 7196 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 perchlorate or hexavalent chromium contaminants 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.

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) and relative percent differences (RPD) 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 DUPE-6-3Q05 and MW-26-1 were identified as field duplicates. No contaminant concentrations were detected in any of the samples.

X. Field Blanks

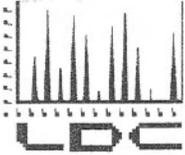
Sample EB-11-8/4/05 was identified as an equipment blank. No perchlorate or hexavalent chromium contaminants were found in this blank.

**NASA JPL
Perchlorate & Hexavalent Chromium - Data Qualification Summary - SDG 05-3638**

No Sample Data Qualified in this SDG

**NASA JPL
Perchlorate & Hexavalent Chromium - Laboratory Blank Data Qualification Summary
- SDG 05-3638**

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 26, 2005

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 12, 2005. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project # 14017:

<u>SDG #</u>	<u>Fraction</u>
05-3600, 05-3685, 05-3697, 05-3707, 05-3730, 05-3729	Volatiles, Chromium, Wet Chemistry

The data validation was performed under EPA Level III and Level 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
- 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

**NASA JPL
Data Validation Reports
LDC# 14017**

Volatiles

DDC

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL
Collection Date: August 2, 2005
LDC Report Date: September 23, 2005
Matrix: Water
Parameters: Volatiles
Validation Level: EPA Level III
Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 05-3600

Sample Identification

DUPE-3-3Q05
DUPE-4-3Q05
EB-9-8/2/05
MW-4-1
MW-4-2
MW-4-3
MW-11-1
MW-11-2
MW-11-3
MW-11-4
TB-9-8/2/05

Introduction

This data review covers 11 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.
- UU 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% with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
8/5/05	2,2-Dichloropropane	44.53	DUPE-3-3Q05 DUPE-4-3Q05	J (all detects) UJ (all non-detects)	P
	1,2,3-Trichloropropane	36.99	EB-9-8/2/05 MW-4-1 MW-4-2 MW-4-3 05G2728MB01	J (all detects) UJ (all non-detects)	

The percent differences (%D) of the second source calibration standard were less than or equal to 25.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
8/5/05	2,2-Dichloropropane 1,2,3-Trichloropropane	44.53 36.99	All samples in SDG 05-3600	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P

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
05G2728MB01	8/5/05	Methylene chloride	1.5 ug/L	DUPE-3-3Q05 DUPE-4-3Q05 EB-9-8/2/05 MW-4-1 MW-4-2 MW-4-3
05G2746MB01	8/9/05	Methylene chloride	1.4 ug/L	MW-11-1 MW-11-2 MW-11-3 MW-11-4 TB-9-8/2/05

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 with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
DUPE-3-3Q05	Methylene chloride	1.2 ug/L	1.2U ug/L
DUPE-4-3Q05	Methylene chloride	1.2 ug/L	1.2U ug/L
EB-9-8/2/05	Methylene chloride	1.4 ug/L	1.4U ug/L
MW-4-1	Methylene chloride	1.2 ug/L	1.2U ug/L
MW-4-2	Methylene chloride	1.2 ug/L	1.2U ug/L
MW-4-3	Methylene chloride	1.2 ug/L	1.2U ug/L

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
MW-11-1	Methylene chloride	1.2 ug/L	1.2U ug/L
MW-11-2	Methylene chloride	1.2 ug/L	1.2U ug/L
MW-11-3	Methylene chloride	1.2 ug/L	1.2U ug/L
MW-11-4	Methylene chloride	1.2 ug/L	1.2U ug/L
TB-9-8/2/05	Methylene chloride	1.2 ug/L	1.2U ug/L

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

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 DUPE-3-3Q05 and MW-4-2 and samples DUPE-4-3Q05 and MW-11-2 were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	DUPE-3-3Q05	MW-4-2	
Methylene chloride	1.2	1.2	0
Trichloroethene	0.4	0.4	0

Compound	Concentration (ug/L)		RPD
	DUPE-4-3Q05	MW-11-2	
Methylene chloride	1.2	1.2	0

XVII. Field Blanks

Sample TB-9-8/2/05 was identified as a trip blank. No volatile contaminants were found in this blank with the following exceptions:

Trip Blank ID	Compound	Concentration (ug/L)
TB-9-8/2/05	Methylene chloride	1.2

Sample EB-9-8/2/05 was identified as an equipment blank. No volatile contaminants were found in this blank with the following exceptions:

Equipment Blank ID	Compound	Concentration (ug/L)
EB-9-8/2/05	Methylene chloride	1.4

**NASA JPL
Volatiles - Data Qualification Summary - SDG 05-3600**

SDG	Sample	Compound	Flag	A or P	Reason
05-3600	DUPE-3-3Q05 DUPE-4-3Q05 EB-9-8/2/05 MW-4-1 MW-4-2 MW-4-3	2,2-Dichloropropane 1,2,3-Trichloropropane	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P	Continuing calibration (%D)
05-3600	DUPE-3-3Q05 DUPE-4-3Q05 EB-9-8/2/05 MW-4-1 MW-4-2 MW-4-3 MW-11-1 MW-11-2 MW-11-3 MW-11-4 TB-9-8/2/05	2,2-Dichloropropane 1,2,3-Trichloropropane	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P	Continuing calibration (ICV %D)

**NASA JPL
Volatiles - Laboratory Blank Data Qualification Summary - SDG 05-3600**

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
05-3600	DUPE-3-3Q05	Methylene chloride	1.2U ug/L	A
05-3600	DUPE-4-3Q05	Methylene chloride	1.2U ug/L	A
05-3600	EB-9-8/2/05	Methylene chloride	1.4U ug/L	A
05-3600	MW-4-1	Methylene chloride	1.2U ug/L	A
05-3600	MW-4-2	Methylene chloride	1.2U ug/L	A
05-3600	MW-4-3	Methylene chloride	1.2U ug/L	A
05-3600	MW-11-1	Methylene chloride	1.2U ug/L	A
05-3600	MW 11 2	Methylene chloride	1.2U ug/L	A
05-3600	MW-11-3	Methylene chloride	1.2U ug/L	A

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
05-3600	MW-11-4	Methylene chloride	1.2U ug/L	A
05-3600	TB-9-8/2/05	Methylene chloride	1.2U ug/L	A

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL
Collection Date: August 9, 2005
LDC Report Date: September 23, 2005
Matrix: Water
Parameters: Volatiles
Validation Level: EPA Level III
Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 05-3685

Sample Identification

MW-7
MW-13
TB-12-8/9/05

Introduction

This data review covers 3 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 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% with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
8/10/05	2,2-Dichloropropane	32.38	All samples in SDG 05-3685	J (all detects) UJ (all non-detects)	P

The percent differences (%D) of the second source calibration standard were less than or equal to 25.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
8/5/05	2,2-Dichloropropane	44.53	All samples in SDG 05-3685	J (all detects) UJ (all non-detects)	P
	1,2,3-Trichloropropane	36.99		J (all detects) UJ (all non-detects)	

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
05G2765MB01	8/10/05	Methylene chloride	1.2 ug/L	All samples in SDG 05-3685

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 with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
MW-7	Methylene chloride	1.2 ug/L	1.2U ug/L
MW-13	Methylene chloride	1.1 ug/L	1.1U ug/L
TB-12-8/9/05	Methylene chloride	1.2 ug/L	1.2U ug/L

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

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

No field duplicates were identified in this SDG.

XVII. Field Blanks

Sample TB-12-8/9/05 was identified as a trip blank. No volatile contaminants were found in this blank with the following exceptions:

Trip Blank ID	Compound	Concentration (ug/L)
TB-9-8/2/05	Methylene chloride	1.2

NASA JPL
Volatiles - Data Qualification Summary - SDG 05-3685

SDG	Sample	Compound	Flag	A or P	Reason
05-3685	MW-7 MW-13 TB-12-8/9/05	2,2-Dichloropropane	J (all detects) UJ (all non-detects)	P	Continuing calibration (%D)
05-3685	MW-7 MW-13 TB-12-8/9/05	2,2-Dichloropropane 1,2,3-Trichloropropane	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P	Continuing calibration (ICV %D)

NASA JPL
Volatiles - Laboratory Blank Data Qualification Summary - SDG 05-3685

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
05-3685	MW-7	Methylene chloride	1.2U ug/L	A
05-3685	MW-13	Methylene chloride	1.1U ug/L	A
05-3685	TB-12-8/9/05	Methylene chloride	1.2U ug/L	A

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL
Collection Date: August 10, 2005
LDC Report Date: September 23, 2005
Matrix: Water
Parameters: Volatiles
Validation Level: EPA Level III & IV
Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 05-3697

Sample Identification

DUPE-7-3Q05
MW-8**
MW-10
MW-16
TB-13-8/10/05
MW-8MS
MW-8MSD

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 7 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% with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
8/10/05	2,2-Dichloropropane	32.38	DUPE-7-3Q05 MW-10 MW-16 TB-13-8/10/05 MW-8MS MW-8MSD 05G2765MB01	J (all detects) UJ (all non-detects)	P

The percent differences (%D) of the second source calibration standard were less than or equal to 25.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
8/5/05	2,2-Dichloropropane 1,2,3-Trichloropropane	44.53 36.99	All samples in SDG 05-3697	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P

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
05G2765MB01	8/10/05	Methylene chloride	1.2 ug/L	DUPE-7-3Q05 MW-10 MW-16 TB-13-8/10/05
05G2775MB01	8/11/05	Methylene chloride	1.6 ug/L	MW-8**

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 with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
DUPE-7-3Q05	Methylene chloride	1.2 ug/L	1.2U ug/L
MW-10	Methylene chloride	1.2 ug/L	1.2U ug/L
TB-13-8/10/05	Methylene chloride	1.3 ug/L	1.3U ug/L
MW-8**	Methylene chloride	1.2 ug/L	1.2U ug/L

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.

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 DUPE-7-3Q05 and MW-10 were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	DUPE-7-3Q05	MW-10	
Chloroform	1.1	1.2	9
Methylene chloride	1.2	1.2	0
Trichloroethene	5.1	4.9	4
Carbon tetrachloride	0.5U	0.5	200

XVII. Field Blanks

Sample TB-13-8/10/05 was identified as a trip blank. No volatile contaminants were found in this blank with the following exceptions:

Trip Blank ID	Compound	Concentration (ug/L)
TB-13-8/10/05	Methylene chloride	1.3

**NASA JPL
Volatiles - Data Qualification Summary - SDG 05-3697**

SDG	Sample	Compound	Flag	A or P	Reason
05-3697	DUPE-7-3Q05 MW-10 MW-16 TB-13-8/10/05	2,2-Dichloropropane	J (all detects) UJ (all non-detects)	P	Continuing calibration (%D)
05-3697	DUPE-7-3Q05 MW-8** MW-10 MW-16 TB-13-8/10/05	2,2-Dichloropropane 1,2,3-Trichloropropane	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P	Continuing calibration (ICV %D)

**NASA JPL
Volatiles - Laboratory Blank Data Qualification Summary - SDG 05-3697**

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
05-3697	DUPE-7-3Q05	Methylene chloride	1.2U ug/L	A
05-3697	MW-10	Methylene chloride	1.2U ug/L	A
05-3697	TB-13-8/10/05	Methylene chloride	1.3U ug/L	A
05-3697	MW-8**	Methylene chloride	1.2U ug/L	A

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL
Collection Date: August 11, 2005
LDC Report Date: September 23, 2005
Matrix: Water
Parameters: Volatiles
Validation Level: EPA Level III & IV
Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 05-3707

Sample Identification

DUPE-8-3Q05
MW-5**
MW-6
TB-14-8/11/05
MW-6MS
MW-6MSD

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 6 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% with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
8/16/05	2,2-Dichloropropane	38.32	All samples in SDG 05-3707	J (all detects)	P
	1,2,3-Trichloropropane	30.37		UJ (all non-detects)	
				J (all detects)	
				UJ (all non-detects)	

The percent differences (%D) of the second source calibration standard were less than or equal to 25.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
8/5/05	2,2-Dichloropropane	44.53	All samples in SDG 05-3707	J (all detects)	P
	1,2,3-Trichloropropane	36.99		UJ (all non-detects)	
				J (all detects)	
				UJ (all non-detects)	

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
05G2794MB01	8/16/05	Methylene chloride	1.3 ug/L	All samples in SDG 05-3707

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 with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
DUPE-8-3Q05	Methylene chloride	1.2 ug/L	1.2U ug/L
MW-5**	Methylene chloride	1.2 ug/L	1.2U ug/L
MW-6	Methylene chloride	1.2 ug/L	1.2U ug/L
TB-14-8/11/05	Methylene chloride	1.3 ug/L	1.3U ug/L

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.

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 DUPE-8-3Q05 and MW-5** were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	DUPE-8-3Q05	MW-5**	
Methylene chloride	1.2	1.2	0

XVII. Field Blanks

Sample TB-14-8/11/05 was identified as a trip blank. No volatile contaminants were found in this blank with the following exceptions:

Trip Blank ID	Compound	Concentration (ug/L)
TB-14-8/11/05	Methylene chloride	1.3

**NASA JPL
Volatiles - Data Qualification Summary - SDG 05-3707**

SDG	Sample	Compound	Flag	A or P	Reason
05-3707	DUPE-8-3Q05 MW-5** MW-6 TB-14-8/11/05	2,2-Dichloropropane 1,2,3-Trichloropropane	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P	Continuing calibration (%D)
05-3707	DUPE-8-3Q05 MW-5** MW-6 TB-14-8/11/05	2,2-Dichloropropane 1,2,3-Trichloropropane	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P	Continuing calibration (ICV %D)

**NASA JPL
Volatiles - Laboratory Blank Data Qualification Summary - SDG 05-3707**

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
05-3707	DUPE-8-3Q05	Methylene chloride	1.2U ug/L	A
05-3707	MW-5**	Methylene chloride	1.2U ug/L	A
05-3707	MW-6	Methylene chloride	1.2U ug/L	A
05-3707	TB-14-8/11/05	Methylene chloride	1.3U ug/L	A

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL
Collection Date: August 15, 2005
LDC Report Date: September 23, 2005
Matrix: Water
Parameters: Volatiles
Validation Level: EPA Level III
Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 05-3730

Sample Identification

EB-12-8/15/05
MW-17-2
MW-17-3
MW-17-4
SB-1-3Q05
TB-15-8/15/05

Introduction

This data review covers 6 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 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% with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
8/16/05	2,2-Dichloropropane	38.32	All samples in SDG 05-3730	J (all detects)	P
	1,2,3-Trichloropropane	30.37		UJ (all non-detects)	
				J (all detects)	
				UJ (all non-detects)	

The percent differences (%D) of the second source calibration standard were less than or equal to 25.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
8/5/05	2,2-Dichloropropane	44.53	All samples in SDG 05-3730	J (all detects)	P
	1,2,3-Trichloropropane	36.99		UJ (all non-detects)	
				J (all detects)	
				UJ (all non-detects)	

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
05G2794MB01	8/16/05	Methylene chloride	1.3 ug/L	All samples in SDG 05-3730

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 with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
EB-12-8/15/05	Methylene chloride	1.4 ug/L	1.4U ug/L
MW-17-2	Methylene chloride	1.2 ug/L	1.2U ug/L
MW-17-3	Methylene chloride	1.2 ug/L	1.2U ug/L
MW-17-4	Methylene chloride	1.2 ug/L	1.2U ug/L
SB-1-3Q05	Methylene chloride	1.4 ug/L	1.4U ug/L
TB-15-8/15/05	Methylene chloride	1.3 ug/L	1.3U ug/L

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

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

No field duplicates were identified in this SDG.

XVII. Field Blanks

Sample TB-15-8/15/05 was identified as a trip blank. No volatile contaminants were found in this blank with the following exceptions:

Trip Blank ID	Compound	Concentration (ug/L)
TB-15-8/15/05	Methylene chloride	1.3

Sample EB-12-8/15/05 was identified as an equipment blank. No volatile contaminants were found in this blank with the following exceptions:

Equipment Blank ID	Compound	Concentration (ug/L)
EB-12-8/15/05	2-Butanone Methylene chloride	8 1.4

Sample SB-1-3Q05 was identified as a source blank. No volatile contaminants were found in this blank with the following exceptions:

Source Blank ID	Compound	Concentration (ug/L)
SB-1-3Q05	2-Butanone Methylene chloride	4 1.4

**NASA JPL
Volatiles - Data Qualification Summary - SDG 05-3730**

SDG	Sample	Compound	Flag	A or P	Reason
05-3730	EB-12-8/15/05 MW-17-2 MW-17-3 MW-17-4 SB-1-3Q05 TB-15-8/15/05	2,2-Dichloropropane 1,2,3-Trichloropropane	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P	Continuing calibration (%D)
05-3730	EB-12-8/15/05 MW-17-2 MW-17-3 MW-17-4 SB-1-3Q05 TB-15-8/15/05	2,2-Dichloropropane 1,2,3-Trichloropropane	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P	Continuing calibration (ICV %D)

**NASA JPL
Volatiles - Laboratory Blank Data Qualification Summary - SDG 05-3730**

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
05-3730	EB-12-8/15/05	Methylene chloride	1.4U ug/L	A
05-3730	MW-17-2	Methylene chloride	1.2U ug/L	A
05-3730	MW-17-3	Methylene chloride	1.2U ug/L	A
05-3730	MW-17-4	Methylene chloride	1.2U ug/L	A
05-3730	SB-1-3Q05	Methylene chloride	1.4U ug/L	A
05-3730	TB-15-8/15/05	Methylene chloride	1.3U ug/L	A

**NASA JPL
Data Validation Reports
LDC# 14017**

Chromium

DDC

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL
Collection Date: August 2, 2005
LDC Report Date: September 15, 2005
Matrix: Water
Parameters: Chromium
Validation Level: EPA Level III
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 05-3600

Sample Identification

DUPE-3-3Q05
DUPE-4-3Q05
EB-9-8/2/05
MW-4-1
MW-4-2
MW-4-3
MW-11-1
MW-11-2
MW-11-3
MW-11-4

Introduction

This data review covers 10 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.

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
ICB/CCB	Chromium	0.173 ug/L	DUPE 3-3Q05 DUPE-4-3Q05
ICB/CCB	Chromium	0.082 ug/L	EB-9-8/2/05 MW-4-1 MW-4-2 MW-4-3 MW-11-1 MW-11-2 MW-11-3 MW-11-4

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.

IV. ICP Interference Check Sample (ICS) Analysis

ICP interference check sample analysis was not required.

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. Results were within QC limits.

VII. Laboratory Control Samples (LCS)

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

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 DUPE-3-3Q05 and MW-4-2 and samples DUPE-4-3Q05 and MW-11-2 were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	DUPE-3-3Q05	MW-4-2	
Chromium	11.7	9.0	26

Analyte	Concentration (ug/L)		RPD
	DUPE-4-3Q05	MW-11-2	
Chromium	7.8	6.9	12

XIV. Field Blanks

Sample EB-9-8/2/05 was identified as an equipment blank. No chromium was found in this blank with the following exceptions:

Equipment Blank ID	Analyte	Concentration (ug/L)
EB-9-8/2/05	Chromium	1.5

**NASA JPL
Chromium - Data Qualification Summary - SDG 05-3600**

No Sample Data Qualified in this SDG

**NASA JPL
Chromium - Laboratory Blank Data Qualification Summary - SDG 05-3600**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL
Collection Date: August 9, 2005
LDC Report Date: September 15, 2005
Matrix: Water
Parameters: Chromium
Validation Level: EPA Level III
Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 05-3685

Sample Identification

MW-7
MW-13
MW-7MS
MW-7MSD
MW-7DUP
MW-13MS
MW-13MSD

Introduction

This data review covers 7 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.

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	0.094 ug/L	All samples in SDG 05-3685
ICB/CCB	Chromium	0.118 ug/L	All samples in SDG 05-3685

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.

IV. ICP Interference Check Sample (ICS) Analysis

ICP interference check sample analysis was not required.

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. Results were within QC limits.

VII. Laboratory Control Samples (LCS)

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

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

No field duplicates were identified in this SDG.

XIV. Field Blanks

No field blanks were identified in this SDG.

**NASA JPL
Chromium - Data Qualification Summary - SDG 05-3685**

No Sample Data Qualified in this SDG

**NASA JPL
Chromium - Laboratory Blank Data Qualification Summary - SDG 05-3685**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL
Collection Date: August 10, 2005
LDC Report Date: September 15, 2005
Matrix: Water
Parameters: Chromium
Validation Level: EPA Level III & IV
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 05-3697

Sample Identification

DUPE-7-3Q05
MW-8**
MW-10
MW-16
MW-8MS
MW-8MSD
MW-8DUP

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 7 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
ICB/CCB	Chromium	0.118 ug/L	All samples in SDG 05-3697

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.

IV. ICP Interference Check Sample (ICS) Analysis

ICP interference check sample analysis was not required.

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. Results were within QC limits.

VII. Laboratory Control Samples (LCS)

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

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 with the following exceptions:

Diluted Sample	Analyte	%D (Limits)	Associated Samples	Flag	A or P
MW-6L	Chromium	13.4 (≤ 10)	All samples in SDG 05-3697	J (all detects)	A

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 DUPE-7-3Q05 and MW-10 were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	DUPE-7-3Q05	MW-10	
Chromium	24.6	25.4	3

XIV. Field Blanks

No field blanks were identified in this SDG.

**NASA JPL
Chromium - Data Qualification Summary - SDG 05-3697**

SDG	Sample	Analyte	Flag	A or P	Reason
05-3697	DUPE-7-3Q05 MW-8** MW-10 MW-16	Chromium	J (all detects)	A	ICP serial dilution (%D)

**NASA JPL
Chromium - Laboratory Blank Data Qualification Summary - SDG 05-3697**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL
Collection Date: August 11, 2005
LDC Report Date: September 15, 2005
Matrix: Water
Parameters: Chromium
Validation Level: EPA Level III & IV
Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 05-3707

Sample Identification

DUPE-8-3Q05
DUPE-9-3Q05
MW-5**
MW-6
MW-15
MW-6MS
MW-6MSD
MW-6DUP

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 8 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
ICB/CCB	Chromium	0.118 ug/L	All samples in SDG 05-9707

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.

IV. ICP Interference Check Sample (ICS) Analysis

ICP interference check sample analysis was not required.

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. Results were within QC limits.

VII. Laboratory Control Samples (LCS)

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

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 with the following exceptions:

Diluted Sample	Analyte	%D (Limits)	Associated Samples	Flag	A or P
MW-GL	Chromium	13.4 (≤ 10)	All samples in SDG 05-3707	J (all detects)	A

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 DUPE-8-3Q05 and MW-5** and samples DUPE-9-3Q05 and MW-15 were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	DUPE-8-3Q05	MW-5**	
Chromium	6.2	6.4	3

**NASA JPL
Chromium - Data Qualification Summary - SDG 05-3707**

SDG	Sample	Analyte	Flag	A or P	Reason
05-3707	DUPE-8-3Q05 DUPE-9-3Q05 MW-5** MW-6 MW-15	Chromium	J (all detects)	A	ICP serial dilution (%D)

**NASA JPL
Chromium - Laboratory Blank Data Qualification Summary - SDG 05-3707**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL
Collection Date: August 15, 2005
LDC Report Date: September 15, 2005
Matrix: Water
Parameters: Chromium
Validation Level: EPA Level III
Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 05-3730

Sample Identification

EB-12-8/15/05
MW-17-2
MW-17-3
MW-17-4
SB-1-3Q05

Introduction

This data review covers 5 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.

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	0.094 ug/L	All samples in SDG 05-3730
ICB/CCB	Chromium	0.118 ug/L	All samples in SDG 05-3730

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.

IV. ICP Interference Check Sample (ICS) Analysis

ICP interference check sample analysis was not required.

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. Results were within QC limits.

VII. Laboratory Control Samples (LCS)

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

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

No field duplicates were identified in this SDG.

XIV. Field Blanks

Sample EB-12-8/15/05 was identified as an equipment blank. No chromium was found in this blank with the following exceptions:

Equipment Blank ID	Analyte	Concentration (ug/L)
EB-12-8/15/05	Chromium	1.9

Sample SB-1-3Q05 was identified as a source blank. No chromium was found in this blank with the following exceptions:

Source Blank ID	Analyte	Concentration (ug/L)
SB-1-3Q05	Chromium	2.3

**NASA JPL
Chromium - Data Qualification Summary - SDG 05-3730**

No Sample Data Qualified in this SDG

**NASA JPL
Chromium - Laboratory Blank Data Qualification Summary - SDG 05-3730**

No Sample Data Qualified in this SDG

**NASA JPL
Data Validation Reports
LDC# 14017**

Wet Chemistry



Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name: NASA JPL
Collection Date: August 2, 2005
LDC Report Date: September 16, 2005
Matrix: Water
Parameters: Wet Chemistry
Validation Level: EPA Level III
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 05-3600

Sample Identification

DUPE-3-3Q05
DUPE-4-3Q05
EB-9-8/2/05
MW-4-1
MW-4-2
MW-4-3
MW-11-1
MW-11-2
MW-11-3
MW-11-4
DUPE-4-3Q05MS
DUPE-4-3Q05MSD
MW-11-1MS
MW-11-1MSD
MW-11-1DUP

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 160.1 for Total Dissolved Solids, EPA Method 300.0 for Chloride, Nitrate as Nitrogen, and Sulfate, EPA Method 310.1 for Alkalinity, EPA Method 314.0 for Perchlorate, EPA SW 846 Method 7196 for Hexavalent Chromium, and EPA SW 846 Method 9040 for pH.

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 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.

V. Duplicates

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

VI. Laboratory Control Samples

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

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 DUPE-3-3Q05 and MW-4-2 and samples DUPE-4-3Q05 and MW-11-2 were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	DUPE-3-3Q05	MW-4-2	
Perchlorate	5.7	6.1	7

X. Field Blanks

No field blanks were identified in this SDG.

NASA JPL

Wet Chemistry - Data Qualification Summary - SDG 05-3600

No Sample Data Qualified in this SDG

NASA JPL

Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 05-3600

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL
Collection Date: August 9, 2005
LDC Report Date: September 16, 2005
Matrix: Water
Parameters: Wet Chemistry
Validation Level: EPA Level III
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 05-3685

Sample Identification

MW-7
MW-13
MW-7MS
MW-7MSD
MW-13MS
MW-13MSD

Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 150.1 for pH, EPA Method 160.1 for Total Dissolved Solids, EPA Method 300.0 for Chloride, Nitrate as Nitrogen, and Sulfate, EPA Method 310.1 for Alkalinity, EPA Method 314.0 for Perchlorate, and EPA SW 846 Method 7196 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.

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 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.

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) and relative percent differences (RPD) 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

No field duplicates were identified in this SDG.

X. Field Blanks

No field blanks were identified in this SDG.

NASA JPL
Wet Chemistry - Data Qualification Summary - SDG 05-3685

No Sample Data Qualified in this SDG

NASA JPL
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 05-3685

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL
Collection Date: August 10, 2005
LDC Report Date: September 16, 2005
Matrix: Water
Parameters: Wet Chemistry
Validation Level: EPA Level III & IV
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 05-3697

Sample Identification

DUPE-7-3Q05
MW-8**
MW-10
MW-16
MW-8MS
MW-8MSD
MW-8DUP

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 150.1 for pH, EPA Method 160.1 for Total Dissolved Solids, EPA Method 300.0 for Chloride, Nitrate as Nitrogen, and Sulfate, EPA Method 310.1 for Alkalinity, EPA Method 314.0 for Perchlorate, and EPA SW 846 Method 7196 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 contaminant concentrations were found in the method blanks with the following exceptions:

Method Blank ID	Analyte	Concentration	Associated Samples
PBW	Chloride	0.083 mg/L	MW-8** MW-16

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated 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. Results were within QC limits.

VI. Laboratory Control Samples

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

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 DUPE-7-3Q05 and MW-10 were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration		RPD
	DUPE-7-3Q05	MW-10	
Hexavalent chromium	0.014 mg/L	0.014 mg/L	0
Perchlorate	110 ug/L	108 ug/L	2

X. Field Blanks

No field blanks were identified in this SDG.

NASA JPL
Wet Chemistry - Data Qualification Summary - SDG 05-3697

No Sample Data Qualified in this SDG

NASA JPL
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 05-3697

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL
Collection Date: August 11, 2005
LDC Report Date: September 16, 2005
Matrix: Water
Parameters: Perchlorate & Hexavalent Chromium
Validation Level: EPA Level III & IV
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 05-3707

Sample Identification

DUPE-8-3Q05
DUPE-9-3Q05
MW-5**
MW-6
MW-15
MW-6MS
MW-6MSD

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 314.0 for Perchlorate and EPA SW 846 Method 7196 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 perchlorate or hexavalent chromium contaminants 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.

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) and relative percent differences (RPD) 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.

**NASA JPL
Perchlorate & Hexavalent Chromium - Data Qualification Summary - SDG 05-3707**

No Sample Data Qualified in this SDG

**NASA JPL
Perchlorate & Hexavalent Chromium - Laboratory Blank Data Qualification Summary
- SDG 05-3707**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL
Collection Date: August 15, 2005
LDC Report Date: September 16, 2005
Matrix: Water
Parameters: Perchlorate & Hexavalent Chromium
Validation Level: EPA Level III
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 05-3730

Sample Identification

EB-12-8/15/05
MW-17-2
MW-17-3
MW-17-4
SB-1-3Q05
MW-17-2MS
MW-17-2MSD

**NASA JPL
Perchlorate - Data Qualification Summary - SDG 05-3729**

No Sample Data Qualified in this SDG

**NASA JPL
Perchlorate - Laboratory Blank Data Qualification Summary - SDG 05-3729**

No Sample Data Qualified in this SDG

Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 314.0 for Perchlorate and EPA SW 846 Method 7196 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.

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 or hexavalent chromium contaminants 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.

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) and relative percent differences (RPD) 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

No field duplicates were identified in this SDG.

X. Field Blanks

Sample EB-12-8/15/05 was identified as an equipment blank. No perchlorate or hexavalent chromium contaminants were found in this blank.

Sample SB-1-3Q05 was identified as a source blank. No perchlorate or hexavalent chromium contaminants were found in this blank.

**NASA JPL
Perchlorate & Hexavalent Chromium - Data Qualification Summary - SDG 05-3730**

No Sample Data Qualified in this SDG

**NASA JPL
Perchlorate & Hexavalent Chromium - Laboratory Blank Data Qualification Summary
- SDG 05-3730**

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL
Collection Date: August 15, 2005
LDC Report Date: September 16, 2005
Matrix: Water
Parameters: Perchlorate
Validation Level: EPA Level III
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 05-3729

Sample Identification

MW-17-4

Introduction

This data review covers one water sample 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.

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 contaminants were found in the method blanks.

IV. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

V. Duplicates

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

VI. Laboratory Control Samples

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

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

No field duplicates were identified in this SDG.

X. Field Blanks

Sample EB-12-8/15/05 (from SDG 05-3730) was identified as an equipment blank. No perchlorate contaminants were found in this blank.

Sample SB-1-3Q05 (from SDG 05-3730) was identified as a source blank. No perchlorate contaminants were found in this blank.



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 29, 2005

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 26, 2005. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project # 14074:

<u>SDG #</u>	<u>Fraction</u>
05-3890	Volatiles, Perchlorate

The data validation was performed under EPA Level III 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
- 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

**NASA JPL
Data Validation Reports
LDC# 14074**

Volatiles

LDC

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL
Collection Date: September 2, 2005
LDC Report Date: September 28, 2005
Matrix: Water
Parameters: Volatiles
Validation Level: EPA Level III
Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 05-3890

Sample Identification

DUP-9A-3Q05
MW-15
TB-16-9/2/05
MW-15MS
MW-15MSD

Introduction

This data review covers 5 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 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% .

The percent differences (%D) of the second source calibration standard were less than or equal to 25.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
8/5/05	2,2-Dichloropropane	44.53	All samples in SDG 05-3890	J (all detects)	P
	1,2,3-Trichloropropane	36.99		UJ (all non-detects)	
				J (all detects)	
				UJ (all non-detects)	

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
05G2931MB01	9/2/05	Methylene chloride	1.3 ug/L	All samples in SDG 05-3890

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 with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
DUP-9A-3Q05	Methylene chloride	1.3 ug/L	1.3U ug/L
MW-15	Methylene chloride	1.4 ug/L	1.4U ug/L
TB-16-9/2/05	Methylene chloride	1.4 ug/L	1.4U ug/L

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.

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

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 DUP-9A-3Q05 and MW-15 were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	DUP-9A-3Q05	MW-15	
Methylene chloride	1.3	1.4	7

XVII. Field Blanks

Sample TB-16-9/2/05 was identified as a trip blank. No volatile contaminants were found in this blank with the following exceptions:

Trip Blank ID	Compound	Concentration (ug/L)
TB-16-9/2/05	Methylene chloride	1.4

NASA JPL
Volatiles - Data Qualification Summary - SDG 05-3890

SDG	Sample	Compound	Flag	A or P	Reason
05-3890	DUP-9A-3Q05 MW-15 TB-16-9/2/05	2,2-Dichloropropane 1,2,3-Trichloropropane	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P	Continuing calibration (ICV %D)

NASA JPL
Volatiles - Laboratory Blank Data Qualification Summary - SDG 05-3890

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
05-3890	DUP-9A-3Q05	Methylene chloride	1.3U ug/L	A
05-3890	MW-15	Methylene chloride	1.4U ug/L	A
05-3890	TB-16-9/2/05	Methylene chloride	1.4U ug/L	A

**NASA JPL
Data Validation Reports
LDC# 14074**

Perchlorate

LDC

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL
Collection Date: September 2, 2005
LDC Report Date: September 28, 2005
Matrix: Water
Parameters: Perchlorate
Validation Level: EPA Level III
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 05-3890

Sample Identification

DUP-9A-3Q05
MW-15
DUP-9A-3Q05MS
DUP-9A-3Q05MSD

Introduction

This data review covers 4 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.

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 contaminants were found in the method blanks.

IV. Matrix Spike/Matrix Spike Duplicates

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

V. Duplicates

Duplicate 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) and relative percent differences (RPD) 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 DUP-9A-3Q05 and MW-15 were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	DUP-9A-3Q05	MW-15	
Perchlorate	1.1	0.94	16

X. Field Blanks

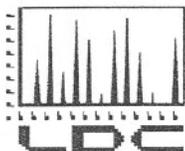
No field blanks were identified in this SDG.

NASA JPL
Perchlorate - Data Qualification Summary - SDG 05-3890

No Sample Data Qualified in this SDG

NASA JPL
Perchlorate - Laboratory Blank Data Qualification Summary - SDG 05-3890

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, 2005

SUBJECT: NASA JPL, Data Validation

Dear Ms. Cutie,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on October 4, 2005. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project # 14103:

<u>SDG #</u>	<u>Fraction</u>
05-3930, 05-3957	Volatiles, Chromium, Perchlorate & Hexavalent Chromium

The data validation was performed under EPA Level III 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
- 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

**NASA JPL
Data Validation Reports
LDC# 14103**

Volatiles

l d c

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL
Collection Date: September 8 through September 9, 2005
LDC Report Date: October 5, 2005
Matrix: Water
Parameters: Volatiles
Validation Level: EPA Level III
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 05-3930

Sample Identification

EB-13-9/8/05
EB-14-9/9/05
MW-18-1
MW-23-4
MW-24-4
TB-17-9/8/05
TB-18-9/9/05
MW-18-1MS
MW-18-1MSD

Introduction

This data review covers 9 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 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% with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
9/9/05	Chloromethane	31.51	All samples in SDG 05-3930	J (all detects) UJ (all non-detects)	A

The percent differences (%D) of the second source calibration standard were less than or equal to 25.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
8/5/05	2,2-Dichloropropane	44.53	All samples in SDG 05-3930	J (all detects) UJ (all non-detects)	A
	1,2,3-Trichloropropane	36.99		J (all detects) UJ (all non-detects)	

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
05G2958MB01	9/9/05	Methylene chloride	1.6 ug/L	All samples in SDG 05-3930

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 with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
EB-13-9/8/05	Methylene chloride	1.2 ug/L	1.2U ug/L
EB-14-9/9/05	Methylene chloride	1.2 ug/L	1.2U ug/L
MW-18-1	Methylene chloride	1.2 ug/L	1.2U ug/L
MW-23-4	Methylene chloride	1.2 ug/L	1.2U ug/L
TB-17-9/8/05	Methylene chloride	1.3 ug/L	1.3U ug/L
TB-18-9/9/05	Methylene chloride	1.3 ug/L	1.3U ug/L

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.

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

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

No field duplicates were identified in this SDG.

XVII. Field Blanks

Samples TB-17-9/8/05 and TB-18-9/9/05 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-17-9/8/05	Methylene chloride	1.3
TB-18-9/9/05	Methylene chloride	1.3

Samples EB-13-9/8/05 and EB-14-9/9/05 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-13-9/8/05	Methylene chloride	1.2
EB-14-9/9/05	2-Butanone Methylene chloride	10 1.2

**NASA JPL
Volatiles - Data Qualification Summary - SDG 05-3930**

SDG	Sample	Compound	Flag	A or P	Reason
05-3930	EB-13-9/8/05 EB-14-9/9/05 MW-18-1 MW-23-4 MW-24-4 TB-17-9/8/05 TB-18-9/9/05	Chloromethane	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
05-3930	EB-13-9/8/05 EB-14-9/9/05 MW-18-1 MW-23-4 MW-24-4 TB-17-9/8/05 TB-18-9/9/05	2,2-Dichloropropane 1,2,3-Trichloropropane	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Continuing calibration (ICV %D)

**NASA JPL
Volatiles - Laboratory Blank Data Qualification Summary - SDG 05-3930**

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
05-3930	EB-13-9/8/05	Methylene chloride	1.2U ug/L	A
05-3930	EB-14-9/9/05	Methylene chloride	1.2U ug/L	A
05-3930	MW-18-1	Methylene chloride	1.2U ug/L	A
05-3930	MW-23-4	Methylene chloride	1.2U ug/L	A
05-3930	TB-17-9/8/05	Methylene chloride	1.3U ug/L	A
05-3930	TB-18-9/9/05	Methylene chloride	1.3U ug/L	A

**NASA JPL
Data Validation Reports
LDC# 14103**

Chromium

LDC

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL
Collection Date: September 8 through September 9, 2005
LDC Report Date: October 4, 2005
Matrix: Water
Parameters: Chromium
Validation Level: EPA Level III
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 05-3930

Sample Identification

EB-13-9/8/05
EB-14-9/9/05
MW-12-4
MW-12-5
MW-14-4
MW-14-5
MW-18-1
MW-18-5
MW-19-1
MW-19-2
MW-19-3
MW-19-4
MW-19-5
MW-19-5MS
MW-19-5MSD
MW-19-5DUP

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.

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.

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
ICB/CCB	Chromium	0.130 ug/L	All samples in SDG 05-3930

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
EB-13-9/8/05	Chromium	0.27 ug/L	0.27U ug/L
EB-14-9/9/05	Chromium	0.59 ug/L	0.59U ug/L

IV. ICP Interference Check Sample (ICS) Analysis

ICP interference check sample analysis was not required.

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. Results were within QC limits.

VII. Laboratory Control Samples (LCS)

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

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 with the following exceptions:

Diluted Sample	Analyte	%D (Limits)	Associated Samples	Flag	A or P
MW-19-5L	Chromium	13 (≤ 10)	All samples in SDG 05-3930	J (all detects)	A

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

No field duplicates were identified in this SDG.

XIV. Field Blanks

Samples EB-13-9/8/05 and EB-14-9/9/05 were identified as equipment blanks. No chromium was found in these blanks with the following exceptions:

Equipment Blank ID	Analyte	Concentration (ug/L)
EB-13-9/8/05	Chromium	0.27
EB-14-9/9/05	Chromium	0.59

**NASA JPL
Chromium - Data Qualification Summary - SDG 05-3930**

SDG	Sample	Analyte	Flag	A or P	Reason
05-3930	EB-13-9/8/05 EB-14-9/9/05 MW-12-4 MW-12-5 MW-14-4 MW-14-5 MW-18-1 MW-18-5 MW-19-1 MW-19-2 MW-19-3 MW-19-4 MW-19-5	Chromium	J (all detects)	A	ICP serial dilution (%D)

**NASA JPL
Chromium - Laboratory Blank Data Qualification Summary - SDG 05-3930**

SDG	Sample	Analyte	Modified Final Concentration	A or P
05-3930	EB-13-9/8/05	Chromium	0.27U ug/L	A
05-3930	EB-14-9/9/05	Chromium	0.59U ug/L	A

**NASA JPL
Data Validation Reports
LDC# 14103**

Perchlorate & Hexavalent Chromium

DDC

Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name: NASA JPL
Collection Date: September 8 through September 9, 2005
LDC Report Date: October 4, 2005
Matrix: Water
Parameters: Perchlorate & Hexavalent Chromium
Validation Level: EPA Level III
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 05-3930

Sample Identification

EB-13-9/8/05
EB-14-9/9/05
MW-12-4
MW-12-5
MW-14-4
MW-14-5
MW-18-1
MW-18-5
MW-19-1
MW-19-2
MW-19-3
MW-19-4
MW-19-5
MW-23-4
MW-24-4
MW-18-1MS
MW-18-1MSD
MW-19-5MS
MW-19-5MSD

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 314.0 for Perchlorate and EPA SW 846 Method 7196 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.

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.
- UU 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 or hexavalent chromium contaminants 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.

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) and relative percent differences (RPD) 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

No field duplicates were identified in this SDG.

X. Field Blanks

Samples EB-13-9/8/05 and EB-14-9/9/05 were identified as equipment blanks. No perchlorate or hexavalent chromium contaminants were found in these blanks.

NASA JPL
Perchlorate & Hexavalent Chromium - Data Qualification Summary - SDG 05-3930

No Sample Data Qualified in this SDG

NASA JPL
Perchlorate & Hexavalent Chromium - Laboratory Blank Data Qualification Summary
- SDG 05-3930

No Sample Data Qualified in this SDG

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL
Collection Date: September 9 through September 12, 2005
LDC Report Date: October 4, 2005
Matrix: Water
Parameters: Perchlorate
Validation Level: EPA Level III
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 05-3957

Sample Identification

DUPE-10-9/9/05
DUPE-11-9/12/05
MW-17-1
MW-17-5
MW-24-5
DUPE-11-9/12/05MS
DUPE-11-9/12/05MSD

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 contaminants were found in the method blanks.

IV. Matrix Spike/Matrix Spike Duplicates

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

V. Duplicates

Duplicate 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) and relative percent differences (RPD) 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 DUPE-10-9/9/05 and MW-24-5 and samples DUPE-11-9/12/05 and MW-17-1 were identified as field duplicates. No contaminant concentrations were detected in any of the samples.

X. Field Blanks

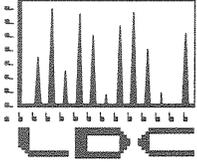
No field blanks were identified in this SDG.

NASA JPL
Perchlorate - Data Qualification Summary - SDG 05-3957

No Sample Data Qualified in this SDG

NASA JPL
Perchlorate - Laboratory Blank Data Qualification Summary - SDG 05-3957

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 13, 2005

SUBJECT: NASA JPL, Data Validation

Dear Ms. Cutie,

Enclosed is the final validation report for the fraction listed below. This SDG was received on October 7, 2005. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project # 14120:

<u>SDG #</u>	<u>Fraction</u>
05-3799	N-Nitroso-di-N-Propylamine

The data validation was performed under EPA Level III 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

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

Sincerely,

Erlinda T. Rauto
Operations Manager/Senior Chemist

**NASA JPL
Data Validation Reports
LDC# 14120**

N-Nitroso-di-N-Propylamine

LDC

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NASA JPL
Collection Date: August 23, 2005
LDC Report Date: October 13, 2005
Matrix: Water
Parameters: N-Nitroso-di-n-propylamine
Validation Level: EPA Level III
Laboratory: Applied P & Ch Laboratory
Sample Delivery Group (SDG): 05-3799

Sample Identification

MW-3-1
MW-3-2
MW-3-3
MW-3-4
MW-3-5

Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 1625M for N-Nitroso-di-n-propylamine.

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 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 not required by the method.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

A curve fit, based on the initial calibration, was established for quantitation. 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 20.0% .

The percent difference (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No N-Nitroso-di-n-propylamine was found in the method blanks.

VI. Surrogate Spikes

Surrogates were not required by the method.

VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VIII. Laboratory Control Samples (LCS)

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

IX. 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

No field duplicates were identified in this SDG.

XVII. Field Blanks

No field blanks were identified in this SDG.

NASA JPL
N-Nitroso-di-n-propylamine - Data Qualification Summary - SDG 05-3799

No Sample Data Qualified in this SDG

NASA JPL
N-Nitroso-di-n-propylamine - Laboratory Blank Data Qualification Summary - SDG 05-3799

No Sample Data Qualified in this SDG