Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: January 9, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Metals

Validation Level: EPA Level IV

Laboratory: Advanced Technology Laboratories

Sample Delivery Group (SDG): 02-1098

Sample Identification

ER-1
MW-21-1
MW-21-2
MW-21-3
MW-21-4
MW-21-5
ER-1MS
ER-1MSD
ER-1DUP

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 200.9 for Arsenic and EPA SW 846 Method 6010B for Calcium, Iron, Magnesium, Potassium and Sodium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

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.

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. 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)	Potassium	96.3 ug/L	All samples in SDG 02-1098
ICB/CCB	Calcium Iron Magnesium Potassium	109.86 ug/L 16.85 ug/L 51.09 ug/L 114.86 ug/L	All samples in SDG 02-1098

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. 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
ER-1	Iron Magnesium Potassium	12.1 ug/L 9.5 ug/L 118 ug/L	12.1U ug/L 9.5U ug/L 118U ug/L
MW-21-2	Iron	29.2 ug/L	29.2U ug/L

Sample ER-1 was identified as an equipment rinsate. No metal contaminants were found in this blank with the following exceptions:

Equipment Rinsate ID	Sampling Date	Analyte	Concentration	Associated Samples
ER-1	1/9/02	Iron Magnesium Potassium	12.1 ug/L 9.5 ug/L 118 ug/L	MW-21-1 MW-21-2 MW-21-3 MW-21-4 MW-21-5

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-21-2	Iron	29.2 ug/L	29.2U ug/L

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
All samples in SDG 02-1098	Calcium Iron Magnesium Potassium Sodium	No MS associated with these samples.	MS required.	None None None None None	P

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 with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
All samples in SDG 02-1098	Calcium Iron Magnesium Potassium Sodium	No DUP analysis associated with these samples.	DUP analysis required.	None None None None None	P

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 Standard (ICP-MS)

ICP-MS was not utilized in this SDG.

IX. Furnace Atomic Absorption QC

All graphite furnace atomic absorption QC were within validation criteria.

X. ICP Serial Dilution

ICP serial dilution was not required by the method.

XI. Sample Result Verification

All sample result verifications met validation criteria.

XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

XIII. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019
Metals - Data Qualification Summary - SDG 02-1098

SDG	Sample	Analyte	Flag	A or P	Reason
02-1098	ER-1 MW-21-1 MW-21-2 MW-21-3 MW-21-4 MW-21-5	Calcium Iron Magnesium Potassium Sodium	None None None None None None	P	Matrix spike analysis
02-1098	ER-1 MW-21-1 MW-21-2 MW-21-3 MW-21-4 MW-21-5	Calcium Iron Magnesium Potassium Sodium	None None None None None None	P	Duplicate analysis

JPL, 00HW019
Metals - Laboratory Blank Data Qualification Summary - SDG 02-1098

SDG	Sample	Analyte	Modified Final Concentration	A or P
02-1098	ER-1	Iron Magnesium Potassium	12.1U ug/L 9.5U ug/L 118U ug/L	A
02-1098	MW-21-2	Iron	29.2U ug/L	A

JPL, 00HW019
Metals - Field Blank Data Qualification Summary - SDG 02-1098

SDG	Sample	Analyte	Modified Final Concentration	A or P
02-1098	MW-21-2	Iron	29.2U ug/L	A

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL

Collection Date: January 10, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Metals

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1118

Sample Identification

ER-2*
MW-17-1
MW-17-2
MW-17-3
MW-17-4
MW-17-5

*Indicates sample was analyzed for arsenic only.

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 200.7 for Potassium, Iron, Sodium, Magnesium, and Calcium, and EPA Method 200.9 for Arsenic.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

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.

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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.

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. 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)	Potassium	101 ug/L	All samples in SDG 02-1118
ICB/CCB	Iron Magnesium Potassium	5.99 ug/L 20.63 ug/L 105.39 ug/L	All samples in SDG 02-1118

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-17-1	Iron	16.4 ug/L	16.4U ug/L
MW-17-4	Iron	15.9 ug/L	15.9U ug/L

Sample ER-2* was identified as an equipment rinsate. No metal contaminants were found in this blank.

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

V. Matrix Spike Analysis

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

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. 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 Standard (ICP-MS)

ICP-MS was not utilized in this SDG.

IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

X. ICP Serial Dilution

ICP serial dilution was not required by the method.

XI. Sample Result Verification

All sample result verifications met validation criteria.

XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

XIII. Field Duplicates

No field duplicates were identified in this SDG.

JPL
Metals - Data Qualification Summary - SDG 02-1118

No Sample Data Qualified in this SDG

JPL
Metals - Laboratory Blank Data Qualification Summary - SDG 02-1118

SDG	Sample	Analyte	Modified Final Concentration	A or P
02-1118	MW-17-1	Iron	16.4U ug/L	A
02-1118	MW-17-4	Iron	15.9U ug/L	A

JPL
Metals - Field Blank Data Qualification Summary - SDG 02-1118

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL

Collection Date: January 11, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Metals

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1138

Sample Identification

ER-3*
MW-3-1
MW-3-2
MW-3-3
MW-3-4
MW-3-5

*Indicates sample was analyzed for arsenic only.

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 200.7 for Potassium, Iron, Sodium, Magnesium, and Calcium, and EPA Method 200.9 for Arsenic.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

The following are definitions of the data qualifiers:

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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.

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. 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)	Potassium	101 ug/L	All samples in SDG 02-1138
ICB/CCB	Iron Magnesium Potassium	5.99 ug/L 20.63 ug/L 105.39 ug/L	All samples in SDG 02-1138

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks.

Sample ER-3* was identified as an equipment rinsate. No metal contaminants were found in this blank.

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

V. Matrix Spike Analysis

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

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. 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 Standard (ICP-MS)

ICP-MS was not utilized in this SDG.

IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

X. ICP Serial Dilution

ICP serial dilution was not required by the method.

XI. Sample Result Verification

All sample result verifications met validation criteria.

XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

XIII. Field Duplicates

No field duplicates were identified in this SDG.

JPL
Metals - Data Qualification Summary - SDG 02-1138

No Sample Data Qualified in this SDG

JPL
Metals - Laboratory Blank Data Qualification Summary - SDG 02-1138

No Sample Data Qualified in this SDG

JPL
Metals - Field Blank Data Qualification Summary - SDG 02-1138

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: January 14, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Metals

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1166

Sample Identification

ER-4
MW-18-2
MW-18-3
MW-18-4
MW-18-5
MW-18-3D
ER-4MS
ER-4MSD
ER-4DUP

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 200.9 for Arsenic and EPA Method 200.7 for Calcium, Iron, Magnesium, Potassium and Sodium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

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.

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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.

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. 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)	Potassium	101 ug/L	All samples in SDG 02-1166
ICB/CCB	Iron Magnesium Potassium	5.99 ug/L 20.63 ug/L 105.39 ug/L	All samples in SDG 02-1166

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks.

Sample ER-4 was identified as an equipment rinsate. No metal contaminants were found in this blank.

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

V. Matrix Spike Analysis

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

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. 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 Standard (ICP-MS)

ICP-MS was not utilized in this SDG.

IX. Furnace Atomic Absorption QC

All graphite furnace atomic absorption QC were within validation criteria.

X. ICP Serial Dilution

Although ICP serial dilution analysis was not required by the method, it was performed by the laboratory. The analysis criteria were met.

XI. Sample Result Verification

All sample result verifications met validation criteria.

XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

XIII. Field Duplicates

Samples MW-18-3 and MW-18-3D were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	MW-18-3	MW-18-3D	
Calcium	54400	53600	1
Magnesium	19600	19400	1
Potassium	2920	2880	1
Sodium	21800	21400	2

JPL, 00HW019
Metals - Data Qualification Summary - SDG 02-1166

No Sample Data Qualified in this SDG

JPL, 00HW019
Metals - Laboratory Blank Data Qualification Summary - SDG 02-1166

No Sample Data Qualified in this SDG

JPL, 00HW019
Metals - Field Blank Data Qualification Summary - SDG 02-1166

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: January 15, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Metals

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1199

Sample Identification

ER-5
MW-19-1
MW-19-2
MW-19-3
MW-19-4
MW-19-5
MW-19-3D
MW-19-3MS
MW-19-3MSD
MW-19-3DUP

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 200.9 for Arsenic and EPA Method 200.7 for Calcium, Iron, Magnesium, Potassium and Sodium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

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.

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. 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)	Potassium	77.2 ug/L	All samples in SDG 02-1199
ICB/CCB	Calcium Iron Magnesium Potassium Sodium	189.71 ug/L 31.10 ug/L 90.95 ug/L 115.21 ug/L 126.36 ug/L	All samples in SDG 02-1199

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-19-4	Iron	53.8 ug/L	53.8U ug/L
MW-19-5	Iron	77.9 ug/L	77.9U ug/L

Sample ER-5 was identified as an equipment rinsate. No metal contaminants were found in

this blank.

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

V. Matrix Spike Analysis

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

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. 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 Standard (ICP-MS)

ICP-MS was not utilized in this SDG.

IX. Furnace Atomic Absorption QC

All graphite furnace atomic absorption QC were within validation criteria.

X. ICP Serial Dilution

Although ICP serial dilution analysis was not required by the method, it was performed by the laboratory. The analysis criteria were met.

XI. Sample Result Verification

All sample result verifications met validation criteria.

XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

XIII. Field Duplicates

Samples MW-19-3 and MW-19-3D were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	MW-19-3	MW-19-3D	
Calcium	118000	120000	2
Iron	693	476	37
Magnesium	41100	42200	3
Potassium	3000	3050	2
Sodium	32700	32900	0.6

JPL, 00HW019
Metals - Data Qualification Summary - SDG 02-1199

No Sample Data Qualified in this SDG

JPL, 00HW019
Metals - Laboratory Blank Data Qualification Summary - SDG 02-1199

SDG	Sample	Analyte	Modified Final Concentration	A or P
02-1199	MW-19-4	Iron	53.8U ug/L	A
02-1199	MW-19-5	Iron	77.9U ug/L	A

JPL, 00HW019
Metals - Field Blank Data Qualification Summary - SDG 02-1199

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: January 16, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Metals

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1220

Sample Identification

ER-6
MW-20-1
MW-20-2
MW-20-3
MW-20-4
MW-20-5

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 200.9 for Arsenic and EPA Method 200.7 for Calcium, Iron, Magnesium, Potassium and Sodium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

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The following are definitions of the data qualifiers:

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J Indicates an estimated value.

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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.

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. 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)	Potassium	77.2 ug/L	MW-20-1 MW-20-2 MW-20-3 MW-20-4 MW-20-5
ICB/CCB	Calcium Iron Magnesium Potassium Sodium	189.71 ug/L 31.10 ug/L 90.95 ug/L 115.21 ug/L 126.36 ug/L	MW-20-1 MW-20-2 MW-20-3 MW-20-4 MW-20-5

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-20-1	Iron	16.7 ug/L	16.7U ug/L

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-20-2	Iron	82.5 ug/L	82.5U ug/L
MW-20-5	Iron	27.7 ug/L	27.7U ug/L

Sample ER-6 was identified as an equipment rinsate. No metal contaminants were found in this blank.

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

V. Matrix Spike Analysis

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

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. 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 Standard (ICP-MS)

ICP-MS was not utilized in this SDG.

IX. Furnace Atomic Absorption QC

All graphite furnace atomic absorption QC were within validation criteria.

X. ICP Serial Dilution

Although ICP serial dilution analysis was not required by the method, it was performed by the laboratory. The analysis criteria were met.

XI. Sample Result Verification

All sample result verifications met validation criteria.

XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

XIII. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019
Metals - Data Qualification Summary - SDG 02-1220

No Sample Data Qualified in this SDG

JPL, 00HW019
Metals - Laboratory Blank Data Qualification Summary - SDG 02-1220

SDG	Sample	Analyte	Modified Final Concentration	A or P
02-1220	MW-20-1	Iron	16.7U ug/L	A
02-1220	MW-20-2	Iron	82.5U ug/L	A
02-1220	MW-20-5	Iron	27.7U ug/L	A

JPL, 00HW019
Metals - Field Blank Data Qualification Summary - SDG 02-1220

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: January 18, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Metals

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1267

Sample Identification

ER-7
MW-14-1
MW-14-2
MW-14-3
MW-14-4
MW-14-5
ER-7MS
ER-7MSD
ER-7DUP

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 200.9 for Arsenic and EPA Method 200.7 for Calcium, Iron, Magnesium, Potassium and Sodium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

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.

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. 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)	Magnesium Potassium	26.8 ug/L 117 ug/L	MW-14-1 MW-14-2 MW-14-3 MW-14-4 MW-14-5
ICB/CCB	Iron Magnesium Potassium Sodium	12.06 ug/L 43.43 ug/L 124.45 ug/L 596.67 ug/L	MW-14-1 MW-14-2 MW-14-3 MW-14-4 MW-14-5

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-14-3	Iron	36.9 ug/L	36.9U ug/L

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-14-4	Iron	21.1 ug/L	21.1U ug/L

Sample ER-7 was identified as an equipment rinsate. No metal contaminants were found in this blank.

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

V. Matrix Spike Analysis

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

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. 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 Standard (ICP-MS)

ICP-MS was not utilized in this SDG.

IX. Furnace Atomic Absorption QC

All graphite furnace atomic absorption QC were within validation criteria.

X. ICP Serial Dilution

Although ICP serial dilution analysis was not required by the method, it was performed by the laboratory. The analysis criteria were met.

XI. Sample Result Verification

All sample result verifications met validation criteria.

XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

XIII. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019
Metals - Data Qualification Summary - SDG 02-1267

No Sample Data Qualified in this SDG

JPL, 00HW019
Metals - Laboratory Blank Data Qualification Summary - SDG 02-1267

SDG	Sample	Analyte	Modified Final Concentration	A or P
02-1267	MW-14-3	Iron	36.9U ug/L	A
02-1267	MW-14-4	Iron	21.1U ug/L	A

JPL, 00HW019
Metals - Field Blank Data Qualification Summary - SDG 02-1267

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: January 22, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Metals

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1309

Sample Identification

ER-8
MW-12-1
MW-12-2
MW-12-3
MW-12-4
MW-12-5
MW-12-2D
ER-8MS
ER-8MSD
ER-8DUP

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 200.9 for Arsenic and EPA Method 200.7 for Calcium, Iron, Magnesium, Potassium and Sodium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

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.

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. 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)	Magnesium Potassium	26.8 ug/L 117 ug/L	MW-12-1 MW-12-2 MW-12-3 MW-12-4 MW-12-5 MW-12-2D
ICB/CCB	Iron Magnesium Potassium Sodium	12.06 ug/L 43.43 ug/L 124.45 ug/L 596.67 ug/L	MW-12-1 MW-12-2 MW-12-3 MW-12-4 MW-12-5 MW-12-2D

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks.

Sample ER-8 was identified as an equipment rinsate. No metal contaminants were found in this blank.

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

V. Matrix Spike Analysis

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

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. 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 Standard (ICP-MS)

ICP-MS was not utilized in this SDG.

IX. Furnace Atomic Absorption QC

All graphite furnace atomic absorption QC were within validation criteria.

X. ICP Serial Dilution

Although ICP serial dilution analysis was not required by the method, it was performed by the laboratory. The analysis criteria were met.

XI. Sample Result Verification

All sample result verifications met validation criteria.

XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

XIII. Field Duplicates

Samples MW-12-2 and MW-12-2D were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	MW-12-2	MW-12-2D	
Arsenic	1.4U	1.7	200
Calcium	54900	53000	4
Iron	149	120	22
Magnesium	18700	19200	3
Potassium	3240	3300	2
Sodium	24600	23900	3

JPL, 00HW019
Metals - Data Qualification Summary - SDG 02-1309

No Sample Data Qualified in this SDG

JPL, 00HW019
Metals - Laboratory Blank Data Qualification Summary - SDG 02-1309

No Sample Data Qualified in this SDG

JPL, 00HW019
Metals - Field Blank Data Qualification Summary - SDG 02-1309

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: January 23, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Metals

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1314

Sample Identification

ER-9
MW-23-1
MW-23-2
MW-23-3
MW-23-4
MW-23-5
MW-23-3D

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 200.7 for Calcium, Iron, Magnesium, Potassium, and Sodium, and EPA Method 200.9 for Arsenic.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

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.

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. 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)	Potassium	71.3 ug/L	MW-23-1 MW-23-2 MW-23-3 MW-23-4 MW-23-5 MW-23-3D
ICB/CCB	Calcium Iron Magnesium Potassium Sodium	256.33 ug/L 25.04 ug/L 70.56 ug/L 91.96 ug/L 187.45 ug/L	MW-23-1 MW-23-2 MW-23-3 MW-23-4 MW-23-5 MW-23-3D

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-23-2	Iron	39.9 ug/L	39.9U ug/L

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-23-3	Iron	20.1 ug/L	20.1U ug/L
MW-23-4	Iron	62.1 ug/L	62.1U ug/L
MW-23-5	Iron	122 ug/L	122U ug/L
MW-23-3D	Iron	119 ug/L	119U ug/L

Sample ER-9 was identified as an equipment rinsate. No metal contaminants were found in this blank.

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

V. Matrix Spike Analysis

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

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. 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 Standard (ICP-MS)

ICP-MS was not utilized in this SDG.

IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

X. ICP Serial Dilution

Although ICP serial dilution analysis was not required by the method, it was performed by the laboratory. The analysis criteria were met.

XI. Sample Result Verification

All sample result verifications met validation criteria.

XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

XIII. Field Duplicates

Samples MW-23-3 and MW-23-3D were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	MW-23-3	MW-23-3D	
Calcium	48700	46600	0.2
Iron	20.1	119	142
Magnesium	14500	14400	0.7
Potassium	1870	1880	0.5
Sodium	27800	27800	0

JPL, 00HW019
Metals - Data Qualification Summary - SDG 02-1314

No Sample Data Qualified in this SDG

JPL, 00HW019
Metals - Laboratory Blank Data Qualification Summary - SDG 02-1314

SDG	Sample	Analyte	Modified Final Concentration	A or P
02-1314	MW-23-2	Iron	39.9U ug/L	A
02-1314	MW-23-3	Iron	20.1U ug/L	A
02-1314	MW-23-4	Iron	62.1U ug/L	A
02-1314	MW-23-5	Iron	122U ug/L	A
02-1314	MW-23-3D	Iron	119U ug/L	A

JPL, 00HW019
Metals - Field Blank Data Qualification Summary - SDG 02-1314

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: January 25, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Metals

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1355

Sample Identification

ER-11
MW-11-1
MW-11-2
MW-11-3
MW-11-4
MW-11-5

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 200.9 for Arsenic and EPA Method 200.7 for Calcium, Iron, Magnesium, Potassium and Sodium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

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.

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. 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)	Magnesium Potassium	7.9 ug/L 71.3 ug/L	All samples in SDG 02-1355
ICB/CCB	Arsenic Calcium Iron Magnesium Potassium Sodium	1.60 ug/L 256.33 ug/L 25.04 ug/L 70.56 ug/L 91.96 ug/L 187.45 ug/L	All samples in SDG 02-1355

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. 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
ER-11	Arsenic	1.6 ug/L	1.6U ug/L
MW-11-1	Iron	12.4 ug/L	12.4U ug/L

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-11-2	Arsenic Iron	1.6 ug/L 53.6 ug/L	1.6U ug/L 53.6U ug/L
MW-11-3	Arsenic	2.5 ug/L	2.5U ug/L
MW-11-4	Iron	59.2 ug/L	59.2U ug/L
MW-11-5	Arsenic	5.0 ug/L	5.0U ug/L

Sample ER-11 was identified as an equipment rinsate. No metal contaminants were found in this blank with the following exceptions:

Equipment Rinsate ID	Sampling Date	Analyte	Concentration	Associated Samples
ER-11	1/25/02	Arsenic	1.6 ug/L	MW-11-1 MW-11-2 MW-11-3 MW-11-4 MW-11-5

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-11-2	Arsenic	1.6 ug/L	1.6U ug/L
MW-11-3	Arsenic	2.5 ug/L	2.5U ug/L
MW-11-5	Arsenic	5.0 ug/L	5.0U ug/L

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

V. Matrix Spike Analysis

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

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. 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 Standard (ICP-MS)

ICP-MS was not utilized in this SDG.

IX. Furnace Atomic Absorption QC

All graphite furnace atomic absorption QC were within validation criteria.

X. ICP Serial Dilution

Although ICP serial dilution analysis was not required by the method, it was performed by the laboratory. The analysis criteria were met.

XI. Sample Result Verification

All sample result verifications met validation criteria.

XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

XIII. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019
Metals - Data Qualification Summary - SDG 02-1355

No Sample Data Qualified in this SDG

JPL, 00HW019
Metals - Laboratory Blank Data Qualification Summary - SDG 02-1355

SDG	Sample	Analyte	Modified Final Concentration	A or P
02-1355	ER-11	Arsenic	1.6U ug/L	A
02-1355	MW-11-1	Iron	12.4U ug/L	A
02-1355	MW-11-2	Arsenic Iron	1.6U ug/L 53.6U ug/L	A
02-1355	MW-11-3	Arsenic	2.5U ug/L	A
02-1355	MW-11-4	Iron	59.2U ug/L	A
02-1355	MW-11-5	Arsenic	5.0U ug/L	A

JPL, 00HW019
Metals - Field Blank Data Qualification Summary - SDG 02-1355

SDG	Sample	Analyte	Modified Final Concentration	A or P
02-1355	MW-11-2	Arsenic	1.6U ug/L	A
02-1355	MW-11-3	Arsenic	2.5U ug/L	A
02-1355	MW-11-5	Arsenic	5.0U ug/L	A

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: January 28, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Metals

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1368

Sample Identification

ER-12
MW-22-1
MW-22-2
MW-22-3
MW-22-4
MW-22-5

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 200.9 for Arsenic and EPA Method 200.7 for Calcium, Iron, Magnesium, Potassium and Sodium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

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.

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. 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)	Iron Magnesium Potassium	2.8 ug/L 11.6 ug/L 37.6 ug/L	All samples in SDG 02-1368
ICB/CCB	Arsenic Iron Magnesium Potassium Sodium	1.60 ug/L 91.51 ug/L 39.88 ug/L 68.32 ug/L 152.24 ug/L	All samples in SDG 02-1368

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. 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
ER-12	Arsenic	1.9 ug/L	1.9U ug/L
MW-22-2	Iron	51.0 ug/L	51.0U ug/L

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-22-3	Arsenic Iron	1.8 ug/L 53.8 ug/L	1.8U ug/L 53.8U ug/L
MW-22-4	Arsenic Iron	1.6 ug/L 48.8 ug/L	1.6U ug/L 48.8U ug/L
MW-22-5	Arsenic Iron	1.8 ug/L 25.0 ug/L	1.8U ug/L 25.0U ug/L

Sample ER-12 was identified as an equipment rinsate. No metal contaminants were found in this blank with the following exceptions:

Equipment Rinsate ID	Sampling Date	Analyte	Concentration	Associated Samples
ER-12	1/28/02	Arsenic	1.9 ug/L	MW-22-1 MW-22-2 MW-22-3 MW-22-4 MW-22-5

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-22-3	Arsenic	1.8 ug/L	1.8U ug/L
MW-22-4	Arsenic	1.6 ug/L	1.6U ug/L
MW-22-5	Arsenic	1.8 ug/L	1.8U ug/L

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

V. Matrix Spike Analysis

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

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
MW-16MS/MSD (MW-22-1 MW-22-2 MW-22-3 MW-22-4 MW-22-5)	Magnesium	72 (75-125)	73 (75-125)	-	J (all detects) UJ (all non-detects)	A

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 Standard (ICP-MS)

ICP-MS was not utilized in this SDG.

IX. Furnace Atomic Absorption QC

All graphite furnace atomic absorption QC were within validation criteria.

X. ICP Serial Dilution

Although ICP serial dilution analysis was not required by the method, it was performed by the laboratory. The analysis criteria were met.

XI. Sample Result Verification

All sample result verifications met validation criteria.

XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

XIII. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019
Metals - Data Qualification Summary - SDG 02-1368

SDG	Sample	Analyte	Flag	A or P	Reason
02-1442	MW-22-1 MW-22-2 MW-22-3 MW-22-4 MW-22-5	Magnesium	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)

JPL, 00HW019
Metals - Laboratory Blank Data Qualification Summary - SDG 02-1368

SDG	Sample	Analyte	Modified Final Concentration	A or P
02-1368	ER-12	Arsenic	1.9U ug/L	A
02-1368	MW-22-2	Iron	51.0U ug/L	A
02-1368	MW-22-3	Arsenic Iron	1.8U ug/L 53.8U ug/L	A
02-1368	MW-22-4	Arsenic Iron	13.6U ug/L 48.8U ug/L	A
02-1368	MW-22-5	Arsenic Iron	1.8U ug/L 25.0U ug/L	A

JPL, 00HW019
Metals - Field Blank Data Qualification Summary - SDG 02-1368

SDG	Sample	Analyte	Modified Final Concentration	A or P
02-1368	MW-22-3	Arsenic	1.8U ug/L	A
02-1368	MW-22-4	Arsenic	1.6U ug/L	A
02-1368	MW-22-5	Arsenic	1.8U ug/L	A

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: January 31, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Metals

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1428

Sample Identification

MW-5
MW-10

Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 200.9 for Arsenic and EPA Method 200.7 for Calcium, Iron, Magnesium, Potassium and Sodium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

The following are definitions of the data qualifiers:

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

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

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

A Indicates the finding is based upon technical validation criteria.

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

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

I. Technical Holding Times

All technical holding time requirements were met.

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

II. Calibration

An initial calibration was performed.

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

Date	Lab. Reference/ID	Analyte	%R (Limits)	Associated Samples	Flag	A or P
2/6/02	CCV	Arsenic	113.4 (90-110)	All samples in SDG 02-1428	J (all detects)	P

III. Blanks

Method blanks were reviewed for each matrix as applicable.

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. 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)	Iron Potassium Sodium	8.2 ug/L 124 ug/L 560 ug/L	All samples in SDG 02-1428
ICB/CCB	Arsenic Calcium Iron Potassium Sodium	2.50 ug/L 86.87 ug/L 24.30 ug/L 147.32 ug/L 727.11 ug/L	All samples in SDG 02-1428

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-10	Arsenic Iron	1.8 ug/L 83.6 ug/L	1.8U ug/L 83.6U ug/L

No field blanks were identified in this SDG.

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

V. Matrix Spike Analysis

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

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. 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 Standard (ICP-MS)

ICP-MS was not utilized in this SDG.

IX. Furnace Atomic Absorption QC

All graphite furnace atomic absorption QC were within validation criteria.

X. ICP Serial Dilution

Although ICP serial dilution analysis was not required by the method, it 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	Iron	16.4 (#10)	All samples in SDG 02-1428	J (all detects)	A

XI. Sample Result Verification

All sample result verifications met validation criteria.

XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

XIII. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019
Metals - Data Qualification Summary - SDG 02-1428

SDG	Sample	Analyte	Flag	A or P	Reason
02-1428	MW-5 MW-10	Arsenic	J (all detects)	P	Calibration (%R)
02-1428	MW-5 MW-10	Iron	J (all detects)	A	ICP serial dilution (%D)

JPL, 00HW019
Metals - Laboratory Blank Data Qualification Summary - SDG 02-1428

SDG	Sample	Analyte	Modified Final Concentration	A or P
02-1428	MW-10	Arsenic Iron	1.8U ug/L 83.6U ug/L	A

JPL, 00HW019
Metals - Field Blank Data Qualification Summary - SDG 02-1428

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: February 1, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Metals

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1442

Sample Identification

MW-6
MW-15
MW-15D
MW-6MS
MW-6MSD
MW-6DUP

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 200.9 for Arsenic and EPA Method 200.7 for Calcium, Iron, Magnesium, Potassium and Sodium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

The following are definitions of the data qualifiers:

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

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

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

A Indicates the finding is based upon technical validation criteria.

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

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

I. Technical Holding Times

All technical holding time requirements were met.

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

II. Calibration

An initial calibration was performed.

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

Date	Lab. Reference/ID	Analyte	%R (Limits)	Associated Samples	Flag	A or P
2/6/02	CCV	Arsenic	113.4 (90-110)	MW-6 MW-15 MW-15D	J (all detects)	P

III. Blanks

Method blanks were reviewed for each matrix as applicable.

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. 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)	Iron Potassium Sodium	8.2 ug/L 124 ug/L 560 ug/L	All samples in SDG 02-1442
ICB/CCB	Arsenic Calcium Iron Potassium Sodium	2.50 ug/L 86.87 ug/L 24.30 ug/L 147.32 ug/L 727.11 ug/L	All samples in SDG 02-1442

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-6	Arsenic	3.4 ug/L	3.4U ug/L
MW-15	Arsenic	3.0 ug/L	3.0U ug/L
MW-15D	Arsenic	3.4 ug/L	3.4U ug/L

No field blanks were identified in this SDG.

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

V. Matrix Spike Analysis

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

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. 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 Standard (ICP-MS)

ICP-MS was not utilized in this SDG.

IX. Furnace Atomic Absorption QC

All graphite furnace atomic absorption QC were within validation criteria.

X. ICP Serial Dilution

Although ICP serial dilution analysis was not required by the method, it 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	Iron	16.4 (#10)	All samples in SDG 02-1442	J (all detects)	A

XI. Sample Result Verification

All sample result verifications met validation criteria.

XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

XIII. Field Duplicates

Samples MW-15 and MW-15D were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	MW-15	MW-15D	
Arsenic	3.0	3.4	13
Calcium	73600	73400	0.3
Iron	223	166	29
Magnesium	22900	23000	0.4
Potassium	3510	3460	1
Sodium	27400	27500	0.4

JPL, 00HW019
Metals - Data Qualification Summary - SDG 02-1442

SDG	Sample	Analyte	Flag	A or P	Reason
02-1442	MW-6 MW-15 MW-15D	Arsenic	J (all detects)	P	Calibration (%R)
02-1442	MW-6 MW-15 MW-15D	Iron	J (all detects)	A	ICP serial dilution (%D)

JPL, 00HW019
Metals - Laboratory Blank Data Qualification Summary - SDG 02-1442

SDG	Sample	Analyte	Modified Final Concentration	A or P
02-1442	MW-6	Arsenic	3.4U ug/L	A
02-1442	MW-15	Arsenic	3.0U ug/L	A
02-1442	MW-15D	Arsenic	3.4U ug/L	A

JPL, 00HW019
Metals - Field Blank Data Qualification Summary - SDG 02-1442

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: January 24, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Metals

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1336

Sample Identification

ER-10
MW-24-1
MW-24-2
MW-24-3
MW-24-4
MW-24-5
MW-24-5D
MW-24-4MS
MW-24-4MSD
MW-24-4DUP

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 200.9 for Arsenic and EPA Method 200.7 for Calcium, Iron, Magnesium, Potassium and Sodium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

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.

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. 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)	Magnesium Potassium	7.9 ug/L 71.3 ug/L	All samples in SDG 02-1336
ICB/CCB	Arsenic Calcium Iron Magnesium Potassium Sodium	1.60 ug/L 256.33 ug/L 25.04 ug/L 70.56 ug/L 91.96 ug/L 187.45 ug/L	All samples in SDG 02-1336

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-24-1	Arsenic	1.7 ug/L	1.7U ug/L
MW-24-2	Arsenic Iron	2.2 ug/L 48.9 ug/L	2.2U ug/L 48.9U ug/L

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-24-3	Arsenic	4.3 ug/L	4.3U ug/L
MW-24-4	Arsenic Iron	1.9 ug/L 60.4 ug/L	1.9U ug/L 60.4U ug/L
MW-24-5	Arsenic Iron	3.2 ug/L 30.4 ug/L	3.2U ug/L 30.4U ug/L
MW-24-5D	Arsenic Iron	3.9 ug/L 94.8 ug/L	3.9U ug/L 94.8U ug/L

Sample ER-10 was identified as an equipment rinsate. No metal contaminants were found in this blank.

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

V. Matrix Spike Analysis

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

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. 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 Standard (ICP-MS)

ICP-MS was not utilized in this SDG.

IX. Furnace Atomic Absorption QC

All graphite furnace atomic absorption QC were within validation criteria.

X. ICP Serial Dilution

Although ICP serial dilution analysis was not required by the method, it was performed by the laboratory. The analysis criteria were met.

XI. Sample Result Verification

All sample result verifications met validation criteria.

XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

XIII. Field Duplicates

Samples MW-24-5 and MW-24-5D were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	MW-24-5	MW-24-5D	
Arsenic	3.2	3.9	20
Calcium	35600	36500	2
Iron	30.4	94.8	103
Magnesium	8760	8860	1
Potassium	1880	1900	1
Sodium	39000	39700	2

JPL, 00HW019
Metals - Data Qualification Summary - SDG 02-1336

No Sample Data Qualified in this SDG

JPL, 00HW019
Metals - Laboratory Blank Data Qualification Summary - SDG 02-1336

SDG	Sample	Analyte	Modified Final Concentration	A or P
02-1336	MW-24-1	Arsenic	1.7U ug/L	A
02-1336	MW-24-2	Arsenic Iron	2.2U ug/L 48.9U ug/L	A
02-1336	MW-24-3	Arsenic	4.3U ug/L	A
02-1336	MW-24-4	Arsenic Iron	1.9U ug/L 60.4U ug/L	A
02-1336	MW-24-5	Arsenic Iron	3.2U ug/L 30.4U ug/L	A
02-1336	MW-24-5D	Arsenic Iron	3.9U ug/L 94.8U ug/L	A

JPL, 00HW019
Metals - Field Blank Data Qualification Summary - SDG 02-1336

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: January 29, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Metals

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1393

Sample Identification

MW-13
MW-16
MW-16D
MW-16MS
MW-16MSD
MW-16DUP

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 200.9 for Arsenic and EPA Method 200.7 for Calcium, Iron, Magnesium, Potassium and Sodium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

The following are definitions of the data qualifiers:

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

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

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

A Indicates the finding is based upon technical validation criteria.

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

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

I. Technical Holding Times

All technical holding time requirements were met.

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

II. Calibration

An initial calibration was performed.

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

Date	Lab. Reference/ID	Analyte	%R (Limits)	Associated Samples	Flag	A or P
2/6/02	CCV (11:11)	Arsenic	113.0	MW-13 MW-16 MW-16MS MW-16MSD MW-16DUP PB	J (all detects)	P
2/6/02	CCV (12:29)	Arsenic	113.4	MW-16D	J (all detects)	P

III. Blanks

Method blanks were reviewed for each matrix as applicable.

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. 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)	Magnesium	11.6 ug/L	All samples in SDG 02-1393
ICB/CCB	Arsenic Iron Magnesium Potassium Sodium	2.50 ug/L 91.51 ug/L 39.88 ug/L 68.32 ug/L 152.24 ug/L	All samples in SDG 02-1393

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-13	Arsenic	2.7 ug/L	2.7U ug/L
MW-16	Arsenic Iron	2.8 ug/L 62.1 ug/L	2.8U ug/L 62.1U ug/L
MW-16D	Arsenic Iron	3.1 ug/L 57.8 ug/L	3.1U ug/L 57.8U ug/L

No field blanks were identified in this SDG.

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

V. Matrix Spike Analysis

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

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
MW-16MS/MSD (All samples in SDG 02-1393)	Magnesium	72 (75-125)	73 (75-125)	-	J (all detects) UJ (all non-detects)	A

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 Standard (ICP-MS)

ICP-MS was not utilized in this SDG.

IX. Furnace Atomic Absorption QC

All graphite furnace atomic absorption QC were within validation criteria.

X. ICP Serial Dilution

Although ICP serial dilution analysis was not required by the method, it was performed by the laboratory. The analysis criteria were met.

XI. Sample Result Verification

All sample result verifications met validation criteria.

XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

XIII. Field Duplicates

Samples MW-16 and MW-16D were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	MW-16	MW-16D	
Arsenic	2.3	3.1	30
Calcium	49100	48100	2
Iron	62.1	57.8	7
Magnesium	17700	17200	3
Potassium	2340	2270	3
Sodium	23400	23100	1

JPL, 00HW019
Metals - Data Qualification Summary - SDG 02-1393

SDG	Sample	Analyte	Flag	A or P	Reason
02-1393	MW-13 MW-16 MW-16D	Arsenic	J (all detects)	P	Calibration (%R)
02-1393	MW-13 MW-16 MW-16D	Magnesium	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)

JPL, 00HW019
Metals - Laboratory Blank Data Qualification Summary - SDG 02-1393

SDG	Sample	Analyte	Modified Final Concentration	A or P
02-1393	MW-13	Arsenic	2.7U ug/L	A
02-1393	MW-16	Arsenic Iron	2.8U ug/L 62.1U ug/L	A
02-1393	MW-16D	Arsenic Iron	3.1U ug/L 57.8U ug/L	A

JPL, 00HW019
Metals - Field Blank Data Qualification Summary - SDG 02-1393

SDG	Sample	Analyte	Modified Final Concentration	A or P
02-1393	MW-22-3	Arsenic	1.8U ug/L	A
02-1393	MW-22-4	Arsenic	1.6U ug/L	A
02-1393	MW-22-5	Arsenic	1.8U ug/L	A

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: February 4, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Metals

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1475

Sample Identification

MW-1
MW-9

Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 200.9 for Arsenic and EPA Method 200.7 for Calcium, Iron, Magnesium, Potassium and Sodium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

The following are definitions of the data qualifiers:

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

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

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

A Indicates the finding is based upon technical validation criteria.

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

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

I. Technical Holding Times

All technical holding time requirements were met.

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

II. Calibration

An initial calibration was performed.

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

Date	Lab. Reference/ID	Analyte	%R (Limits)	Associated Samples	Flag	A or P
2/6/02	CCV	Arsenic	113.4	All samples in SDG 02-1475	J (all detects)	P

III. Blanks

Method blanks were reviewed for each matrix as applicable.

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. 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)	Potassium Sodium	138 ug/L 441 ug/L	All samples in SDG 02-1475
ICB/CCB1	Arsenic Iron Magnesium Potassium Sodium	2.5 ug/L 35.59 ug/L 202.58 ug/L 146.75 ug/L 608.45 ug/L	All samples in SDG 02-1475

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-1	Arsenic Iron	1.5 ug/L 47.5 ug/L	1.5U ug/L 47.5U ug/L
MW-9	Arsenic Iron	2.3 ug/L 37.6 ug/L	2.3U ug/L 37.6U ug/L

No field blanks were identified in this SDG.

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

V. Matrix Spike Analysis

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

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. 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 Standard (ICP-MS)

ICP-MS was not utilized in this SDG.

IX. Furnace Atomic Absorption QC

All graphite furnace atomic absorption QC were within validation criteria.

X. ICP Serial Dilution

Although ICP serial dilution analysis was not required by the method, it was performed by the laboratory. The analysis criteria were met.

XI. Sample Result Verification

All sample result verifications met validation criteria.

XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

XIII. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019
Metals - Data Qualification Summary - SDG 02-1475

SDG	Sample	Analyte	Flag	A or P	Reason
02-1475	MW-1 MW-9	Arsenic	J (all detects)	P	Calibration (%R)

JPL, 00HW019
Metals - Laboratory Blank Data Qualification Summary - SDG 02-1475

SDG	Sample	Analyte	Modified Final Concentration	A or P
02-1475	MW-1	Arsenic Iron	1.5U ug/L 47.5U ug/L	A
02-1475	MW-9	Arsenic Iron	2.3U ug/L 37.6U ug/L	A

JPL, 00HW019
Metals - Field Blank Data Qualification Summary - SDG 02-1475

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: February 5, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Metals

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1492

Sample Identification

ER-13
MW-4-1
MW-4-2
MW-4-3
MW-4-4
MW-4-5
MW-4-3D
MW-4-1MS
MW-4-1MSD
MW-4-1DUP

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 200.9 for Arsenic and EPA Method 200.7 for Calcium, Iron, Magnesium, Potassium and Sodium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

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.

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. 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)	Potassium Sodium	138 ug/L 441 ug/L	MW-4-1 MW-4-2 MW-4-3 MW-4-4 MW-4-5 MW-4-3D
ICB/CCB1	Iron Magnesium Potassium Sodium	35.59 ug/L 202.58 ug/L 146.75 ug/L 608.45 ug/L	MW-4-1 MW-4-2 MW-4-3 MW-4-4 MW-4-5 MW-4-3D
ICB/CCB2	Arsenic	2.50 ug/L	All samples in SDG 02-1492

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. 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
ER-13	Arsenic	2.6 ug/L	2.6U ug/L
MW-4-1	Arsenic	2.9 ug/L	2.9U ug/L
MW-4-2	Arsenic	2.4 ug/L	2.4U ug/L
MW-4-3	Arsenic	2.4ug/L	2.4U ug/L
MW-4-4	Arsenic	3.2 ug/L	3.2U ug/L
MW-4-5	Arsenic	3.9 ug/L	3.9U ug/L
MW-4-3D	Arsenic	1.9 ug/L	1.9U ug/L

Sample ER-13 was identified as an equipment rinsate. No metal contaminants were found in this blank with the following exceptions:

Equipment Rinsate ID	Sampling Date	Analyte	Concentration	Associated Samples
ER-13	2/5/02	Arsenic	2.6 ug/L	MW-4-1 MW-4-2 MW-4-3 MW-4-4 MW-4-5 MW-4-3D

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-4-1	Arsenic	2.9 ug/L	2.9U ug/L
MW-4-2	Arsenic	2.4 ug/L	2.4U ug/L
MW-4-3	Arsenic	2.4ug/L	2.4U ug/L
MW-4-4	Arsenic	3.2 ug/L	3.2U ug/L

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-4-5	Arsenic	3.9 ug/L	3.9U ug/L
MW-4-3D	Arsenic	1.9 ug/L	1.9U ug/L

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

V. Matrix Spike Analysis

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

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. 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 Standard (ICP-MS)

ICP-MS was not utilized in this SDG.

IX. Furnace Atomic Absorption QC

All graphite furnace atomic absorption QC were within validation criteria.

X. ICP Serial Dilution

Although ICP serial dilution analysis was not required by the method, it was performed by the laboratory. The analysis criteria were met.

XI. Sample Result Verification

All sample result verifications met validation criteria.

XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

XIII. Field Duplicates

Samples MW-4-3 and MW-4-3D were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	MW-4-3	MW-4-3D	
Arsenic	2.4	1.9	23
Calcium	46400	46100	0.6
Iron	14200	19800	33
Magnesium	14400	14400	0
Potassium	2130	2140	0.5
Sodium	31600	31600	0

JPL, 00HW019
Metals - Data Qualification Summary - SDG 02-1492

No Sample Data Qualified in this SDG

JPL, 00HW019
Metals - Laboratory Blank Data Qualification Summary - SDG 02-1492

SDG	Sample	Analyte	Modified Final Concentration	A or P
02-1492	ER-13	Arsenic	2.6U ug/L	A
02-1492	MW-4-1	Arsenic	2.9U ug/L	A
02-1492	MW-4-2	Arsenic	2.4U ug/L	A
02-1492	MW-4-3	Arsenic	2.4U ug/L	A
02-1492	MW-4-4	Arsenic	3.2U ug/L	A
02-1492	MW-4-5	Arsenic	3.9U ug/L	A
02-1492	MW-4-3D	Arsenic	1.9U ug/L	A

JPL, 00HW019
Metals - Field Blank Data Qualification Summary - SDG 02-1492

SDG	Sample	Analyte	Modified Final Concentration	A or P
02-1492	MW-4-1	Arsenic	2.9U ug/L	A
02-1492	MW-4-2	Arsenic	2.4U ug/L	A
02-1492	MW-4-3	Arsenic	2.4U ug/L	A
02-1492	MW-4-4	Arsenic	3.2U ug/L	A
02-1492	MW-4-5	Arsenic	3.9U ug/L	A
02-1492	MW-4-3D	Arsenic	1.9U ug/L	A

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: February 6, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Metals

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1514

Sample Identification

MW-8
MW-8MS
MW-8MSD
MW-8DUP

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 200.9 for Arsenic and EPA Method 200.7 for Calcium, Iron, Magnesium, Potassium and Sodium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

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.

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. 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)	Magnesium Potassium	34.0 ug/L 19.2 ug/L	All samples in SDG 02-1514
ICB/CCB1	Iron Magnesium Potassium	37.67 ug/L 81.18 ug/L 40.72 ug/L	All samples in SDG 02-1514

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks.

No field blanks were identified in this SDG.

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

V. Matrix Spike Analysis

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

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. 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 Standard (ICP-MS)

ICP-MS was not utilized in this SDG.

IX. Furnace Atomic Absorption QC

All graphite furnace atomic absorption QC were within validation criteria.

X. ICP Serial Dilution

Although ICP serial dilution analysis was not required by the method, it 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-8	Potassium Sodium	20.3 35.0	All samples in SDG 02-1514	J (all detects) J (all detects)	A

XI. Sample Result Verification

All sample result verifications met validation criteria.

XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

XIII. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019
Metals - Data Qualification Summary - SDG 02-1514

SDG	Sample	Analyte	Flag	A or P	Reason
02-1514	MW-8	Perchlorate	None	P	Initial calibration
02-1514	MW-8	Perchlorate	J (all detects) UJ (all non-detects)	P	Calibration (%R)
02-1514	MW-8	Potassium Sodium	J (all detects) J (all detects)	A	ICP serial dilution (%D)

JPL, 00HW019
Metals - Laboratory Blank Data Qualification Summary - SDG 02-1514

No Sample Data Qualified in this SDG

JPL, 00HW019
Metals - Field Blank Data Qualification Summary - SDG 02-1514

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: February 22, 2002

LDC Report Date: March 21, 2002

Matrix: Water

Parameters: Metals

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1727

Sample Identification

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

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 200.9 for Arsenic and EPA Method 200.7 for Calcium, Iron, Magnesium, Potassium and Sodium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

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.

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. 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)	Calcium	101 ug/L	All samples in SDG 02-1514
ICB/CCB	Calcium Iron Magnesium Potassium Sodium	154.95 ug/L 3.28 ug/L 23.03 ug/L 27.98 ug/L 634.93 ug/L	All samples in SDG 02-1514

Sample concentrations were compared to the maximum contaminant concentrations detected in the ICB/CCB/PBs. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks.

No field blanks were identified in this SDG.

IV. ICP Interference Check Sample (ICS) Analysis

ICP interference check sample analysis was not required by the method.

V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
All samples in SDG 02-1727	All ICP metals	No MS associated with these samples.	MS required.	None	P

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 with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
All samples in SDG 02-1727	All ICP metals	No DUP analysis associated with these samples.	DUP analysis required.	None	P

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 Standard (ICP-MS)

All internal standard percent recoveries (%R) were within QC limits.

IX. Furnace Atomic Absorption QC

All graphite furnace atomic absorption QC were within validation criteria.

X. ICP Serial Dilution

ICP serial dilution was not required by the method.

XI. Sample Result Verification

All sample result verifications met validation criteria.

XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

XIII. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019
Metals - Data Qualification Summary - SDG 02-1727

SDG	Sample	Analyte	Flag	A or P	Reason
02-1727	MW-7	Calcium Iron Magnesium Potassium Sodium	None None None None None	P	Matrix spike analysis
02-1727	MW-7	Calcium Iron Magnesium Potassium Sodium	None None None None None	P	Duplicate analysis

JPL, 00HW019
Metals - Laboratory Blank Data Qualification Summary - SDG 02-1727

No Sample Data Qualified in this SDG

JPL, 00HW019
Metals - Field Blank Data Qualification Summary - SDG 02-1727

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: January 18 through February 6, 2002

LDC Report Date: March 21, 2002

Matrix: Water

Parameters: Chromium & Lead

Validation Level: EPA Level IV

Laboratory: Advanced Technology Laboratories

Sample Delivery Group (SDG): 055394

Sample Identification

MW-14-5	MW-24-5	MW-16	MW-16DUP
MW-14-4	MW-24-5D	MW-16D	MW-4-5DUP
ER-7	MW-24-4	MW-5	MW-8MS
MW-14-3	ER-10	MW-10	MW-8MSD
MW-14-2	MW-24-3	MW-6	MW-8DUP
MW-14-1	MW-24-2	MW-15	MW-24-4MS
MW-12-5	MW-24-1	MW-15D	MW-24-4MSD
MW-12-4	MW-11-5	MW-1	MW-12-3DUP
ER-8	MW-11-4	MW-9	MW-24-4DUP
MW-12-3	MW-11-3	MW-4-5	
MW-12-2	MW-11-2	MW-4-4	
MW-12-2D	MW-11-1	MW-4-3	
MW-12-1	ER-11	MW-4-3D	
MW-23-5	MW-22-5	ER-13	
MW-23-4	MW-22-4	MW-4-2	
MW-23-3	MW-22-3	MW-4-1	
MW-23-3D	MW-22-2	MW-8	
ER-9	MW-22-1	MW-11-3DUP	
MW-23-2	ER-12	MW-16MS	
MW-23-1	MW-13	MW-16MSD	

Introduction

This data review covers 69 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 200.8 for Chromium & Lead.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

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.

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. No contaminant concentrations were found in the initial, continuing and preparation blanks.

Samples ER-7, ER-8, ER-9, ER-10, ER-11, ER-12 and ER-13 were identified as equipment rinsates. No chromium or lead contaminants were found in these blanks.

IV. ICP Interference Check Sample (ICS) Analysis

ICP interference check sample analysis was not required by the method.

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) were within QC limits.

VIII. Internal Standard (ICP-MS)

All internal standard percent recoveries (%R) were within QC limits.

IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

X. ICP Serial Dilution

ICP serial dilution was not required by the method.

XI. Sample Result Verification

All sample result verifications met validation criteria.

XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

XIII. Field Duplicates

Samples MW-12-2 and MW-12-2D, samples MW-23-3 and MW-23-3D, samples MW-24-5 and MW-24-5D, samples MW-16 and MW-16D, samples MW-15 and MW-15D and samples MW-4-3 and MW-4-3D were identified as field duplicates. No chromium or lead contaminants were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	MW-23-3	MW-23-3D	
Chromium	5.8	6.2	7

Analyte	Concentration (ug/L)		RPD
	MW-24-5	MW-24-5D	
Chromium	5.0	5.0U	200

Analyte	Concentration (ug/L)		RPD
	MW-16	MW-16D	
Chromium	14	18	25

Analyte	Concentration (ug/l)		RPD
	MW-15	MW-15D	
Chromium	13	10	26

JPL, 00HW019
Chromium & Lead - Data Qualification Summary - SDG 055394

No Sample Data Qualified in this SDG

JPL, 00HW019
Chromium & Lead - Laboratory Blank Data Qualification Summary - SDG 055394

No Sample Data Qualified in this SDG

JPL, 00HW019
Chromium & Lead - Field Blank Data Qualification Summary - SDG 055394

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: January 8 through January 16, 2002

LDC Report Date: March 21, 2002

Matrix: Water

Parameters: Chromium & Lead

Validation Level: EPA Level IV

Laboratory: Advanced Technology Laboratories

Sample Delivery Group (SDG): 02-1222/1224

Sample Identification

MW-21-5	MW-18-3	MW-19-3MS
MW-21-4	MW-18-3D	MW-19-3MSD
MW-21-3	MW-18-2	MW-19-3DUP
MW-21-2	ER-4	ER-6DUP
MW-21-1	MW-19-5	
ER-1	MW-19-4	
MW-17-5	MW-19-3	
MW-17-4	MW-19-3D	
MW-17-3	MW-19-2	
MW-17-2	MW-19-1	
MW-17-1	ER-5	
ER-2	MW-20-5	
MW-3-5	MW-20-4	
MW-3-4	MW-20-3	
MW-3-3	MW-20-2	
MW-3-2	MW-20-1	
MW-3-1	ER-6	
ER-3	MW-3-2MS	
MW-18-5	MW-3-2MSD	
MW-18-4	MW-17-2DUP	

Introduction

This data review covers 44 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 200.8 for Chromium & Lead.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

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.

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. No contaminant concentrations were found in the initial, continuing and preparation blanks.

Samples ER-1, ER-2, ER-3, ER-4, ER-5 and ER-6 were identified as equipment rinsates. No chromium or lead contaminants were found in these blanks.

IV. ICP Interference Check Sample (ICS) Analysis

ICP interference check sample analysis was not required by the method.

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) were within QC limits.

VIII. Internal Standard (ICP-MS)

All internal standard percent recoveries (%R) were within QC limits.

IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

X. ICP Serial Dilution

ICP serial dilution was not required by the method.

XI. Sample Result Verification

All sample result verifications met validation criteria.

XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

XIII. Field Duplicates

Samples MW-18-3 and MW-18-3D and samples MW-19-3 and MW-19-3D were identified as field duplicates. No chromium or lead contaminants were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	MW-18-3	MW-18-3D	
Chromium	5.6	5.3	6

Analyte	Concentration (ug/L)		RPD
	MW-19-3	MW-19-3D	
Chromium	5.3	5.6	6

JPL, 00HW019
Chromium & Lead - Data Qualification Summary - SDG 02-1222/1224

No Sample Data Qualified in this SDG

JPL, 00HW019
Chromium & Lead - Laboratory Blank Data Qualification Summary - SDG 02-1222/1224

No Sample Data Qualified in this SDG

JPL, 00HW019
Chromium & Lead - Field Blank Data Qualification Summary - SDG 02-1222/1224

No Sample Data Qualified in this SDG

LDC Report# 8139A4

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: February 22, 2002

LDC Report Date: 04/04/02

Matrix: Water

Parameters: Chromium & Lead

Validation Level: EPA Level IV

Laboratory: Advanced Technology Laboratories

Sample Delivery Group (SDG): 055580

Sample Identification

MW-7
MW-7MS
MW-7MSD

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 200.8 for Chromium and Lead.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

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.

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. No contaminant concentrations were found in the initial, continuing and preparation blanks.

No field blanks were identified in this SDG.

IV. ICP Interference Check Sample (ICS) Analysis

ICP interference check sample analysis was not required by the method.

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) were within QC limits.

VIII. Internal Standard (ICP-MS)

All internal standard percent recoveries (%R) were within QC limits.

IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

X. ICP Serial Dilution

ICP serial dilution was not required by the method.

XI. Sample Result Verification

All sample result verifications met validation criteria.

XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

XIII. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019
Chromium & Lead - Data Qualification Summary - SDG 055580

No Sample Data Qualified in this SDG

JPL, 00HW019
Chromium & Lead - Laboratory Blank Data Qualification Summary - SDG 055580

No Sample Data Qualified in this SDG

JPL, 00HW019
Chromium & Lead - Field Blank Data Qualification Summary - SDG 055580

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL

Collection Date: January 10, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: 1,4 Dioxane

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1118

Sample Identification

MW-17-3

Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C using Selected Ion Monitoring (SIM) for 1,4 Dioxane.

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 table summarizing all data qualification is provided at the end of this report. 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 advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

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.

In the case where %RSD was greater than 15.0%, the laboratory used a calibration curve to evaluate the compound. All coefficients of determination (r^2) were greater than or equal to 0.990.

For the purposes of technical evaluation, all compounds were evaluated against the 30.0% (%RSD) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria.

Average relative response factors (RRF) for all semivolatile target compounds and system performance check compounds (SPCCs) were greater than or equal to 0.05 as required.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0% for calibration check compounds (CCCs).

For the purposes of technical evaluation, all compounds were evaluated against the 25.0% (%D) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria.

All of the continuing calibration RRF values were greater than or equal to 0.05.

V. Blanks

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

No field blanks were identified in this SDG.

VI. Surrogate Spikes

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 with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
All samples in SDG 02-1118	1,4 Dioxane	No MS/MSD associated with these samples.	MS/MSD required.	None	P

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

All target compound identifications were within validation criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

JPL
1,4 Dioxane - Data Qualification Summary - SDG 02-1118

No Sample Data Qualified in this SDG

JPL
1,4 Dioxane - Laboratory Blank Data Qualification Summary - SDG 02-1118

No Sample Data Qualified in this SDG

JPL
1,4 Dioxane - Field Blank Data Qualification Summary - SDG 02-1118

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: January 24, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: 1,4-Dioxane

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1336

Sample Identification

MW-24-1

Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per a modification of EPA SW 846 Method 8270 using Selected Ion Monitoring (SIM) for 1,4-Dioxane .

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 table summarizing all data qualification is provided at the end of this report. 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 advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

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 30.0% for selected compounds.

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

Average relative response factors (RRF) for all target compounds and system monitoring compounds were within validation criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0% .

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

V. Blanks

Method blanks were reviewed for each matrix as applicable. No 1,4-Dioxane contaminants were found in the method blanks.

No field blanks were identified in this SDG.

VI. Surrogate Spikes

Surrogates were not reported by the laboratory.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
All samples in SDG 02-1336	1,4-Dioxane	No MS/MSD associated with these samples.	MS/MSD required.	None	P

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

All target compound identifications were within validation criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019
1,4-Dioxane- Data Qualification Summary - SDG 02-1336

SDG	Sample	Compound	Flag	A or P	Reason
02-1336	MW-24-1	1,4-Dioxane	None	P	Matrix spike/Matrix spike duplicates

JPL, 00HW019
1,4-Dioxane- Laboratory Blank Data Qualification Summary - SDG 02-1336

No Sample Data Qualified in this SDG

JPL, 00HW019
1,4-Dioxane - Field Blank Data Qualification Summary - SDG 02-1336

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: January 29, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: 1,4-Dioxane

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1393

Sample Identification

MW-13
MW-16
MW-16D

Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per a modification of EPA SW 846 Method 8270 using Selected Ion Monitoring (SIM) for 1,4-Dioxane .

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 table summarizing all data qualification is provided at the end of this report. 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 advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

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 30.0% for selected compounds.

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

Average relative response factors (RRF) for all target compounds and system monitoring compounds were within validation criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0% .

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

V. Blanks

Method blanks were reviewed for each matrix as applicable. No 1,4-Dioxane contaminants were found in the method blanks.

No field blanks were identified in this SDG.

VI. Surrogate Spikes

Surrogates were not reported by the laboratory.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
All samples in SDG 02-1393	1,4-Dioxane	No MS/MSD associated with these samples.	MS/MSD required.	None	P

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

All target compound identifications were within validation criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

Samples MW-16 and MW-16D were identified as field duplicates. No 1,4-Dioxane was detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	MW-16	MW-16D	
1,4-Dioxane	9.9	10	1

JPL, 00HW019
1,4-Dioxane- Data Qualification Summary - SDG 02-1393

SDG	Sample	Compound	Flag	A or P	Reason
02-1393	MW-13 MW-16 MW-16D	1,4-Dioxane	None	P	Matrix spike/Matrix spike duplicates

JPL, 00HW019
1,4-Dioxane- Laboratory Blank Data Qualification Summary - SDG 02-1393

No Sample Data Qualified in this SDG

JPL, 00HW019
1,4-Dioxane - Field Blank Data Qualification Summary - SDG 02-1393

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: February 5, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: 1,4-Dioxane

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1492

Sample Identification

ER-13
MW-4-2
MW-4-2MS
MW-4-2MSD

Introduction

This data review covers 4 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per a modification of EPA SW 846 Method 8270C using Selected Ion Monitoring (SIM) for 1,4-Dioxane .

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 table summarizing all data qualification is provided at the end of this report. 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 advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

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 30.0% for selected compounds.

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

Average relative response factors (RRF) for all target compounds and system monitoring compounds were within validation criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0% .

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

V. Blanks

Method blanks were reviewed for each matrix as applicable. No 1,4-Dioxane contaminants were found in the method blanks.

Sample ER-13 was identified as an equipment rinsate. No 1,4-Dioxane contaminants were found in this blank.

VI. Surrogate Spikes

Surrogates were not reported by the laboratory.

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) 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

All target compound identifications were within validation criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019
1,4-Dioxane- Data Qualification Summary - SDG 02-1492

No Sample Data Qualified in this SDG

JPL, 00HW019
1,4-Dioxane- Laboratory Blank Data Qualification Summary - SDG 02-1492

No Sample Data Qualified in this SDG

JPL, 00HW019
1,4-Dioxane - Field Blank Data Qualification Summary - SDG 02-1492

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: February 22, 2002

LDC Report Date: March 21, 2002

Matrix: Water

Parameters: 1,4-Dioxane

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1727

Sample Identification

MW-7

Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per a modification of EPA SW 846 Method 8270C using Selected Ion Monitoring (SIM) for 1,4-Dioxane .

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 table summarizing all data qualification is provided at the end of this report. 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 advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

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 30.0% for selected compounds.

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

Average relative response factors (RRF) for all target compounds and system monitoring compounds were within validation criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0% .

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

V. Blanks

Method blanks were reviewed for each matrix as applicable. No 1,4-Dioxane contaminants were found in the method blanks.

No field blanks were identified in this SDG.

VI. Surrogate Spikes

Surrogates were not reported by the laboratory.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
All samples in SDG 02-1727	1,4-Dioxane	No MS/MSD associated with these samples.	MS/MSD required.	None	P

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

All target compound identifications were within validation criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019
1,4-Dioxane- Data Qualification Summary - SDG 02-1727

SDG	Sample	Compound	Flag	A or P	Reason
02-1727	MW-7	1,4-Dioxane	None	P	Matrix spike/Matrix spike duplicates

JPL, 00HW019
1,4-Dioxane- Laboratory Blank Data Qualification Summary - SDG 02-1727

No Sample Data Qualified in this SDG

JPL, 00HW019
1,4-Dioxane - Field Blank Data Qualification Summary - SDG 02-1727

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: January 10, 2002

LDC Report Date: March 21, 2002

Matrix: Water

Parameters: N-Nitrosodimethylamine

Validation Level: EPA Level IV

Laboratory: Maxxam Analytics, Inc.

Sample Delivery Group (SDG): 02-1150

Sample Identification

MW-17-3

Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per SOP #TO.1021.04 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 table summarizing all data qualification flags is provided at the end of this report. 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 advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

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 the method.

The percent relative standard deviations (%RSD) were less than or equal to 25.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable.

b. Calibration Verification

Calibration verification was performed at the required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 25.0% QC limits.

Retention times (RT) of all compounds in the calibration standards were within QC limits.

III. Blanks

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

No field blanks were identified in this SDG.

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 with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
All samples in SDG 02-1150	N-Nitrosodimethylamine	No MS/MSD associated with these samples.	MS/MSD required.	None	P

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

All target compound identifications were within validation criteria.

VI. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

VII. System Performance

The system performance was acceptable.

VIII. Overall Assessment of Data

Data flags are summarized at the end of this report.

IX. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019
N-Nitrosodimethylamine - Data Qualification Summary - SDG 02-1150

SDG	Sample	Compound	Flag	A or P	Reason
02-1150	MW-17-3	N-Nitrosodimethylamine	None	P	Matrix spike/Matrix spike duplicates

JPL, 00HW019
N-Nitrosodimethylamine - Laboratory Blank Data Qualification Summary - SDG 02-1150

No Sample Data Qualified in this SDG

JPL, 00HW019
N-Nitrosodimethylamine - Field Blank Data Qualification Summary - SDG 02-1150

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: January 24, 2002

LDC Report Date: March 21, 2002

Matrix: Water

Parameters: N-Nitrosodimethylamine

Validation Level: EPA Level IV

Laboratory: Maxxam Analytics, Inc.

Sample Delivery Group (SDG): 02-1338

Sample Identification

MW-24-1

Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per SOP #TO.1021.04 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 table summarizing all data qualification flags is provided at the end of this report. 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 advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

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 the method.

The percent relative standard deviations (%RSD) were less than or equal to 25.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable.

b. Calibration Verification

Calibration verification was performed at the required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 25.0% QC limits.

Retention times (RT) of all compounds in the calibration standards were within QC limits.

III. Blanks

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

Method Blank ID	Extraction Date	Compound	Concentration	Associated Samples
Water Blank	1/31/02	N-Nitrosodimethylamine	0.000380 ug/L	All samples in SDG 02-1338

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 with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
MW-24-1	N-Nitrosodimethylamine	0.000910 ug/L	0.002U ug/L

No field blanks were identified in this SDG.

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 with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
All samples in SDG 02-1338	N-Nitrosodimethylamine	No MS/MSD associated with these samples.	MS/MSD required.	None	P

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

All target compound identifications were within validation criteria.

VI. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

VII. System Performance

The system performance was acceptable.

VIII. Overall Assessment of Data

Data flags are summarized at the end of this report.

IX. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019
N-Nitrosodimethylamine - Data Qualification Summary - SDG 02-1338

SDG	Sample	Compound	Flag	A or P	Reason
02-1338	MW-24-1	N-Nitrosodimethylamine	None	P	Matrix spike/Matrix spike duplicates

JPL, 00HW019
N-Nitrosodimethylamine - Laboratory Blank Data Qualification Summary - SDG 02-1338

SDG	Sample	Compound	Modified Final Concentration	A or P
02-1338	MW-24-1	N-Nitrosodimethylamine	0.002U ug/L	A

JPL, 00HW019
N-Nitrosodimethylamine - Field Blank Data Qualification Summary - SDG 02-1338

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: January 29, 2002

LDC Report Date: March 21, 2002

Matrix: Water

Parameters: N-Nitrosodimethylamine

Validation Level: EPA Level IV

Laboratory: Maxxam Analytics, Inc.

Sample Delivery Group (SDG): 02-1400

Sample Identification

MW-13
MW-16
MW-16D
MW-13MS
MW-13MSD

Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per SOP #TO.1021.04 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 table summarizing all data qualification flags is provided at the end of this report. 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 advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

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 the method.

The percent relative standard deviations (%RSD) were less than or equal to 25.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable.

b. Calibration Verification

Calibration verification was performed at the required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 25.0% QC limits.

Retention times (RT) of all compounds in the calibration standards were within QC limits.

III. Blanks

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

No field blanks were identified in this SDG.

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

All target compound identifications were within validation criteria.

VI. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

VII. System Performance

The system performance was acceptable.

VIII. Overall Assessment of Data

Data flags are summarized at the end of this report.

IX. Field Duplicates

Samples MW-16 and MW-16D were identified as field duplicates. No N-Nitrosodimethylamine was detected in any of the samples.

JPL, 00HW019
N-Nitrosodimethylamine - Data Qualification Summary - SDG 02-1400

No Sample Data Qualified in this SDG

JPL, 00HW019
N-Nitrosodimethylamine - Laboratory Blank Data Qualification Summary - SDG 02-1400

No Sample Data Qualified in this SDG

JPL, 00HW019
N-Nitrosodimethylamine - Field Blank Data Qualification Summary - SDG 02-1400

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: February 5, 2002

LDC Report Date: March 21, 2002

Matrix: Water

Parameters: N-Nitrosodimethylamine

Validation Level: EPA Level IV

Laboratory: Maxxam Analytics, Inc.

Sample Delivery Group (SDG): 02-1498

Sample Identification

ER-13
MW-4-2
MW-4-2MS
MW-4-2MSD

Introduction

This data review covers 4 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per SOP #TO.1021.04 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 table summarizing all data qualification flags is provided at the end of this report. 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 advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

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 the method.

The percent relative standard deviations (%RSD) were less than or equal to 25.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable.

b. Calibration Verification

Calibration verification was performed at the required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 25.0% QC limits.

Retention times (RT) of all compounds in the calibration standards were within QC limits.

III. Blanks

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

Method Blank ID	Extraction Date	Compound	Concentration	Associated Samples
Water Blank	2/11/02	N-Nitrosodimethylamine	0.000540 ug/L	All samples in SDG 02-1498

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 with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
ER-13	N-Nitrosodimethylamine	0.000800 ug/L	0.002U ug/L
MW-4-2	N-Nitrosodimethylamine	0.00148 ug/L	0.002U ug/L

Sample ER-13 was identified as an equipment rinsate. No N-Nitrosodimethylamine contaminants were found in this blank with the following exceptions:

Equipment Rinsate ID	Sampling Date	Compound	Concentration	Associated Samples
ER-13	2/5/02	N-Nitrosodimethylamine	0.000800 ug/L	MW-4-2

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
MW-4-2	N-Nitrosodimethylamine	0.00148 ug/L	0.002U ug/L

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 with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
All samples in SDG 02-1498	N-Nitrosodimethylamine	No LCS analysis associated with these samples.	LCS analysis required.	None	P

V. Target Compound Identification

All target compound identifications were within validation criteria.

VI. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

VII. System Performance

The system performance was acceptable.

VIII. Overall Assessment of Data

Data flags are summarized at the end of this report.

IX. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019
N-Nitrosodimethylamine - Data Qualification Summary - SDG 02-1498

SDG	Sample	Compound	Flag	A or P	Reason
02-1498	ER-13 MW-4-2	N-Nitrosodimethylamine	None	P	Laboratory control samples

JPL, 00HW019
N-Nitrosodimethylamine - Laboratory Blank Data Qualification Summary - SDG 02-1498

SDG	Sample	Compound	Modified Final Concentration	A or P
02-1498	ER-13	N-Nitrosodimethylamine	0.002U ug/L	A
02-1498	MW-4-2	N-Nitrosodimethylamine	0.002U ug/L	A

JPL, 00HW019
N-Nitrosodimethylamine - Field Blank Data Qualification Summary - SDG 02-1498

SDG	Sample	Compound	Modified Final Concentration	A or P
02-1498	MW-4-2	N-Nitrosodimethylamine	0.002U ug/L	A

LDC Report# 8164A2

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: February 22, 2002

LDC Report Date: 04/03/02

Matrix: Water

Parameters: N-Nitrosodimethylamine

Validation Level: EPA Level IV

Laboratory: Maxxam Analytics, Inc.

Sample Delivery Group (SDG): 02-1729

Sample Identification
MW-7

Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per SOP# TO.1021.04 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 table summarizing all data qualification is provided at the end of this report. 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 advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

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 performed by the laboratory.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

The percent relative standard deviations (%RSD) were less than or equal to 25.0% for all compounds.

IV. Continuing Calibration

The percent differences (%D) of amount in continuing standard mixtures were within the 25.0% QC limits.

V. Blanks

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

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
Water Blank	2/28/02	N-Nitrosodimethylamine	0.000850 ug/L	All samples in SDG 02-1729

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	N-Nitrosodimethylamine	0.00112 ug/L	0.002U ug/L

No field blanks were identified in this SDG.

VI. Surrogate Spikes

Surrogates were not performed by the laboratory.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
All samples in SDG 02-1729	N-Nitrosodimethylamine	No MS/MSD associated with these samples.	MS/MSD required.	None	P

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

All target compound identifications were within validation criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria with the following exceptions:

Sample	Compound	Reported Concentration	Recalculated Concentration	Flag	A or P

MW-7	N-Nitrosodimethylamine	0.00112 ug/L	0.00126 ug/L	J (all detects)	P

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment of Data

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019
N-Nitrosodimethylamine - Data Qualification Summary - SDG 02-1729

SDG	Sample	Compound	Flag	A or P	Reason
02-1729	MW-7	N-Nitrosodimethylamine	None	P	Matrix spike/Matrix spike duplicates
02-1729	MW-7	N-Nitrosodimethylamine	J (all detects)	P	Compound quantitation and CRQLs

JPL, 00HW019
N-Nitrosodimethylamine - Laboratory Blank Data Qualification Summary - SDG 02-1729

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
02-1729	MW-7	N-Nitrosodimethylamine	0.002U ug/L	A

JPL, 00HW019
N-Nitrosodimethylamine - Field Blank Data Qualification Summary - SDG 02-1729

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: January 8 through January 9, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1098

Sample Identification

ER-1
MW-21-1
MW-21-2
MW-21-3
MW-21-4
MW-21-5
SB-1
TB-1

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 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 table summarizing all data qualification is provided at the end of this report. 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 advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

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
1/10/02	Chloromethane	30.61	ER-11 MW-21-1 MW-21-2 MW-21-4 MW-21-5 SB-1 TB-1 02G1079-MB-01	J (all detects) UJ (all non-detects)	P
1/11/02	Carbon tetrachloride	33.27	MW-21-3 02G1093-MB-01	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.

Sample ER-1 was identified as an equipment rinsate. No volatile contaminants were found in this blank with the following exceptions:

Equipment Rinsate ID	Sampling Date	Compound	Concentration	Associated Samples
ER-1	1/8/02	Methyl-tert-butyl ether	0.6 ug/L	MW-21-1 MW-21-2 MW-21-3 MW-21-4 MW-21-5

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

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

Trip Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TB-1	1/8/02	Methylene chloride	1.1 ug/L	ER-1 MW-21-1 MW-21-2 MW-21-3 MW-21-4 MW-21-5 SB-1

Sample concentrations were compared to concentrations detected in the field 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 field blanks with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
MW-21-4	Methyl-tert-butyl ether	0.7 ug/L	1U ug/L
MW-21-5	Methyl-tert-butyl ether	1 ug/L	1U ug/L
MW-21-1	Methylene chloride	0.4 ug/L	1U 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 not within QC limits. Since the sample concentration was greater than the spiked concentration, no data were qualified.

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.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment of Data

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019
Volatiles - Data Qualification Summary - SDG 02-1098

SDG	Sample	Compound	Flag	A or P	Reason
02-1098	ER-11 MW-21-1 MW-21-2 MW-21-4 MW-21-5 SB-1 TB-1	Chloromethane	J (all detects) UJ (all non-detects)	P	Continuing calibration (%D)
02-1098	MW-21-3	Carbon tetrachloride	J (all detects) UJ (all non-detects)	P	Continuing calibration (%D)

JPL, 00HW019
Volatiles - Laboratory Blank Data Qualification Summary - SDG 02-1098

No Sample Data Qualified in this SDG

JPL, 00HW019
Volatiles - Field Blank Data Qualification Summary - SDG 02-1098

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
02-1098	MW-21-4	Methyl-tert-butyl ether	1U ug/L	A
02-1098	MW-21-5	Methyl-tert-butyl ether	1U ug/L	A
02-1098	MW-21-1	Methylene chloride	1U ug/L	A

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL

Collection Date: January 10, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1118

Sample Identification

ER-2
MW-17-1
MW-17-2
MW-17-3
MW-17-4
MW-17-5
TB-2

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 table summarizing all data qualification is provided at the end of this report. 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 advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

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.

Sample ER-2 was identified as an equipment rinsate. No volatile contaminants were found in this blank.

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

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

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) 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.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment of Data

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

JPL
Volatiles - Data Qualification Summary - SDG 02-1118

No Sample Data Qualified in this SDG

JPL
Volatiles - Laboratory Blank Data Qualification Summary - SDG 02-1118

No Sample Data Qualified in this SDG

JPL
Volatiles - Field Blank Data Qualification Summary - SDG 02-1118

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL

Collection Date: January 11, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1138

Sample Identification

ER-3
MW-3-1
MW-3-2
MW-3-3
MW-3-4
MW-3-5
TB-3

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 table summarizing all data qualification is provided at the end of this report. 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 advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

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
1/14/02	Chloromethane Bromomethane Carbon tetrachloride	37.41 59.89 33.74	All samples in SDG 02-1138	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.

Sample ER-3 was identified as an equipment blank. No volatile contaminants were found in this blank.

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

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

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) 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.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment of Data

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

JPL
Volatiles - Data Qualification Summary - SDG 02-1138

SDG	Sample	Compound	Flag	A or P	Reason
02-1138	ER-3 MW-3-1 MW-3-2 MW-3-3 MW-3-4 MW-3-5 TB-3	Chloromethane Bromomethane Carbon tetrachloride	J (all detects) UJ (all non-detects)	P	Continuing calibration (%D)

JPL
Volatiles - Laboratory Blank Data Qualification Summary - SDG 02-1138

No Sample Data Qualified in this SDG

JPL
Volatiles - Field Blank Data Qualification Summary - SDG 02-1138

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: January 14, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1166

Sample Identification

ER-4
MW-18-2
MW-18-3
MW-18-4
MW-18-5
MW-18-3D
TB-4

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 table summarizing all data qualification is provided at the end of this report. 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 advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

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
1/15/02	Chloromethane	31.70	All samples in SDG 02-1166	J (all detects) UJ (all non-detects)	P
	Bromomethane	55.27		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.

Sample ER-4 was identified as an equipment rinsate. No volatile contaminants were found in this blank with the following exceptions:

Equipment Rinsate ID	Sampling Date	Compound	Concentration	Associated Samples
ER-4	1/14/02	Methylene chloride	2.0 ug/L	MW-18-2 MW-18-3 MW-18-4 MW-18-5 MW-18-3D

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

Trip Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TB-4	1/14/02	Methylene chloride	1.7 ug/L	ER-4 MW-18-2 MW-18-3 MW-18-4 MW-18-5 MW-18-3D

Sample concentrations were compared to concentrations detected in the field 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 field blanks with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
ER-4	Methylene chloride	2.0 ug/L	2.0U ug/L
MW-18-2	Methylene chloride	1.5 ug/L	1.5U ug/L
MW-18-3	Methylene chloride	0.9 ug/L	1U ug/L
MW-18-4	Methylene chloride	1.6 ug/L	1.6U ug/L
MW-18-5	Methylene chloride	2.1 ug/L	2.1U 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.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment of Data

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

Samples MW-18-3 and MW-18-3D were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	MW-18-3	MW-18-3D	
Chloroform	1.8	2.0	11
Methylene chloride	0.9	1U	200
Tetrachloroethene	0.3	0.4	29
Trichloroethene	0.5	0.6	18

JPL, 00HW019
Volatiles - Data Qualification Summary - SDG 02-1166

SDG	Sample	Compound	Flag	A or P	Reason
02-1166	ER-4 MW-18-2 MW-18-3 MW-18-4 MW-18-5 MW-18-3D TB-4	Chloromethane Bromomethane	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P	Continuing calibration (%D)

JPL, 00HW019
Volatiles - Laboratory Blank Data Qualification Summary - SDG 02-1166

No Sample Data Qualified in this SDG

JPL, 00HW019
Volatiles - Field Blank Data Qualification Summary - SDG 02-1166

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
02-1166	ER-4	Methylene chloride	2.0U ug/L	A
02-1166	MW-18-2	Methylene chloride	1.5U ug/L	A
02-1166	MW-18-3	Methylene chloride	1U ug/L	A
02-1166	MW-18-4	Methylene chloride	1.6U ug/L	A
02-1166	MW-18-5	Methylene chloride	2.1U ug/L	A

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: January 15, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1199

Sample Identification

ER-5
MW-19-1
MW-19-2
MW-19-3
MW-19-4
MW-19-5
MW-19-3D
TB-5
MW-19-3MS
MW-19-3MSD

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 table summarizing all data qualification is provided at the end of this report. 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 advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

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
1/17/02	Bromomethane	59.35	All samples in SDG 02-1199	J (all detects) UJ (all non-detects)	P
	Carbon tetrachloride	43.13		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.

Sample ER-5 was identified as an equipment blank. No volatile contaminants were found in this blank.

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

with the following exceptions:

Trip Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TB-5	1/15/02	Methylene chloride	0.8 ug/L	ER-5 MW-19-1 MW-19-2 MW-19-3 MW-19-4 MW-19-5 MW-19-3D

Sample concentrations were compared to concentrations detected in the field 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 field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
MW-19-1	Methylene chloride	1.1 ug/L	1.1U ug/L
MW-19-2	Methylene chloride	0.9 ug/L	1U ug/L
MW-19-4	Methylene chloride	0.5 ug/L	1U ug/L
MW-19-5	Methylene chloride	2.7 ug/L	2.7U ug/L
MW-19-3D	Methylene chloride	0.7 ug/L	1U 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.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment of Data

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

Samples MW-19-3 and MW-19-3D were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	MW-19-3	MW-19-3D	
Chloroform	0.6	0.5	18
Tetrachloroethene	3.1	1.6	64
Trichloroethene	1.1	0.6	59
Methylene chloride	1U	0.7	200

JPL, 00HW019
Volatiles - Data Qualification Summary - SDG 02-1199

SDG	Sample	Compound	Flag	A or P	Reason
02-1199	ER-5 MW-19-1 MW-19-2 MW-19-3 MW-19-4 MW-19-5 MW-19-3D TB-5	Bromomethane Carbon tetrachloride	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P	Continuing calibration (%D)

JPL, 00HW019
Volatiles - Laboratory Blank Data Qualification Summary - SDG 02-1199

No Sample Data Qualified in this SDG

JPL, 00HW019
Volatiles - Field Blank Data Qualification Summary - SDG 02-1199

SDG	Sample	Compound	Modified Final Concentration	A or P
02-1199	MW-19-1	Methylene chloride	1.1U ug/L	A
02-1199	MW-19-2	Methylene chloride	1U ug/L	A
02-1199	MW-19-4	Methylene chloride	1U ug/L	A
02-1199	MW-19-5	Methylene chloride	2.7U ug/L	A
02-1199	MW-19-3D	Methylene chloride	1U ug/L	A

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: January 16, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1220

Sample Identification

ER-6
MW-20-1
MW-20-2
MW-20-3
MW-20-4
MW-20-5
TB-6

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 table summarizing all data qualification is provided at the end of this report. 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 advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

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
1/18/02	Bromomethane	64.94	All samples in SDG 02-1220	J (all detects) UJ (all non-detects)	P
	Carbon tetrachloride	37.92		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.

Sample ER-6 was identified as an equipment blank. No volatile contaminants were found in this blank with the following exceptions:

Equipment Blank ID	Sampling Date	Compound	Concentration	Associated Samples
ER-6	1/16/02	Methylene chloride	2 ug/L	MW-20-1 MW-20-2 MW-20-3 MW-20-4 MW-20-5

Sample TB-6 was identified as a trip blank. No volatile contaminants were found in this blank with the following exceptions:

Trip Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TB-6	1/16/02	Methylene chloride	0.6 ug/L	ER-6 MW-20-1 MW-20-2 MW-20-3 MW-20-4 MW-20-5

Sample concentrations were compared to concentrations detected in the field 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 field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
ER-6	Methylene chloride	2 ug/L	2U ug/L
MW-20-1	Methylene chloride	0.7 ug/L	1U ug/L
MW-20-3	Methylene chloride	0.4 ug/L	1U ug/L
MW-20-4	Methylene chloride	0.4 ug/L	1U ug/L
MW-20-5	Methylene chloride	0.7 ug/L	1U 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.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment of Data

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019
Volatiles - Data Qualification Summary - SDG 02-1220

SDG	Sample	Compound	Flag	A or P	Reason
02-1220	ER-6 MW-20-1 MW-20-2 MW-20-3 MW-20-4 MW-20-5 TB-6	Bromomethane Carbon tetrachloride	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P	Continuing calibration (%D)

JPL, 00HW019
Volatiles - Laboratory Blank Data Qualification Summary - SDG 02-1220

No Sample Data Qualified in this SDG

JPL, 00HW019
Volatiles - Field Blank Data Qualification Summary - SDG 02-1220

SDG	Sample	Compound	Modified Final Concentration	A or P
02-1220	ER-6	Methylene chloride	2U ug/L	A
02-1220	MW-20-1	Methylene chloride	1U ug/L	A
02-1220	MW-20-3	Methylene chloride	1U ug/L	A
02-1220	MW-20-4	Methylene chloride	1U ug/L	A
02-1220	MW-20-5	Methylene chloride	1U ug/L	A

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: January 18, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1267

Sample Identification

ER-7
MW-14-1
MW-14-2
MW-14-3
MW-14-4
MW-14-5
TB-7

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 table summarizing all data qualification is provided at the end of this report. 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 advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

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
1/21/02	Bromomethane	39.02	All samples in SDG 02-1267	J (all detects) UJ (all non-detects)	P
	Carbon tetrachloride	38.68		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
02G1198-MB-01	1/21/02	Methylene chloride	0.4 ug/L	All samples in SDG 02-1267

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-14-3	Methylene chloride	0.3 ug/L	1U ug/L
MW-14-5	Methylene chloride	1.1 ug/L	1.1U ug/L
TB-7	Methylene chloride	0.4 ug/L	1U ug/L

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

Equipment Blank ID	Sampling Date	Compound	Concentration	Associated Samples
ER-7	1/18/02	Methylene chloride	7.3 ug/L	MW-14-1 MW-14-2 MW-14-3 MW-14-4 MW-14-5

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

Trip Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TB-7	1/18/02	Methylene chloride	0.4 ug/L	ER-7 MW-14-1 MW-14-2 MW-14-3 MW-14-4 MW-14-5

Sample concentrations were compared to concentrations detected in the field 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 field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
MW-14-3	Methylene chloride	0.3 ug/L	1U ug/L

Sample	Compound	Reported Concentration	Modified Final Concentration
MW-14-5	Methylene chloride	1.1 ug/L	1.1U 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.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment of Data

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019
Volatiles - Data Qualification Summary - SDG 02-1267

SDG	Sample	Compound	Flag	A or P	Reason
02-1267	ER-7 MW-14-1 MW-14-2 MW-14-3 MW-14-4 MW-14-5 TB-7	Bromomethane Carbon tetrachloride	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P	Continuing calibration (%D)

JPL, 00HW019
Volatiles - Laboratory Blank Data Qualification Summary - SDG 02-1267

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
02-1267	MW-14-3	Methylene chloride	1U ug/L	A
02-1267	MW-14-5	Methylene chloride	1.1U ug/L	A
02-1267	TB-7	Methylene chloride	1U ug/L	A

JPL, 00HW019
Volatiles - Field Blank Data Qualification Summary - SDG 02-1267

SDG	Sample	Compound	Modified Final Concentration	A or P
02-1267	MW-14-3	Methylene chloride	1U ug/L	A
02-1267	MW-14-5	Methylene chloride	1.1U ug/L	A

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: January 22, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1309

Sample Identification

ER-8
MW-12-1
MW-12-2
MW-12-3
MW-12-4
MW-12-5
MW-12-2D
TB-8

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 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 table summarizing all data qualification is provided at the end of this report. 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 advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

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.

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

Equipment Blank ID	Sampling Date	Compound	Concentration	Associated Samples
ER-8	1/22/02	Methylene chloride	6.3 ug/L	MW-12-1 MW-12-2 MW-12-3 MW-12-4 MW-12-5 MW-12-2D

Sample TB-8 was identified as a trip blank. No volatile contaminants were found in this blank

with the following exceptions:

Trip Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TB-8	1/22/02	Methylene chloride	1.4 ug/L	ER-8 MW-12-1 MW-12-2 MW-12-3 MW-12-4 MW-12-5 MW-12-2D

Sample concentrations were compared to concentrations detected in the field 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 field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
ER-8	Methylene chloride	6.3 ug/L	6.3U ug/L
MW-12-1	Methylene chloride	0.8 ug/L	1U ug/L
MW-12-2	Methylene chloride	0.8 ug/L	1U ug/L
MW-12-4	Methylene chloride	1.5 ug/L	1.5U ug/L
MW-12-2D	Methylene chloride	2.6 ug/L	2.6U 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.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment of Data

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

Samples MW-12-2 and MW-12-2D were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	MW-12-2	MW-12-2D	
Methylene chloride	0.8	2.6	106
Trichloroethene	0.4	0.5	22

JPL, 00HW019
Volatiles - Data Qualification Summary - SDG 02-1309

No Sample Data Qualified in this SDG

JPL, 00HW019
Volatiles - Laboratory Blank Data Qualification Summary - SDG 02-1309

No Sample Data Qualified in this SDG

JPL, 00HW019
Volatiles - Field Blank Data Qualification Summary - SDG 02-1309

SDG	Sample	Compound	Modified Final Concentration	A or P
02-1309	ER-8	Methylene chloride	6.3U ug/L	A
02-1309	MW-12-1	Methylene chloride	1U ug/L	A
02-1309	MW-12-2	Methylene chloride	1U ug/L	A
02-1309	MW-12-4	Methylene chloride	1.5U ug/L	A
02-1309	MW-12-2D	Methylene chloride	2.6U ug/L	A

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: January 23, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1314

Sample Identification

ER-9
MW-23-1
MW-23-2
MW-23-3
MW-23-4
MW-23-5
MW-23-3D
TB-9

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 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 table summarizing all data qualification is provided at the end of this report. 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 advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

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
1/25/02	2,2-Dichloropropane	31.37	All samples in SDG 02-1314	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.

Sample ER-9 was identified as an equipment blank. No volatile contaminants were found in this blank with the following exceptions:

Equipment Blank ID	Sampling Date	Compound	Concentration	Associated Samples
ER-9	1/23/02	Methylene chloride	0.9 ug/L	MW-23-1 MW-23-2 MW-23-3 MW-23-4 MW-23-5 MW-23-3D

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

Trip Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TB-9	1/23/02	Methylene chloride	1 ug/L	ER-9 MW-23-1 MW-23-2 MW-23-3 MW-23-4 MW-23-5 MW-23-3D

Sample concentrations were compared to concentrations detected in the field 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 field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
ER-9	Methylene chloride	0.9 ug/L	1U ug/L
MW-23-2	Methylene chloride	0.9 ug/L	1U ug/L
MW-23-3	Methylene chloride	0.9 ug/L	1U ug/L
MW-23-5	Methylene chloride	0.9 ug/L	1U ug/L
MW-23-3D	Methylene chloride	1.5 ug/L	1.5U 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.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment of Data

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

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

Compound	Concentration (ug/L)		RPD
	MW-23-3	MW-23-3D	
Methylene chloride	0.9	1.5	50
Trichloroethene	0.5U	0.4	200

JPL, 00HW019
Volatiles - Data Qualification Summary - SDG 02-1314

SDG	Sample	Compound	Flag	A or P	Reason
02-1314	ER-9 MW-23-1 MW-23-2 MW-23-3 MW-23-4 MW-23-5 MW-23-3D TB-9	2,2-Dichloropropane	J (all detects) UJ (all non-detects)	P	Continuing calibration (%D)

JPL, 00HW019
Volatiles - Laboratory Blank Data Qualification Summary - SDG 02-1314

No Sample Data Qualified in this SDG

JPL, 00HW019
Volatiles - Field Blank Data Qualification Summary - SDG 02-1314

SDG	Sample	Compound	Modified Final Concentration	A or P
02-1314	ER-9	Methylene chloride	1U ug/L	A
02-1314	MW-23-2	Methylene chloride	1U ug/L	A
02-1314	MW-23-3	Methylene chloride	1U ug/L	A
02-1314	MW-23-5	Methylene chloride	1U ug/L	A
02-1314	MW-23-3D	Methylene chloride	1.5U ug/L	A

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: January 25, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1355

Sample Identification

ER-11
MW-11-1
MW-11-2
MW-11-3
MW-11-4
MW-11-5
TB-11

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 table summarizing all data qualification is provided at the end of this report. 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 advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

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.

Sample ER-11 was identified as an equipment rinsate. No volatile contaminants were found in this blank with the following exceptions:

Equipment Rinsate ID	Sampling Date	Compound	Concentration	Associated Samples
ER-11	1/25/02	Methylene chloride	2 ug/L	MW-11-1 MW-11-2 MW-11-3 MW-11-4 MW-11-5

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

Trip Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TB-11	1/25/02	Methylene chloride	1 ug/L	ER-11 MW-11-1 MW-11-2 MW-11-3 MW-11-4 MW-11-5

Sample concentrations were compared to concentrations detected in the field 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 field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
ER-11	Methylene chloride	2 ug/L	2U ug/L
MW-11-4	Methylene chloride	0.8 ug/L	1U 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.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment of Data

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019
Volatiles - Data Qualification Summary - SDG 02-1355

No Sample Data Qualified in this SDG

JPL, 00HW019
Volatiles - Laboratory Blank Data Qualification Summary - SDG 02-1355

No Sample Data Qualified in this SDG

JPL, 00HW019
Volatiles - Field Blank Data Qualification Summary - SDG 02-1355

SDG	Sample	Compound	Modified Final Concentration	A or P
02-1355	ER-11	Methylene chloride	2U ug/L	A
02-1355	MW-11-4	Methylene chloride	1U ug/L	A

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: January 28, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1368

Sample Identification

ER-12
MW-22-1
MW-22-2
MW-22-3
MW-22-4
MW-22-5
TB-12
ER-12MS
ER-12MSD

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 table summarizing all data qualification is provided at the end of this report. 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 advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

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.

Sample ER-12 was identified as an equipment rinsate. No volatile contaminants were found in this blank with the following exceptions:

Equipment Rinsate ID	Sampling Date	Compound	Concentration	Associated Samples
ER-12	1/28/02	Methylene chloride Chloroform	8.1 ug/L 0.3 ug/L	MW-22-1 MW-22-2 MW-22-3 MW-22-4 MW-22-5

Sample TB-12 was identified as a trip blank. No volatile contaminants were found in this blank.
Sample concentrations were compared to concentrations detected in the field 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 field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
MW-22-1	Methylene chloride Chloroform	0.5 ug/L 0.5 ug/L	1U ug/L 0.5U ug/L
MW-22-2	Methylene chloride	0.8 ug/L	1U ug/L
MW-22-3	Methylene chloride	0.6 ug/L	1U ug/L
MW-22-4	Methylene chloride	0.8 ug/L	1U ug/L
MW-22-5	Methylene chloride	0.5 ug/L	1U 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.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment of Data

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019
Volatiles - Data Qualification Summary - SDG 02-1368

No Sample Data Qualified in this SDG

JPL, 00HW019
Volatiles - Laboratory Blank Data Qualification Summary - SDG 02-1368

No Sample Data Qualified in this SDG

JPL, 00HW019
Volatiles - Field Blank Data Qualification Summary - SDG 02-1368

SDG	Sample	Compound	Modified Final Concentration	A or P
02-1368	MW-22-1	Methylene chloride Chloroform	1U ug/L 0.5U ug/L	A
02-1368	MW-22-2	Methylene chloride	1U ug/L	A
02-1368	MW-22-3	Methylene chloride	1U ug/L	A
02-1368	MW-22-4	Methylene chloride	1U ug/L	A
02-1368	MW-22-5	Methylene chloride	1U ug/L	A

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: January 31, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1428

Sample Identification

MW-5
MW-10
TB-14

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 table summarizing all data qualification is provided at the end of this report. 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 advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

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.

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

Trip Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TB-14	1/31/02	Chloroform	1.1 ug/L	MW-5 MW-10

Sample concentrations were compared to concentrations detected in the field 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 field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
MW-5	Chloroform	0.5 ug/L	0.5U ug/L
MW-10	Chloroform	1.1 ug/L	1.1U 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.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment of Data

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019
Volatiles - Data Qualification Summary - SDG 02-1428

No Sample Data Qualified in this SDG

JPL, 00HW019
Volatiles - Laboratory Blank Data Qualification Summary - SDG 02-1428

No Sample Data Qualified in this SDG

JPL, 00HW019
Volatiles - Field Blank Data Qualification Summary - SDG 02-1428

SDG	Sample	Compound	Modified Final Concentration	A or P
02-1428	MW-5	Chloroform	0.5U ug/L	A
02-1428	MW-10	Chloroform	1.1U ug/L	A

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: February 1, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1442

Sample Identification

MW-6
MW-15
MW-15D
TB-16

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 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 table summarizing all data qualification is provided at the end of this report. 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 advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

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 with the following exceptions:

Sample	Compound	Total Time From BFB Tuning Until Analysis	Required Analysis Time (in Hours) From BFB Tuning Until Analysis	Flag	A or P
TB-16	All TCL compounds	12 hours and 14 minutes	12	None	P

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.

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

Trip Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TB-16	2/1/02	Methylene chloride	1.7 ug/L	MW-6 MW-15 MW-15D

Sample concentrations were compared to concentrations detected in the field 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 field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
MW-6	Methylene chloride	0.9 ug/L	1U ug/L
MW-15	Methylene chloride	1 ug/L	1U ug/L
MW-15D	Methylene chloride	1 ug/L	1U 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.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment of Data

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

Samples MW-15 and MW-15D were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	MW-15	MW-15D	
Methylene chloride	1	1	0

JPL, 00HW019
Volatiles - Data Qualification Summary - SDG 02-1442

SDG	Sample	Compound	Flag	A or P	Reason
02-1442	TB-16	All TCL compounds	None	P	GC/MS performance check

JPL, 00HW019
Volatiles - Laboratory Blank Data Qualification Summary - SDG 02-1442

No Sample Data Qualified in this SDG

JPL, 00HW019
Volatiles - Field Blank Data Qualification Summary - SDG 02-1442

SDG	Sample	Compound	Modified Final Concentration	A or P
02-1442	MW-6	Methylene chloride	1U ug/L	A
02-1442	MW-15	Methylene chloride	1U ug/L	A
02-1442	MW-15D	Methylene chloride	1U ug/L	A

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: January 24, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1336

Sample Identification

ER-10
MW-24-1
MW-24-2
MW-24-3
MW-24-4
MW-24-5
MW-24-5D
TB-10
MW-24-4MS
MW-24-4MSD

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 table summarizing all data qualification is provided at the end of this report. 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 advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

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.

Sample ER-10 was identified as an equipment rinsate. No volatile contaminants were found in this blank.

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

Trip Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TB-8	1/24/02	Methylene chloride	1.1 ug/L	ER-10 MW-24-1 MW-24-2 MW-24-3 MW-24-4 MW-24-5 MW-24-5D

Sample concentrations were compared to concentrations detected in the field 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 field blanks with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
MW-24-3	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

All target compound identifications were within validation criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment of Data

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

Samples MW-24-5 and MW-24-5D were identified as field duplicates. No volatiles were detected in any of the samples.

JPL, 00HW019
Volatiles - Data Qualification Summary - SDG 02-1336

No Sample Data Qualified in this SDG

JPL, 00HW019
Volatiles - Laboratory Blank Data Qualification Summary - SDG 02-1336

No Sample Data Qualified in this SDG

JPL, 00HW019
Volatiles - Field Blank Data Qualification Summary - SDG 02-1336

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
02-1336	MW-24-3	Methylene chloride	1.4U ug/L	A

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: January 29, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1393

Sample Identification

MW-13
MW-16
MW-16D
TB-13
MW-16MS
MW-16MSD

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 table summarizing all data qualification is provided at the end of this report. 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 advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

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 with the following exceptions:

Method Blank ID	Extraction Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
02G1313-MB-01	1/30/02	Methylene chloride	1.7 ug/L	All samples in SDG 02-1393

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-13	Methylene chloride	1.0 ug/L	1U ug/L
MW-16	Methylene chloride	0.9 ug/L	1U ug/L

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

Trip Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TB-13	1/29/02	Methylene chloride	1.3 ug/L	MW-13 MW-16 MW-16D

Sample concentrations were compared to concentrations detected in the field 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 field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
MW-13	Methylene chloride	1.0 ug/L	1U ug/L
MW-16	Methylene chloride	0.9 ug/L	1U 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.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment of Data

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

Samples MW-16 and MW-16D were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	MW-16	MW-16D	
Carbon tetrachloride	12.3	13.2	7
Chloroform	15.9	16.7	5
1,1-Dichloroethene	1.4	1.3	7
Methylene chloride	0.9	1U	200
Tetrachloroethene	0.5	0.6	18
Trichloroethene	2.5	2.7	8

JPL, 00HW019
Volatiles - Data Qualification Summary - SDG 02-1393

No Sample Data Qualified in this SDG

JPL, 00HW019
Volatiles - Laboratory Blank Data Qualification Summary - SDG 02-1393

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
02-1393	MW-13	Methylene chloride	1U ug/L	A
02-1393	MW-16	Methylene chloride	1U ug/L	A

JPL, 00HW019
Volatiles - Field Blank Data Qualification Summary - SDG 02-1393

SDG	Sample	Compound	Modified Final Concentration	A or P
02-1393	MW-13	Methylene chloride	1U ug/L	A
02-1393	MW-16	Methylene chloride	1U ug/L	A

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: February 4, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1475

Sample Identification

MW-1
MW-9
TB-15
MW-1MS
MW-1MSD

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 table summarizing all data qualification is provided at the end of this report. 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 advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

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
2/5/02	Bromomethane	43.55	All samples in SDG 02-1475	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.

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

Trip Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TB-15	2/4/02	Methylene chloride	1.8 ug/L	MW-1 MW-9

Sample concentrations were compared to concentrations detected in the field 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 field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
MW-1	Methylene chloride	0.4 ug/L	1U ug/L
MW-9	Methylene chloride	0.5 ug/L	1U 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.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment of Data

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019
Volatiles - Data Qualification Summary - SDG 02-1475

SDG	Sample	Compound	Flag	A or P	Reason
02-1475	MW-1 MW-9 TB-15	Bromomethane	J (all detects) UJ (all non-detects)	P	Continuing calibration (%D)

JPL, 00HW019
Volatiles - Laboratory Blank Data Qualification Summary - SDG 02-1475

No Sample Data Qualified in this SDG

JPL, 00HW019
Volatiles - Field Blank Data Qualification Summary - SDG 02-1475

SDG	Sample	Compound	Modified Final Concentration	A or P
02-1475	MW-1	Methylene chloride	1U ug/L	A
02-1475	MW-9	Methylene chloride	1U ug/L	A

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: February 5, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1492

Sample Identification

ER-13
MW-4-1
MW-4-2
MW-4-3
MW-4-4
MW-4-5
MW-4-3D
TB-17
MW-4-1MS
MW-4-1MSD

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 table summarizing all data qualification is provided at the end of this report. 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 advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

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.

Sample ER-13 was identified as an equipment rinsate. No volatile contaminants were found in this blank.

Sample TB-17 was identified as a trip blank. No volatile contaminants were found in this blank with the following exceptions:

Trip Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TB-17	2/5/02	Methylene chloride	1.0 ug/L	ER-13 MW-4-1 MW-4-2 MW-4-3 MW-4-4 MW-4-5 MW-4-3D

Sample concentrations were compared to concentrations detected in the field 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 field 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.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment of Data

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

Samples MW-4-3 and MW-4-3D were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	MW-4-3	MW-4-3D	
Ethylbenzene	1.1	1.4	24

JPL, 00HW019
Volatiles - Data Qualification Summary - SDG 02-1492

No Sample Data Qualified in this SDG

JPL, 00HW019
Volatiles - Laboratory Blank Data Qualification Summary - SDG 02-1492

No Sample Data Qualified in this SDG

JPL, 00HW019
Volatiles - Field Blank Data Qualification Summary - SDG 02-1492

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: February 6, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1514

Sample Identification

MW-8
TB-18

Introduction

This data review covers 2 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 table summarizing all data qualification is provided at the end of this report. 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 advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

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.

Sample TB-18 was identified as a trip blank. No volatile contaminants were found in this blank with the following exceptions:

Trip Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TB-18	2/6/02	Methylene chloride	1.3 ug/L	MW-8

Sample concentrations were compared to concentrations detected in the field 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 field 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.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment of Data

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019
Volatiles - Data Qualification Summary - SDG 02-1514

No Sample Data Qualified in this SDG

JPL, 00HW019
Volatiles - Laboratory Blank Data Qualification Summary - SDG 02-1514

No Sample Data Qualified in this SDG

JPL, 00HW019
Volatiles - Field Blank Data Qualification Summary - SDG 02-1514

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: February 22, 2002

LDC Report Date: March 21, 2002

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1727

Sample Identification

MW-7

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 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 table summarizing all data qualification is provided at the end of this report. 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 advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

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 with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
02G1559-MB-01	2/22/02	Methylene chloride	3.3 ug/L	All samples in SDG 02-1727

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.

No field blanks were identified in this SDG.

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.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment of Data

Data flags have been summarized at the end of the report.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019
Volatiles - Data Qualification Summary - SDG 02-1727

No Sample Data Qualified in this SDG

JPL, 00HW019
Volatiles - Laboratory Blank Data Qualification Summary - SDG 02-1727

No Sample Data Qualified in this SDG

JPL, 00HW019
Volatiles - Field Blank Data Qualification Summary - SDG 02-1727

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: January 9, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1098

Sample Identification

ER-1
MW-21-1
MW-21-2
MW-21-3
MW-21-4
MW-21-5
MW-21-1DUP
MW-21-2MS
MW-21-2MSD
MW-21-2DUP

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 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 (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. 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 advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

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 of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
All samples in SDG 02-1098	Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None	P

b. Calibration Verification

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

Analyte	Calibration	Date of Last Report	Report Frequency Requirement	Date of Analysis	Associated Samples	Flag	A or P
Hexavalent chromium	ICAL	5/15/01	Every 6 months	1/10/02	All samples in SDG 02-1098	None	P

III. Blanks

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

Sample ER-1 was identified as an equipment rinsate. No contaminant concentrations were found in this blank.

IV. Accuracy and Precision Data

a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
All samples in SDG 02-1098	Hexavalent chromium	No MS/MSD associated with these samples.	MS/MSD required.	None	P
MW-21-1 MW-21-2 MW-21-3 MW-21-4 MW-21-5	Chloride Nitrate as N Sulfate	No MS/MSD associated with these samples.	MS/MSD required.	None None None	P

Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

b. 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. Sample Result Verification

All sample result verifications were within validation criteria.

VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

VII. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019
Wet Chemistry - Data Qualification Summary - SDG 02-1098

SDG	Sample	Analyte	Flag	A or P	Reason
02-1098	ER-1 MW-21-1 MW-21-2 MW-21-3 MW-21-4 MW-21-5	Perchlorate	None	P	Initial calibration
02-1098	ER-1 MW-21-1 MW-21-2 MW-21-3 MW-21-4 MW-21-5	Hexavalent chromium	None	P	Continuing calibration
02-1098	ER-1 MW-21-1 MW-21-2 MW-21-3 MW-21-4 MW-21-5	Hexavalent chromium	None	P	Matrix spike/Matrix spike duplicates
02-1098	MW-21-1 MW-21-2 MW-21-3 MW-21-4 MW-21-5	Chloride Nitrate as N Sulfate	None None None	P	Matrix spike/Matrix spike duplicates

JPL, 00HW019
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 02-1098

No Sample Data Qualified in this SDG

JPL, 00HW019
Wet Chemistry - Field Blank Data Qualification Summary - SDG 02-1098

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL

Collection Date: January 10, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1118

Sample Identification

ER-2
MW-17-1
MW-17-2
MW-17-3
MW-17-4
MW-17-5
MW-17-4MS
MW-17-4MSD

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 150.1 for pH, EPA Method 160.1 for Total Dissolved Solids, EPA Method 300.0 for Chloride, Sulfate, Nitrate as Nitrogen, EPA Method 310.1 for Alkalinity, EPA Method 314 for Perchlorate, and EPA SW 846 Method 7196A for Chromium (VI).

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. 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 advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

The following are definitions of the data qualifiers:

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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 with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
All samples in SDG 02-1118	Chromium	Initial calibration was not performed at the required frequency.	Initial calibration must be performed every 6 months.	None	P

All criteria for the initial calibration of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
ER-2 MW-17-1 MW-17-2 MW-17-3 MW-17-4 MW-17-5	Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None	P

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.

Sample ER-2 was identified as an equipment rinsate. No contaminant concentrations were found in this blank.

IV. Accuracy and Precision Data

a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
All samples in SDG 02-1118	Chloride Nitrate as N Sulfate Total dissolved solids	No MS/MSD associated with these samples.	MS/MSD required.	None None None None	P

Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
All samples in SDG 02-1118	Alkalinity pH	No DUP analysis associated with these samples.	DUP analysis required.	None None	P

Relative percent differences (RPD) were within QC limits.

b. 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. Sample Result Verification

All sample result verifications were within validation criteria.

VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

VII. Field Duplicates

No field duplicates were identified in this SDG.

JPL
Wet Chemistry - Data Qualification Summary - SDG 02-1118

SDG	Sample	Analyte	Flag	A or P	Reason
02-1118	ER-2 MW-17-1 MW-17-2 MW-17-3 MW-17-4 MW-17-5	Chromium Perchlorate	None None	P	Initial calibration
02-1118	ER-2 MW-17-1 MW-17-2 MW-17-3 MW-17-4 MW-17-5	Chloride Nitrate as N Sulfate Total dissolved solids	None None None None	P	Matrix spike/Matrix spike duplicates
02-1118	ER-2 MW-17-1 MW-17-2 MW-17-3 MW-17-4 MW-17-5	Alkalinity pH	None None	P	Duplicate sample analysis

JPL
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 02-1118

No Sample Data Qualified in this SDG

JPL
Wet Chemistry - Field Blank Data Qualification Summary - SDG 02-1118

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL

Collection Date: January 11, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1138

Sample Identification

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

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 150.1 for pH, EPA Method 160.1 for Total Dissolved Solids, EPA Method 300.0 for Chloride, Sulfate, Nitrate as Nitrogen, EPA Method 310.1 for Alkalinity, EPA Method 314 for Perchlorate, and EPA SW 846 Method 7196A for Chromium (VI).

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. 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 advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

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.

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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 with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
All samples in SDG 02-1138	Chromium	Initial calibration was not performed at the required frequency.	Initial calibration must be performed every 6 months.	None	P

All criteria for the initial calibration of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
ER-3 MW-3-1 MW-3-2 MW-3-3 MW-3-4 MW-3-5	Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None	P

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.

Sample ER-3 was identified as an equipment rinsate. No contaminant concentrations were found in this blank.

IV. Accuracy and Precision Data

a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
All samples in SDG 02-1138	Perchlorate Chloride Nitrate as N Sulfate Total dissolved solids	No MS/MSD associated with these samples.	MS/MSD required.	None None None None None	P

Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
All samples in SDG 02-1138	Alkalinity	No DUP analysis associated with these samples.	DUP analysis required.	None	P

Relative percent differences (RPD) were within QC limits.

b. 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. Sample Result Verification

All sample result verifications were within validation criteria.

VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

VII. Field Duplicates

No field duplicates were identified in this SDG.

JPL
Wet Chemistry - Data Qualification Summary - SDG 02-1138

SDG	Sample	Analyte	Flag	A or P	Reason
02-1138	ER-3 MW-3-1 MW-3-2 MW-3-3 MW-3-4 MW-3-5	Chromium Perchlorate	None None	P	Initial calibration
02-1138	ER-3 MW-3-1 MW-3-2 MW-3-3 MW-3-4 MW-3-5	Perchlorate Chloride Nitrate as N Sulfate Total dissolved solids	None None None None None	P	Matrix spike/Matrix spike duplicates
02-1138	ER-3 MW-3-1 MW-3-2 MW-3-3 MW-3-4 MW-3-5	Alkalinity	None	P	Duplicate sample analysis

JPL
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 02-1138

No Sample Data Qualified in this SDG

JPL
Wet Chemistry - Field Blank Data Qualification Summary - SDG 02-1138

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: January 14, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1166

Sample Identification

ER-4
MW-18-2
MW-18-3
MW-18-4
MW-18-5
MW-18-3D
MW-18-3MS
MW-18-3MSD
MW-18-5MS
MW-18-5MSD
MW-18-5DUP

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 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 (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. 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 advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

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 of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
ER-4 MW-18-2 MW-18-3 MW-18-4 MW-18-5 MW-18-3D MW-18-5MS MW-18-5MSD	Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None	P

b. Calibration Verification

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

Analyte	Calibration	Date of Last Report	Report Frequency Requirement	Date of Analysis	Associated Samples	Flag	A or P
Hexavalent chromium	ICAL	5/15/01	Every 6 months	1/15/02	ER-4 MW-18-2 MW-18-3 MW-18-4 MW-18-5 MW-18-3D MW-18-3MS MW-18-3MSD	None	P

III. Blanks

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

Sample ER-4 was identified as an equipment rinsate. No contaminant concentrations were found in this blank.

IV. Accuracy and Precision Data

a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
All samples in SDG 02-1166	Chloride Nitrate as N Sulfate	No MS/MSD associated with these samples.	MS/MSD required.	None	P

Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
All samples in SDG 02-1166	Alkalinity	No DUP analysis associated with these samples.	DUP analysis required.	None	P

Results were within QC limits.

b. 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. Sample Result Verification

All sample result verifications were within validation criteria.

VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

VII. Field Duplicates

Samples MW-18-3 and MW-18-3D were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/L)		RPD
	MW-18-3	MW-18-3D	
Alkalinity	192	196	2
pH (units)	7.87	7.79	1
Total dissolved solids	298	304	2
Chloride	15.1	16.1	6
Nitrate as N	0.99	1.0	1
Sulfate	38.3	41.0	7

JPL, 00HW019
Wet Chemistry - Data Qualification Summary - SDG 02-1166

SDG	Sample	Analyte	Flag	A or P	Reason
02-1166	ER-4 MW-18-2 MW-18-3 MW-18-4 MW-18-5 MW-18-3D	Perchlorate	None	P	Initial calibration
02-1166	ER-4 MW-18-2 MW-18-3 MW-18-4 MW-18-5 MW-18-3D	Hexavalent chromium	None	P	Continuing calibration
02-1166	ER-4 MW-18-2 MW-18-3 MW-18-4 MW-18-5 MW-18-3D	Chloride Nitrate as N Sulfate	None	P	Matrix spike/Matrix spike duplicates
02-1166	ER-4 MW-18-2 MW-18-3 MW-18-4 MW-18-5 MW-18-3D	Alkalinity	None	P	Duplicate analysis

JPL, 00HW019
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 02-1166

No Sample Data Qualified in this SDG

JPL, 00HW019
Wet Chemistry - Field Blank Data Qualification Summary - SDG 02-1166

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: January 15, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1199

Sample Identification

ER-5
MW-19-1
MW-19-2
MW-19-3
MW-19-4
MW-19-5
MW-19-3D
MW-19-3MS
MW-19-3MSD

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 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 (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. 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 advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

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 of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
All samples in SDG 02-1199	Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None	P

Analyte	Calibration	Date of Last Report	Report Frequency Requirement	Date of Analysis	Associated Samples	Flag	A or P
Hexavalent chromium	ICAL	5/15/01	Every 6 months	1/16/02	All samples in SDG 02-1199	None	P

b. Calibration Verification

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

Date	Lab. Reference/ID	Analyte	%R (Limits)	Associated Samples	Flag	A or P
1/16/02	CCV	Perchlorate	87 (90-110)	ER-5 MW-19-1 MW-19-2 MW-19-3	J (all detects) UJ (all non-detects)	P

III. Blanks

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

Sample ER-5 was identified as an equipment rinsate. No contaminant concentrations were found in this blank.

IV. Accuracy and Precision Data

a. 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.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
MW-19-1 MW-19-2 MW-19-3 MW-19-4 MW-19-5 MW-19-3D	pH	No DUP analysis associated with these samples.	DUP analysis required.	None	P

Results were within QC limits.

b. 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. Sample Result Verification

All sample result verifications were within validation criteria.

VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

VII. Field Duplicates

Samples MW-19-3 and MW-19-3D were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/L)		RPD
	MW-19-3	MW-19-3D	
Alkalinity	236	249	5
pH (units)	6.99	7.03	0.6

Analyte	Concentration (mg/L)		RPD
	MW-19-3	MW-19-3D	
Total dissolved solids	595	597	0.3
Chloride	108	111	3
Nitrate as N	9.8	10.3	5
Sulfate	110	116	5

JPL, 00HW019
Wet Chemistry - Data Qualification Summary - SDG 02-1199

SDG	Sample	Analyte	Flag	A or P	Reason
02-1199	ER-5 MW-19-1 MW-19-2 MW-19-3 MW-19-4 MW-19-5 MW-19-3D	Perchlorate Hexavalent chromium	None None	P	Initial calibration
02-1199	ER-5 MW-19-1 MW-19-2 MW-19-3	Perchlorate	J (all detects) UJ (all non-detects)	P	Calibration (%R)
02-1199	MW-19-1 MW-19-2 MW-19-3 MW-19-4 MW-19-5 MW-19-3D	pH	None	P	Duplicate analysis

JPL, 00HW019
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 02-1199

No Sample Data Qualified in this SDG

JPL, 00HW019
Wet Chemistry - Field Blank Data Qualification Summary - SDG 02-1199

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: January 16, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1220

Sample Identification

ER-6
MW-20-1
MW-20-2
MW-20-3
MW-20-4
MW-20-5
MW-20-1MS
MW-20-1MSD
MW-20-3DUP
MW-20-5MS
MW-20-5MSD

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 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 (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. 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 advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

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.

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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 of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
ER-6 MW-20-1 MW-20-2 MW-20-3 MW-20-4 MW-20-5 MW-20-5MS MW-20-5MSD	Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None	P

Analyte	Calibration	Date of Last Report	Report Frequency Requirement	Date of Analysis	Associated Samples	Flag	A or P
Hexavalent chromium	ICAL	5/15/01	Every 6 months	1/16/02	ER-6 MW-20-1 MW-20-2 MW-20-3 MW-20-4 MW-20-5 MW-20-1MS MW-20-1MSD	None	P

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.

Sample ER-6 was identified as an equipment rinsate. No contaminant concentrations were found in this blank.

IV. Accuracy and Precision Data

a. 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.

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

b. 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. Sample Result Verification

All sample result verifications were within validation criteria.

VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

VII. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019
Wet Chemistry - Data Qualification Summary - SDG 02-1220

SDG	Sample	Analyte	Flag	A or P	Reason
02-1220	ER-6 MW-20-1 MW-20-2 MW-20-3 MW-20-4 MW-20-5	Perchlorate Hexavalent chromium	None None	P	Initial calibration

JPL, 00HW019
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 02-1220

No Sample Data Qualified in this SDG

JPL, 00HW019
Wet Chemistry - Field Blank Data Qualification Summary - SDG 02-1220

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: January 18, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1267

Sample Identification

ER-7
MW-14-1
MW-14-2
MW-14-3
MW-14-4
MW-14-5
MW-14-1MS
MW-14-1MSD

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 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 (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. 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 advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

The following are definitions of the data qualifiers:

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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 of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
All samples in SDG 02-1267	Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None	P

Analyte	Calibration	Date of Last Report	Report Frequency Requirement	Date of Analysis	Associated Samples	Flag	A or P
Hexavalent chromium	ICAL	5/15/01	Every 6 months	1/18/02	All samples in SDG 02-1267	None	P

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.

Sample ER-7 was identified as an equipment rinsate. No contaminant concentrations were found in this blank.

IV. Accuracy and Precision Data

a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
MW-14-1 MW-14-2 MW-14-3 MW-14-4 MW-14-5	Chloride Nitrate as N Sulfate Total dissolved solids	No MS/MSD associated with these samples.	MS/MSD required.	None None None None	P

Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
MW-14-1 MW-14-2 MW-14-3 MW-14-4 MW-14-5	pH Alkalinity	No DUP analysis associated with these samples.	DUP analysis required.	None None	P

Relative percent differences (RPD) were within QC limits.

b. 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. Sample Result Verification

All sample result verifications were within validation criteria.

VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

VII. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019
Wet Chemistry - Data Qualification Summary - SDG 02-1267

SDG	Sample	Analyte	Flag	A or P	Reason
02-1267	ER-7 MW-14-1 MW-14-2 MW-14-3 MW-14-4 MW-14-5	Perchlorate Hexavalent chromium	None None	P	Initial calibration
02-1267	MW-14-1 MW-14-2 MW-14-3 MW-14-4 MW-14-5	Chloride Nitrate as N Sulfate Total dissolved solids	None None None None	P	Matrix spike/Matrix spike duplicates
02-1267	MW-14-1 MW-14-2 MW-14-3 MW-14-4 MW-14-5	pH Alkalinity	None None	P	Duplicate analysis

JPL, 00HW019
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 02-1267

No Sample Data Qualified in this SDG

JPL, 00HW019
Wet Chemistry - Field Blank Data Qualification Summary - SDG 02-1267

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: January 22, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1309

Sample Identification

ER-8
MW-12-1
MW-12-2
MW-12-3
MW-12-4
MW-12-5
MW-12-2D
MW-12-2MS
MW-12-2MSD
MW-12-2DMS
MW-12-2DMSD

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 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 (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. 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 advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

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 of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
ER-8 MW-12-1 MW-12-2 MW-12-3 MW-12-4 MW-12-5 MW-12-2D	Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None	P

Analyte	Calibration	Date of Last Report	Report Frequency Requirement	Date of Analysis	Associated Samples	Flag	A or P
Hexavalent chromium	ICAL	5/15/01	Every 6 months	1/23/02	ER-8 MW-12-1 MW-12-2 MW-12-3 MW-12-4 MW-12-5 MW-12-2D MW-12-2MS MW-12-2MSD	None	P

b. Calibration Verification

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

Date	Lab. Reference/ID	Analyte	%R (Limits)	Associated Samples	Flag	A or P
1/25/02	CCV	Perchlorate	86 (90-110)	MW-12-1 MW-12-2 MW-12-3 MW-12-4	J (all detects) UJ (all non-detects)	P

III. Blanks

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

Sample ER-8 was identified as an equipment rinsate. No contaminant concentrations were found in this blank.

IV. Accuracy and Precision Data

a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
MW-12-1 MW-12-2 MW-12-3 MW-12-4 MW-12-5 MW-12-2D	Total dissolved solids	No MS/MSD associated with these samples.	MS/MSD required.	None	P

Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
MW-12-1 MW-12-2 MW-12-3 MW-12-4 MW-12-5 MW-12-2D	pH Alkalinity	No DUP analysis associated with these samples.	DUP analysis required.	None None	P

Results were within QC limits.

b. 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. Sample Result Verification

All sample result verifications were within validation criteria.

VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

VII. Field Duplicates

Samples MW-12-2 and MW-12-2D were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/L)		RPD
	MW-12-2	MW-12-2D	
Alkalinity	193	196	2
pH (units)	7.65	7.64	0.1
Total dissolved solids	314	305	3
Chloride	16.2	16.3	0.6
Nitrate as N	1.5	1.6	6
Sulfate	38.6	39.4	2

JPL, 00HW019
Wet Chemistry - Data Qualification Summary - SDG 02-1309

SDG	Sample	Analyte	Flag	A or P	Reason
02-1309	ER-8 MW-12-1 MW-12-2 MW-12-3 MW-12-4 MW-12-5 MW-12-2D	Perchlorate Hexavalent chromium	None None	P	Initial calibration
02-1309	MW-12-1 MW-12-2 MW-12-3 MW-12-4	Perchlorate	J (all detects) UJ (all non-detects)	P	Calibration (%R)
02-1309	MW-12-1 MW-12-2 MW-12-3 MW-12-4 MW-12-5 MW-12-2D	Total dissolved solids	None	P	Matrix spike/Matrix spike duplicates
02-1309	MW-12-1 MW-12-2 MW-12-3 MW-12-4 MW-12-5 MW-12-2D	pH Alkalinity	None None	P	Duplicate analysis

JPL, 00HW019
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 02-1309

No Sample Data Qualified in this SDG

JPL, 00HW019
Wet Chemistry - Field Blank Data Qualification Summary - SDG 02-1309

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: January 23, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1314

Sample Identification

ER-9
MW-23-1
MW-23-2
MW-23-3
MW-23-4
MW-23-5
MW-23-3D
MW-23-1DUP
MW-23-3MS
MW-23-3MSD

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 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 (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. 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 advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

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 of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
ER-9 MW-23-1 MW-23-2 MW-23-3 MW-23-4 MW-23-5 MW-23-3D	Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None	P

Analyte	Calibration	Date of Last Report	Report Frequency Requirement	Date of Analysis	Associated Samples	Flag	A or P
Hexavalent chromium	ICAL	5/15/01	Every 6 months	1/24/02	ER-9 MW-23-1 MW-23-2 MW-23-3 MW-23-4 MW-23-5 MW-23-3D MW-23-3MS MW-23-3MSD	None	P

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.

Sample ER-9 was identified as an equipment rinsate. No contaminant concentrations were found in this blank.

IV. Accuracy and Precision Data

a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
MW-23-1 MW-23-2 MW-23-3 MW-23-4 MW-23-5 MW-23-3D	Chloride Nitrate as N Sulfate Total dissolved solids	No MS/MSD associated with these samples.	MS/MSD required.	None None None None	P

Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

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

b. 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. Sample Result Verification

All sample result verifications were within validation criteria.

VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

VII. Field Duplicates

Samples MW-23-3 and MW-23-3D were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/L)		RPD
	MW-23-3	MW-23-3D	
Alkalinity	145	143	1
pH (units)	8.01	7.87	2

Analyte	Concentration (mg/L)		RPD
	MW-23-3	MW-23-3D	
Total dissolved solids	263	276	5
Chloride	25.9	29.9	14
Nitrate as N	8.8	10.0	13
Sulfate	18.4	19.9	8

JPL, 00HW019
Wet Chemistry - Data Qualification Summary - SDG 02-1314

SDG	Sample	Analyte	Flag	A or P	Reason
02-1314	ER-9 MW-23-1 MW-23-2 MW-23-3 MW-23-4 MW-23-5 MW-23-3D	Perchlorate Hexavalent chromium	None None	P	Initial calibration
02-1314	MW-23-1 MW-23-2 MW-23-3 MW-23-4 MW-23-5 MW-23-3D	Chloride Nitrate as N Sulfate Total dissolved solids	None None None None	P	Matrix spike/Matrix spike duplicates

JPL, 00HW019
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 02-1314

No Sample Data Qualified in this SDG

JPL, 00HW019
Wet Chemistry - Field Blank Data Qualification Summary - SDG 02-1314

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: January 25, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1355

Sample Identification

ER-11
MW-11-1
MW-11-2
MW-11-3
MW-11-4
MW-11-5
MW-11-1DUP
MW-11-4DUP
MW-11-5MS
MW-11-5MSD

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 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 (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. 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 advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

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 of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
ER-11 MW-11-1 MW-11-2 MW-11-3 MW-11-4 MW-11-5 MW-11-5MS MW-11-5MSD	Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None	P

Analyte	Calibration	Date of Last Report	Report Frequency Requirement	Date of Analysis	Associated Samples	Flag	A or P
Hexavalent chromium	ICAL	5/15/01	Every 6 months	1/25/02	ER-11 MW-11-1 MW-11-2 MW-11-3 MW-11-4 MW-11-5	None	P

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.

Sample ER-11 was identified as an equipment rinsate. No contaminant concentrations were found in this blank.

IV. Accuracy and Precision Data

a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
MW-11-4 MW-11-5	Perchlorate	No MS/MSD associated with these samples.	MS/MSD required.	None	P

Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
MW-24-4MS/MSD (MW-11-1 MW-11-2 MW-11-3 MW-11-4 MW-11-5)	Nitrate as N	123 (77-121)	122 (77-121)	-	J (all detects)	A

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

b. 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. Sample Result Verification

All sample result verifications were within validation criteria.

VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

VII. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019
Wet Chemistry - Data Qualification Summary - SDG 02-1355

SDG	Sample	Analyte	Flag	A or P	Reason
02-1355	ER-11 MW-11-1 MW-11-2 MW-11-3 MW-11-4 MW-11-5	Perchlorate Hexavalent chromium	None None	P	Initial calibration
02-1355	MW-11-4 MW-11-5	Perchlorate	None	P	Matrix spike/Matrix spike duplicates
02-1355	MW-11-1 MW-11-2 MW-11-3 MW-11-4 MW-11-5	Nitrate as N	J (all detects)	A	Matrix spike/Matrix spike duplicates (%R)

JPL, 00HW019
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 02-1355

No Sample Data Qualified in this SDG

JPL, 00HW019
Wet Chemistry - Field Blank Data Qualification Summary - SDG 02-1355

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: January 28, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1368

Sample Identification

ER-12
MW-22-1
MW-22-2
MW-22-3
MW-22-4
MW-22-5
MW-22-1MS
MW-22-1MSD
MW-22-1DUP
MW-22-5MS
MW-22-5MSD

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 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 (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. 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 advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

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 of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
ER-12 MW-22-1 MW-22-2 MW-22-3 MW-22-4 MW-22-5	Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None	P

Analyte	Calibration	Date of Last Report	Report Frequency Requirement	Date of Analysis	Associated Samples	Flag	A or P
Hexavalent chromium	ICAL	5/15/01	Every 6 months	1/29/02	ER-12 MW-22-1 MW-22-2 MW-22-3 MW-22-4 MW-22-5 MW-22-5MS MW-22-5MSD	None	P

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.

Sample ER-12 was identified as an equipment rinsate. No contaminant concentrations were found in this blank.

IV. Accuracy and Precision Data

a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
ER-12 MW-22-1 MW-22-2 MW-22-3 MW-22-4 MW-22-5	Perchlorate	No MS/MSD associated with these samples.	MS/MSD required.	None	P

Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

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

b. 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. Sample Result Verification

All sample result verifications were within validation criteria.

VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

VII. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019
Wet Chemistry - Data Qualification Summary - SDG 02-1368

SDG	Sample	Analyte	Flag	A or P	Reason
02-1368	ER-12 MW-22-1 MW-22-2 MW-22-3 MW-22-4 MW-22-5	Perchlorate Hexavalent chromium	None None	P	Initial calibration
02-1368	ER-12 MW-22-1 MW-22-2 MW-22-3 MW-22-4 MW-22-5	Perchlorate	None	P	Matrix spike/Matrix spike duplicates

JPL, 00HW019
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 02-1368

No Sample Data Qualified in this SDG

JPL, 00HW019
Wet Chemistry - Field Blank Data Qualification Summary - SDG 02-1368

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: January 31, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1428

Sample Identification

MW-5
MW-10
MW-5MS
MW-5MSD
MW-5DUP

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 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 (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. 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 advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

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 of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
MW-5 MW-10	Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None	P

Analyte	Calibration	Date of Last Report	Report Frequency Requirement	Date of Analysis	Associated Samples	Flag	A or P
Hexavalent chromium	ICAL	5/15/01	Every 6 months	2/1/02	MW-5 MW-10 MW-5MS MW-5MSD	None	P

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.

No field blanks were identified in this SDG.

IV. Accuracy and Precision Data

a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
All samples in SDG 02-1428	Chloride Nitrate as N Sulfate Total dissolved solids Perchlorate	No MS/MSD associated with these samples.	MS/MSD required.	None None None None None	P

Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

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

b. 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. Sample Result Verification

All sample result verifications were within validation criteria.

VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

VII. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019
Wet Chemistry - Data Qualification Summary - SDG 02-1428

SDG	Sample	Analyte	Flag	A or P	Reason
02-1428	MW-5 MW-10	Perchlorate Hexavalent chromium	None None	P	Initial calibration
02-1428	MW-5 MW-10	Chloride Nitrate as N Sulfate Total dissolved solids Perchlorate	None None None None None	P	Matrix spike/Matrix spike duplicates

JPL, 00HW019
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 02-1428

No Sample Data Qualified in this SDG

JPL, 00HW019
Wet Chemistry - Field Blank Data Qualification Summary - SDG 02-1428

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: February 1, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1442

Sample Identification

MW-6
MW-15
MW-15D
MW-6DUP
MW-15DMS
MW-15DMSD

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 (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. 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 advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

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 of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
MW-6 MW-15 MW-15D	Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None	P

Analyte	Calibration	Date of Last Report	Report Frequency Requirement	Date of Analysis	Associated Samples	Flag	A or P
Hexavalent chromium	ICAL	5/15/01	Every 6 months	2/1/02	MW-6 MW-15 MW-15D MW-15DMS MW-15DMSD	None	P

b. Calibration Verification

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

Date	Lab. Reference/ID	Analyte	%R (Limits)	Associated Samples	Flag	A or P
2/11/02	CCV	Perchlorate	89 (90-110)	MW-15D	J (all detects) UJ (all non-detects)	P

III. Blanks

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

No field blanks were identified in this SDG.

IV. Accuracy and Precision Data

a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
All samples in SDG 02-1442	Chloride Nitrate as N Sulfate Perchlorate Total dissolved solids	No MS/MSD associated with these samples.	MS/MSD required.	None None None None None	P

Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

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

b. 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. Sample Result Verification

All sample result verifications were within validation criteria.

VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

VII. Field Duplicates

Samples MW-15 and MW-15D were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/L)		RPD
	MW-15	MW-15D	
Alkalinity	212	214	0.9
pH (units)	7.28	7.32	0.5

Analyte	Concentration (mg/L)		RPD
	MW-15	MW-15D	
Total dissolved solids	381	379	0.5
Chloride	30.1	32.5	8
Nitrate as N	2.3	2.5	8
Sulfate	60.6	64.0	5

JPL, 00HW019
Wet Chemistry - Data Qualification Summary - SDG 02-1442

SDG	Sample	Analyte	Flag	A or P	Reason
02-1442	MW-6 MW-15 MW-15D	Perchlorate Hexavalent chromium	None None	P	Initial calibration
02-1442	MW-15D	Perchlorate	J (all detects) UJ (all non-detects)	P	Calibration (%R)
02-1442	MW-6 MW-15 MW-15D	Chloride Nitrate as N Sulfate Perchlorate Total dissolved solids	None None None None None	P	Matrix spike/Matrix spike duplicates

JPL, 00HW019
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 02-1442

No Sample Data Qualified in this SDG

JPL, 00HW019
Wet Chemistry - Field Blank Data Qualification Summary - SDG 02-1442

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: January 24, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1336

Sample Identification

ER-10
MW-24-1
MW-24-2
MW-24-3
MW-24-4
MW-24-5
MW-24-5D
MW-24-4MS
MW-24-4MSD
MW-24-4DUP

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 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 (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. 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 advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

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 of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
ER-10 MW-24-1 MW-24-2 MW-24-3 MW-24-4 MW-24-5 MW-24-5D MW-24-4MS MW-24-4MSD	Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None	P

Analyte	Calibration	Date of Last Report	Report Frequency Requirement	Date of Analysis	Associated Samples	Flag	A or P
Hexavalent chromium	ICAL	5/15/01	Every 6 months	1/25/02	ER-10 MW-24-1 MW-24-2 MW-24-3 MW-24-4 MW-24-5 MW-24-5D MW-24-4MS MW-24-4MSD	None	P

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.

Sample ER-10 was identified as an equipment rinsate. No contaminant concentrations were

found in this blank.

IV. Accuracy and Precision Data

a. Matrix Spike/(Matrix Spike) Duplicates

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

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
MW-24-4MS/MSD (MW-24-1 MW-24-2 MW-24-3 MW-24-4 MW-24-5 MW-24-5D)	Nitrate as N	123 (77-121)	122 (77-121)	-	J (all detects)	A

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
MW-24-1 MW-24-2 MW-24-3 MW-24-4 MW-24-5 MW-24-5D	pH	No DUP analysis associated with these samples.	DUP analysis required.	None	P

Results were within QC limits.

b. 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. Sample Result Verification

All sample result verifications were within validation criteria.

VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

VII. Field Duplicates

Samples MW-24-5 and MW-24-5D were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/L)		RPD
	MW-24-5	MW-24-5D	
Alkalinity	170	172	1
pH (units)	8.14	8.12	2
Total dissolved solids	243	246	1
Chloride	13.9	10.7	26
Nitrate as N	1.8	1.4	25
Sulfate	26.6	21.3	22

JPL, 00HW019
Wet Chemistry - Data Qualification Summary - SDG 02-1336

SDG	Sample	Analyte	Flag	A or P	Reason
02-1336	ER-10 MW-24-1 MW-24-2 MW-24-3 MW-24-4 MW-24-5 MW-24-5D	Perchlorate Hexavalent chromium	None None	P	Initial calibration
02-1336	MW-24-1 MW-24-2 MW-24-3 MW-24-4 MW-24-5 MW-24-5D	Nitrate as N	J (all detects)	A	Matrix spike/Matrix spike duplicates (%R)
02-1336	MW-24-1 MW-24-2 MW-24-3 MW-24-4 MW-24-5 MW-24-5D	pH	None	P	Duplicate analysis

JPL, 00HW019
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 02-1336

No Sample Data Qualified in this SDG

JPL, 00HW019
Wet Chemistry - Field Blank Data Qualification Summary - SDG 02-1336

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: January 29, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1393

Sample Identification

MW-13
MW-16
MW-16D
MW-16MS
MW-16MSD

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 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 (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. 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 advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

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 of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
All samples in SDG 02-1393	Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None	P

Analyte	Calibration	Date of Last Report	Report Frequency Requirement	Date of Analysis	Associated Samples	Flag	A or P
Hexavalent chromium	ICAL	5/15/01	Every 6 months	1/30/02	All samples in SDG 02-1393	None	P

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.

No field blanks were identified in this SDG.

IV. Accuracy and Precision Data

a. 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.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
All samples in SDG 02-1393	pH	No DUP analysis associated with these samples.	DUP analysis required.	None	P

Results were within QC limits.

b. 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. Sample Result Verification

All sample result verifications were within validation criteria.

VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

VII. Field Duplicates

Samples MW-16 and MW-16D were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte (units)	Concentration		RPD
	MW-16	MW-16D	
Alkalinity (mg/L)	145	149	3
pH (units)	7.32	7.34	0.3
Total dissolved solids (mg/L)	310	311	0.3
Perchlorate (ug/L)	2070	2070	0
Chloride (mg/L)	36.2	34.9	0.4
Nitrate as N (mg/L)	5.8	5.7	2

Analyte (units)	Concentration		RPD
	MW-16	MW-16D	
Sulfate (mg/L)	34.3	32.6	5

JPL, 00HW019
Wet Chemistry - Data Qualification Summary - SDG 02-1393

SDG	Sample	Analyte	Flag	A or P	Reason
02-1393	MW-13 MW-16 MW-16D	Perchlorate Hexavalent chromium	None None	P	Initial calibration
02-1393	MW-13 MW-16 MW-16D	pH	None	P	Duplicate analysis

JPL, 00HW019
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 02-1393

No Sample Data Qualified in this SDG

JPL, 00HW019
Wet Chemistry - Field Blank Data Qualification Summary - SDG 02-1393

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: February 4, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1475

Sample Identification

MW-1
MW-9
MW-1MS
MW-1MSD
MW-1DUP
MW-9MS
MW-9MSD

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 (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. 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 advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

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 of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
MW-1 MW-9	Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None	P

b. Calibration Verification

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

Date	Lab. Reference/ID	Analyte	%R (Limits)	Associated Samples	Flag	A or P
2/11/02	CCV	Perchlorate	89 (90-110)	MW-1 MW-9	J (all detects) UJ (all non-detects)	P

III. Blanks

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

No field blanks were identified in this SDG.

IV. Accuracy and Precision Data

a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
All samples in SDG 02-1475	Total dissolved solids	No MS/MSD associated with these samples.	MS/MSD required.	None	P

Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
All samples in SDG 02-1475	Alkalinity	No DUP analysis associated with these samples.	DUP analysis required.	None	P

Results were within QC limits.

b. 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. Sample Result Verification

All sample result verifications were within validation criteria.

VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

VII. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019
Wet Chemistry - Data Qualification Summary - SDG 02-1475

SDG	Sample	Analyte	Flag	A or P	Reason
02-1475	MW-1 MW-9	Perchlorate	None	P	Initial calibration
02-1475	MW-1 MW-9	Perchlorate	J (all detects) UJ (all non-detects)	P	Calibration (%R)
02-1475	MW-1 MW-9	Total dissolved solids	None	P	Matrix spike/Matrix spike duplicates
02-1475	MW-1 MW-9	Alkalinity	None	P	Duplicate analysis

JPL, 00HW019
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 02-1475

No Sample Data Qualified in this SDG

JPL, 00HW019
Wet Chemistry - Field Blank Data Qualification Summary - SDG 02-1475

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: February 5, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1492

Sample Identification

ER-13
MW-4-1
MW-4-2
MW-4-3
MW-4-4
MW-4-5
MW-4-3D
MW-4-1MS
MW-4-1MSD
MW-4-1DUP

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 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 (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. 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 advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

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 of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
All samples in SDG 02-1492	Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None	P

b. Calibration Verification

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

Date	Lab. Reference/ID	Analyte	%R (Limits)	Associated Samples	Flag	A or P
2/11/02	CCV	Perchlorate	89 (90-110)	ER-13 MW-4-1	J (all detects) UJ (all non-detects)	P

III. Blanks

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

Sample ER-13 was identified as an equipment rinsate. No contaminant concentrations were found in this blank.

IV. Accuracy and Precision Data

a. 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.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
MW-4-1 MW-4-2 MW-4-3 MW-4-4 MW-4-5 MW-4-3D	pH	No DUP analysis associated with these samples.	DUP analysis required.	None	P

Results were within QC limits.

b. 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. Sample Result Verification

All sample result verifications were within validation criteria.

VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

VII. Field Duplicates

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

Analyte	Concentration (mg/L)		RPD
	MW-4-3	MW-4-3D	
Alkalinity	193	197	2
pH (units)	7.21	7.04	2
Total dissolved solids	245	257	5
Chloride	32.6	34.1	4
Nitrate as N	0.25	0.32	25

Analyte	Concentration (mg/L)		RPD
	MW-4-3	MW-4-3D	
Sulfate	2.3	3.2	33

JPL, 00HW019
Wet Chemistry - Data Qualification Summary - SDG 02-1492

SDG	Sample	Analyte	Flag	A or P	Reason
02-1492	ER-13 MW-4-1 MW-4-2 MW-4-3 MW-4-4 MW-4-5 MW-4-3D	Perchlorate	None	P	Initial calibration
02-1492	ER-13 MW-4-1	Perchlorate	J (all detects) UJ (all non-detects)	P	Calibration (%R)
02-1492	MW-4-1 MW-4-2 MW-4-3 MW-4-4 MW-4-5 MW-4-3D	pH	None	P	Duplicate analysis

JPL, 00HW019
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 02-1492

No Sample Data Qualified in this SDG

JPL, 00HW019
Wet Chemistry - Field Blank Data Qualification Summary - SDG 02-1492

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: February 6, 2002

LDC Report Date: March 4, 2002

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1514

Sample Identification

MW-8
MW-8MS
MW-8MSD
MW-8DUP

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 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 and EPA Method 314.0 for Perchlorate.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. 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 advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

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 of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
MW-8 MW-8MS MW-8MSD	Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None	P

b. Calibration Verification

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

Date	Lab. Reference/ID	Analyte	%R (Limits)	Associated Samples	Flag	A or P
2/11/02	CCV	Perchlorate	89 (90-110)	MW-8 MW-8MS MW-8MSD	J (all detects) UJ (all non-detects)	P

III. Blanks

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

No field blanks were identified in this SDG.

IV. Accuracy and Precision Data

a. 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.

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

b. 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. Sample Result Verification

All sample result verifications were within validation criteria.

VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

VII. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019
Wet Chemistry - Data Qualification Summary - SDG 02-1514

SDG	Sample	Analyte	Flag	A or P	Reason
02-1514	MW-8	Perchlorate	None	P	Initial calibration
02-1514	MW-8	Perchlorate	J (all detects) UJ (all non-detects)	P	Calibration (%R)

JPL, 00HW019
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 02-1514

No Sample Data Qualified in this SDG

JPL, 00HW019
Wet Chemistry - Field Blank Data Qualification Summary - SDG 02-1514

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: February 22, 2002

LDC Report Date: March 21, 2002

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 02-1727

Sample Identification

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

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 150.1 for pH, EPA Method 160.1 for Total Dissolved Solids, EPA Method 300.0 for Chloride, Sulfate and Nitrate as Nitrogen, 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 (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. 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 advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

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.

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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 of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
MW-7	Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None	P

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.

No field blanks were identified in this SDG.

IV. Accuracy and Precision Data

a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
All samples in SDG 02-1727	Chloride Nitrate as N Sulfate Perchlorate Total dissolved solids	No MS/MSD associated with these samples.	MS/MSD required.	None None None None None	P

Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
All samples in SDG 02-1727	Alkalinity	No DUP analysis associated with these samples.	DUP analysis required.	None	P

Results were within QC limits.

b. 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. Sample Result Verification

All sample result verifications were within validation criteria.

VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

VII. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019
Wet Chemistry - Data Qualification Summary - SDG 02-1727

SDG	Sample	Analyte	Flag	A or P	Reason
02-1727	MW-7	Perchlorate	None	P	Initial calibration
02-1727	MW-7	Chloride Nitrate as N Sulfate Perchlorate Total dissolved solids	None None None None None	P	Matrix spike/Matrix spike duplicates
02-1727	MW-7	Alkalinity	None	P	Duplicate analysis

JPL, 00HW019
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 02-1727

No Sample Data Qualified in this SDG

JPL, 00HW019
Wet Chemistry - Field Blank Data Qualification Summary - SDG 02-1727

No Sample Data Qualified in this SDG