

APCL Project: JPL

ATL #: 061277-001A/020A

001



*Advanced Technology
Laboratories*

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

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APCL #: NA

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Case Narrative

Client: Applied P & Ch Laboratory
Attn: Kenny Chan
Client's Project: JPL

ATL Number: 061277-001A/020A
Date Received: 2/12/02

Advanced Technology Laboratories received 20 water sample(s) for sample analysis. All receiving information is located on the Chain-of-Custody, which has been included in the data package.

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

Table 1: Sample Description

Lab Sample ID	Client Sample ID	Sample Description	Matrix
061277-001A	MW-21-5	NA	Water
061277-002A	MW-21-4	NA	Water
061277-003A	MW-21-3	NA	Water
061277-004A	MW-21-2	NA	Water
061277-005A	MW-21-1	NA	Water
061277-006A	EB-1-1/29/03	NA	Water
061277-007A	MW-20-5	NA	Water
061277-008A	MW-20-4	NA	Water
061277-009A	MW-20-3	NA	Water
061277-010A	MW-20-2	NA	Water
061277-011A	MW-20-1	NA	Water
061277-012A	EB-2-1/30/03	NA	Water
061277-013A	Dupe-1-IQ03	NA	Water
061277-014A	MW-19-5	NA	Water
061277-015A	MW-19-4	NA	Water
061277-016A	MW-19-3	NA	Water
061277-017A	MW-19-2	NA	Water
061277-018A	MW-19-1	NA	Water
061277-019A	EB-3-2/3/03	NA	Water
061277-020A	Dupe-2-IQ03	NA	Water

Table 2: Sample Batch Information

Test Name	Analysis Method	QC Batch Number	Associated Samples	Analysis Date
ICP_MS Metals	EPA 200.8	R25095	061277-001A /020A	02/17/03
		R25311	061277-009A	2/24/03



ATL samples 061277-001A/020A 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
None	

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,


Eddie F. Rodriguez
Laboratory Director

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

Applied P & Ch Laboratory

13760 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

Subcontract Lab: Advanced Technology Laboratories Contact: Puri Romualdo Tel #: (562) 989 4045 Fax #: (562) 989-4040
Address: 3275 Walnut Ave City: Signal Hill State: CA Zip code: 90857
APCL Client: APCL Contact: Penny Chan

Project Name/Code: JPL Job #
BILL TO APCL Sub Quotation #

Due Date: ☐ regular ☐ rush: days hours Sampled by: Leo Williamson

Field Sample ID No.	Sample Description	Date Collected	Sample Matrix	Preservation	# of Containers	Analysis	Items	White - With report Yellow - Lab copy Pink - Originator	Remarks
	MW-21-5	1/29/03 840	U	HNO ₃	1				
	MW-21-4	915							
	MW-21-3	1245							
	MW-21-2	1320							
	MW-21-1	1400							
	EB-1-1/29/03	1410							
	MW-20-5	1/30/03 825							
	MW-20-4	925							
	MW-20-3	1055			2				
	MW-20-2	1140			1				
	MW-20-1	1300							
	EB-2-1/30/03	1340							
	Pure-1-1/30/03								
	MW-19-5	2/3/03 810							
	MW-19-4	920							

QC Requirement: ☐ Regular; ☐ QA/QC Report; ☐ WIP; ☐ Raw Data; ☐ Extended Raw Data ☐ CLP; ☐ ACE ☐ AFCEE ☒ NEESA ☒ (E, C or D); ☒ Other EDD (Please specify)
Sample Disposal: ☐ Return ☐ Disposal by APCL ☐ Hold for days after receiving date. If not specified, samples will be discarded 45 days after samples are received.
Sample Conditions: ☒ Intact; ☐ Broken. Cooler Seal: ☐ Intact; ☐ Broken; ☐ None. Tag # Temperature: ☐ Room ☒ Cold (°C).

Relinquished by [Signature] Date/Time 2/6/03 1000A Received by [Signature] Date/Time 2/12/03 9:10
Relinquished by Date/Time Received by Date/Time

APCL USE ONLY Service # Note:

Subcontract Chain of Custody

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Note:

Clients understand that all terms described in the proposals, quotations for this project, and/or the general terms provided in the current APCL price schedules will be followed. APCL reserves the right to terminate its service or withhold delivery of any reports, if in APCL's sole discretion the terms of the project have been broken.

Subcontract Chain of Custody

13760 Magnolia Ave. Chino CA 91710
Tel: (909) 590-1828 Fax: (909) 590-1498

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Page 2 of 2

Subcontract Lab: Advanced Technology Laboratories Contact: Mr. Porac Tel #: 562/989-4045 Fax #: 562/989-4040

ALL: 3775 McCombs Ave
CITY: San Antonio, TX
State: TX Zip code: 78207

Address:	2215 Washington Ave	APCL Contact:	Kenney Chan	Analysis	Items
APCL Client:					

Project Name/Code	Job #	White - With report
JPL	8	

Project Name/Code	Sub Quotation #	Yellow - Lab copy
NYT TO ABCI		

BILL TO A/C NO. _____
Due Date: ☒ regular ☐ rush: _____ days _____ hours
Sampled by: Leo Williamson Pink - Originator

[illegible]

Field Sample	Sample Date	Sample Time	Material	Concentration	Remarks
Field Sample					

ID No.	Description	Collected	Matrix	Container	Volume	Notes
11142	EDD	✓	Matrix	✓	11142	EDD
11142	EDD	✓	Matrix	✓	11142	EDD

[illegible][illegible]

0005	1111	1	2010	51
000	111	1	2010	51
000	111	1	2010	51

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☐ Other FDD (Please specify)
☒ NEESA D (E, C or D);
☐ AFCEE ☐ ACE ☐ CLP;
☐ Extended Raw Data ☐ Raw Data;
☐ WIP; ☐ CA/OC Report;

QC Requirement: ☐ Regular; ☐ QA/QC report; ☐ WAX; ☐ Scan Data; ☐ _____

Sample Disposal: ☐ Return ☐ Disposal by APCL ☐ Hold for _____ days after receiving date.

Sample Conditions: ☐ ~~Intact~~; ☐ Broken.
Cooler Seal: ☐ Intact; ☐ Broken; Tag # _____
Temperature: ☐ Room ☐ Cold (____ °C)

[illegible]

Relinquished	by	<i>[Signature]</i>	Date/Time	4/6/20	Received by	<i>[Signature]</i>	Date/Time	4/6/20
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100		100	

_____ acquired by _____

APCL USE ONLY Service # Note:

Client understands that all terms described in the proposals, quotations for this project, and/or the general terms provided in the current APCL price schedules will be followed. APCL reserves the right to change the terms of the contract.

Customers understand that APCL's sole discretion the terms of the project have been broken.

APCL Form 4-101, Ver. 4-0, Jan. 17, 2003.
Root-File:[CUST.DATA.LAB\CHAIN_ROOT\346.TEX
File:[CUST.DATA.LAB\CHAIN_ROOT\346.TEX

INORGANICS COMPLETE INVENTORY SHEET

Client: Applied P & Ch Laboratory
Attn: Kenny Chan
Client's Project: JPL

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

ATL Number: 060054-001A/009A
Date Sampled: 11/04/02
Date Received: 11/22/02

Method 200.8 (Metals)

	Topic	Page(s)
Sample Data	Inorganic Data Result Sheet	011-030
Standards Data	Initial Calibration	031
	Initial Calibration Verification and Continuing Calibration Verification/External Reference Standard	032-033
	Tune File	044-047
	Internal Standard Table	034-035
Raw QC Data	Blank Report Sheet	036-037
	Spike Sample Recovery	040-041
	Laboratory Control Spike Report	038-039
	Duplicate Report Sheet	042
	Holding Times Summary Sheet	043
Miscellaneous Items	Preparation Log	048-049
	Analysis Run Log	050-051
	Standards Log	052-061
	List of Method Detection Limits	062
Raw Data Package	Standards Data Sample Data QC Data	063-116

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Advanced Technology Laboratories

Date: 25-Feb-03

CLIENT: Applied P & Ch Laboratories
Lab Order: 061277
Project: JPL
Lab ID: 061277-001A

Client Sample ID: MW-21-5
Collection Date: 1/29/2003 8:40:00 AM
Matrix: WATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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ICP-MS METALS

EPA 200.8

RunID: ICP4_030217A	QC Batch: R25095					Analyst: RQ
Chromium	5.7	1.0		µg/L	1	2/17/2003

Qualifiers:

ND - Not Detected at the Reporting Limit

S - Spike/Surrogate outside of limits due to matrix interferen

J - Analyte detected below quantitation limits

H - Sample exceeded analytical holding time

B - Analyte detected in the associated Method Blank

E - Value above quantitation range

DO - Surrogate Diluted Out

Results are wet unless otherwise specified

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

Advanced Technology Laboratories

Date: 25-Feb-03

CLIENT: Applied P & Ch Laboratories
Lab Order: 061277
Project: JPL
Lab ID: 061277-002A

Client Sample ID: MW-21-4
Collection Date: 1/29/2003 9:15:00 AM
Matrix: WATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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ICP-MS METALS

EPA 200.8

RunID: ICP4_030217A	QC Batch: R25095					Analyst: RQ
Chromium	4.7	1.0		µg/L	1	2/17/2003

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 interferen
H - Sample exceeded analytical holding time
E - Value above quantitation range
Results are wet unless otherwise specified

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

Advanced Technology Laboratories

Date: 25-Feb-03

CLIENT: Applied P & Ch Laboratories
Lab Order: 061277
Project: JPL
Lab ID: 061277-003A

Client Sample ID: MW-21-3
Collection Date: 1/29/2003 12:45:00 PM
Matrix: WATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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ICP-MS METALS

EPA 200.8

RunID: ICP4_030217A	QC Batch: R25095					Analyst: RQ
Chromium	5.9	1.0		µg/L	1	2/17/2003

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 - Sample exceeded analytical holding time
E - Value above quantitation range
Results are wet unless otherwise specified

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013

Advanced Technology Laboratories

Date: 25-Feb-03

CLIENT: Applied P & Ch Laboratories
Lab Order: 061277
Project: JPL
Lab ID: 061277-004A

Client Sample ID: MW-21-2
Collection Date: 1/29/2003 1:20:00 PM
Matrix: WATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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ICP-MS METALS

EPA 200.8

RunID: ICP4_030217A	QC Batch: R25095					Analyst: RQ
Chromium	6.7	1.0		µg/L	1	2/17/2003

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 - Sample exceeded analytical holding time
B - Analyte detected in the associated Method Blank E - Value above quantitation range
DO - Surrogate Diluted Out Results are wet unless otherwise specified

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

Advanced Technology Laboratories

Date: 25-Feb-03

CLIENT: Applied P & Ch Laboratories
Lab Order: 061277
Project: JPL
Lab ID: 061277-005A

Client Sample ID: MW-21-1
Collection Date: 1/29/2003 2:00:00 PM
Matrix: WATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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ICP-MS METALS

EPA 200.8

RunID: ICP4_030217A	QC Batch: R25095					Analyst: RQ
Chromium	4.6	1.0		µg/L	1	2/17/2003

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 - Sample exceeded analytical holding time
E - Value above quantitation range
Results are wet unless otherwise specified

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

015

Advanced Technology Laboratories

Date: 25-Feb-03

CLIENT: Applied P & Ch Laboratories
Lab Order: 061277
Project: JPL
Lab ID: 061277-006A

Client Sample ID: EB-1-1/29/03
Collection Date: 1/29/2003 2:10:00 PM
Matrix: WATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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ICP-MS METALS

EPA 200.8

RunID: ICP4_030217A	QC Batch: R25095					Analyst: RQ
Chromium	ND	1.0		µg/L	1	2/17/2003

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike/Surrogate outside of limits due to matrix interferen
J - Analyte detected below quantitation limits H - Sample exceeded analytical holding time
B - Analyte detected in the associated Method Blank E - Value above quantitation range
DO - Surrogate Diluted Out Results are wet unless otherwise specified

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

016

Advanced Technology Laboratories

Date: 25-Feb-03

CLIENT: Applied P & Ch Laboratories
Lab Order: 061277
Project: JPL
Lab ID: 061277-007A

Client Sample ID: MW-20-5
Collection Date: 1/30/2003 8:25:00 AM
Matrix: WATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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ICP-MS METALS

EPA 200.8

RunID: ICP4_030217A	QC Batch: R25095					Analyst: RQ
Chromium	2.7	1.0		µg/L	1	2/17/2003

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 - Sample exceeded analytical holding time
E - Value above quantitation range
Results are wet unless otherwise specified

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

Advanced Technology Laboratories

Date: 25-Feb-03

CLIENT: Applied P & Ch Laboratories
Lab Order: 061277
Project: JPL
Lab ID: 061277-008A

Client Sample ID: MW-20-4
Collection Date: 1/30/2003 9:25:00 AM
Matrix: WATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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ICP-MS METALS

EPA 200.8

RunID: ICP4_030217A	QC Batch: R25095					Analyst: RQ
Chromium	2.4	1.0		µg/L	1	2/17/2003

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 - Sample exceeded analytical holding time
E - Value above quantitation range
Results are wet unless otherwise specified

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

Advanced Technology Laboratories

Date: 25-Feb-03

CLIENT: Applied P & Ch Laboratories
Lab Order: 061277
Project: JPL
Lab ID: 061277-009A

Client Sample ID: MW-20-3
Collection Date: 1/30/2003 10:55:00 AM
Matrix: WATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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ICP-MS METALS

EPA 200.8

RunID: ICP4_030224A	QC Batch: R25311					Analyst: RQ
Chromium	1.7	1.0		µg/L	1	2/24/2003

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 interferen
H - Sample exceeded analytical holding time
E - Value above quantitation range
Results are wet unless otherwise specified

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

Advanced Technology Laboratories

Date: 25-Feb-03

CLIENT: Applied P & Ch Laboratories
Lab Order: 061277
Project: JPL
Lab ID: 061277-010A

Client Sample ID: MW-20-2
Collection Date: 1/30/2003 11:40:00 AM
Matrix: WATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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ICP-MS METALS

EPA 200.8

RunID: ICP4_030217A	QC Batch: R25095					Analyst: RQ
Chromium	2.2	1.0		µg/L	1	2/17/2003

Qualifiers:

ND - Not Detected at the Reporting Limit

S - Spike/Surrogate outside of limits due to matrix interferen

J - Analyte detected below quantitation limits

H - Sample exceeded analytical holding time

B - Analyte detected in the associated Method Blank

E - Value above quantitation range

DO - Surrogate Diluted Out

Results are wet unless otherwise specified

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

Advanced Technology Laboratories

Date: 25-Feb-03

CLIENT: Applied P & Ch Laboratories
Lab Order: 061277
Project: JPL
Lab ID: 061277-011A

Client Sample ID: MW-20-1
Collection Date: 1/30/2003 1:00:00 PM
Matrix: WATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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ICP-MS METALS

EPA 200.8

RunID: ICP4_030217A	QC Batch: R25095					Analyst: RQ
Chromium	2.8	1.0		µg/L	1	2/17/2003

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 - Sample exceeded analytical holding time
E - Value above quantitation range
Results are wet unless otherwise specified

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

Advanced Technology Laboratories

Date: 25-Feb-03

CLIENT: Applied P & Ch Laboratories
Lab Order: 061277
Project: JPL
Lab ID: 061277-012A

Client Sample ID: EB-2-1/30/03
Collection Date: 1/30/2003 1:40:00 PM
Matrix: WATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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ICP-MS METALS

EPA 200.8

RunID: ICP4_030217A	QC Batch: R25095					Analyst: RQ
Chromium	ND	1.0		µg/L	1	2/17/2003

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike/Surrogate outside of limits due to matrix interferen
J - Analyte detected below quantitation limits H - Sample exceeded analytical holding time
B - Analyte detected in the associated Method Blank E - Value above quantitation range
DO - Surrogate Diluted Out Results are wet unless otherwise specified

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Laboratories

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

022

Advanced Technology Laboratories

Date: 25-Feb-03

CLIENT: Applied P & Ch Laboratories
Lab Order: 061277
Project: JPL
Lab ID: 061277-013A

Client Sample ID: Dupe-1-IQ03
Collection Date:
Matrix: WATER

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

ICP-MS METALS

EPA 200.8

RunID: ICP4_030217A	QC Batch: R25095					Analyst: RQ
Chromium	2.5	1.0		µg/L	1	2/17/2003

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 - Sample exceeded analytical holding time
E - Value above quantitation range
Results are wet unless otherwise specified

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023



Advanced Technology
Laboratories

14 of 23

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

Advanced Technology Laboratories

Date: 25-Feb-03

CLIENT: Applied P & Ch Laboratories
Lab Order: 061277
Project: JPL
Lab ID: 061277-014A

Client Sample ID: MW-19-5
Collection Date: 2/3/2003 8:10:00 AM
Matrix: WATER

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

ICP-MS METALS

EPA 200.8

RunID: ICP4_030217A	QC Batch: R25095					Analyst: RQ
Chromium	3.4	1.0		µg/L	1	2/17/2003

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 interferen
H - Sample exceeded analytical holding time
E - Value above quantitation range
Results are wet unless otherwise specified

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024



Advanced Technology
Laboratories

15 of 23

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

Advanced Technology Laboratories

Date: 25-Feb-03

CLIENT: Applied P & Ch Laboratories
Lab Order: 061277
Project: JPL
Lab ID: 061277-015A

Client Sample ID: MW-19-4
Collection Date: 2/3/2003 9:20:00 AM
Matrix: WATER

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

ICP-MS METALS

EPA 200.8

RunID: ICP4_030217A	QC Batch: R25095					Analyst: RQ
Chromium	2.3	1.0		µg/L	1	2/17/2003

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 interferen
H - Sample exceeded analytical holding time
E - Value above quantitation range
Results are wet unless otherwise specified

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Advanced Technology
Laboratories

16 of 23

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

025

Advanced Technology Laboratories

Date: 25-Feb-03

CLIENT: Applied P & Ch Laboratories
Lab Order: 061277
Project: JPL
Lab ID: 061277-016A

Client Sample ID: MW-19-3
Collection Date: 2/3/2003 11:05:00 AM
Matrix: WATER

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

ICP-MS METALS

EPA 200.8

RunID: ICP4_030217A	QC Batch: R25095					Analyst: RQ
Chromium	5.1	1.0		µg/L	1	2/17/2003

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 - Sample exceeded analytical holding time
E - Value above quantitation range
Results are wet unless otherwise specified

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026



Advanced Technology
Laboratories

17 of 23

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

Advanced Technology Laboratories

Date: 25-Feb-03

CLIENT: Applied P & Ch Laboratories
Lab Order: 061277
Project: JPL
Lab ID: 061277-017A

Client Sample ID: MW-19-2
Collection Date: 2/3/2003 10:20:00 AM
Matrix: WATER

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

ICP-MS METALS

EPA 200.8

RunID: ICP4_030217A	QC Batch: R25095					Analyst: RQ
Chromium	6.0	1.0		µg/L	1	2/17/2003

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 - Sample exceeded analytical holding time
E - Value above quantitation range
Results are wet unless otherwise specified

027

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Advanced Technology
Laboratories

18 of 23

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

Advanced Technology Laboratories

Date: 25-Feb-03

CLIENT: Applied P & Ch Laboratories
Lab Order: 061277
Project: JPL
Lab ID: 061277-018A

Client Sample ID: MW-19-1
Collection Date: 2/3/2003 11:45:00 AM
Matrix: WATER

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

ICP-MS METALS

EPA 200.8

RunID: ICP4_030217A	QC Batch: R25095					Analyst: RQ
Chromium	2.6	1.0		µg/L	1	2/17/2003

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 interferen
H - Sample exceeded analytical holding time
E - Value above quantitation range
Results are wet unless otherwise specified

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Advanced Technology
Laboratories

19 of 23

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

028

Advanced Technology Laboratories

Date: 25-Feb-03

CLIENT: Applied P & Ch Laboratories
Lab Order: 061277
Project: JPL
Lab ID: 061277-019A

Client Sample ID: EB-3-2/3/03
Collection Date: 2/3/2003 9:25:00 AM
Matrix: WATER

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

ICP-MS METALS

EPA 200.8

RunID: ICP4_030217A	QC Batch: R25095					Analyst: RQ
Chromium	ND	1.0		µg/L	1	2/17/2003

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 - Sample exceeded analytical holding time
E - Value above quantitation range
Results are wet unless otherwise specified

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Advanced Technology
Laboratories

20 of 23

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

029

Advanced Technology Laboratories

Date: 25-Feb-03

CLIENT: Applied P & Ch Laboratories
Lab Order: 061277
Project: JPL
Lab ID: 061277-020A

Client Sample ID: Dupe-2-IQ03
Collection Date:
Matrix: WATER

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

ICP-MS METALS

EPA 200.8

RunID: ICP4_030217A	QC Batch: R25095					Analyst: RQ
Chromium	1.9	1.0		µg/L	1	2/17/2003

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 - Sample exceeded analytical holding time
E - Value above quantitation range
Results are wet unless otherwise specified

030

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Advanced Technology
Laboratories

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

Client: Applied P & Ch Laboratory
Attn: Kenny Chan
Client's Project: JPL
ATL Number: 061227
Date Received: 02/12/03

(EPA 200.8) - INITIAL CALIBRATION

Instrument ID: ICP4
Date(s) Analyzed: 02/17/03

Initial Calibration:

COMPOUND	INTENSITY			LEVEL 4	r ²
	LEVEL 1	LEVEL 2	LEVEL 3		
Chromium	16295	48953	83438	153404	0.9999

Standard Concentra	0.5 ppb	5 ppb	10 ppb	20 ppb
Standard ID:	MST030217P	MST030217O	MST030217N	MST030217M

Calibration Acceptance Criteria: > 0.995 Correlation

031



Client: Applied P & Ch Laboratory
Attn: Kenny Chan
Client's Project: JPL
ATL Number: 061277
Date Received: 02/12/03

(EPA 200.8) INITIAL AND CONTINUING CALIBRATION VERIFICATION
(EXTERNAL REFERENCE STANDARD)

Instrument ID: ICP4

Date Analyzed: 2/17/03

Source:

CPI

Standard Code:

MST030217R

CPI

CPI

MST030217R

Concentration Units: ug/L

[illegible]

ICV Limits: 90 -110%

CCV Limits: 85 -115%

032



*Advanced Technology
Laboratories*

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

Client: Applied P & Ch Laboratory
 Attn: Kenny Chan
 Client's Project: JPL
 ATL Number: 061277
 Date Received: 02/12/03

(EPA 200.8) INITIAL AND CONTINUING CALIBRATION VERIFICATION
 (EXTERNAL REFERENCE STANDARD)

Instrument ID: ICP4

Date Analyzed: 2/17/03

Initial Calibration Verification:

Source:

Standard Code:

CPI

MST030217R

Continuing Calibration Verification:

CPI

MST030217R

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found CCV1	%R(1)	Found CCV2	%R(1)	
Chromium	10.0	10.5	105	10.0	10.3	103		0	PM

ICV Limits: 90 -110%

CCV Limits: 85 -115%

033



*Advanced Technology
Laboratories*

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

Client: Applied P & Ch Laboratory
 Attn: Kenny Chan
 Client's Project: JPL
 ATL Number: 061227
 Date Received: 02/12/03

Instrument ID: ICP4 Internal Standard ID: MST030124A

Date Analyzed: 2/17/03 Standard Concentration: 50 ug/L

QC Batch: R25095

			Scandium		Terbium	
			Area	% Rec	Area	% Rec
Calibration Blank			778618	---	1490917	---
Lab ID	Sample Description	APCL Lab ID:				
061277-001A	MW-21-5	--	840547	108	1366725	92
061277-002A	MW-21-4	--	850257	109	1404873	94
061277-003A	MW-21-3	--	888735	114	1443748	97
061277-004A	MW-21-2	--	915761	118	1479776	99
061277-005A	MW-21-1	--	926752	119	1504078	101
061277-006A	EB-1-1/29/03	--	777865	100	1459779	98
061277-007A	MW-20-5	--	812369	104	1406207	94
061277-008A	MW-20-4	--	817629	105	1438054	96
061277-009A	MW-20-3	--	766857	98	1323917	89
061277-009AMS	MW-20-3	--	802669	103	1373116	92
061277-009AMSD	MW-20-3	--	781405	100	1346971	90
061277-010A	MW-20-2	--	810140	104	1377137	92
061277-011A	MW-20-1	--	762875	98	1309439	88
061277-012A	EB-2-1/30/03	--	659831	85	1225342	82
061277-013A	Dupe-1-IQ03	--	777402	100	1320037	89
061277-014A	MW-19-5	--	793523	102	1409641	95
061277-015A	MW-19-4	--	826408	106	1423417	95
061277-016A	MW-19-3	--	856526	110	1407998	94
061277-017A	MW-19-2	--	849509	109	1363827	91
061277-018A	MW-19-1	--	753609	97	1246767	84
061277-019A	EB-3-2/3/03	--	704268	90	1236641	83
061277-020A	Dupe-2-IQ03	--	731697	94	1245662	84
MB-R25095	---	--	777011	100	1472259	99
LCS-R25095	---	--	777223	100	1451939	97

* Outside Acceptance Criteria

Acceptance Criteria: 60 - 125%

034



Advanced Technology
Laboratories

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

Client: Applied P & Ch Laboratory
 Attn: Kenny Chan
 Client's Project: JPL
 ATL Number: 061227
 Date Received: 02/12/03

Instrument ID: ICP4 Internal Standard ID: MST030124A

Date Analyzed: 2/24/03 Standard Concentration: 50 ug/L

QC Batch: R25311

			Scandium		Terbium	
			Area	% Rec	Area	% Rec
Calibration Blank			638869	---	1278347	---
Lab ID	Sample Description	APCL Lab ID:				
061277-009A	MW-20-3	—	657563	103	1269659	99
061277-009ADUP	MW-20-3	—	665170	104	1287153	101
061277-009AMS	MW-20-3	--	665308	104	1270929	99
061277-009AMSD	MW-20-3	--	654961	103	1253020	98
MB-R25311	---	—	642816	101	1291049	101
LCS-R25311	---	—	635542	99	1284579	100

* Outside Acceptance Criteria

Acceptance Criteria: 60 - 125%

035



Advanced Technology
Laboratories

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

ATL Number: 061227
Date Received: 02/12/03

(EPA 200.8) METHOD BLANKS *

Instrument ID:	ICP 4
Date Digested:	N/A
Digestion Method:	N/A

Dilution Factor: 1
Matrix: Water
Date Analyzed: 2/17/03

QC Batch Number: R23003

[illegible]

036



ATL Number: 061227
Date Received: 02/12/03

(EPA 200.8) METHOD BLANKS *

Instrument ID:	ICP 4
Date Digested:	N/A
Digestion Method:	N/A

Dilution Factor: 1
Matrix: Water
Date Analyzed: 2/24/03

QC Batch Number: R25311

[illegible]

037



ATL Number: 061227
Date Received: 02/12/03

(EPA 200.8) LABORATORY CONTROL SAMPLE

Lab Sample ID: LCS-R25095

Concentration Units: ug/L
Dilution Factor: 1

Date Digested: N/A
 Digestion Method: N/A

Matrix: Water
Date Analyzed: 2/17/03
Instrument ID: ICP4

QC Batch Number: R25095

LCS Standard Code: MST030217Q

[illegible]

* Values outside of QC limits

Spike Recovery: 0 out of 1 outside limits

038



Advanced Technology
Laboratories

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

ATL Number: 061227
Date Received: 02/12/03

Quantitative Analysis Summary

Sample Date/Time: Monday, February 17, 2003 16:38:28

Dataset File: D:\ELAN\Dataset\2003\February\030217\CCB.039

Method File: c:\elandata\Method\1-200.8crapcl-low.mth

Optimization File: c:\elandata\Optimize\default.dac

Number of Replicates: 3

Sample ID: CCB

Sample Type:

Summary

Analyte	Mass	Blank Intensity	Meas. Intensity	Int. RSD	Conc. Mean	Conc. SD	Conc. RSD
Li	7	120146	106617	1.2		ug/L	%
Ge	72	186629	164941	0.7		ug/L	%
Sc-1	45	778618	732851	0.2		ug/L	%
Cr	52	11529	14056	1.2	0.315	0.019 ug/L	6.1 %
In	115	1490917	1372731	0.3		ug/L	%
Tb	159	1827927	1717869	1.3		ug/L	%
Sc	45	778618	732851	0.2		ug/L	%

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CLIENT: Applied P & Ch Laboratories

Work Order: 061277

Project: JPL

ANALYTICAL QC SUMMARY REPORT

BatchID: R25095

Advanced Technology Laboratories

Sample ID: MB-R25095	Sample Type: MBLK	TestCode: 200.8_W	Units: µg/L	Prep Date:	Run ID: ICP4_030217A
Client ID: ZZZZZ	Batch ID: R25095	TestNo: EPA 200.8		Analysis Date: 2/17/2003	SeqNo: 380770
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC Lowlimit Highlimit RPD Ref Val %RPD RPDLimit Qual

Chromium 0.213 1.0 J

Sample ID: LCS-R25095	Sample Type: LCS	TestCode: 200.8_W	Units: µg/L	Prep Date:	Run ID: ICP4_030217A
Client ID: ZZZZZ	Batch ID: R25095	TestNo: EPA 200.8		Analysis Date: 2/17/2003	SeqNo: 380769
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC Lowlimit Highlimit RPD Ref Val %RPD RPDLimit Qual

Chromium 10.28 1.0 0 103 85 115 0 0

Sample ID: 061277-009AMS	Sample Type: MS	TestCode: 200.8_W	Units: µg/L	Prep Date:	Run ID: ICP4_030217A
Client ID: MW-20-3	Batch ID: R25095	TestNo: EPA 200.8		Analysis Date: 2/17/2003	SeqNo: 380853
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC Lowlimit Highlimit RPD Ref Val %RPD RPDLimit Qual

Chromium 10.88 1.0 10 2.294 85.9 80 120 0 0

Sample ID: 061277-009AMSD	Sample Type: MSD	TestCode: 200.8_W	Units: µg/L	Prep Date:	Run ID: ICP4_030217A
Client ID: MW-20-3	Batch ID: R25095	TestNo: EPA 200.8		Analysis Date: 2/17/2003	SeqNo: 380854
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC Lowlimit Highlimit RPD Ref Val %RPD RPDLimit Qual

Chromium 11.08 1.0 10 2.294 87.9 80 120 10.88 1.81 20

Sample ID: 061277-020ADUP	Sample Type: DUP	TestCode: 200.8_W	Units: µg/L	Prep Date:	Run ID: ICP4_030217A
Client ID: Dupe-2-IC03	Batch ID: R25095	TestNo: EPA 200.8		Analysis Date: 2/17/2003	SeqNo: 380866
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC Lowlimit Highlimit RPD Ref Val %RPD RPDLimit Qual

Chromium 1.501 1.0 0 0 0 0 0 1.851 20.9 30

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike/Surrogate outside limits due to matrix interference

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

DO - Surrogate diluted out
H - Sample exceeded holding time

R - RPD outside accepted recovery limits

Calculations are based on raw values



CLIENT: Applied P & Ch Laboratories
Work Order: 061277
Project: JPL

ANALYTICAL QC SUMMARY REPORT

140

BatchID: R25311

Sample ID: MB-R25311	SampType: MBLK	TestCode: 200.8_W	Units: µg/L	Prep Date:	Run ID: ICP4_030224A
Client ID: ZZZZZ	Batch ID: R25311	TestNo: EPA 200.8		Analysis Date: 2/24/2003	SeqNo: 383710
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC Lowlimit Highlimit RPD Ref Val %RPD RPDLimit Qual
Chromium	0.381	1.0			J
Sample ID: LCS-R25311	SampType: LCS	TestCode: 200.8_W	Units: µg/L	Prep Date:	Run ID: ICP4_030224A
Client ID: ZZZZZ	Batch ID: R25311	TestNo: EPA 200.8		Analysis Date: 2/24/2003	SeqNo: 383709
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC Lowlimit Highlimit RPD Ref Val %RPD RPDLimit Qual
Chromium	10.6	1.0	10	0	106 85 115 0 0
Sample ID: 061277-009AMS	SampType: MS	TestCode: 200.8_W	Units: µg/L	Prep Date:	Run ID: ICP4_030224A
Client ID: MW-20-3	Batch ID: R25311	TestNo: EPA 200.8		Analysis Date: 2/24/2003	SeqNo: 383713
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC Lowlimit Highlimit RPD Ref Val %RPD RPDLimit Qual
Chromium	11	1.0	10	1.673	93.2 80 120 0 0
Sample ID: 061277-009AMSD	SampType: MSD	TestCode: 200.8_W	Units: µg/L	Prep Date:	Run ID: ICP4_030224A
Client ID: MW-20-3	Batch ID: R25311	TestNo: EPA 200.8		Analysis Date: 2/24/2003	SeqNo: 383714
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC Lowlimit Highlimit RPD Ref Val %RPD RPDLimit Qual
Chromium	11.04	1.0	10	1.673	93.7 80 120 11 0.417 20
Sample ID: 061277-009ADUP	SampType: DUP	TestCode: 200.8_W	Units: µg/L	Prep Date:	Run ID: ICP4_030224A
Client ID: MW-20-3	Batch ID: R25311	TestNo: EPA 200.8		Analysis Date: 2/24/2003	SeqNo: 383712
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC Lowlimit Highlimit RPD Ref Val %RPD RPDLimit Qual
Chromium	1.72	1.0	0	0	0 0 1.673 2.77 30

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike/Surrogate outside limits due to matrix interference DO - Surrogate diluted out
J - Analyte detected below quantitation limits B - Analyte detected in the associated Method Blank H - Sample exceeded holding time
R - RPD outside accepted recovery limits Calculations are based on raw values

Client: Applied P & Ch Laboratory
 Attn: Kenny Chan
 Client's Project: JPL
 ATL Number: 061227
 Date Received: 02/12/03

HOLDING TIME SUMMARY _ EPA 200.8

	Lab Sample ID	Client Sample ID	Sample Description	Date Sampled	Date Digested	Contract Holding Time
1	061277-001A	MW-21-5	--	1/29/03	N/A	6 Months
2	061277-002A	MW-21-4	--	1/29/03	N/A	6 Months
3	061277-003A	MW-21-3	--	1/29/03	N/A	6 Months
4	061277-004A	MW-21-2	--	1/29/03	N/A	6 Months
5	061277-005A	MW-21-1	--	1/29/03	N/A	6 Months
6	061277-006A	EB-1-1/29/03	--	1/29/03	N/A	6 Months
7	061277-007A	MW-20-5	--	1/30/03	N/A	6 Months
8	061277-008A	MW-20-4	--	1/30/03	N/A	6 Months
9	061277-009A	MW-20-3	--	1/30/03	N/A	6 Months
10	061277-010A	MW-20-2	--	1/30/03	N/A	6 Months
11	061277-011A	MW-20-1	--	1/30/03	N/A	6 Months
12	061277-012A	EB-2-1/30/03	--	1/30/03	N/A	6 Months
13	061277-013A	Dupe-1-IQ03	--		N/A	6 Months
14	061277-014A	MW-19-5	--	2/3/03	N/A	6 Months
15	061277-015A	MW-19-4	--	2/3/03	N/A	6 Months
16	061277-016A	MW-19-3	--	2/3/03	N/A	6 Months
17	061277-017A	MW-19-2	--	2/3/03	N/A	6 Months
18	061277-018A	MW-19-1	--	2/3/03	N/A	6 Months
19	061277-019A	EB-3-2/3/03	--	2/3/03	N/A	6 Months
20	061277-020A	Dupe-2-IQ03	--			
21						

___0___ of ___20___ sample(s) were outside of holding time.

043



Instrument Tuning Report

File Name: default.tun
File Path: C:\elandata\Tuning

Analyte	Exact Mass	Meas. Mass	Mass DAC	Res. DAC	Meas. Pk. Width	Custom Res.
Be	9.012	9.027	2065	2040	0.737	
Mg	23.985	24.028	5714	2020	0.712	
Rh	102.905	102.878	24978	1955	0.741	
Ce	139.905	139.929	33977	2010	0.761	
Pb	207.977	207.929	50405	2270	0.735	
U	238.050	238.025	57644	2435	0.759	

044

Daily Performance Report

Sample ID: 030217-daily

Sample Date/Time: Monday, February 17, 2003 14:45:01

Sample Description:

Method File: c:\elandata\Method\Daily.mth

Dataset File: c:\elandata\Dataset\daily performance\030217-daily.012

Tuning File: c:\elandata\Tuning\default.tun

Optimization File: c:\elandata\Optimize\default.dac

Dual Detector Mode: Pulse

Acq. Dead Time(ns): 35

Current Dead Time (ns): 35

Summary

Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Net Intens. SD	Net Intens. RSD
Mg	24.0	50119.0	50119.031	178.991	0.4
Rh	102.9	197230.8	197230.761	1507.521	0.8
In	114.9	248760.3	248760.295	1532.906	0.6
Pb	208.0	125325.5	125325.455	1511.161	1.2
[> Ba	137.9	229820.9	229820.946	1674.185	0.7
[Ba++	69.0	5056.4	0.022	0.000	1.2
[> Ce	139.9	272524.6	272524.590	2032.318	0.7
[CeO	155.9	7370.0	0.027	0.000	1.0
Bkgd	220.0	6.0	6.033	0.767	12.7

Current Optimization File Data

Current Value	Description
0.86	Nebulizer Gas Flow
7.00	Lens Voltage
1100.00	ICP RF Power
-1850.00	Analog Stage Voltage
1425.00	Pulse Stage Voltage
85.00	Discriminator Threshold
-1.50	AC Rod Offset
60.00	Service DAC 1
0.00	Quadrupole Rod Offset

Current Autolens Data

Analyte	Mass	Num of Pts	DAC Value	Maximum Intensity
Be	9	9	5.0	5653.5
Co	59	9	5.5	85143.3
In	115	9	6.0	233166.4

Instrument Tuning Report

File Name: 030224.tun

File Path: D:\ELAN\TUNING\2003\February

Analyte	Exact Mass	Meas. Mass	Mass DAC	Res. DAC	Meas. Pk. Width	Custom Res.
Be	9.012	8.976	2060	2040	0.739	
Mg	23.985	24.029	5700	2020	0.721	
Rh	102.905	102.929	24965	1955	0.764	
Ce	139.905	139.929	33976	2010	0.776	
Pb	207.977	207.979	50417	2270	0.756	
U	238.050	238.073	57648	2435	0.775	

046

Daily Performance Report

Sample ID: 030224-daily

Sample Date/Time: Monday, February 24, 2003 12:06:42

Sample Description:

Method File: c:\elandata\Method\Daily.mth

Dataset File:

Tuning File: c:\elandata\Tuning\default.tun

Optimization File: c:\elandata\Optimize\default.dac

Dual Detector Mode: Pulse

Acq. Dead Time(ns): 35

Current Dead Time (ns): 35

Summary

Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Net Intens. SD	Net Intens. RSD
Mg	24.0	52177.3	52177.319	463.449	0.9
Rh	102.9	253849.9	253849.866	2240.896	0.9
In	114.9	294106.2	294106.228	2435.064	0.8
Pb	208.0	114934.9	114934.923	937.028	0.8
[> Ba	137.9	221500.7	221500.707	937.382	0.4
[Ba++	69.0	5898.8	0.027	0.000	0.9
[> Ce	139.9	275411.7	275411.713	2100.259	0.8
[CeO	155.9	5699.1	0.021	0.000	1.4
Bkgd	220.0	6.4	6.400	0.450	7.0

Current Optimization File Data

Current Value	Description
0.82	Nebulizer Gas Flow
7.00	Lens Voltage
1100.00	ICP RF Power
-1850.00	Analog Stage Voltage
1425.00	Pulse Stage Voltage
85.00	Discriminator Threshold
-1.50	AC Rod Offset
60.00	Service DAC 1
0.00	Quadrupole Rod Offset

Current Autolens Data

Analyte	Mass	Num of Pts	DAC Value	Maximum Intensity
Be	9	9	6.5	5258.0
Co	59	9	7.5	125591.6
In	115	9	8.5	301783.2

ICP-MS : Turbidity Check and Sample Preparation Log

QC Number: R25045

Date Read / Digested: 2/17/03

Method (Circle one):		Turb. Calibration		Matrix (Circle one):		Acid Lot #	
1) 200.8		10 100 NTU: 10 NTU		1) Drinking Water		Hydrochloric <u>4/2</u>	
2) 3010A		Std Code: <u>SCR-0022</u>		2) Ground Water		Nitric <u>4/2</u>	
3) 3050B		Initials: <u>RR</u>		3) Liquid			
4) 3051				6) Other <u>WATER</u>			

Sample ID	Turbidity Result *	Sample Wt./Vol.	Spike / LCS Amt. Added	Spike / LCS Conc. (ppm)	Spike Code	Final Vol (ml)	Initials	Comments
MS 061233-009A	0.25	10	0.1 mL	10 ppb	MS1030217 L	10 mL	RR	
MSD 061233-009A	0.25	1	0.1 mL	↓	↓	↓	↓	
Method Blank	-	↓	-	-	-	↓	↓	
LCS	-	↓	0.1 mL	10 ppb	MS1030217 R	↓	↓	
Blank MS	X	X	X	X	X	X	X	
Blank MSD	X	X	X	X	X	X	X	

1	061233-001A	0.58	10					RR	
2	002A	0.68							
3	003A	0.69							
4	004A	0.40							
5	005A	0.18							
6	006A	0.19							
7	007A	0.59							
8	008A	0.19							
9	009A	0.25							
10	010A	0.23							
11	011A	0.20							
12	012A	0.46							
13	013A	0.16							
14	014A	0.22							
15	015A	0.19							
16	016A	0.34							
17	017A	0.15							
18	018A	0.42							
19	019A	0.29							
20	020A	0.12	↓			↓	↓	RR	
DUP	061233-009A / 020A	0.27 / 0.12	10			10			

Turbidity < 1 NTU DOES NOT need sample preparation.

Relinquished by / Date:

Received by / Date:

ICP-MS : Turbidity Check and Sample Preparation Log

QC Number: R25311

Date Read / Digested: 2/24/03

Method (Circle one):		Turb. Calibration		Matrix (Circle one):		Acid Lot #	
1) 200.8		100 NTU: <u>10 NTU</u>		1) Drinking Water		Hydrochloric	<u>AA</u>
2) 3010A		Std Code: <u>SR-0020</u>		2) Ground Water		Nitric	<u>AA</u>
3) 3050B		Initials: <u>RB</u>		3) Liquid			
4) 3051				4) Soil			
				5) Solid			
				6) Other	<u>Water</u>		

Sample ID	Turbidity Result *	Sample Wt./Vol.	Spike / LCS Amt. Added	Spike / LCS Conc. (ppm)	Spike Code	Final Vol (ml)	Initials	Comments
MSD 061277-009A	0.25	10	0.1 mL	10 ppb	MSD 30224A	10 mL	RB	
MSD 061277-009A	0.25	↓	0.1 mL	↓	↓	↓	↓	
Method Blank	-	↓	-	-	-	↓	↓	
LCS	-	↓	0.1 mL	10 ppb	MSD 30224A	↓	↓	
Blank MS	X	X	X	X	X	X	X	
Blank MSD	X	X	X	X	X	X	X	

1	061277-009A	0.25	10	X	X	10	RB	
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21	061277-009A	0.23	10	X	X	10	RB	

* Turbidity <1 NTU DOES NOT need sample preparation.

Relinquished by / Date: _____

Received by / Date: _____

Sample/Batch Report

User Name: Rowena

Computer Name: ICPMS PE 6100

Sample File: D:\ELAN\Sample\2003\February\030217.sam

Report Date/Time: Monday, February 17, 2003 14:54:10

A/S Loc.	Batch ID	Sample ID	Description	Sample Type	Init. Quant.	Prep. Vol.	Aliquot Vol.	Diluted Vol.	Solids Ratio
7		ICV							
1		ICB							
9		MB-							
10		LCS-	> R25095						
11		061277-001A							
12		061277-002A							
13		061277-003A							
14		061277-004A							
15		061277-005A							
16		061277-006A							
17		061277-007A							
18		061277-008A							
7		CCV							
8		CCB							
19		061277-009A							
20		061277-010A							
21		061277-009ADUP							
22		061277-009AMS							
23		061277-009AMSD							
24		061277-011A							
25		061277-012A							
26		061277-013A							
27		061277-014A							
28		061277-015A							
7		CCV							
8		CCB							
29		061277-016A							
30		061277-017A							
31		061277-018A							
32		061277-019A							
33		061277-020A							
34		061277-020ADUP							
7		CCV							
8		CCB							

CAL: MST030217M / 20

N / 10

O / 5

P / 0.5

ICV / CCV: MST030217R

LCS: MST030217Q

MS / MSD: MST030217L

650

Sample/Batch Report

User Name: Rowena

Computer Name: ICPMS PE 6100

Sample File: D:\ELAN\Sample\2003\February\030224.sam

Report Date/Time: Monday, February 24, 2003 13:27:43

A/S Loc.	Batch ID	Sample ID	Description	Sample Type	Init. Quant.	Prep. Vol.	Aliquot Vol.	Diluted Vol.	Solids Ratio
7		ICV							
1		ICB							
9		MB-							
10		LCS-	> R25311 R2 7/24/03						
11		061277-009A							
12		061277-009ADUP							
13		061277-009AMS							
14		061277-009AMSD							
7		CCV							
8		CCB							

ICPMS - 20 ppb - MST030224B
 ↓ 10 ppb - MST030224C
 ↓ 5 ppb - MST030224D
 ↓ 0.5 ppb - MST030224E
 ICPMS - ICB/CCV 10 ppb - MST030224G

051

Metals Working Standard Prep Log

Date	Standard Name	Working Std Code	Stock Info		Preparation	
			Stock Std Code	Stock Concentration	Amount Taken from Stock	
1-24-03	ICPMS - Internal Std	NST030124A	NST020208C	Ge 1000 ppm	1 ml	
			NST020208E	Tb	1 ml	
			NST020208D	Sc	1 ml	
			NST020208F	In	1 ml	
			NST020208H	Tm	1 ml	
			NST020208D	10 ppm	5	
2-4-03	ICPMS - STD ₁	NST030204A	NST020208B	1000 ppm	0.05	
	-20	B	NST030204A	1 ppm	25	
	-10	C		20 ppm	10	
	-5	D		10 ppm	2	
	-0.5	E		5 ppm	5	
		F	NST020304F	10 ppm	0.05	
	ICPMS - LCS ₁		NST020304G	1000 ppm	0.05	
	-100/100 @ 10	G	NST030204F	1 ppm	0.5	
	-200	H	NST030204A	1 ppm	10	
	-100	I	NST030204H	200 ppm	25	
	-50	J		100 ppm	10	
	-100/100 @ 100	K	NST030204F	1 ppm	5	
			NST020208D	10 ppm	5	
			NST020208B	1000 ppm	0.05	
2-10-03	ICPMS - STD ₁	NST030204A	NST030204A	1 ppm	1	
	-20	B		20 ppm	25	
	-10	C		10 ppm	10	
	-5	D		5 ppm	5	

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Metals Working Standard Prep Log

Preparation			Expiration Dates		Comments	Initials
Final Vol. (ml)	Final Conc. (ug/ml)	Diluent Matrix (ie H ₂ O)	Working STD *	Exp Date		
100 ml	10 ppm	DI H ₂ O + HNO ₃	4-24-03	High Purity		NS
1	1	1	1	1		1
1	1	1	1	1		1
1	1	1	1	1		1
5	1	1	1	1		1
20	1 ppm	DI H ₂ O + HNO ₃	5-4-03	Low Purity		NS
20	20 ppm	1	1	1		1
20	10 ppm	1	1	1		1
20	5 ppm	1	1	1		1
20	0.5 ppm	1	1	1		1
10	20	1 ppm	1	1		1
20	10 ppm	1	1	1		1
20	200 ppm	1	1	1		1
20	100 ppm	1	1	1		1
20	20 ppm	1	1	1		1
20	50	100 ppm	1	1		1
20	10 ppm	DI H ₂ O + HNO ₃	5-10-03	Low Purity		NS
20	20 ppm	1	1	1		1
20	10 ppm	1	1	1		1
20	5 ppm	1	1	1		1

* Check working std versus all manufacturer's

Metals Working Standard Prep Log

[illegible]

Metals Working Standard Prep Log

[illegible]

* Check working std versus all manufacturer's

Advanced Technology Laboratories
Logbook 3
Page: 22 of 100

Metals Working Standard Prep Log

Date	Standard Name	Working Std Code	Stock Info	Preparation	
				Stock Concentration	Amount Taken from Stock
2/17/03	ICPMS - STD 1	MSTD30217L	MSTD21216D	10 ppm	5 mL
	ICPMS - 20 ppb	MSTD30217M	MSTD30217L	1 ppm	1 mL
	ICPMS - 10 ppb	MSTD30217N	MSTD30217M	20 ppb	25 mL
	ICPMS - 5 ppb	MSTD30217O	MSTD30217N	10 ppb	25 mL
	ICPMS - 0.5 ppb	MSTD30217P	MSTD30217O	5 ppb	5 mL
	ICPMS - LCS 1	MSTD30217Q	MSTD30217P	10 ppm	5 mL
	ICPMS - 10/100/1000 10 @	MSTD30217R	MSTD30217Q	1 ppm	0.5 mL
2/20/03	ICPMS - STD 1	MSTD30220A	MSTD21216D	10 ppm	5 mL
	ICPMS - 20 ppb	MSTD30220B	MSTD21216B	1000 ppm	0.05 mL
	ICPMS - 10 ppb	MSTD30220C	MSTD30220A	1 ppm	1 mL
	ICPMS - 5 ppb	MSTD30220D	MSTD30220B	20 ppb	25 mL
	ICPMS - 0.5 ppb	MSTD30220E	MSTD30220C	10 ppb	25 mL
	ICPMS - LCS 1	MSTD30220F	MSTD30220D	5 ppb	5 mL
	ICPMS - 10/100/1000 10 @	MSTD30220G	MSTD20320F	10 ppm	5 mL
2/20/03	ICPMS - 10 ppb TRAINING SOLN	MSTD30220H	MSTD20320G	1000 ppm	0.05 mL
2/20/03	ICPMS - LCS @ 10 ppm	MSPO30220J	MSTD30220F	1 ppm	0.5 mL
2/21/03	ICPMS - STD 1	MSTD30221A	MSTD30117A	1 ppm	10 mL
	ICPMS - 20 ppb	MSTD30221B	MSPO30220B	100 ppm	10 mL
	ICPMS - 10 ppb	MSTD30221C	MSPO30220C	100 ppm	10 mL
	ICPMS - 5 ppb	MSTD30221D	MSTD21216D	10 ppm	5 mL
			MSTD21216B	1000 ppm	0.05 mL
			MSTD30221A	1 ppm	1 mL
			MSTD30221B	20 ppm	25 mL
			MSTD30221C	10 ppm	25 mL

Preparation			Expiration Dates			Comments	Initials
Final Vol. (ml)	Final Conc. (ug/ml)	Diluent Matrix (ie H ₂ O)	Working STD *	Exp Date	Manufacturer		
50 mL	1 ppm	DI H ₂ O + 2% HNO ₃	5/18/03		Leeman	CR	RQ
50 mL	20 ppb						
50 mL	10 ppb						
50 mL	5 ppb						
50 mL	0.5 ppb						
50 mL	1 ppm						
50 mL	10 ppb						
50 mL	1 ppm	DI H ₂ O + 2% HNO ₃	5/21/03		Leeman		RQ
50 mL	20 ppb						
50 mL	10 ppb						
50 mL	5 ppb						
50 mL	0.5 ppb						
50 mL	1 ppm				Leeman		
50 mL	10 ppb						
1000 mL	10 ppb	DI H ₂ O + 2% HNO ₃	5/21/03		ULTRA SCIENTIFIC HIGH PURITY		RQ
100	10 ppm	DI H ₂ O + 2% HNO ₃	5/21/03		High Purity		NS
50 mL	1 ppm	DI H ₂ O + 2% HNO ₃	5/22/03		Leeman		RQ
50 mL	20 ppb						
50 mL	10 ppb						
50 mL	5 ppb						

* Check working std versus all manufacturer's

Date	Standard Name	Working Std Code	STOCK INFO		Preparation	
			Stock Std Code	Stock Concentration	Amount Taken from Stock	
1-14-03	ICPMS - LCS ₁	NST030114 E	NST020320 F	10 ppm	5	
	I - ICP/20 @ 50	F	NST030114 E	1 ppm	2.5	
	ICPMS - 200	G	NST030114 A	1 ppm	10 ml	
	I - 100	H	G	200 ppb	25	
	I - 50	I	H	100 ppb	10	
	ICPMS - ICP/20 @ 100	J	NST030114 E	1 ppm	5	
1-15-03	ICPMS - STD ₁	NST030115 A	NST020320 G	1000 ppm	0.05	
	I - 20	B	NST030115 A	1 ppm	1	
	I - 10	C	B	20 ppb	25	
	I - 5	D	C	10 ppb	25	
	I - 0.5	E	D	5 ppb	25	
	ICPMS - LCS ₁	F	NST020320 F	10 ppm	5	
	I - ICP/20 @ 50	G	NST030115 F	1 ppm	0.5	
1-17-03	Twining Stock Solution	NST030117 A	NST - 010523 E mg	1,000 ppm	0.5 ml	
	I		NST020619 H Cu		0.5	
	I		NST020619 K Rh		0.5	
	I		NST020619 E Cd		0.5	
	I		NST020619 F In		0.5	
	I		NST020619 C Ba		0.5	
	I		NST020619 I Ce		0.5	

Preparation			Expiration Dates		Comments	Initials
Final Vol. (ml)	Final Conc. (ug/ml)	Diluent Matrix (ie H ₂ O)	Working STD *	Exp Date		
50	1 ppm	DI H ₂ O + 2% HNO ₃	4-14-03	benen		WS
50	50 ppb					
50	200 ppb				Fe	
50	100 ppb					
50	50 ppb					
50	100 ppb					
50	1 ppm	DI H ₂ O + 2% HNO ₃	4-15-03	benen	Pb	WS / no
50	200 ppb					
50	100 ppb					
50	50 ppb					
50	0.5 ppb					
50	1 ppm				benen	
50	10 ppb					
500 ml	1 ppm	DI H ₂ O + 2% HNO ₃	4-17-03	ultra scientific		WS
				High Purity		

Metals Working Standard Prep Log

Date	Standard Name	Working Std Code	Stock Info		Preparation	
			Stock Std Code	Stock Concentration	Amount Taken from Stock	
1-17-03	Tuning Stock Solution	MS030117A	MS020619I Pb	1000 ppm	0.5 ml	
			MS020619D Be			
			MS020619G Co			
			MS020208J TL			
			MS020208G U			
1-17-03	10ppb Tuning Solution	MS030117B	MS030117A	1 ppm	5 ml	
1-20-03	ICPMS - STD ₁	MS030120A	MS021216D	10 ppm	5	
	- 200	B	MS030120A	1 ppm	10	
	- 100	C	B	200 ppb	25	
	- 50	D	C	100 ppb	10	
	ICPMS - LCS ₁	E	MS020320F	10 ppm	5	
	- ICP/cw	F	MS030120E	1 ppm	5	
1-22-03	ICPMS - STD ₁	MS030122A	MS021216D	10 ppm	5	
	- 20	B	MS021216B	1000 ppm	0.05	
	- 10	C	MS030122A	1 ppm	1	
	- 5	D	B	20 ppb	25	
	- 0.5	E	C	10 ppb	10	
	ICPMS - LCS ₁	F	D	5 ppb	2	
	- ICP/cw	G	MS020320F	10 ppm	5	
			MS020320G	1000 ppm	0.05	
1-24-03	ICPMS - Internal Std.	MS030124A	MS030122F	1 ppm	0.5	
			MS020208B Li	1000 ppm	1 ml	

Metals Working Standard Prep Log

Preparation			Expiration Dates		Comments	Initials
Final Vol. (ml)	Final Conc. (ug/ml)	Diluent Matrix (ie H ₂ O)	Working STD *	Exp Date		
1	500ml	1µm	DI H ₂ O + 2% HNO ₃	4-17-03	High Purity	NS
5						
	500ml	10µm	DI H ₂ O + 2% HNO ₃	4-17-03	ultra high purity	NS
	50	1µm	DI H ₂ O + 2% HNO ₃	4-20-03	benzene	NS
	50	200µm				
	50	100µm				
	20	50µm				
10						
	50	1µm			benzene	
	50	100µm				
	50	1µm				
	50	20µm	DI H ₂ O + 2% HNO ₃	4-22-03	benzene	NS
	50	20µm				
	50	10µm				
	20	5µm				
	20	0.5µm				
	50	1µm			benzene	
	50	10µm				
20						
	500ml	10µm	DI H ₂ O + 2% HNO ₃	4-24-03	High Purity	NS

* Check working std versus all manufacturer's

Method Detection Limits

Method: 6020 / 200.8
Date of Analysis: 1/13/03
Instrument ID: ICP4
Matrix: Water

<u>Compound</u>	<u>MDL (ug/L)</u>	<u>DLR (ug/L)</u>
Chromium	0.111	5

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*Advanced Technology
Laboratories*

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