LDC Report# 12082C4

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: May 13, 2004

LDC Report Date: June 16, 2004

Matrix: Water

Parameters: Metals

Validation Level: EPA Level III & IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 04-2918

Sample Identification

Dupe-5-2Q04**
EB-10-5/13/04
MW-11-1
MW-11-2
MW-11-3
MW-11-4
MW-11-5

**Indicates sample underwent EPA Level IV review

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.

CRDL standards for ICP and AA were analyzed and reported as required.

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 Potassium	174 ug/L 143 ug/L	All samples in SDG 04-2918
ICB/CCB	Calcium Chromium Iron Lead Magnesium Potassium Sodium	177.96 ug/L 0.263 ug/L 4.54 ug/L 0.020 ug/L 45.15 ug/L 138.94 ug/L 373.52 ug/L	All samples in SDG 04-2918

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
Dupe-5-2Q04**	Chromium Lead	0.65 ug/L 0.049 ug/L	0.65U ug/L 0.049U ug/L

Sample	Analyte	Reported Concentration	Modified Final Concentration
EB-10-5/13/04	Calcium Chromium Potassium Sodium	86.2 ug/L 0.37 ug/L 153 ug/L 588 ug/L	86.2U ug/L 0.37U ug/L 153U ug/L 588U ug/L
MW-11-1	Lead	0.027 ug/L	0.027U ug/L
MW-11-3	Chromium Lead	1.1 ug/L 0.055 ug/L	1.1U ug/L 0.055U ug/L
MW-11-5	Chromium Lead	0.73 ug/L 0.099 ug/L	0.73U ug/L 0.099U 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 Standards

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

IX. Furnace Atomic Absorption QC

All graphite furnace atomic absorption QC were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for samples reviewed by Level III 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 for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XII. Overall Assessment of Data

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

XIII. Field Duplicates

Samples Dupe-5-2Q04** and MW-11-3 were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	Dupe-5-2Q04**	MW-11-3	
Calcium	36700	39000	6
Chromium	0.65	1.1	51
Iron	454	1140	86
Lead	0.049	0.055	12
Magnesium	12500	13100	5
Potassium	1770	1930	9
Sodium	23500	24900	6

XIV. Field Blanks

Sample EB-10-5/13/04 was identified as an equipment blank. No metals were found in this blank with the following exceptions:

Equipment Blank ID	Analyte	Concentration (ug/L)
EB-10-5/13/04	Chromium	0.37
	Calcium	86.2
	Iron	23.0
	Potassium	153
	Sodium	588

NASA JPL
Metals - Data Qualification Summary - SDG 04-2918

No Sample Data Qualified in this SDG

NASA JPL
Metals - Laboratory Blank Data Qualification Summary - SDG 04-2918

SDG	Sample	Analyte	Modified Final Concentration	A or P
04-2918	Dupe-5-2Q04**	Chromium Lead	0.65U ug/L 0.049U ug/L	A
04-2918	EB-10-5/13/04	Calcium Chromium Potassium Sodium	86.2U ug/L 0.37U ug/L 153U ug/L 588U ug/L	A
04-2918	MW-11-1	Lead	0.027U ug/L	A
04-2918	MW-11-3	Chromium Lead	1.1U ug/L 0.055U ug/L	A
04-2918	MW-11-5	Chromium Lead	0.73U ug/L 0.099U ug/L	A

NASA JPL
Metals - Field Blank Data Qualification Summary - SDG 04-2918

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: May 17, 2004

LDC Report Date: June 17, 2004

Matrix: Water

Parameters: Metals

Validation Level: EPA Level III

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 04-2947

Sample Identification

EB-11-5/17/04
MW-23-1
MW-23-2
MW-23-3
MW-23-4
MW-23-5
EB-11-5/17/04MS
EB-11-5/17/04MSD
MW-23-5MS
MW-23-5MSD
MW-23-5DUP
EB-11-5/17/04DUP

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	29.9 ug/L 150 ug/L	All samples in SDG 04-2947
ICB/CCB	Arsenic Calcium Chromium Iron Lead Magnesium Potassium	2.00 ug/L 176.63 ug/L 0.263 ug/L 22.46 ug/L 0.020 ug/L 76.48 ug/L 165.50 ug/L	All samples in SDG 04-2947

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
EB-11-5/17/04	Chromium Iron Magnesium Potassium	0.21 ug/L 17.9 ug/L 13.7 ug/L 157 ug/L	0.21U ug/L 17.9U ug/L 13.7U ug/L 157U ug/L

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-23-1	Lead	0.024 ug/L	0.024U ug/L
MW-23-2	Arsenic Iron	2.5 ug/L 24.4 ug/L	2.5U ug/L 24.4U ug/L
MW-23-4	Arsenic	3.3 ug/L	3.3U ug/L
MW-23-5	Arsenic	4.0 ug/L	4.0U 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 Standards

ICP-MS was not reviewed 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

Raw data were not reviewed for this SDG.

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.

XIV. Field Blanks

Sample EB-11-5/17/04 was identified as an equipment blank. No metal contaminants were found in this blank with the following exceptions:

Equipment Blank ID	Analyte	Concentration (ug/L)
EB-11-5/17/04	Chromium	0.21
	Iron	17.9
	Magnesium	13.7
	Potassium	157
	Sodium	344

NASA JPL
Metals - Data Qualification Summary - SDG 04-2947

No Sample Data Qualified in this SDG

NASA JPL
Metals - Laboratory Blank Data Qualification Summary - SDG 04-2947

SDG	Sample	Analyte	Modified Final Concentration	A or P
04-2947	EB-11-5/17/04	Chromium Iron Magnesium Potassium	0.21U ug/L 17.9U ug/L 13.7U ug/L 157U ug/L	A
04-2947	MW-23-1	Lead	0.024U ug/L	A
04-2947	MW-23-2	Arsenic Iron	2.5U ug/L 24.4U ug/L	A
04-2947	MW-23-4	Arsenic	3.3U ug/L	A
04-2947	MW-23-5	Arsenic	4.0U ug/L	A

NASA JPL
Metals - Field Blank Data Qualification Summary - SDG 04-2947

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: May 18, 2004

LDC Report Date: June 17, 2004

Matrix: Water

Parameters: Metals

Validation Level: EPA Level III

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 04-2953

Sample Identification

EB-12-5/18/04
MW-24-1
MW-24-2
MW-24-3
MW-24-4
MW-24-5

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	29.9 ug/L 150 ug/L	All samples in SDG 04-2953
ICB/CCB	Arsenic Calcium Chromium Iron Magnesium Potassium	2.00 ug/L 176.63 ug/L 0.116 ug/L 46.64 ug/L 140.03 ug/L 165.50 ug/L	All samples in SDG 04-2953

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
EB-12-5/18/04	Chromium Potassium	0.45 ug/L 154 ug/L	0.45U ug/L 154U ug/L
MW-24-1	Arsenic	2.0 ug/L	2.0U ug/L

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-24-2	Arsenic	3.5 ug/L	3.5U ug/L
MW-24-3	Arsenic	4.3 ug/L	4.3U ug/L
MW-24-4	Arsenic Iron	2.2 ug/L 25.4 ug/L	2.2U ug/L 25.4U ug/L
MW-24-5	Arsenic Iron	3.8 ug/L 55.4 ug/L	3.8U ug/L 55.4U 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 Standards

ICP-MS was not reviewed 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

Raw data were not reviewed for this SDG.

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.

XIV. Field Blanks

Sample EB-12-5/18/04 was identified as an equipment blank. No metal contaminants were found in this blank with the following exceptions:

Equipment Blank ID	Analyte	Concentration (ug/L)
EB-12-5/18/04	Chromium	0.45
	Potassium	154
	Sodium	222

NASA JPL
Metals - Data Qualification Summary - SDG 04-2953

No Sample Data Qualified in this SDG

NASA JPL
Metals - Laboratory Blank Data Qualification Summary - SDG 04-2953

SDG	Sample	Analyte	Modified Final Concentration	A or P
04-2953	EB-12-5/18/04	Chromium Potassium	0.45U ug/L 154U ug/L	A
04-2953	MW-24-1	Arsenic	2.0U ug/L	A
04-2953	MW-24-2	Arsenic	3.5U ug/L	A
04-2953	MW-24-3	Arsenic	4.3U ug/L	A
04-2953	MW-24-4	Arsenic Iron	2.2U ug/L 25.4U ug/L	A
04-2953	MW-24-5	Arsenic Iron	3.8U ug/L 55.4U ug/L	A

NASA JPL
Metals - Field Blank Data Qualification Summary - SDG 04-2953

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: May 6, 2004

LDC Report Date: June 15, 2004

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level III & IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 04-2845

Sample Identification

Dupe-1-2Q04**
EB-6-5/6/04
MW-3-1
MW-3-2
MW-3-3
MW-3-4
MW-3-5
MW-14-1
MW-14-2
MW-14-3
MW-14-4
MW-14-5
Dupe-1-2Q04MS
Dupe-1-2Q04MSD
Dupe-1-2Q04DUP
MW-14-2MS
MW-14-2MSD

**Indicates sample underwent EPA Level IV review

I. Technical Holding Times

All technical holding time requirements were met.

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

II. Calibration

a. Initial Calibration

All criteria for the initial calibration were met.

b. Calibration Verification

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

III. Blanks

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

IV. Matrix Spike/Matrix Spike Duplicates

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

V. Duplicates

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

VI. Laboratory Control Samples

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

LCS ID (Associated Samples)	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Flag	A or P
LCS/LCSD (Dupe-1-2Q04** EB-6-5/6/04 MW-3-1 MW-3-2 MW-3-3 MW-3-4 MW-3-5 MW-14-1 MW-14-2)	Perchlorate	-	-	34 (≤20)	J (all detects) UJ (all non-detects)	P

VII. Sample Result Verification

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

VIII. Overall Assessment of Data

Data flags are summarized at the end of this report.

IX. Field Duplicates

Samples Dupe-1-2Q04** and MW-3-1 were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration		RPD
	Dupe-1-2Q04**	MW-3-1	
Bicarbonate	175 mg/L	170 mg/L	3
pH	7.52 units	7.46 units	1
Total dissolved solids	278 mg/L	320 mg/L	14
Chloride	17.4 mg/L	17.7 mg/L	2
Nitrate as N	1.1 mg/L	1.0 mg/L	10
Sulfate	39.8 mg/L	40.2 mg/L	1

X. Field Blanks

Sample EB-6-5/6/04 was identified as an equipment blank. No contaminant concentrations were found in this blank with the following exceptions:

Equipment Blank ID	Analyte	Concentration (mg/L)
EB-6-5/6/04	Chloride Nitrate as N	0.16 0.066

NASA JPL
Wet Chemistry - Data Qualification Summary - SDG 04-2845

SDG	Sample	Analyte	Flag	A or P	Reason
04-2845	Dupe-1-2Q04** EB-6-5/6/04 MW-3-1 MW-3-2 MW-3-3 MW-3-4 MW-3-5 MW-14-1 MW-14-2	Perchlorate	J (all detects) UJ (all non-detects)	P	Laboratory control samples (RPD)

NASA JPL
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 04-2845

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: May 10, 2004

LDC Report Date: June 16, 2004

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level III & IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 04-2865

Sample Identification

Dupe-2-2Q04**
EB-7-5/10/04
MW-22-1
MW-22-2
MW-22-3
MW-22-4
MW-22-5
Dupe-2-2Q04MS
Dupe-2-2Q04MSD
MW-22-1MS
MW-22-1MSD
MW-22-4DUP
MW-22-5DUP

**Indicates sample underwent EPA Level IV review

I. Technical Holding Times

All technical holding time requirements were met.

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

II. Calibration

a. Initial Calibration

All criteria for the initial calibration were met.

b. Calibration Verification

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

III. Blanks

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

IV. Matrix Spike/Matrix Spike Duplicates

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

V. Duplicates

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

VI. Laboratory Control Samples

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

VII. Sample Result Verification

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

VIII. Overall Assessment of Data

Data flags are summarized at the end of this report.

IX. Field Duplicates

Samples Dupe-2-2Q04** and MW-22-5 were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration		RPD
	Dupe-2-2Q04**	MW-22-5	
Bicarbonate	60.2 mg/L	59.0 mg/L	2
Carbonate	55.4 mg/L	57.8 mg/L	4
pH	9.08 units	8.90 units	2
Total dissolved solids	214 mg/L	203 mg/L	5
Hexavalent chromium	0.0040 mg/L	0.0040 mg/L	0
Chloride	8.7 mg/L	8.7 mg/L	0
Sulfate	37.7 mg/L	38.2 mg/L	1

X. Field Blanks

Sample EB-7-5/10/04 was identified as an equipment blank. No contaminant concentrations were found in this blank with the following exceptions:

Equipment Blank ID	Analyte	Concentration (mg/L)
EB-7-5/10/04	Hexavalent chromium Chloride Nitrate as N	0.0040 0.16 0.066

NASA JPL
Wet Chemistry - Data Qualification Summary - SDG 04-2865

No Sample Data Qualified in this SDG

NASA JPL
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 04-2865

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: May 13, 2004

LDC Report Date: June 16, 2004

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level III & IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 04-2918

Sample Identification

Dupe-5-2Q04**
EB-10-5/13/04
MW-11-1
MW-11-2
MW-11-3
MW-11-4
MW-11-5
Dupe-5-2Q04MS
Dupe-5-2Q04MSD
Dupe-5-2Q04DUP

**Indicates sample underwent EPA Level IV review

I. Technical Holding Times

All technical holding time requirements were met.

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

II. Calibration

a. Initial Calibration

All criteria for the initial calibration were met.

b. Calibration Verification

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

III. Blanks

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

IV. Matrix Spike/Matrix Spike Duplicates

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

V. Duplicates

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

VI. Laboratory Control Samples

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

VII. Sample Result Verification

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

VIII. Overall Assessment of Data

Data flags are summarized at the end of this report.

IX. Field Duplicates

Samples Dupe-5-2Q04** and MW-11-3 were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration		RPD
	Dupe-5-2Q04**	MW-11-3	
Bicarbonate	177 mg/L	179 mg/L	1
pH	7.82 units	7.85 units	0
Total dissolved solids	247 mg/L	241 mg/L	2
Hexavalent chromium	0.0050 mg/L	0.01U mg/L	200
Chloride	12.6 mg/L	12.2 mg/L	3
Nitrate as N	0.11 mg/L	0.12 mg/L	9
Sulfate	24.3 mg/L	23.6 mg/L	3

X. Field Blanks

Sample EB-10-5/13/04 was identified as an equipment blank. No contaminant concentrations were found in this blank with the following exceptions:

Equipment Blank ID	Analyte	Concentration (mg/L)
EB-10-5/13/04	Total dissolved solids Chloride Nitrate as N	6.0 0.065 0.049

NASA JPL
Wet Chemistry - Data Qualification Summary - SDG 04-2918

No Sample Data Qualified in this SDG

NASA JPL
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 04-2918

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: May 17, 2004

LDC Report Date: June 17, 2004

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level III

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 04-2947

Sample Identification

EB-11-5/17/04
MW-23-1
MW-23-2
MW-23-3
MW-23-4
MW-23-5
MW-23-1MS
MW-23-1MSD
MW-23-1DUP

I. Technical Holding Times

All technical holding time requirements were met.

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

II. Calibration

a. Initial Calibration

All criteria for the initial calibration were met.

b. Calibration Verification

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

III. Blanks

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

IV. Matrix Spike/Matrix Spike Duplicates

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

V. Duplicates

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

VI. Laboratory Control Samples

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

VII. Sample Result Verification

Raw data were not reviewed for this SDG.

VIII. Overall Assessment of Data

Data flags are summarized at the end of this report.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Field Blanks

Sample EB-11-5/17/04 was identified as an equipment blank. No contaminant concentrations were found in this blank with the following exceptions:

Equipment Blank ID	Analyte	Concentration (mg/L)
EB-11-5/17/04	Total dissolved solids Chloride Nitrate as N	5.0 0.11 0.057

NASA JPL
Wet Chemistry - Data Qualification Summary - SDG 04-2947

No Sample Data Qualified in this SDG

NASA JPL
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 04-2947

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: May 18, 2004

LDC Report Date: June 17, 2004

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level III

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 04-2953

Sample Identification

EB-12-5/18/04
MW-24-1
MW-24-2
MW-24-3
MW-24-4
MW-24-5
MW-24-1MS
MW-24-1MSD
MW-24-1DUP
MW-24-2MS
MW-24-2MSD
MW-24-3MS
MW-24-3MSD

I. Technical Holding Times

All technical holding time requirements were met.

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

II. Calibration

a. Initial Calibration

All criteria for the initial calibration were met.

b. Calibration Verification

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

III. Blanks

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

IV. Matrix Spike/Matrix Spike Duplicates

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

V. Duplicates

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

VI. Laboratory Control Samples

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

VII. Sample Result Verification

Raw data were not reviewed for this SDG.

VIII. Overall Assessment of Data

Data flags are summarized at the end of this report.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Field Blanks

Sample EB-12-5/18/04 was identified as an equipment blank. No contaminant concentrations were found in this blank with the following exceptions:

Equipment Blank ID	Analyte	Concentration (mg/L)
EB-12-5/18/04	Total dissolved solids Chloride Nitrate as N	7.0 0.44 0.053

NASA JPL
Wet Chemistry - Data Qualification Summary - SDG 04-2953

No Sample Data Qualified in this SDG

NASA JPL
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 04-2953

No Sample Data Qualified in this SDG

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

Geofon, Inc.
22632 Golden Springs Drive, Suite 270
Diamond Bar, CA 91765
ATTN: Mr. Scott Brehmer

July 9, 2004

SUBJECT: NASA JPL, DO #12, Data Validation

Dear Mr. Brehmer,

Enclosed are the final validation reports for the fraction listed below. These SDGs were received on June 28, 2004. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project # 12131:

SDG #	Fraction
04-2885, 04-2905, 04-2974, 04-2982, 04-3040, 04-3051, 04-3080	Volatiles, 1,4-Dioxane, Metals, Wet Chemistry

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

- USEPA, Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999
- USEPA, Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, February 1994
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996

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

Sincerely,

Erlinda T. Rauto
Operations Manager/Senior Chemist

V:\LOGIN\Geofon\JPL\12131COV.wpd

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: May 11, 2004

LDC Report Date: July 6, 2004

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level III & IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 04-2885

Sample Identification

DUPE-3-2Q04
EB-8-5/11/04
MW-4-1
MW-4-2**
MW-4-3
MW-4-4
MW-4-5
TB-8-5/11/04

**Indicates sample underwent EPA Level IV review

I. Technical Holding Times

All technical holding time requirements were met.

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

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

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

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

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

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

V. Blanks

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

VI. Surrogate Spikes

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

VII. Matrix Spike/Matrix Spike Duplicates

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

VIII. Laboratory Control Samples (LCS)

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

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

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

XI. Target Compound Identifications

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

XII. Compound Quantitation and CRQLs

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

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

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

XV. Overall Assessment of Data

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

XVI. Field Duplicates

Samples DUPE-3-2Q04 and MW-4-2** were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	DUPE-3-2Q04	MW-4-2**	
Chloroform	0.5	0.3	50
1,1-Dichloroethene	0.7	0.4	55
Tetrachloroethene	1.5	0.8	61
Trichloroethene	1.3	0.7	60

XVII. Field Blanks

Sample TB-8-5/11/04 was identified as a trip blank. No volatile contaminants were found in this blank.

Sample EB-8-5/11/04 was identified as an equipment blank. No volatile contaminants were found in this blank.

NASA JPL
Volatiles - Data Qualification Summary - SDG 04-2885

No Sample Data Qualified in this SDG

NASA JPL
Volatiles - Laboratory Blank Data Qualification Summary - SDG 04-2885

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: May 12, 2004

LDC Report Date: July 6, 2004

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level III & IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 04-2905

Sample Identification

Dupe-4-2Q04
EB-9-5/12/04
MW-12-1
MW-12-2
MW-12-3
MW-12-4**
MW-12-5
TB-9-5/12/04
MW-12-2MS
MW-12-2MSD

**Indicates sample underwent EPA Level IV review

I. Technical Holding Times

All technical holding time requirements were met.

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

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

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

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

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

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

V. Blanks

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

VI. Surrogate Spikes

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

VII. Matrix Spike/Matrix Spike Duplicates

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

VIII. Laboratory Control Samples (LCS)

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

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

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

XI. Target Compound Identifications

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

XII. Compound Quantitation and CRQLs

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

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

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

XV. Overall Assessment of Data

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

XVI. Field Duplicates

Samples Dupe-4-2Q04 and MW-12-4** were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	Dupe-4-2Q04	MW-12-4**	
Carbon tetrachloride	2.2	1.1	67
Chloroform	0.8	0.7	13
Trichloroethene	0.5	0.3	50

XVII. Field Blanks

Sample TB-9-5/12/04 was identified as a trip blank. No volatile contaminants were found in this blank.

Sample EB-9-5/12/04 was identified as an equipment blank. No volatile contaminants were found in this blank.

NASA JPL
Volatiles - Data Qualification Summary - SDG 04-2905

No Sample Data Qualified in this SDG

NASA JPL
Volatiles - Laboratory Blank Data Qualification Summary - SDG 04-2905

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: May 19, 2004

LDC Report Date: July 6, 2004

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level III

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 04-2974

Sample Identification

MW-1
MW-6
MW-9
MW-16
TB-13-5/19/04

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
5/2/04	Bromomethane	58.27	All samples in SDG 04-2974	J (all detects) UJ (all non-detects)	A

V. Blanks

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

VI. Surrogate Spikes

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

VII. Matrix Spike/Matrix Spike Duplicates

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

VIII. Laboratory Control Samples (LCS)

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

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

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

XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

XII. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

XIV. System Performance

Raw data were not reviewed for this SDG.

XV. Overall Assessment of Data

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

XVI. Field Duplicates

No field duplicates were identified in this SDG.

XVII. Field Blanks

Sample TB-13-5/19/04 was identified as a trip blank. No volatile contaminants were found in this blank.

NASA JPL
Volatiles - Data Qualification Summary - SDG 04-2974

SDG	Sample	Compound	Flag	A or P	Reason
04-2974	MW-1 MW-6 MW-9 MW-16 TB-13-5/19/04	Bromomethane	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)

NASA JPL
Volatiles - Laboratory Blank Data Qualification Summary - SDG 04-2974

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: May 20, 2004

LDC Report Date: July 6, 2004

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level III & IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 04-2982

Sample Identification

Dupe-6-2Q04
MW-5
MW-15**
TB-14-5/20/04
MW-5MS
MW-5MSD

**Indicates sample underwent EPA Level IV review

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
5/2/04	Bromomethane	58.27	Dupe-6-2Q04 MW-5 MW-15** TB-14-5/20/04 04G2351-MB-01	J (all detects) UJ (all non-detects)	A
5/24/04	Bromomethane Methylene chloride 2-Butanone	50.36 88.18 42.69	MW-5MS MW-5MSD	J (all detects) UJ (all non-detects)	A

V. Blanks

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

VI. Surrogate Spikes

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

VII. Matrix Spike/Matrix Spike Duplicates

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

VIII. Laboratory Control Samples (LCS)

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

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

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

XI. Target Compound Identifications

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

XII. Compound Quantitation and CRQLs

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

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

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

XV. Overall Assessment of Data

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

XVI. Field Duplicates

Samples Dupe-6-2Q04 and MW-15** were identified as field duplicates. No volatiles were detected in any of the samples.

XVII. Field Blanks

Sample TB-14-5/20/04 was identified as a trip blank. No volatile contaminants were found in this blank.

NASA JPL
Volatiles - Data Qualification Summary - SDG 04-2982

SDG	Sample	Compound	Flag	A or P	Reason
04-2982	Dupe-6-2Q04 MW-5 MW-15** TB-14-5/20/04	Bromomethane	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)

NASA JPL
Volatiles - Laboratory Blank Data Qualification Summary - SDG 04-2982

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: May 24, 2004

LDC Report Date: July 6, 2004

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level III & IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 04-3040

Sample Identification

MW-10**
TB-15-5/24/04

**Indicates sample underwent EPA Level IV review

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
6/2/04	Bromomethane	43.32	All samples in SDG 04-3040	J (all detects) UJ (all non-detects)	A
	2,2-Dichloropropane	30.75		J (all detects) UJ (all non-detects)	

V. Blanks

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

VI. Surrogate Spikes

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

VII. Matrix Spike/Matrix Spike Duplicates

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

VIII. Laboratory Control Samples (LCS)

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

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

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

XI. Target Compound Identifications

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

XII. Compound Quantitation and CRQLs

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

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

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

XV. Overall Assessment of Data

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

XVI. Field Duplicates

No field duplicates were identified in this SDG.

XVII. Field Blanks

Sample TB-15-5/24/04 was identified as a trip blank. No volatile contaminants were found in this blank.

NASA JPL
Volatiles - Data Qualification Summary - SDG 04-3040

SDG	Sample	Compound	Flag	A or P	Reason
04-3040	MW-10** TB-15-5/24/04	Bromomethane 2,2-Dichloropropane	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)

NASA JPL
Volatiles - Laboratory Blank Data Qualification Summary - SDG 04-3040

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: May 25, 2004

LDC Report Date: July 6, 2004

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level III

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 04-3051

Sample Identification

MW-13
TB-16-5/25/04

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
6/2/04	Bromomethane	43.32	All samples in SDG 04-3051	J (all detects) UJ (all non-detects)	A
	2,2-Dichloropropane	30.75		J (all detects) UJ (all non-detects)	

V. Blanks

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

VI. Surrogate Spikes

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

VII. Matrix Spike/Matrix Spike Duplicates

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

VIII. Laboratory Control Samples (LCS)

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

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

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

XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

XII. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

XIV. System Performance

Raw data were not reviewed for this SDG.

XV. Overall Assessment of Data

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

XVI. Field Duplicates

No field duplicates were identified in this SDG.

XVII. Field Blanks

No field blanks were identified in this SDG.

NASA JPL
Volatiles - Data Qualification Summary - SDG 04-3051

SDG	Sample	Compound	Flag	A or P	Reason
04-3051	MW-13 TB-16-5/25/04	Bromomethane 2,2-Dichloropropane	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)

NASA JPL
Volatiles - Laboratory Blank Data Qualification Summary - SDG 04-3051

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: May 26, 2004

LDC Report Date: July 6, 2004

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level III & IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 04-3080

Sample Identification

Dupe-7-2Q04
Dupe-7-2Q04DL
MW-7**
MW-7DL**
MW-8
TB-17-5/26/04
MW-8MS
MW-8MSD

**Indicates sample underwent EPA Level IV review

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
6/2/04	Bromomethane 2,2-Dichloropropane	43.32 30.75	Dupe-7-2Q04 MW-7** MW-8 TB-17-5/26/04 MW-8MS MW-8MSD 04G2449-MB-01	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A
6/8/04	Bromomethane	48.80	Dupe-7-2Q04DL MW-7DL** 04G2498-MB-01	J (all detects) UJ (all non-detects)	A

V. Blanks

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

VI. Surrogate Spikes

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

VII. Matrix Spike/Matrix Spike Duplicates

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

VIII. Laboratory Control Samples (LCS)

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

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

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

XI. Target Compound Identifications

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

XII. Compound Quantitation and CRQLs

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

Sample	Compound	Finding	Criteria	Flag	A or P
MW-7**	Carbon tetrachloride	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A

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

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

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

XV. Overall Assessment of Data

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

XVI. Field Duplicates

Samples Dupe-7-2Q04 and MW-7** and samples Dupe-7-2Q04DL and MW-7DL** were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	Dupe-7-2Q04	MW-7**	
Bromodichloromethane	0.4	0.4	0
Carbon tetrachloride	65.1	62.7	4
Chloroform	16.3	15.9	2
1,1-Dichloroethene	7.9	7.6	4
Tetrachloroethene	16.3	15.6	3
Toluene	0.8	0.8	0
Trichloroethene	7.1	6.8	4
1,1,2-Trichloro-1,2,2-Trifluoroethane	6.0	5.8	3

Compound	Concentration (ug/L)		RPD
	Dupe-7-2Q04DL	MW-7DL**	
Carbon tetrachloride	71.1	72	1
Chloroform	17	18	6
1,1-Dichloroethene	8.4	8.5	1

Compound	Concentration (ug/L)		RPD
	Dupe-7-2Q04DL	MW-7DL**	
Tetrachloroethene	17	17	0
Toluene	0.8	0.9	12
Trichloroethene	7.5	7.8	4
1,1,2-Trichloro-1,2,2-Trifluoroethane	6.3	6.3	0

XVII. Field Blanks

Sample TB-17-5/26/04 was identified as a trip blank. No volatile contaminants were found in this blank.

Sample EB-10-5/13/04 was identified as an equipment blank. No volatile contaminants were found in this blank.

NASA JPL
Volatiles - Data Qualification Summary - SDG 04-3080

SDG	Sample	Compound	Flag	A or P	Reason
04-3080	Dupe-7-2Q04 MW-7** MW-8 TB-17-5/26/04	Bromomethane 2,2-Dichloropropane	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
04-3080	Dupe-7-2Q04DL MW-7DL**	Bromomethane	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
04-3080	MW-7**	Carbon tetrachloride	J (all detects)	A	Compound quantitation and CRQLs

NASA JPL
Volatiles - Laboratory Blank Data Qualification Summary - SDG 04-3080

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: May 11, 2004

LDC Report Date: July 6, 2004

Matrix: Water

Parameters: 1,4-Dioxane

Validation Level: EPA Level III

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 04-2885

Sample Identification

MW-4-1

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 all compounds.

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 1,4-Dioxane contaminants were found in the method blanks.

VI. Surrogate Spikes

Surrogates were not required by the method.

VII. Matrix Spike/Matrix Spike Duplicates

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

VIII. Laboratory Control Samples (LCS)

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

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

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

XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

XII. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

XIV. System Performance

Raw data were not reviewed for this SDG.

XV. Overall Assessment of Data

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

XVI. Field Duplicates

No field duplicates were identified in this SDG.

XVII. Field Blanks

No field blanks were identified in this SDG.

NASA JPL
1,4-Dioxane - Data Qualification Summary - SDG 04-2885

No Sample Data Qualified in this SDG

NASA JPL
1,4-Dioxane - Laboratory Blank Data Qualification Summary - SDG 04-2885

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: May 19, 2004

LDC Report Date: July 6, 2004

Matrix: Water

Parameters: 1,4-Dioxane

Validation Level: EPA Level III

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 04-2974

Sample Identification

MW-16

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 all compounds.

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 1,4-Dioxane contaminants were found in the method blanks.

VI. Surrogate Spikes

Surrogates were not required by the method.

VII. Matrix Spike/Matrix Spike Duplicates

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

VIII. Laboratory Control Samples (LCS)

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

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

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

XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

XII. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

XIV. System Performance

Raw data were not reviewed for this SDG.

XV. Overall Assessment of Data

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

XVI. Field Duplicates

No field duplicates were identified in this SDG.

XVII. Field Blanks

No field blanks were identified in this SDG.

NASA JPL
1,4-Dioxane - Data Qualification Summary - SDG 04-2974

No Sample Data Qualified in this SDG

NASA JPL
1,4-Dioxane - Laboratory Blank Data Qualification Summary - SDG 04-2974

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: May 25, 2004

LDC Report Date: July 6, 2004

Matrix: Water

Parameters: 1,4-Dioxane

Validation Level: EPA Level III

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 04-3051

Sample Identification

MW-13

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 all compounds.

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 1,4-Dioxane contaminants were found in the method blanks.

VI. Surrogate Spikes

Surrogates were not required by the method.

VII. Matrix Spike/Matrix Spike Duplicates

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

VIII. Laboratory Control Samples (LCS)

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

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

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

XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

XII. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

XIV. System Performance

Raw data were not reviewed for this SDG.

XV. Overall Assessment of Data

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

XVI. Field Duplicates

No field duplicates were identified in this SDG.

XVII. Field Blanks

No field blanks were identified in this SDG.

NASA JPL
1,4-Dioxane - Data Qualification Summary - SDG 04-3051

No Sample Data Qualified in this SDG

NASA JPL
1,4-Dioxane - Laboratory Blank Data Qualification Summary - SDG 04-3051

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: May 11, 2004

LDC Report Date: July 6, 2004

Matrix: Water

Parameters: Metals

Validation Level: EPA Level III & IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 04-2885

Sample Identification

DUPE-3-2Q04
EB-8-5/11/04
MW-4-1
MW-4-2**
MW-4-3
MW-4-4
MW-4-5
DUPE-3-2Q04MS
DUPE-3-2Q04MSD
DUPE-3-2Q04DUP

**Indicates sample underwent EPA Level IV review

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:

Sample	Analyte	Finding	Criteria	Flag	A or P
All samples in SDG 04-2885	Arsenic	Initial calibration verification (ICV) was not performed for this analyte.	ICV must be performed for this analyte.	J (all detects) UJ (all non-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)	Lead Magnesium Potassium Sodium	0.013 ug/L 39.2 ug/L 106 ug/L 657 ug/L	All samples in SDG 04-2885
ICB/CCB	Arsenic Calcium Chromium Iron Lead Magnesium Potassium Sodium	3.00 ug/L 101.96 ug/L 0.480 ug/L 13.87 ug/L 0.045 ug/L 75.86 ug/L 122.97 ug/L 867.64 ug/L	All samples in SDG 04-2885

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
DUPE-3-2Q04 (1.25x)	Lead	0.082 ug/L	0.082U ug/L
EB-8-5/11/04	Calcium Chromium Iron Lead Magnesium Potassium Sodium	50.0 ug/L 0.27 ug/L 14.3 ug/L 0.033 ug/L 18.9 ug/L 152 ug/L 1180 ug/L	50.0U ug/L 0.27U ug/L 14.3U ug/L 0.033U ug/L 18.9U ug/L 152U ug/L 1180U ug/L
MW-4-1 (1.25x)	Chromium	0.60 ug/L	0.60U ug/L
MW-4-2** (1.25x)	Lead	0.27 ug/L	0.27U ug/L
MW-4-3 (1.25x)	Chromium	0.21 ug/L	0.21U ug/L
MW-4-4 (1.25x)	Chromium	1.1 ug/L	1.1U ug/L
MW-4-5 (1.25x)	Lead	0.23 ug/L	0.23U 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 with the following exceptions:

DUP ID (Associated Samples)	Analyte	RPD (Limits)	Difference (Limits)	Flag	A or P
MW-22-5DUP (All samples in SDG 04-2885)	Chromium	81.4 (≤20)	-	J (all detects) UJ (all non-detects)	A

VII. Laboratory Control Samples (LCS)

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

VIII. Internal Standards

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

IX. Furnace Atomic Absorption QC

All graphite furnace atomic absorption QC were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for samples reviewed by Level III 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
DUPE-3-2Q04L	Iron Potassium	17.3 15.5	All samples in SDG 04-2885	J (all detects) J (all detects)	A
MW-22-5L	Chromium Lead	14.6 97.9	All samples in SDG 04-2885	J (all detects) J (all detects)	A

XI. Sample Result Verification

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

XII. Overall Assessment of Data

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

XIII. Field Duplicates

Samples DUPE-3-2Q04 and MW-4-2** were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	DUPE-3-2Q04	MW-4-2**	
Calcium	115000	115000	0
Chromium	4.3	3.8	12
Iron	597	850	35
Lead	0.082	0.27	107
Magnesium	39600	39900	1
Potassium	3090	3110	1
Sodium	33100	33300	1

XIV. Field Blanks

Sample EB-8-5/11/04 was identified as an equipment blank. No metals were found in this blank with the following exceptions:

Equipment Blank ID	Analyte	Concentration (ug/L)
EB-8-5/11/04	Chromium	0.27
	Lead	0.033
	Calcium	50.0
	Iron	14.3
	Magnesium	18.9
	Potassium	152
	Sodium	1180

NASA JPL
Metals - Data Qualification Summary - SDG 04-2885

SDG	Sample	Analyte	Flag	A or P	Reason
04-2885	DUPE-3-2Q04 EB-8-5/11/04 MW-4-1 MW-4-2** MW-4-3 MW-4-4 MW-4-5	Arsenic	J (all detects) UJ (all non-detects)	P	Calibration
04-2885	DUPE-3-2Q04 EB-8-5/11/04 MW-4-1 MW-4-2** MW-4-3 MW-4-4 MW-4-5	Chromium	J (all detects) UJ (all non-detects)	A	Duplicate analysis (RPD)
04-2885	DUPE-3-2Q04 EB-8-5/11/04 MW-4-1 MW-4-2** MW-4-3 MW-4-4 MW-4-5	Iron Potassium Chromium Lead	J (all detects) J (all detects) J (all detects) J (all detects)	A	ICP serial dilution (%D)

NASA JPL
Metals - Laboratory Blank Data Qualification Summary - SDG 04-2885

SDG	Sample	Analyte	Modified Final Concentration	A or P
04-2885	DUPE-3-2Q04 (1.25x)	Lead	0.082U ug/L	A
04-2885	EB-8-5/11/04	Calcium Chromium Iron Lead Magnesium Potassium Sodium	50.0U ug/L 0.27U ug/L 14.3U ug/L 0.033U ug/L 18.9U ug/L 152U ug/L 1180U ug/L	A
04-2885	MW-4-1 (1.25x)	Chromium	0.60U ug/L	A
04-2885	MW-4-2** (1.25x)	Lead	0.27U ug/L	A
04-2885	MW-4-3 (1.25x)	Chromium	0.21U ug/L	A
04-2885	MW-4-4 (1.25x)	Chromium	1.1U ug/L	A

SDG	Sample	Analyte	Modified Final Concentration	A or P
04-2885	MW-4-5 (1.25x)	Lead	0.23U ug/L	A

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: May 12, 2004

LDC Report Date: July 6, 2004

Matrix: Water

Parameters: Metals

Validation Level: EPA Level III & IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 04-2905

Sample Identification

Dupe-4-2Q04
EB-9-5/12/04
MW-12-1
MW-12-2
MW-12-3
MW-12-4**
MW-12-5
Dupe-4-2Q04MS
Dupe-4-2Q04MSD
MW-12-3MS
MW-12-3MSD
Dupe-4-2Q04DUP
MW-12-3DUP

**Indicates sample underwent EPA Level IV review

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 Potassium	174 ug/L 143 ug/L	All samples in SDG 04-2905
ICB/CCB	Calcium Chromium Lead Magnesium Potassium Sodium	177.96 ug/L 0.231 ug/L 0.013 ug/L 23.11 ug/L 138.94 ug/L 338.16 ug/L	All samples in SDG 04-2905

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
EB-9-5/12/04	Calcium Chromium Potassium Sodium	49.4 ug/L 0.36 ug/L 155 ug/L 645 ug/L	49.4U ug/L 0.36U ug/L 155U ug/L 645U ug/L

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-12-1 (1.25x)	Lead	0.043 ug/L	0.043U ug/L
MW-12-3	Lead	0.014 ug/L	0.014U ug/L
MW-12-5 (1.25x)	Lead	0.048 ug/L	0.048U 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 Standards

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

IX. Furnace Atomic Absorption QC

All graphite furnace atomic absorption QC were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for samples reviewed by Level III 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 for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XII. Overall Assessment of Data

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

XIII. Field Duplicates

Samples Dupe-4-2Q04 and MW-12-4** were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	Dupe-4-2Q04	MW-12-4**	
Calcium	53200	53800	1
Chromium	8.2	9.0	9
Iron	78.7	100	24
Magnesium	13600	13700	1
Potassium	1960	1920	2
Sodium	21200	21700	2

XIV. Field Blanks

Sample EB-9-5/12/04 was identified as an equipment blank. No metals were found in this blank with the following exceptions:

Equipment Blank ID	Analyte	Concentration (ug/L)
EB-9-5/12/04	Chromium	0.36
	Calcium	49.4
	Iron	26.5
	Potassium	155
	Sodium	645

NASA JPL
Metals - Data Qualification Summary - SDG 04-2905

No Sample Data Qualified in this SDG

NASA JPL
Metals - Laboratory Blank Data Qualification Summary - SDG 04-2905

SDG	Sample	Analyte	Modified Final Concentration	A or P
04-2905	EB-9-5/12/04	Calcium Chromium Potassium Sodium	49.4U ug/L 0.36U ug/L 155U ug/L 645U ug/L	A
04-2905	MW-12-1 (1.25x)	Lead	0.043U ug/L	A
04-2905	MW-12-3	Lead	0.014U ug/L	A
04-2905	MW-12-5 (1.25x)	Lead	0.048U ug/L	A

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: May 19, 2004

LDC Report Date: July 6, 2004

Matrix: Water

Parameters: Metals

Validation Level: EPA Level III

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 04-2974

Sample Identification

MW-1
MW-6
MW-9
MW-16

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 Sodium	53.4 ug/L 144 ug/L 603 ug/L	All samples in SDG 04-2974
ICB/CCB	Arsenic Chromium Iron Magnesium Potassium Sodium	1.60 ug/L 0.116 ug/L 11.96 ug/L 78.05 ug/L 152.83 ug/L 618.68 ug/L	All samples in SDG 04-2974

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	2.3 ug/L	2.3U ug/L
MW-6	Arsenic	2.0 ug/L	2.0U ug/L

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-16	Arsenic	1.7 ug/L	1.7U 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 Standards

ICP-MS was not reviewed 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

Raw data were not reviewed for this SDG.

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.

XIV. Field Blanks

No field blanks were identified in this SDG.

NASA JPL
Metals - Data Qualification Summary - SDG 04-2974

No Sample Data Qualified in this SDG

NASA JPL
Metals - Laboratory Blank Data Qualification Summary - SDG 04-2974

SDG	Sample	Analyte	Modified Final Concentration	A or P
04-2974	MW-1	Arsenic	2.3U ug/L	A
04-2974	MW-6	Arsenic	2.0U ug/L	A
04-2974	MW-16	Arsenic	1.7U ug/L	A

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: May 20, 2004

LDC Report Date: July 6, 2004

Matrix: Water

Parameters: Metals

Validation Level: EPA Level III & IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 04-2982

Sample Identification

Dupe-6-2Q04
MW-5
MW-15**
MW-5MS
MW-5MSD
MW-5DUP
MW-5DUPRE

**Indicates sample underwent EPA Level IV review

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 Sodium	53.4 ug/L 144 ug/L 603 ug/L	All samples in SDG 04-2982
ICB/CCB	Arsenic Chromium Iron Magnesium Potassium Sodium	1.60 ug/L 0.116 ug/L 11.96 ug/L 78.05 ug/L 152.83 ug/L 618.68 ug/L	All samples in SDG 04-2982

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-15**	Arsenic	3.2 ug/L	3.2U 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. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VI. Duplicate Sample Analysis

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

VII. Laboratory Control Samples (LCS)

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

VIII. Internal Standards

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

IX. Furnace Atomic Absorption QC

All graphite furnace atomic absorption QC were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for samples reviewed by Level III 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 for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XII. Overall Assessment of Data

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

XIII. Field Duplicates

Samples Dupe-6-2Q04 and MW-15** were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	Dupe-6-2Q04	MW-15**	
Arsenic	5U	3.2	200
Calcium	52800	53200	1
Chromium	11.6	12.1	4
Iron	358	345	4
Lead	0.049	0.036	31
Magnesium	17700	18300	3
Potassium	2820	2900	3
Sodium	25600	26000	2

XIV. Field Blanks

No field blanks were identified in this SDG.

NASA JPL
Metals - Data Qualification Summary - SDG 04-2982

No Sample Data Qualified in this SDG

NASA JPL
Metals - Laboratory Blank Data Qualification Summary - SDG 04-2982

SDG	Sample	Analyte	Modified Final Concentration	A or P
04-2982	MW-15**	Arsenic	3.2U ug/L	A

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: May 24, 2004

LDC Report Date: July 6, 2004

Matrix: Water

Parameters: Metals

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 04-3040

Sample Identification

MW-10

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	109 ug/L	All samples in SDG 04-3040
ICB/CCB	Arsenic Calcium Chromium Iron Lead Magnesium Potassium Sodium	1.60 ug/L 293.03 ug/L 0.194 ug/L 37.35 ug/L 0.015 ug/L 144.54 ug/L 104.77 ug/L 255.25 ug/L	All samples in SDG 04-3040

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	Iron Lead	153 ug/L 0.0090 ug/L	153U ug/L 0.0090U 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 Standards

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

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.

XIV. Field Blanks

No field blanks were identified in this SDG.

NASA JPL
Metals - Data Qualification Summary - SDG 04-3040

No Sample Data Qualified in this SDG

NASA JPL
Metals - Laboratory Blank Data Qualification Summary - SDG 04-3040

SDG	Sample	Analyte	Modified Final Concentration	A or P
04-3040	MW-10	Iron Lead	153U ug/L 0.0090U ug/L	A

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: May 25, 2004

LDC Report Date: July 6, 2004

Matrix: Water

Parameters: Metals

Validation Level: EPA Level III

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 04-3051

Sample Identification

MW-13

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
6/1/04	CCV 1211	Arsenic	111.6 (90-110)	All samples in SDG 04-3051	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	109 ug/L	All samples in SDG 04-3051
ICB/CCB	Calcium Chromium Iron Lead Magnesium Potassium Sodium	293.03 ug/L 0.194 ug/L 37.35 ug/L 0.015 ug/L 144.54 ug/L 104.77 ug/L 255.25 ug/L	All samples in SDG 04-3051

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.

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 Standards

ICP-MS was not reviewed 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

Raw data were not reviewed for this SDG.

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.

XIV. Field Blanks

No field blanks were identified in this SDG.

NASA JPL
Metals - Data Qualification Summary - SDG 04-3051

SDG	Sample	Analyte	Flag	A or P	Reason
04-3051	MW-13	Arsenic	J (all detects)	P	Calibration (%R)

NASA JPL
Metals - Laboratory Blank Data Qualification Summary - SDG 04-3051

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: May 26, 2004

LDC Report Date: July 7, 2004

Matrix: Water

Parameters: Metals

Validation Level: EPA Level III & IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 04-3080

Sample Identification

Dupe-7-2Q04
MW-7**
MW-8
MW-8MS
MW-8MSD
MW-8DUP

**Indicates sample underwent EPA Level IV review

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
6/1/04	CCV 1211	Arsenic	111.6 (90-110)	MW-7**	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	109 ug/L	All samples in SDG 04-3080
ICB/CCB	Calcium Chromium Iron Lead Magnesium Potassium Sodium	293.03 ug/L 0.194 ug/L 37.35 ug/L 0.015 ug/L 144.54 ug/L 104.77 ug/L 255.25 ug/L	All samples in SDG 04-3080

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-8	Iron Lead	40.5 ug/L 0.024 ug/L	40.5U ug/L 0.024U 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 Standards

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

IX. Furnace Atomic Absorption QC

All graphite furnace atomic absorption QC were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for samples reviewed by Level III 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 for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XII. Overall Assessment of Data

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

XIII. Field Duplicates

Samples Dupe-7-2Q04 and MW-7** were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	Dupe-7-2Q04	MW-7**	
Calcium	59400	62600	5
Chromium	11.7	11.2	4
Iron	1690	1470	14
Lead	0.51	0.46	10
Magnesium	20200	21200	5
Potassium	2670	2820	5
Sodium	21800	22900	5

XIV. Field Blanks

No field blanks were identified in this SDG.

NASA JPL
Metals - Data Qualification Summary - SDG 04-3080

SDG	Sample	Analyte	Flag	A or P	Reason
04-3080	MW-7**	Arsenic	J (all detects)	P	Calibration (%R)

NASA JPL
Metals - Laboratory Blank Data Qualification Summary - SDG 04-3080

SDG	Sample	Analyte	Modified Final Concentration	A or P
04-3080	MW-8	Iron Lead	40.5U ug/L 0.024U ug/L	A

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: May 11, 2004

LDC Report Date: July 6, 2004

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level III & IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 04-2885

Sample Identification

DUPE-3-2Q04
EB-8-5/11/04
MW-4-1
MW-4-2**
MW-4-3
MW-4-4
MW-4-5
DUPE-3-2Q04MS
DUPE-3-2Q04MSD
DUPE-3-2Q04DUP

**Indicates sample underwent EPA Level IV review

I. Technical Holding Times

All technical holding time requirements were met.

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

II. Calibration

a. Initial Calibration

All criteria for the initial calibration were met.

b. Calibration Verification

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

III. Blanks

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

IV. Matrix Spike/Matrix Spike Duplicates

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

V. Duplicates

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

VI. Laboratory Control Samples

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

VII. Sample Result Verification

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

VIII. Overall Assessment of Data

Data flags are summarized at the end of this report.

IX. Field Duplicates

Samples DUPE-3-2Q04 and MW-4-2** were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration		RPD
	DUPE-3-2Q04	MW-4-2**	
Bicarbonate	230 mg/L	228 mg/L	1
pH	7.20 units	7.07 units	2
Total dissolved solids	624 mg/L	556 mg/L	12
Hexavalent chromium	0.0060 mg/L	0.0040 mg/L	40
Chloride	97.1 mg/L	97.3 mg/L	0
Nitrate as N	9.1 mg/L	9.2 mg/L	1
Sulfate	119 mg/L	118 mg/L	1

X. Field Blanks

Sample EB-8-5/11/04 was identified as an equipment blank. No contaminant concentrations were found in this blank with the following exceptions:

Equipment Blank ID	Analyte	Concentration (mg/L)
EB-8-5/11/04	Chloride Nitrate as N	0.069 9.2

NASA JPL
Wet Chemistry - Data Qualification Summary - SDG 04-2885

No Sample Data Qualified in this SDG

NASA JPL
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 04-2885

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: May 12, 2004

LDC Report Date: July 6, 2004

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level III & IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 04-2905

Sample Identification

DUPE-3-2Q04
EB-8-5/11/04
MW-4-1
MW-4-2**
MW-4-3
MW-4-4
MW-4-5
DUPE-3-2Q04MS
DUPE-3-2Q04MSD
DUPE-3-2Q04DUP

**Indicates sample underwent EPA Level IV review

I. Technical Holding Times

All technical holding time requirements were met.

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

II. Calibration

a. Initial Calibration

All criteria for the initial calibration were met.

b. Calibration Verification

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

III. Blanks

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

IV. Matrix Spike/Matrix Spike Duplicates

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

V. Duplicates

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

VI. Laboratory Control Samples

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

VII. Sample Result Verification

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

VIII. Overall Assessment of Data

Data flags are summarized at the end of this report.

IX. Field Duplicates

Samples DUPE-3-2Q04 and MW-4-4 were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration		RPD
	DUPE-3-2Q04	MW-4-4	
Bicarbonate alkalinity	202 mg/L	196 mg/L	3
pH	7.66 units	7.65 units	0
Total dissolved solids	295 mg/L	299 mg/L	1
Hexavalent chromium	0.0040 ug/L	0.01U mg/L	200
Perchlorate	4.5 ug/L	4.4 mg/L	2
Chloride	15.2 mg/L	15.8 mg/L	4
Nitrate as N	1.1 mg/L	1.1 mg/L	0
Sulfate	30.6 mg/L	31.5 mg/L	3

X. Field Blanks

Sample EB-8-5/11/04 was identified as an equipment blank. No contaminant concentrations were found in this blank with the following exceptions:

Equipment Blank ID	Analyte	Concentration (mg/L)
EB-8-5/11/04	Chloride Nitrate as N	0.064 0.051

NASA JPL
Wet Chemistry - Data Qualification Summary - SDG 04-2905

No Sample Data Qualified in this SDG

NASA JPL
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 04-2905

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: May 19, 2004

LDC Report Date: July 6, 2004

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level III

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 04-2974

Sample Identification

MW-1
MW-6
MW-9
MW-16
MW-1MS
MW-1MSD
MW-16DUP

I. Technical Holding Times

All technical holding time requirements were met.

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

II. Calibration

a. Initial Calibration

All criteria for the initial calibration were met.

b. Calibration Verification

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

III. Blanks

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

IV. Matrix Spike/Matrix Spike Duplicates

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

V. Duplicates

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

VI. Laboratory Control Samples

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

VII. Sample Result Verification

Raw data were not reviewed for this SDG.

VIII. Overall Assessment of Data

Data flags are summarized at the end of this report.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Field Blanks

No field blanks were identified in this SDG.

NASA JPL
Wet Chemistry - Data Qualification Summary - SDG 04-2974

No Sample Data Qualified in this SDG

NASA JPL
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 04-2974

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: May 20, 2004

LDC Report Date: July 6, 2004

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level III & IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 04-2982

Sample Identification

Dupe-6-2Q04
MW-5
MW-15**
Dupe-6-2Q04DUP
MW-5MS
MW-5MSD

**Indicates sample underwent EPA Level IV review

I. Technical Holding Times

All technical holding time requirements were met.

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

II. Calibration

a. Initial Calibration

All criteria for the initial calibration were met.

b. Calibration Verification

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

III. Blanks

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

IV. Matrix Spike/Matrix Spike Duplicates

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

V. Duplicates

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

VI. Laboratory Control Samples

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

VII. Sample Result Verification

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

VIII. Overall Assessment of Data

Data flags are summarized at the end of this report.

IX. Field Duplicates

Samples Dupe-6-2Q04 and MW-15** were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration		RPD
	Dupe-6-2Q04	MW-15**	
Bicarbonate alkalinity	183 mg/L	187 mg/L	2
pH	7.37 units	7.39 units	0
Total dissolved solids	332 mg/L	314 mg/L	6
Chloride	24.1 mg/L	24.3 mg/L	1
Nitrate as N	1.3 mg/L	1.3 mg/L	0
Sulfate	44.8 mg/L	45.4 mg/L	1

X. Field Blanks

No field blanks were identified in this SDG.

NASA JPL
Wet Chemistry - Data Qualification Summary - SDG 04-2982

No Sample Data Qualified in this SDG

NASA JPL
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 04-2982

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: May 24, 2004

LDC Report Date: July 6, 2004

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 04-3040

Sample Identification

MW-10
MW-10MS
MW-10MSD
MW-10DUP

I. Technical Holding Times

All technical holding time requirements were met.

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

II. Calibration

a. Initial Calibration

All criteria for the initial calibration were met.

b. Calibration Verification

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

III. Blanks

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

IV. Matrix Spike/Matrix Spike Duplicates

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

V. Duplicates

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

VI. Laboratory Control Samples

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

VII. Sample Result Verification

All sample result verifications met validation criteria.

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.

X. Field Blanks

No field blanks were identified in this SDG.

NASA JPL
Wet Chemistry - Data Qualification Summary - SDG 04-3040

No Sample Data Qualified in this SDG

NASA JPL
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 04-3040

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: May 25, 2004

LDC Report Date: July 6, 2004

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level III

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 04-3051

Sample Identification

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

I. Technical Holding Times

All technical holding time requirements were met.

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

II. Calibration

a. Initial Calibration

All criteria for the initial calibration were met.

b. Calibration Verification

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

III. Blanks

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

IV. Matrix Spike/Matrix Spike Duplicates

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

V. Duplicates

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

VI. Laboratory Control Samples

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

VII. Sample Result Verification

Raw data were not reviewed for this SDG.

VIII. Overall Assessment of Data

Data flags are summarized at the end of this report.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Field Blanks

No field blanks were identified in this SDG.

NASA JPL
Wet Chemistry - Data Qualification Summary - SDG 04-3051

No Sample Data Qualified in this SDG

NASA JPL
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 04-3051

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: May 26, 2004

LDC Report Date: July 6, 2004

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level III & IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 04-3080

Sample Identification

Dupe-7-2Q04
MW-7**
MW-8
Dupe-7-2Q04DUP
MW-8MS
MW-8MSD

**Indicates sample underwent EPA Level IV review

I. Technical Holding Times

All technical holding time requirements were met.

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

II. Calibration

a. Initial Calibration

All criteria for the initial calibration were met.

b. Calibration Verification

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

III. Blanks

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

IV. Matrix Spike/Matrix Spike Duplicates

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

V. Duplicates

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

VI. Laboratory Control Samples

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

VII. Sample Result Verification

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

VIII. Overall Assessment of Data

Data flags are summarized at the end of this report.

IX. Field Duplicates

Samples Dupe-7-2Q04 and MW-7** were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration		RPD
	Dupe-7-2Q04	MW-7**	
Bicarbonate alkalinity	190 mg/L	185 mg/L	3
pH	7.78 units	7.86 units	1
Total dissolved solids	333 mg/L	348 mg/L	4
Perchlorate	4430 ug/L	4680 ug/L	5
Chloride	35.4 mg/L	37.3 mg/L	5
Nitrate as N	5.8 mg/L	6.0 mg/L	3
Sulfate	41.8 mg/L	42.9 mg/L	3

X. Field Blanks

No field blanks were identified in this SDG.

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

Geofon, Inc.
22632 Golden Springs Drive, Suite 270
Diamond Bar, CA 91765
ATTN: Mr. Scott Brehmer

July 7, 2004

SUBJECT: NASA JPL, DO #12, Data Validation

Dear Mr. Brehmer,

Enclosed are the final validation reports for the fraction listed below. These SDGs were received on June 28, 2004. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project # 12137:

SDG #	Fraction
04-2901, 04-2957, 04-2973, 04-3052	N-Nitrosodimethylamine

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

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

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

Sincerely,

Erlinda T. Rauto
Operations Manager/Senior Chemist

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LDC Report# 12137A2

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: May 11, 2004

LDC Report Date: July 6, 2004

Matrix: Water

Parameters: N-Nitrosodimethylamine

Validation Level: EPA Level III

Laboratory: Applied P & Ch Laboratory & Maxxam Analytics, Inc.

Sample Delivery Group (SDG): 04-2901/A421782

Sample Identification

MW-4-1
MW-17-4

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 25.0% for all compounds.

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% .

V. Blanks

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

VI. Surrogate Spikes

Surrogates were not required by the method.

VII. Matrix Spike/Matrix Spike Duplicates

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

VIII. Laboratory Control Samples (LCS)

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

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

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

XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

XII. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

XIV. System Performance

Raw data were not reviewed for this SDG.

XV. Overall Assessment of Data

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

XVI. Field Duplicates

No field duplicates were identified in this SDG.

XVII. Field Blanks

No field blanks were identified in this SDG.

NASA JPL
N-Nitrosodimethylamine - Data Qualification Summary - SDG 04-2901/A421782

No Sample Data Qualified in this SDG

NASA JPL
N-Nitrosodimethylamine - Laboratory Blank Data Qualification Summary - SDG 04-2901/A421782

No Sample Data Qualified in this SDG

LDC Report# 12137B2

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: May 18, 2004

LDC Report Date: July 6, 2004

Matrix: Water

Parameters: N-Nitrosodimethylamine

Validation Level: EPA Level III

Laboratory: Applied P & Ch Laboratory & Maxxam Analytics, Inc.

Sample Delivery Group (SDG): 04-2957/A423068

Sample Identification

MW-24-1

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 25.0% for all compounds.

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% .

V. Blanks

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

VI. Surrogate Spikes

Surrogates were not required by the method.

VII. Matrix Spike/Matrix Spike Duplicates

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

VIII. Laboratory Control Samples (LCS)

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

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

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

XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

XII. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

XIV. System Performance

Raw data were not reviewed for this SDG.

XV. Overall Assessment of Data

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

XVI. Field Duplicates

No field duplicates were identified in this SDG.

XVII. Field Blanks

No field blanks were identified in this SDG.

NASA JPL
N-Nitrosodimethylamine - Data Qualification Summary - SDG 04-2957/A423068

No Sample Data Qualified in this SDG

NASA JPL
N-Nitrosodimethylamine - Laboratory Blank Data Qualification Summary - SDG 04-2957/A423068

No Sample Data Qualified in this SDG

LDC Report# 12137C2

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	NASA JPL
Collection Date:	May 19, 2004
LDC Report Date:	July 6, 2004
Matrix:	Water
Parameters:	N-Nitrosodimethylamine
Validation Level:	EPA Level III
Laboratory:	Applied P & Ch Laboratory & Maxxam Analytics, Inc.
Sample Delivery Group (SDG):	04-2973/A423062

Sample Identification

MW-16

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 25.0% for all compounds.

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% .

V. Blanks

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

VI. Surrogate Spikes

Surrogates were not required by the method.

VII. Matrix Spike/Matrix Spike Duplicates

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

VIII. Laboratory Control Samples (LCS)

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

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

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

XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

XII. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

XIV. System Performance

Raw data were not reviewed for this SDG.

XV. Overall Assessment of Data

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

XVI. Field Duplicates

No field duplicates were identified in this SDG.

XVII. Field Blanks

No field blanks were identified in this SDG.

NASA JPL
N-Nitrosodimethylamine - Data Qualification Summary - SDG 04-2973/A423062

No Sample Data Qualified in this SDG

NASA JPL
N-Nitrosodimethylamine - Laboratory Blank Data Qualification Summary - SDG 04-2973/A423062

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL

Collection Date: May 25, 2004

LDC Report Date: July 6, 2004

Matrix: Water

Parameters: N-Nitrosodimethylamine

Validation Level: EPA Level III

Laboratory: Applied P & Ch Laboratory & Maxxam Analytics, Inc.

Sample Delivery Group (SDG): 04-3052/A424122

Sample Identification

MW-13

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 25.0% for all compounds.

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% .

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	Extraction Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
598965MB	5/31/04	N-Nitrosodimethylamine	0.000412 ug/L	All samples in SDG 04-3052/A424122

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

VI. Surrogate Spikes

Surrogates were not required by the method.

VII. Matrix Spike/Matrix Spike Duplicates

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

VIII. Laboratory Control Samples (LCS)

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

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

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

XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

XII. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

XIV. System Performance

Raw data were not reviewed for this SDG.

XV. Overall Assessment of Data

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

XVI. Field Duplicates

No field duplicates were identified in this SDG.

XVII. Field Blanks

No field blanks were identified in this SDG.

NASA JPL
N-Nitrosodimethylamine - Data Qualification Summary - SDG 04-3052/A424122

No Sample Data Qualified in this SDG

NASA JPL
N-Nitrosodimethylamine - Laboratory Blank Data Qualification Summary - SDG 04-3052/A424122

No Sample Data Qualified in this SDG