

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
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

12



Advanced Technology
Laboratories

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

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
ICP-MS METALS						
RunID: ICP4_011112A			BatchID: 6449		EPA 200.8	
Chromium			3.4		PrepDate: 11/12/01	
			1.0		Analyst: NS	
			µg/L		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

13



Advanced Technology
Laboratories

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

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*

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

026

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						
RunID: ICP4_011112A			BatchID: 6449		EPA 200.8	
Chromium			7.4		PrepDate: 11/12/01	
			1.0		Analyst: NS	
			µg/L		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

15



Advanced Technology
Laboratories

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

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
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

16
028

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
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

17



Advanced Technology
Laboratories

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

0.29

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



Advanced Technology
Laboratories

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

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

19



Advanced Technology
Laboratories

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

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				
Chromium		7.3	1.0	µg/L	1.0	11/12/01
						Analyst: NS

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
0302

Advanced Technology
Laboratories

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

Advanced Technology Laboratories

Print Date: 11/14/01

CLIENT: Applied P & Ch Laboratories
Lab Order: 053830
Project: JPL
Lab ID: 053830-021A

Client Sample ID MW-4-3
Collection Date: 10/18/01 2:15:00 PM
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
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
033 21



Advanced Technology
Laboratories

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

Advanced Technology Laboratories

Print Date: 11/14/01

CLIENT: Applied P & Ch Laboratories

Client Sample ID MW-4-2

Lab Order: 053830

Project: JPL

Collection Date: 10/18/01 2:40:00 PM

Lab ID: 053830-022A

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

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

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
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

035

23

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
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

24



Advanced Technology
Laboratories

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

0.36

Advanced Technology Laboratories

Print Date: 11/14/01

CLIENT: Applied P & Ch Laboratories
Lab Order: 053830
Project: JPL
Lab ID: 053830-025A

Client Sample ID ER-4
Collection Date: 10/18/01 2:35:00 PM
Matrix: Water

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ICP-MS METALS						
RunID: ICP4_011112B	BatchID: 6450	EPA 200.8		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: KA

25



Advanced Technology
Laboratories

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

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						
RunID: ICP4_011112B			BatchID: 6450		EPA 200.8	
Chromium			6.2		PrepDate: 11/12/01	
			1.0		Analyst: NS	
			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

038²⁶

Advanced Technology Laboratories

Print Date: 11/14/01

CLIENT: Applied P & Ch Laboratories Client Sample ID MW-22-1
Lab Order: 053830
Project: JPL Collection Date: 10/19/01 10:55:00 AM
Lab ID: 053830-027A 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 7.8 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

27



Advanced Technology
Laboratories

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

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
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

28



Advanced Technology
Laboratories

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

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						
RunID: ICP4_011112B	BatchID: 6450	EPA 200.8		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: RA



Advanced Technology
Laboratories

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

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
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

30



Advanced Technology
Laboratories

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

042

Advanced Technology Laboratories

Print Date: 11/14/01

CLIENT: Applied P & Ch Laboratories
Lab Order: 053830
Project: JPL
Lab ID: 053830-031A

Client Sample ID MW-14-2
Collection Date: 10/22/01 1:20:00 PM
Matrix: Water

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ICP-MS METALS						
RunID: ICP4_011112B			BatchID: 6450		EPA 200.8	
Chromium			8.4		PrepDate: 11/12/01	
			1.0		Analyst: NS	
			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

31



Advanced Technology
Laboratories

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

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
Lab Order: 053830
Project: JPL
Lab ID: 053830-033A

Client Sample ID ER-14
Collection Date: 10/22/01 12:10:00 PM
Matrix: Water

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ICP-MS METALS						
RunID: ICP4_011112B			BatchID: 6450		EPA 200.8	
			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

33



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.



Advanced Technology
Laboratories

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

APCL Project: JPL

ATL #: 053831-001A / 029A

APCL #: 6734-1 / 29

0001



*Advanced Technology
Laboratories*

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

Table of Contents:

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

Section	Pages
Case Narrative	003 - 005
Sample Receiving Items	006 - 011
EPA 200.8	012 - 198



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



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

006



*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: (562) 989-4045 Fax: (562) 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) APCL
Due date ☐ regular ☐ rush

Client signature Contact: Kenny Chan

P.O.#

Date 11/7/01

Sample Description	Date 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						
MW-23-3	1310						
MW-23-2	1430						
MW-23-2D	1500						
MW-23-1	1530						
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						
					Total Cr by 200.8		-13
					With EDD # Level 4 Package		-15
							-12
							-2
							-19
							-18
							-17
							-20
							-16
							-3
							-11
							-10
							-9
							-1
							-24
							-23
							-22

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

Relinquished by <u>[Signature]</u>	Date/Time <u>11/7/01 1200pm</u>	Received by <u> </u>	Date/Time <u> </u>
Relinquished by <u>Roy Chiu</u>	Date/Time <u>11/7/01 2:16 PM</u>	Received by <u> </u>	Date/Time <u>11/7/01 9:15</u>
Relinquished by <u> </u>	Date/Time <u> </u>	Received by <u> </u>	Date/Time <u> </u>
Relinquished by <u> </u>	Date/Time <u> </u>	Received by <u> </u>	Date/Time <u> </u>

* APCL must be notified if unit price is incorrect.

TO: Advanced Technology Laboratories Contact Rachelle Please Print in pen
Address 1500 E 33rd Street City Signal Hill Tel: (562) 989-4045 Fax: (562) 989-4040
APCL Project Title/Code JPL Sampler Signal Hill State CA Zip code 90807
Bill to (if different from above) APCL Quotation # _____ Date _____
Due date ☒ Regular ☐ Rush ☐ client; ☐ APCL

Client signature Contact: Kenny Chan P.O.# _____ Date 11/7/01

[illegible]

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

Relinquished by		Date/Time	Received by	Date/Time
[Signature]		11/7/01 12:00pm		
[Signature]		11/7/01 2:00pm	[Signature]	11/7/01 1415
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.

* 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	
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	Accept: 10% water, 20% soil
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	
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 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: 10% water, 20% soil
Buffer 4, 7, 10 (Circle one)			

Supervisor's Approval/Date: _____

ATL Logbook #9

Page: 26 of 100

009

pH Logbook - Sample Control

Date: 11/20/01

Analyst: AMV

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 022A		2	
3 023A		2	
4 024A		2	
5 025A		2	
6 026A		2	
7 027A		2	
8 028A		2	
9 029A		2	
10			
Dup			Accept: 10% water, 20% soil
Buffer 4, 7, 10			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 1-023B	H ₂ O	12	S ²⁻
3 022C		2	milky
4 022D		12	en ⁻
5			
6			
7			
8			
9			
10			
Dup 054051-002E	water	6.97	Accept: 10% water, 20% soil
Buffer 4, 7, 10	BATH-SS	7.00	Accept: +/-0.1 pH units from expected value

(Circle one)

ATL Logbook #9

Supervisor's Approval/Date: _____

Page: 27 of 100

010

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

Signature

Seavann

Date

11/07/01

Reviewed by:

Initials

RA

Date

11/7/01

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?

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	

012

