

Advanced Technology Laboratories

Print Date: 11/14/01

CLIENT: Applied P & Ch Laboratories Client Sample ID ER-3
Lab Order: 053830
Project: JPL Collection Date: 10/15/01 11:40:00 AM
Lab ID: 053830-012A Matrix: Water

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
----------	--------	-------	------	-------	----	---------------

ICP-MS METALS		EPA 200.8				
RunID: ICP4_011112A	BatchID: 6449			PrepDate: 11/12/01		Analyst: NS
Chromium	ND	1.0		µg/L	1.0	11/12/01

Qualifiers ND - Not Detected at the Reporting Limit S - Spike/Surrogate outside of limits due to matrix interference.
 J - Analyte detected below quantitation limits H - Samples exceeding analytical holding time
 B - Analyte detected in the associated Method Blank E - Value above quantitation range Initials: RA
 DO - Surrogate Diluted Out M - Not Monitored. Highly Reactive 12



Advanced Technology
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3275 Walnut Avenue Signal Hill, CA 90807 Tel: 562 989-4045 Fax: 562 989-0240

Advanced Technology Laboratories

Print Date: 11/14/01

CLIENT: Applied P & Ch Laboratories Client Sample ID MW-20-5
Lab Order: 053830
Project: JPL Collection Date: 10/17/01 10:58:00 AM
Lab ID: 053830-013A Matrix: Water

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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ICP-MS METALS		EPA 200.8				
RunID: ICP4_011112A	BatchID: 6449			PrepDate: 11/12/01	Analyst: NS	
Chromium	3.4	1.0		µg/L	1.0	11/12/01

Qualifiers ND - Not Detected at the Reporting Limit S - Spike/Surrogate outside of limits due to matrix interference.
J - Analyte detected below quantitation limits H - Samples exceeding analytical holding time
B - Analyte detected in the associated Method Blank E - Value above quantitation range Initials: RA
DO - Surrogate Diluted Out M - Not Monitored. Highly Reactive 13



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025

Advanced Technology Laboratories

Print Date: 11/14/01

CLIENT: Applied P & Ch Laboratories

Client Sample ID MW-20-4

Lab Order: 053830

Project: JPL

Collection Date: 10/17/01 11:40:00 AM

Lab ID: 053830-014A

Matrix: Water

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
----------	--------	-------	------	-------	----	---------------

ICP-MS METALS

EPA 200.8

RunID: ICP4_011112A

BatchID: 6449

PrepDate: 11/12/01

Analyst: NS

Chromium

3.1

1.0

µg/L

1.0

11/12/01

Qualifiers

- ND - Not Detected at the Reporting Limit
- J - Analyte detected below quantitation limits
- B - Analyte detected in the associated Method Blank
- DO - Surrogate Diluted Out

- S - Spike/Surrogate outside of limits due to matrix interference.
- H - Samples exceeding analytical holding time
- E - Value above quantitation range
- M - Not Monitored. Highly Reactive

Initials: RA

14



Advanced Technology Laboratories

Print Date: 11/14/01

CLIENT: Applied P & Ch Laboratories

Client Sample ID MW-20-3

Lab Order: 053830

Project: JPL

Collection Date: 10/17/01 12:22:00 PM

Lab ID: 053830-015A

Matrix: Water

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
----------	--------	-------	------	-------	----	---------------

ICP-MS METALS

EPA 200.8

RunID: ICP4_011112A

BatchID: 6449

PrepDate: 11/12/01

Analyst: NS

Chromium

7.4

1.0

µg/L

1.0

11/12/01

Qualifiers

- ND - Not Detected at the Reporting Limit
- J - Analyte detected below quantitation limits
- B - Analyte detected in the associated Method Blank
- DO - Surrogate Diluted Out

- S - Spike/Surrogate outside of limits due to matrix interference.
- H - Samples exceeding analytical holding time
- E - Value above quantitation range
- M - Not Monitored. Highly Reactive

Initials: RA

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Advanced Technology Laboratories

Print Date: 11/14/01

CLIENT: Applied P & Ch Laboratories **Client Sample ID** MW-20-2
Lab Order: 053830
Project: JPL **Collection Date:** 10/17/01 12:55:00 PM
Lab ID: 053830-016A **Matrix:** Water

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ICP-MS METALS		EPA 200.8				
RunID: ICP4_011112A	BatchID: 6449			PrepDate: 11/12/01		Analyst: NS
Chromium	4.4	1.0		µg/L	1.0	11/12/01

Qualifiers ND - Not Detected at the Reporting Limit S - Spike/Surrogate outside of limits due to matrix interference.
 J - Analyte detected below quantitation limits H - Samples exceeding analytical holding time
 B - Analyte detected in the associated Method Blank E - Value above quantitation range
 DO - Surrogate Diluted Out M - Not Monitored. Highly Reactive

Initials: RA



Advanced Technology Laboratories

Print Date: 11/14/01

CLIENT: Applied P & Ch Laboratories

Client Sample ID MW-20-1

Lab Order: 053830

Project: JPL

Collection Date: 10/17/01 1:35:00 PM

Lab ID: 053830-017A

Matrix: Water

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
----------	--------	-------	------	-------	----	---------------

ICP-MS METALS

EPA 200.8

RunID: ICP4_011112A

BatchID: 6449

PrepDate: 11/12/01

Analyst: NS

Chromium

3.6

1.0

µg/L

1.0

11/12/01

Qualifiers

ND - Not Detected at the Reporting Limit

S - Spike/Surrogate outside of limits due to matrix interference.

J - Analyte detected below quantitation limits

H - Samples exceeding analytical holding time

B - Analyte detected in the associated Method Blank

E - Value above quantitation range

Initials: RA

DO - Surrogate Diluted Out

M - Not Monitored. Highly Reactive

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Advanced Technology Laboratories

Print Date: 11/14/01

CLIENT: Applied P & Ch Laboratories

Client Sample ID ER-20

Lab Order: 053830

Project: JPL

Collection Date: 10/17/01 12:05:00 PM

Lab ID: 053830-018A

Matrix: Water

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
----------	--------	-------	------	-------	----	---------------

ICP-MS METALS

EPA 200.8

RunID: ICP4_011112A

BatchID: 6449

PrepDate: 11/12/01

Analyst: NS

Chromium

ND

1.0

µg/L

1.0

11/12/01

Qualifiers

- ND - Not Detected at the Reporting Limit
- J - Analyte detected below quantitation limits
- B - Analyte detected in the associated Method Blank
- DO - Surrogate Diluted Out

- S - Spike/Surrogate outside of limits due to matrix interference.
- H - Samples exceeding analytical holding time
- E - Value above quantitation range
- M - Not Monitored. Highly Reactive

Initials: RA
030



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Advanced Technology Laboratories

Print Date: 11/14/01

CLIENT: Applied P & Ch Laboratories	Client Sample ID MW-4-5
Lab Order: 053830	
Project: JPL	Collection Date: 10/18/01 1:25:00 PM
Lab ID: 053830-019A	Matrix: Water

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
----------	--------	-------	------	-------	----	---------------

ICP-MS METALS		EPA 200.8				
RunID: ICP4_011112A	BatchID: 6449			PrepDate: 11/12/01		Analyst: NS
Chromium	7.9	1.0		µg/L	1.0	11/12/01

Qualifiers	ND - Not Detected at the Reporting Limit	S - Spike/Surrogate outside of limits due to matrix interference.
	J - Analyte detected below quantitation limits	H - Samples exceeding analytical holding time
	B - Analyte detected in the associated Method Blank	E - Value above quantitation range
	DO - Surrogate Diluted Out	M - Not Monitored. Highly Reactive

Initials: RA

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031

Advanced Technology Laboratories

Print Date: 11/14/01

CLIENT: Applied P & Ch Laboratories Client Sample ID MW-4-4
Lab Order: 053830
Project: JPL Collection Date: 10/18/01 1:50:00 PM
Lab ID: 053830-020A Matrix: Water

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
----------	--------	-------	------	-------	----	---------------

ICP-MS METALS		EPA 200.8				
RunID: ICP4_011112B	BatchID: 6450			PrepDate: 11/12/01		Analyst: NS
Chromium	7.3	1.0		µg/L	1.0	11/12/01

Qualifiers ND - Not Detected at the Reporting Limit S - Spike/Surrogate outside of limits due to matrix interference.
J - Analyte detected below quantitation limits H - Samples exceeding analytical holding time
B - Analyte detected in the associated Method Blank E - Value above quantitation range Initials: RA
DO - Surrogate Diluted Out M - Not Monitored. Highly Reactive 0302



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Advanced Technology Laboratories

Print Date: 11/14/01

CLIENT: Applied P & Ch Laboratories	Client Sample ID MW-4-3
Lab Order: 053830	
Project: JPL	Collection Date: 10/18/01 2:15:00 PM
Lab ID: 053830-021A	Matrix: Water

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
----------	--------	-------	------	-------	----	---------------

ICP-MS METALS		EPA 200.8				
RunID: ICP4_011112B	BatchID: 6450			PrepDate: 11/12/01		Analyst: NS
Chromium	5.5	1.0		µg/L	1.0	11/12/01

Qualifiers	ND - Not Detected at the Reporting Limit	S - Spike/Surrogate outside of limits due to matrix interference.
	J - Analyte detected below quantitation limits	H - Samples exceeding analytical holding time
	B - Analyte detected in the associated Method Blank	E - Value above quantitation range
	DO - Surrogate Diluted Out	M - Not Monitored. Highly Reactive

Initials: RA
033 21



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Advanced Technology Laboratories

Print Date: 11/14/01

CLIENT: Applied P & Ch Laboratories
 Lab Order: 053830
 Project: JPL
 Lab ID: 053830-022A

Client Sample ID MW-4-2
 Collection Date: 10/18/01 2:40:00 PM
 Matrix: Water

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ICP-MS METALS		EPA 200.8				
RunID: ICP4_011112A	BatchID: 6449			PrepDate: 11/12/01		Analyst: NS
Chromium	8.6	1.0		µg/L	1.0	11/12/01

Qualifiers
 ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 DO - Surrogate Diluted Out

S - Spike/Surrogate outside of limits due to matrix interference.
 H - Samples exceeding analytical holding time
 E - Value above quantitation range
 M - Not Monitored. Highly Reactive

Initials: RA
03422



Advanced Technology Laboratories

Print Date: 11/14/01

CLIENT: Applied P & Ch Laboratories

Client Sample ID MW-4-1

Lab Order: 053830

Project: JPL

Collection Date: 10/18/01 1:25:00 PM

Lab ID: 053830-023A

Matrix: Water

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
----------	--------	-------	------	-------	----	---------------

ICP-MS METALS

EPA 200.8

RunID: ICP4_011112B

BatchID: 6450

PrepDate: 11/12/01

Analyst: NS

Chromium

3.3

1.0

µg/L

1.0

11/12/01

Qualifiers

ND - Not Detected at the Reporting Limit

S - Spike/Surrogate outside of limits due to matrix interference.

J - Analyte detected below quantitation limits

H - Samples exceeding analytical holding time

B - Analyte detected in the associated Method Blank

E - Value above quantitation range

Initials: RA

DO - Surrogate Diluted Out

M - Not Monitored. Highly Reactive



Advanced Technology Laboratories

Print Date: 11/14/01

CLIENT: Applied P & Ch Laboratories	Client Sample ID MW-4-1D
Lab Order: 053830	
Project: JPL	Collection Date: 10/18/01 1:40:00 PM
Lab ID: 053830-024A	Matrix: Water

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
----------	--------	-------	------	-------	----	---------------

ICP-MS METALS		EPA 200.8				
RunID: ICP4_011112B	BatchID: 6450			PrepDate: 11/12/01		Analyst: NS
Chromium	3.8	1.0		µg/L	1.0	11/12/01

Qualifiers	ND - Not Detected at the Reporting Limit	S - Spike/Surrogate outside of limits due to matrix interference.
	J - Analyte detected below quantitation limits	H - Samples exceeding analytical holding time
	B - Analyte detected in the associated Method Blank	E - Value above quantitation range
	DO - Surrogate Diluted Out	M - Not Monitored. Highly Reactive

Initials: RA



Advanced Technology Laboratories

Print Date: 11/14/01

CLIENT: Applied P & Ch Laboratories	Client Sample ID ER-4
Lab Order: 053830	
Project: JPL	Collection Date: 10/18/01 2:35:00 PM
Lab ID: 053830-025A	Matrix: Water

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
----------	--------	-------	------	-------	----	---------------

ICP-MS METALS		EPA 200.8				
RunID: ICP4_011112B	BatchID: 6450			PrepDate: 11/12/01		Analyst: NS
Chromium	ND	1.0		µg/L	1.0	11/12/01

Qualifiers	ND - Not Detected at the Reporting Limit	S - Spike/Surrogate outside of limits due to matrix interference.
	J - Analyte detected below quantitation limits	H - Samples exceeding analytical holding time
	B - Analyte detected in the associated Method Blank	E - Value above quantitation range
	DO - Surrogate Diluted Out	M - Not Monitored. Highly Reactive

Initials: KA

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037

Advanced Technology Laboratories

Print Date: 11/14/01

CLIENT:	Applied P & Ch Laboratories	Client Sample ID	MW-22-2
Lab Order:	053830		
Project:	JPL	Collection Date:	10/19/01 10:33:00 AM
Lab ID:	053830-026A	Matrix:	Water

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
----------	--------	-------	------	-------	----	---------------

ICP-MS METALS		EPA 200.8				
RunID: ICP4_011112B	BatchID: 6450		PrepDate: 11/12/01		Analyst: NS	
Chromium	6.2	1.0	µg/L	1.0	11/12/01	

Qualifiers	ND - Not Detected at the Reporting Limit	S - Spike/Surrogate outside of limits due to matrix interference.
	J - Analyte detected below quantitation limits	H - Samples exceeding analytical holding time
	B - Analyte detected in the associated Method Blank	E - Value above quantitation range
	DO - Surrogate Diluted Out	M - Not Monitored. Highly Reactive

Initials: RA

038²⁶



Advanced Technology Laboratories

Print Date: 11/14/01

CLIENT: Applied P & Ch Laboratories

Client Sample ID ER-22

Lab Order: 053830

Project: JPL

Collection Date: 10/19/01 10:45:00 AM

Lab ID: 053830-028A

Matrix: Water

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
----------	--------	-------	------	-------	----	---------------

ICP-MS METALS

EPA 200.8

RunID: ICP4_011112B

BatchID: 6450

PrepDate: 11/12/01

Analyst: NS

Chromium

ND

1.0

µg/L

1.0

11/12/01

Qualifiers

ND - Not Detected at the Reporting Limit

S - Spike/Surrogate outside of limits due to matrix interference.

J - Analyte detected below quantitation limits

H - Samples exceeding analytical holding time

B - Analyte detected in the associated Method Blank

E - Value above quantitation range

Initials: RA

DO - Surrogate Diluted Out

M - Not Monitored. Highly Reactive

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Advanced Technology Laboratories

Print Date: 11/14/01

CLIENT: Applied P & Ch Laboratories	Client Sample ID MW-14-4
Lab Order: 053830	
Project: JPL	Collection Date: 10/22/01 11:50:00 AM
Lab ID: 053830-029A	Matrix: Water

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
----------	--------	-------	------	-------	----	---------------

ICP-MS METALS		EPA 200.8				
RunID: ICP4_011112B	BatchID: 6450			PrepDate: 11/12/01		Analyst: NS
Chromium	7.3	1.0		µg/L	1.0	11/12/01

Qualifiers	ND - Not Detected at the Reporting Limit	S - Spike/Surrogate outside of limits due to matrix interference.
	J - Analyte detected below quantitation limits	H - Samples exceeding analytical holding time
	B - Analyte detected in the associated Method Blank	E - Value above quantitation range
	DO - Surrogate Diluted Out	M - Not Monitored. Highly Reactive

Initials: PA



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041

Advanced Technology Laboratories

Print Date: 11/14/01

CLIENT: Applied P & Ch Laboratories	Client Sample ID MW-14-3
Lab Order: 053830	
Project: JPL	Collection Date: 10/22/01 12:50:00 PM
Lab ID: 053830-030A	Matrix: Water

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
----------	--------	-------	------	-------	----	---------------

ICP-MS METALS			EPA 200.8			
RunID: ICP4_011112B	BatchID: 6450		PrepDate: 11/12/01			Analyst: NS
Chromium	6.7	1.0	µg/L	1.0		11/12/01

Qualifiers	ND - Not Detected at the Reporting Limit	S - Spike/Surrogate outside of limits due to matrix interference.
	J - Analyte detected below quantitation limits	H - Samples exceeding analytical holding time
	B - Analyte detected in the associated Method Blank	E - Value above quantitation range
	DO - Surrogate Diluted Out	M - Not Monitored. Highly Reactive

Initials: RA

30



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042

Advanced Technology Laboratories

Print Date: 11/14/01

CLIENT: Applied P & Ch Laboratories	Client Sample ID MW-14-2
Lab Order: 053830	
Project: JPL	Collection Date: 10/22/01 1:20:00 PM
Lab ID: 053830-031A	Matrix: Water

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
----------	--------	-------	------	-------	----	---------------

ICP-MS METALS		EPA 200.8				
RunID: ICP4_011112B	BatchID: 6450			PrepDate: 11/12/01		Analyst: NS
Chromium	8.4	1.0		µg/L	1.0	11/12/01

Qualifiers	ND - Not Detected at the Reporting Limit	S - Spike/Surrogate outside of limits due to matrix interference.
	J - Analyte detected below quantitation limits	H - Samples exceeding analytical holding time
	B - Analyte detected in the associated Method Blank	E - Value above quantitation range
	DO - Surrogate Diluted Out	M - Not Monitored. Highly Reactive

Initials: RA

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043

Advanced Technology Laboratories

Print Date: 11/14/01

CLIENT: Applied P & Ch Laboratories

Client Sample ID MW-14-1

Lab Order: 053830

Project: JPL

Collection Date: 10/22/01 1:55:00 PM

Lab ID: 053830-032A

Matrix: Water

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
----------	--------	-------	------	-------	----	---------------

ICP-MS METALS

EPA 200.8

RunID: ICP4_011112B

BatchID: 6450

PrepDate: 11/12/01

Analyst: NS

Chromium

12

1.0

µg/L

1.0

11/12/01

Qualifiers

- ND - Not Detected at the Reporting Limit
- J - Analyte detected below quantitation limits
- B - Analyte detected in the associated Method Blank
- DO - Surrogate Diluted Out

- S - Spike/Surrogate outside of limits due to matrix interference.
- H - Samples exceeding analytical holding time
- E - Value above quantitation range
- M - Not Monitored. Highly Reactive

Initials: RA



Advanced Technology
Laboratories

3275 Walnut Avenue Signal Hill, CA 90807 Tel: 562 989-4045 Fax: 562 989-4040

044 32

Advanced Technology Laboratories

Print Date: 11/14/01

CLIENT: Applied P & Ch Laboratories	Client Sample ID ER-14
Lab Order: 053830	
Project: JPL	Collection Date: 10/22/01 12:10:00 PM
Lab ID: 053830-033A	Matrix: Water

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
----------	--------	-------	------	-------	----	---------------

ICP-MS METALS		EPA 200.8				
RunID: ICP4_011112B	BatchID: 6450			PrepDate: 11/12/01		Analyst: NS
Chromium	ND	1.0		µg/L	1.0	11/12/01

Qualifiers	ND - Not Detected at the Reporting Limit	S - Spike/Surrogate outside of limits due to matrix interference.
	J - Analyte detected below quantitation limits	H - Samples exceeding analytical holding time
	B - Analyte detected in the associated Method Blank	E - Value above quantitation range
	DO - Surrogate Diluted Out	M - Not Monitored. Highly Reactive

Initials: RA

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Advanced Technology
Laboratories

3275 Walnut Avenue Signal Hill, CA 90807 Tel: 562 989-4045 Fax: 562 989-4040

045

November 14, 2001

Kenny Chan
Applied P & Ch Laboratories
13760 E. Magnolia Ave.
Chino, CA 91710
TEL: (909) 590-1828
FAX (909) 590-1498

ELAP No: 1838

RE: JPL

Work Order No.: 053831

Attention: Kenny Chan

Enclosed are the results for sample(s) received on November 07, 2001 by Advanced Technology Laboratories and tested for the parameters indicated in the enclosed chain of custody.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (562)989-4045 if I can be of further assistance to your company.

Sincerely,



Edgar Caballero
Laboratory Director

This cover letter is an integral part of this analytical report.



APCL Project: JPL

ATL #: 053831-001A / 029A

APCL #: 6734-1 / 29

0001



Table of Contents:

ATL #: 053831-001A / 029A
APCL #: 6734-1 /29

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1002
11/21/01



Case Narrative

Client: Applied P & Ch Laboratory
Attn: Mr. Jim Lin
Client's Project: JPL

ATL Number: 053831-001A / 029A
Date Received: 11/7/01

Advanced Technology Laboratories received 29 water sample(s) (including field samples) for sample analysis. All receiving information is located on the Chain-of-Custody, which has been included in the data package.

Table's 1a/1b describe in detail the individual sample information. Table 2 describes some important information associated with the sample batch.

Table 1a: Sample Description

Lab Sample ID	Client Sample ID	Sample Description	Matrix
053831-001A	6734-14	MW-12-3	Water
053831-002A	6734-13	MW-12-2	Water
053831-003A	6734-15	MW-12-2D	Water
053831-004A	6734-12	MW-12-1	Water
053831-005A	6734-2	ER-12	Water
053831-006A	6734-19	MW-23-4	Water
053831-007A	6734-18	MW-23-3	Water
053831-008A	6734-17	MW-23-2	Water
053831-009A	6734-20	MW-23-2D	Water
053831-010A	6734-16	MW-23-1	Water
053831-011A	6734-3	ER-23	Water
053831-012A	6734-11	MW-11-3	Water
053831-013A	6734-10	MW-11-2	Water
053831-014A	6734-9	MW-11-1	Water
053831-015A	6734-1	ER-11	Water
053831-016A	6734-24	MW-24-4	Water
053831-017A	6734-23	MW-24-3	Water
053831-018A	6734-22	MW-24-2	Water
053831-019A	6734-21	MW-24-1	Water
053831-020A	6734-4	ER-24	Water
053831-021A	6734-6	MW-13	Water
053831-022A	6734-5	MW-10	Water
053831-023A	6734-8	MW-10-D	Water
053831-024A	6734-7	MW-16	Water
053831-025A	6734-27	MW-8	Water
053831-026A	6734-25	MW-5	Water
053831-027A	6734-28	MW-5-D	Water



003
 (PK) 11/21/01

Table 1b: Sample Description

Lab Sample ID	Client Sample ID	Sample Description	Matrix
053831-028A	6734-26	MW-6	Water
053831-029A	6734-29	MW-6-D	Water

Table 2: Sample Batch Information

Test Name	Analysis Method	QC Batch Number	Associated Samples	Analysis Date
ICP_MS Metals	EPA 200.8	6450	053831-025A	11/12/01
		6451	053831-001A / 021A	11/12/01
		6452	053831-022A/ 029A	11/12/01

ATL samples 053831-001A / 029A did not require digestion. The Prep Date on the report is the analytical date of the turbidity check.

Table 3: QC Anomalies

Item	Cause/Reason
053831-021A 053831-021ADUP	2 times dilution was applied to this sample due to the results were out side the calibration curve and or matrix interference.
053831-028A 053831-029A	4 times dilution was applied to this sample due to the results were out side the calibration curve and or matrix interference.
053831-024A	10 times dilution was applied to this sample due to the results were out side the calibration curve and or matrix interference.

The client requested a Level "D" data package requirement. The QC anomalies, which are listed in Table 3, appear to not have any significant impact on the analytical results. See cause and reasons for each anomaly that is listed in the table.

Thank you for the opportunity to service the needs of your company. Please feel free to call me at (562) 989-4045 if I can be of further assistance to your company.

Sincerely,


Edgar P. Caballero
Laboratory Director

004



Data Qualifiers

Data Qualifiers are used in conjunction with the results in order to explain certain anomalies which may have occurred during sample analysis. If a result data qualifier is reported, then an explanation of the occurrence and the effects it has on the results must accompany the report.

The following table describes each data qualifier:

Symbol	Definition
B	This flag is used when the analyte is found in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user to take appropriate action. This flag shall be used for a tentatively identified compound as well as for a positively identified target compounds.
D	Duplicate injection precision not met.
E	The reported value is estimated because of interference.
J	This indicates an estimated value. This flag is used (1) when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, (2) when the mass spectral and retention time data indicate the presence of a compound that meets the volatile and semivolatile GC/MS identification criteria, and the result is less than the CRQL but greater than zero, (3) when the retention time data indicate the presence of a compound that meets the pesticide/Aroclor identification criteria, and the result is less than the CRQL but greater than zero.
N	This flag indicated presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N flag is not used.
S	Spike sample recovery not within control limits.
SA	The reported value was determined by the Method of Standard Additions (MSA).
U	This flag indicates the compound was analyzed for but not detected. The CRQL shall be adjusted accordingly.
W	Post Digestion Spike for Furnace AA analysis is out of control limits (85% - 115%), while sample absorbance is less than 50% of spike absorbance.
X	This flag is used for a pesticide/Aroclor target analyte when there is greater than 25% difference for detected concentrations between the two GC columns. The lower of the two values is reported and flagged with an X.
Y	This flag applies to pesticide results where the identification has been confirmed by GC/MS. If GC/MS confirmation was attempted but was unsuccessful, do not apply this flag.
P	Samples analyzed by ICP
PM	Samples analyzed by ICP_MS
CV	Samples analyzed by Manual Cold Vapor AA
CA	Samples analyzed by Midi-Distillation Spectrophotometer
SP	Samples analyzed by Spectrophotometer
TR	Samples analyzed by Infrared (TRPH)
AA	Samples analyzed by Flame, Atomic Absorption
M	Method Qualifier: Indicates the method by which each analyte is analyzed.
Q	Data Qualifier: Indicates any anomalies occurred during the QC sample analysis.
C	Concentration Qualifier: Indicates any effect on the reported value.
DLR	The DLR takes into account the dilution or concentration of the sample and is numerically defined as the MDL times the dilution or concentration factor. The dilution and concentration factors vary according to aliquot normally taken by the individual laboratory.
NC	Not calculated; at or near detection limit.



Sample Receiving Items

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*Advanced Technology
Laboratories*

3275 Walnut Avenue Signal Hill, CA 90807 Tel: 562 989-4045 Fax: 562 989-4040

APCL

Applied P & Ch Laboratory
 13760 E. Magnolia Ave., Chino CA 91710
 Tel: (909) 590-1828 Fax: (909) 590-1498

Subcontract Chain of Custody

Please Print in pen
 Page 1 of 2

TO: Advance Technology Laboratories Contact Rachelle Tel: (962) 989-4045 Fax: (962) 989-4040
 Address 1500 E 3rd Street City Signal Hill State CA Zip code 90801
 APCL Project Title/Code JPL Sampler APCL Quotation # _____ Sample disposition: Date _____ client; APCL
 Bill to (if different from above) _____ Client signature Contact: Kenny Chan P.O.# _____
 Due date regular rush Date 11/7/01

Sample Description	Date Collected	Time Collected	Matrix	Pres. Y/N	Filtered Y/N	Analysis items	Unit Price*	APCL Lab-ID
MW-12-3	10/23/01	1345	W	HNO ₃	N			
MW-12-2		1500						
MW-12-2D		1510						
MW-12-1		1550						
ER-12		1235						
MW-23-4	10/24/01	1215				Total Cr by 200.8		
MW-23-3		1310						
MW-23-2		1430				With EDD		
MW-23-2D		1500				# Love 4		
MW-23-1		1530				Package		
ER-23		1100						
MW-11-3	10/25/01	1250						
MW-11-2		1400						
MW-11-1		1435						
ER-11		1220						
MW-24-4	10/26/01	1020						
MW-24-3		1050						
MW-24-2		1115						

Sample Conditions: Seal Intact Broken None; Temperature Cold Room; Other _____

Relinquished by <u>[Signature]</u>	Date/Time <u>11/7/01</u>	Received by _____	Date/Time _____
Relinquished by <u>Roy Chiquita</u>	Date/Time <u>11/7/01</u>	Received by <u>[Signature]</u>	Date/Time <u>11/7/01</u>
Relinquished by _____	Date/Time _____	Received by _____	Date/Time _____
Relinquished by _____	Date/Time _____	Received by _____	Date/Time _____

* APCL must be notified if unit price is incorrect.

pH Logbook - Sample Control

Date: 11/20/01

Analyst: MM

Standard	Std ID	pH	Comments
Buffer 4	SC-0003	4.01	} by strip Acceptance Range: 6.9 - 7.1
Buffer 10	SC-0002	10.01	
Buffer 7 (Check)	SC-0001	7.00	

Sample ID	Matrix	pH	Comments
1 053B31- 011A	H ₂ O	2	} by strip
2 012A		2	
3 013A		2	
4 014A		2	
5 015A		2	
6 016A		2	
7 017A		2	
8 018A		2	
9 019A		2	
10 020A	✓	2	
Dup			Accept: +/-0.1 pH units from expected value
Buffer 4, 7, 10			

(Circle one)

Date: 11/20/01

Analyst: MM

Standard	Std ID	pH	Comments
Buffer 4	SC-0003	4.01	Acceptance Range: 6.9 - 7.1
Buffer 10	SC-0002	10.01	
Buffer 7 (check)	SC-0001	7.00	

Sample ID	Matrix	pH	Comments
1 053B31- 011A	H ₂ O	2	} by strip
2 012A		2	
3 013A		2	
4 014A		2	
5 015A		2	
6 016A		2	
7 017A		2	
8 018A		2	
9 019A		2	
10 020A	✓	2	
Dup			Accept: +/-0.1 pH units from expected value
Buffer 4, 7, 10			

(Circle one)

ATL Logbook #9

Page: 26 of 100

Supervisor's Approval/Date: _____

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pH Logbook - Sample Control

Date: 11/20/01

Analyst: MMV

Standard	Std ID	pH	Comments
Buffer 4	SC-0003	4.01	
Buffer 10	SC-0002	10.01	
Buffer 7 (Check)	SC-0001	7.00	Acceptance Range: 6.9 - 7.1

Sample ID	Matrix	pH	Comments
1 053831-021A	H ₂ O	2	
2	↓	2	
3	↓	2	
4	↓	2	
5	↓	2	
6	↓	2	
7	↓	2	
8	↓	2	
9	↓	2	
10			Accept: 10% water, 20% soil
Dup			Accept: +/-0.1 pH units from expected value

(Circle one)

Date: 11/21/01
Analyst: TAA

Standard	Std ID	pH	Comments
Buffer 4	SC-0003	4.01	
Buffer 10	SC-0002	10.01	
Buffer 7 (check)	SC-0001	7.00	Acceptance Range: 6.9 - 7.1

Sample ID	Matrix	pH	Comments
1 054051-002E	water	6.94	
2	↓	12	S ²⁻
3	↓	2	milts
4	↓	12	en ⁻
5			
6			
7			
8			
9			
10			Accept: 10% water, 20% soil
Dup			Accept: +/-0.1 pH units from expected value

(Circle one)

ATL Logbook #9

Supervisor's Approval/Date: _____

Page: 27 of 100

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Advanced Technology Laboratories

Sample Receipt Checklist

Client Name APCL

Date and Time Received: 11/7/01 3:40:44 PM

Work Order Number 053831

Received by: CC

Checklist completed by Seavann 11/07/01
Signature Date

Reviewed by: RA 11/7/01
Initials Date

Cooler Temp (Deg C): 4.8

Carrier name: Walk-In

- Shipping container/cooler in good condition? Yes No Not Present
- Custody seals intact on shipping container/cooler? Yes No Not Present
- Custody seals intact on sample bottles? Yes No Not Present
- Chain of custody present? Yes No
- Chain of custody signed when relinquished and received? Yes No
- Chain of custody agrees with sample labels? Yes No
- Samples in proper container/bottle? Yes No
- Sample containers intact? Yes No
- Sufficient sample volume for indicated test? Yes No
- All samples received within holding time? Yes No
- Water - VOA vials have zero headspace? Yes No
- No VOA vials submitted Yes No
- Water - pH acceptable upon receipt? Yes No NA (Soil/Oils/Liquid)

pH >12 for (CN, S) ; pH <2 for (OG, 418.1 and Metal)

Adjusted? _____ Checked by _____

Any No and/or NA (not applicable) response must be detailed in the comments section be

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

INORGANICS COMPLETE INVENTORY SHEET

Client: Applied P & Ch Laboratory
 Attn: Mr. Jim Lin
 Client's Project: JPL

Laboratory Name: Advanced Technology Laboratories
 Laboratory Address: 3275 Walnut Avenue, Signal Hill, CA 90807

ATL Number: 053831-001A / 029A
 Date Sampled: 10/23 – 10/30/01
 Date Received: 11/7/01

Method 200.8 (Metals)

	Topic	Page(s)
Sample Data	Inorganic Data Result Sheet	
Standards Data	Initial Calibration	
	Initial Calibration Verification and Continuing Calibration Verification/External Reference Standard	
	Tune File	
	Internal Standard Table	
Raw QC Data	Blank Report Sheet	
	Spike Sample Recovery	
	Laboratory Control Spike Report	
	Duplicate Report Sheet	
	Holding Times Summary Sheet	
Miscellaneous Items	Preparation Log	
	Analysis Run Log	
	Standards Log	
	List of Instrument Detection Limits	
Raw Data Package	Standards Data Sample Data QC Data	

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