

Level C Data Package Deliverables

Wet Chemistry



Applied P & Ch Laboratory

Applied P & Ch Laboratory
Wet Analysis Results for Method 314.0

Client Name: GEOFON, Inc. Project No: 04-4428.10 Anal. Method 314.0
Project ID: JPL Service ID: 31684 Collected by:

Component Name: Perchlorate
CAS No:

Lab ID	Sample ID	Matrix	Coll. Date	Rcv Date	Anal. Date	Batch	Unit	RL	Result	Q
03-1684-1	EB-9-2/17/03	Water	02/17/03	02/17/03	02/20/03	03W1610	µg/L	4	<4	U
03-1684-2	MW-23-1	Water	02/17/03	02/17/03	02/18/03	03W1560	µg/L	4	1.9	B
03-1684-3	MW-23-2	Water	02/17/03	02/17/03	02/18/03	03W1560	µg/L	4	2.4	B
03-1684-4	MW-23-3	Water	02/17/03	02/17/03	02/18/03	03W1560	µg/L	4	2.2	B
03-1684-6	MW-24-1	Water	02/17/03	02/17/03	02/20/03	03W1610	µg/L	20	257	
03-1684-7	MW-24-2	Water	02/17/03	02/17/03	02/20/03	03W1610	µg/L	8	106	
03-1684-8	MW-24-3	Water	02/17/03	02/17/03	02/19/03	03W1560	µg/L	4	1.6	B
03W1610-MB-01	03W1610-MB-01	Water	02/20/03	02/20/03	02/20/03	03W1610	µg/L	4	<4	U
03W1560-MB-01	03W1560-MB-01	Water	02/18/03	02/18/03	02/18/03	03W1560	µg/L	4	<4	U

Not Detected is shown as PQL, with dilution and moisture corrected if applicable.

Note: Q - Qualifier.

Qualifier: U - Not Detected or less than MDL

B - Less than RL (PQL, EQL or CRDL), but greater than MDL.

Applied P & Ch Laboratory
Wet Analysis Results for Method 7196

Client Name: GEOFON, Inc.
Project ID: JPL

Project No: 04-4428.10
Service ID: 31684

Anal. Method 7196
Collected by:

Component Name: Chromium (VI)
CAS No: 1333-82-0

Lab ID	Sample ID	Matrix	Coll. Date	Rcv Date	Anal. Date	Batch	Unit	RL	Result	Q
03-1684-1	EB-9-2/17/03	Water	02/17/03	02/17/03	03/17/03	03W1552	mg/L	0.01	<0.01	U
03-1684-2	MW-23-1	Water	02/17/03	02/17/03	03/17/03	03W1552	mg/L	0.01	<0.01	U
03-1684-3	MW-23-2	Water	02/17/03	02/17/03	03/17/03	03W1552	mg/L	0.01	<0.01	U
03-1684-4	MW-23-3	Water	02/17/03	02/17/03	03/17/03	03W1552	mg/L	0.01	<0.01	U
03-1684-5	MW-23-4	Water	02/17/03	02/17/03	03/17/03	03W1552	mg/L	0.01	<0.01	U
03-1684-6	MW-24-1	Water	02/17/03	02/17/03	03/17/03	03W1552	mg/L	0.01	<0.01	U
03-1684-7	MW-24-2	Water	02/17/03	02/17/03	03/17/03	03W1552	mg/L	0.01	<0.01	U
03-1684-8	MW-24-3	Water	02/17/03	02/17/03	03/17/03	03W1552	mg/L	0.01	<0.01	U
03-1684-9	MW-24-4	Water	02/17/03	02/17/03	03/17/03	03W1552	mg/L	0.01	<0.01	U
03W1552-MB-01	03W1552-MB-01	Water	02/17/03	02/17/03	02/17/03	03W1552	mg/L	0.01	<0.01	U

Not Detected is shown as PQL, with dilution and moisture corrected if applicable.

Note: Q - Qualifier.

Qualifier: U - Not Detected or less than MDL

B - Less than RL (PQL, EQL or CRDL), but greater than MDL.

FORM-3

Applied P & Ch Laboratory

Lab Control Spike/Lab Control Spike Duplicate Recovery for Method 314.0

Client Name: GEOFON, Inc.

Contract No:

Lab Code: APCL

Case No:

SAS No:

Service ID: 31684

Project ID: JPL

Project No: 04-4428.10

Sample Matrix: Water

Batch No: 03W1610

LCS Filename: -

Date Analyzed: 022003

Time Analyzed: 12:00

LCSD Filename: -

Date Analyzed: -

Time Analyzed: -

Spiked Components	Unit	Spike Added	Concentration		LCS Rec% #	QC Limit, % REC
			Unspiked	LCS		
PERCHLORATE	µg/L	25	0	23.3	93	80-120
# of Out-of-control					0	

Column to be used to flag recovery and RPD values:

* – Values outside of contract required QC Limits

D – Spiked components diluted out

Comments: _____

FORM-3

Applied P & Ch Laboratory

Matrix Spike/Matrix Spike Duplicate Recovery for Method 314.0

Client Name: GEOFON, Inc.

Contract No:

Lab Code: APCL

Case No:

SAS No:

Service ID: 31684

Project ID: JPL

Project No: 04-4428.10

Sample Matrix: Water

Batch No: 03W1610

MS Filename: -

Date Analyzed: 022003

Time Analyzed: 19:06

MSD Filename: -

Date Analyzed: 022003

Time Analyzed: 19:30

MS Sample No: MW-22-1

Sample Lab ID: 03-1694-7

Spiked Components	Unit	Spike Added	Concentration		MS Rec% #	QC Limit, % REC
			Unspiked	MS		
PERCHLORATE	µg/L	50	0	42.3	85	75-125
# of Out-of-control					0	

Spiked Components	Unit	Spike Added	MSD Concentration	MSD Rec% #	RPD% #	QC Limit, %	
						RPD	REC
PERCHLORATE	µg/L	50	42.5	85	0	20	75-125
# of Out-of-control				0	0		

Column to be used to flag recovery and RPD values:

* - Values outside of contract required QC Limits

D - Spiked components diluted out

Comments: _____

FORM-3

Applied P & Ch Laboratory

Lab Control Spike/Lab Control Spike Duplicate Recovery for Method 7196

Client Name:	GEOFON, Inc.	Contract No:		Lab Code:	APCL
Case No:		SAS No:		Service ID:	31684
Project ID:	JPL	Project No:	04-4428.10	Sample Matrix:	Water
		Batch No:	03W1552		
LCS Filename:	-	Date Analyzed:	021703	Time Analyzed:	14:44
LCSD Filename:	-	Date Analyzed:	021703	Time Analyzed:	14:44

Spiked Components	Unit	Spike Added	Concentration		LCS Rec% #	QC Limit, % REC
			Unspiked	LCS		
CHROMIUM (VI)	mg/L	0.25	0	0.236	94	80-115
# of Out-of-control					0	

Spiked Components	Unit	Spike Added	LCSD Concentration	LCSD Rec% #	RPD% #	QC Limit, % RPD REC
CHROMIUM (VI)	mg/L	0.25	0.227	91	3	19 80-115
# of Out-of-control				0	0	

Column to be used to flag recovery and RPD values:

* - Values outside of contract required QC Limits

D - Spiked components diluted out

Comments: _____

FORM-3

Applied P & Ch Laboratory

Matrix Spike/Matrix Spike Duplicate Recovery for Method 7196

Client Name: GEOFON, Inc.	Contract No:	Lab Code: APCL
Case No:	SAS No:	Service ID: 31684
Project ID: JPL	Project No: 04-4428.10	Sample Matrix: Water
	Batch No: 03W1552	
MS Filename: -	Date Analyzed: 021703	Time Analyzed: 14:44
MSD Filename: -	Date Analyzed: 021703	Time Analyzed: 14:44
MS Sample No: MW-23-3	Sample Lab ID: 03-1684-4	

Spiked Components	Unit	Spike Added	Concentration		MS Rec% #	QC Limit, % REC
			Unspiked	MS		
CHROMIUM (VI)	mg/L	0.25	0	0.238	95	78-115
# of Out-of-control					0	

Spiked Components	Unit	Spike Added	MSD Concentration	MSD Rec% #	RPD% #	QC Limit, % RPD REC
CHROMIUM (VI)	mg/L	0.25	0.234	94	1	19 78-115
# of Out-of-control				0	0	

Column to be used to flag recovery and RPD values:

* – Values outside of contract required QC Limits

D – Spiked components diluted out

Comments: _____

FORM-3

Applied P & Ch Laboratory

Lab Control Spike/Lab Control Spike Duplicate Recovery for Method 314.0

Client Name: GEOFON, Inc.

Contract No:

Lab Code: APCL

Case No:

SAS No:

Service ID: 31684

Project ID: JPL

Project No: 04-4428.10

Sample Matrix: Water

Batch No: 03W1560

LCS Filename: -

Date Analyzed: 021803

Time Analyzed: 10:16

LCSD Filename: -

Date Analyzed: -

Time Analyzed: -

Spiked Components	Unit	Spike Added	Concentration		LCS Rec% #	QC Limit, % REC
			Unspiked	LCS		
PERCHLORATE	µg/L	25	0	23.5	94	80-120
# of Out-of-control					0	

Column to be used to flag recovery and RPD values:

* - Values outside of contract required QC Limits

D - Spiked components diluted out

Comments: _____

FORM-3

Applied P & Ch Laboratory

Matrix Spike/Matrix Spike Duplicate Recovery for Method 314.0

Client Name: GEOFON, Inc.

Contract No:

Lab Code: APCL

Case No:

SAS No:

Service ID: 31684

Project ID: JPL

Project No: 04-4428.10

Sample Matrix: Water

Batch No: 03W1560

MS Filename: -

Date Analyzed: 021903

Time Analyzed: 01:11

MSD Filename: -

Date Analyzed: 021903

Time Analyzed: 01:35

MS Sample No: MW-23-3

Sample Lab ID: 03-1684-4

Spiked Components	Unit	Spike Added	Concentration		MS Rec% #	QC Limit, % REC
			Unspiked	MS		
PERCHLORATE	µg/L	50	2.4	44.5	84	75-125
# of Out-of-control					0	

Spiked Components	Unit	Spike Added	MSD Concentration	MSD Rec% #	RPD% #	QC Limit, %	
						RPD	REC
PERCHLORATE	µg/L	50	44.7	85	1	20	75-125
# of Out-of-control				0	0		

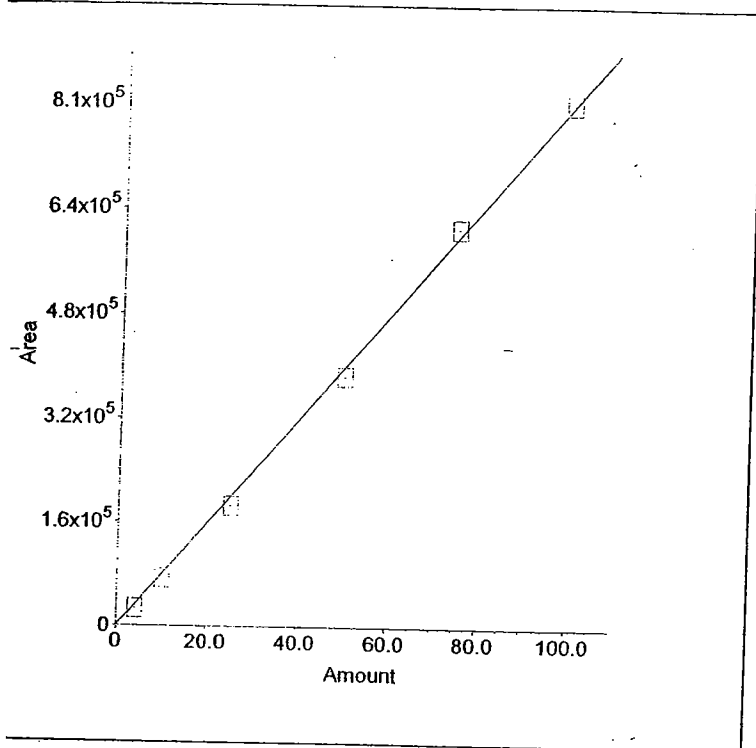
Column to be used to flag recovery and RPD values:

* - Values outside of contract required QC Limits

D - Spiked components diluted out

Comments: _____

1. Component: perchlorate
 Standard: External Fit Type: Linear
 Origin: Force Calibration: Area
 $r^2=0.998635$
 Amt=0.0001235*Resp+0



Analyst Wei Wang
 Date 07/31/02
 Instrument Perle

FORM-7
Applied P & Ch Laboratory
CCV Recovery for Wet Analysis

Client Name: GEOFON, Inc.

Contract No.:

Lab Code: APCL

Case No:

SAS No.:

Service ID: 31684

Project ID: JPL

Project No.: 04-4428.10

#	Component Name	Method	Batch No.	Unit	Expected	Test Result	Rec. %	Dev. %	Flag	Control Limit, %	Test Date
1	Perchlorate	314.0	03W1610	µg/L	50	49.9	100	0	✓	85-115	02/20/2003
	Perchlorate	314.0	03W1610	µg/L	50	49.3	99	-1	✓	85-115	02/20/2003
	Perchlorate	314.0	03W1610	µg/L	50	48.5	97	-3	✓	85-115	02/20/2003
	Perchlorate	314.0	03W1610	µg/L	50	49.5	99	-1	✓	85-115	02/20/2003
2	Chromium (VI)	7196	03W1552	mg/L	0.25	0.251	100	0	✓	90-110	02/17/2003
	Chromium (VI)	7196	03W1552	mg/L	0.25	0.258	103	3	✓	90-110	02/17/2003
3	Perchlorate	314.0	03W1560	µg/L	50	48.4	97	-3	✓	85-115	02/18/2003
	Perchlorate	314.0	03W1560	µg/L	50	48.4	97	-3	✓	85-115	02/18/2003
	Perchlorate	314.0	03W1560	µg/L	50	49.0	98	-2	✓	85-115	02/18/2003
	Perchlorate	314.0	03W1560	µg/L	50	47.8	96	-4	✓	85-115	02/18/2003
	Perchlorate	314.0	03W1560	µg/L	50	51.2	102	2	✓	85-115	02/19/2003

e	Sample	Sample Type	Level	Method	Data File	Volume	Dilution	Weight	Int. Std.
	mb	Sample		e314.0-9.met	mb_001.dxd	1	1	1	1
	std1 4ppb w7373a	Calibration	1	e314.0-9.met	std1_002.dxd	1	1	1	1
	std2 10ppb w7373b	Calibration	2	e314.0-9.met	std2_003.dxd	1	1	1	1
	std3 25ppb w7373c	Calibration	3	e314.0-9.met	std3_004.dxd	1	1	1	1
	std4 50ppb w7373d	Calibration	4	e314.0-9.met	std4_005.dxd	1	1	1	1
	std5 75ppb w7373e	Calibration	5	e314.0-9.met	std5_006.dxd	1	1	1	1
	std6 100ppb w7373f	Calibration	6	e314.0-9.met	std6_007.dxd	1	1	1	1
	icv 50ppb w7319c	Sample		e314.0-9.met	icv_a008.dxd	1	1	1	1
	icb	Sample		e314.0-9.met	icb	1	1	1	1
	3984-15 f=1	Sample		e314.0-9.met	3984-15	1	1	1	1
	3843-33 f=1	Sample		e314.0-9.met	3843-33	1	1	1	1
	3984-15 f=1	Sample		e314.0-9.met	3984-15a	1	1	1	1
	3843-33 f=1	Sample		e314.0-9.met	3843-33a	1	1	1	1
	3984-15 f=1	Sample		e314.0-9.met	3984-15b	1	1	1	1
	3843-33 f=1	Sample		e314.0-9.met	3843-33b	1	1	1	1

Analyst Wei Wang
Date 7/31/02
Instrument IL-K

ne	Sample	Sample Type	Level	Method	Data File	Volume	Dilution
	##03w1560kw ipc 25ppb w7685b	Sample		e314.0-9.met	c:\data\03w1560k\w1560k ipc 25ppb	1	1
	ccv 50ppb w7685c	Sample		e314.0-9.met	c:\data\03w1560k\w1560k q01	1	1
	ccb	Sample		e314.0-9.met	c:\data\03w1560k\w1560k ccb01	1	1
	lcs 25ppb w7373C	Sample		e314.0-9.met	c:\data\03w1560k\w1560k l01	1	1
	lcs 18ppb w7685D	Sample		e314.0-9.met	c:\data\03w1560k\w1560k j01	1	1
	ICCS 4ppb w7685a	Sample		e314.0-9.met	c:\data\03w1560k\w1560k iccs 4ppb	1	1
	mb	Sample		e314.0-9.met	c:\data\03w1560k\w1560k k01	1	1
	1268-07 PE f=1	Sample		e314.0-9.met	c:\data\03w1560k\1268-07 pe	1	1
	1267-33 PE f=1	Sample		e314.0-9.met	c:\data\03w1560k\1267-33 pe	1	1
	1267-33 PE f=1	Sample		e314.0-9.met	c:\data\03w1560k\1267-33 pe	1	1
	ccv 50ppb w7685c	Sample		e314.0-9.met	c:\data\03w1560k\w1560k q02	1	1
	ccb	Sample		e314.0-9.met	c:\data\03w1560k\w1560k k02	1	1
	1657-01 f=10	Sample		e314.0-9.met	c:\data\03w1560k\1657-01	1	10
	1657-02 f=1	Sample		e314.0-9.met	c:\data\03w1560k\1657-02	1	1
	1657-03 f=1	Sample		e314.0-9.met	c:\data\03w1560k\1657-03	1	1
	1267-33 PE f=1	Sample		e314.0-9.met	c:\data\03w1560k\1267-33 pe	1	1
	1657-01 f=100	Sample		e314.0-9.met	c:\data\03w1560k\1657-01a_017.dxd	1	100
	1657-03 f=100	Sample		e314.0-9.met	c:\data\03w1560k\1657-03a_018.dxd	1	100
	1651-01 f=1	Sample		e314.0-9.met	c:\data\03w1560k\1651-01_019.dxd	1	1
	1651-02 f=1	Sample		e314.0-9.met	c:\data\03w1560k\1651-02_020.dxd	1	1
	1651-03 f=1	Sample		e314.0-9.met	c:\data\03w1560k\1651-03_021.dxd	1	1
	ccv 50ppb w7685c	Sample		e314.0-9.met	c:\data\03w1560k\w1560k q03_022.dxd	1	1
	ccb	Sample		e314.0-9.met	c:\data\03w1560k\w1560k k03_023.dxd	1	1
	1651-04 f=1	Sample		e314.0-9.met	c:\data\03w1560k\1651-04_024.dxd	1	1
	1651-05 f=1	Sample		e314.0-9.met	c:\data\03w1560k\1651-05_025.dxd	1	1
	1651-06 f=1	Sample		e314.0-9.met	c:\data\03w1560k\1651-06_026.dxd	1	1
	1651-07 f=1	Sample		e314.0-9.met	c:\data\03w1560k\1651-07_027.dxd	1	1
	1684-02 f=1	Sample		e314.0-9.met	c:\data\03w1560k\1684-02_029.dxd	1	1
	1684-03 f=1	Sample		e314.0-9.met	c:\data\03w1560k\1684-03_030.dxd	1	1
	1684-04 f=1	Sample		e314.0-9.met	c:\data\03w1560k\1684-04_031.dxd	1	1
	1684-06 f=1 - for reference	Sample		e314.0-9.met	c:\data\03w1560k\1684-06_032.dxd	1	1
	ccv 50ppb w7685c	Sample		e314.0-9.met	c:\data\03w1560k\w1560k q04_033.dxd	1	1
	ccb	Sample		e314.0-9.met	c:\data\03w1560k\w1560k k04_034.dxd	1	1
	1684-07 f=1 - for reference	Sample		e314.0-9.met	c:\data\03w1560k\1684-07_035.dxd	1	1
	1684-08 f=1	Sample		e314.0-9.met	c:\data\03w1560k\1684-08_036.dxd	1	1
	1658-01 f=1	Sample		e314.0-9.met	c:\data\03w1560k\1658-01_037.dxd	1	1
	1672-01 f=1	Sample		e314.0-9.met	c:\data\03w1560k\1672-01_038.dxd	1	1
	1684-04 ms f=1	Sample		e314.0-9.met	c:\data\03w1560k\w1560k m01_039.dxd	1	1
	1684-04 msd f=1	Sample		e314.0-9.met	c:\data\03w1560k\w1560k n01_040.dxd	1	1
	ccv 50ppb w7685c	Sample		e314.0-9.met	c:\data\03w1560k\w1560k q05_041.dxd	1	1
	1267-33 PE f=1	Sample		e314.0-9.met	c:\data\03w1560k\1267-33 pe_042.dxd	1	1
	1267-33 PE f=1	Sample		e314.0-9.met	c:\data\03w1560k\1267-33 pe_043.dxd	1	1
	1267-33 PE f=1	Sample		e314.0-9.met	c:\data\03w1560k\1267-33 pe_044.dxd	1	1
	1267-33 PE f=1	Sample		e314.0-9.met	c:\data\03w1560k\1267-33 pe_045.dxd	1	1
		Sample		aastopcl.met		1	1

Analyst Wei Wang
 Date 2/18-19/03
 Instrument IC-C

ie	Sample	Sample Type	Level	Method	Data File	Volume	Dilution	Weight
	##03w1610kw ipc 25ppb w7685b	Sample		e314.0-9.met	w1610k ipc 25ppb	1	1	1
	ccv 50ppb w7685c	Sample		e314.0-9.met	w1610k q01	1	1	1
	ccb	Sample		e314.0-9.met	w1610k ccb01	1	1	1
	lcs 25ppb w7373C	Sample		e314.0-9.met	w1610k l01	1	1	1
	lcs 18ppb w7685D	Sample		e314.0-9.met	w1610k j01	1	1	1
	ICCS 4ppb w7685a	Sample		e314.0-9.met	w1610k iccs 4ppb	1	1	1
	mb	Sample		e314.0-9.met	w1610k k01	1	1	1
	1684-01 f=1	Sample		e314.0-9.met	1684-01	1	1	1
	1684-06 f=5	Sample		e314.0-9.met	1684-06	1	5	1
	1684-07 f=2	Sample		e314.0-9.met	1684-07	1	2	1
	1724-01 f=1	Sample		e314.0-9.met	1724-01	1	1	1
	1700-01 f=1	Sample		e314.0-9.met	1700-01	1	1	1
	ccv 50ppb w7685c	Sample		e314.0-9.met	w1610k q02	1	1	1
	ccb	Sample		e314.0-9.met	w1610k k02	1	1	1
	1694-01 f=1	Sample		e314.0-9.met	1694-01	1	1	1
	1694-03 f=1	Sample		e314.0-9.met	1694-03_017.dxd	1	1	1
	1694-04 f=1	Sample		e314.0-9.met	1694-04_018.dxd	1	1	1
	1694-05 f=1	Sample		e314.0-9.met	1694-05_019.dxd	1	1	1
	1694-06 f=1	Sample		e314.0-9.met	1694-06_020.dxd	1	1	1
	1694-07 f=1	Sample		e314.0-9.met	1694-07_021.dxd	1	1	1
	1694-07 ms f=1	Sample		e314.0-9.met	w1610k m01_022.dxd	1	1	1
	1694-07 msd f=1	Sample		e314.0-9.met	w1610k n01_023.dxd	1	1	1
	ccv 50ppb w7685c	Sample		e314.0-9.met	w1610k q03_024.dxd	1	1	1
	ccb	Sample		e314.0-9.met	w1610k k03_025.dxd	1	1	1
	1694-08 f=1	Sample		e314.0-9.met	1694-08_026.dxd	1	1	1
	1694-09 f=1	Sample		e314.0-9.met	1694-09_027.dxd	1	1	1
	1651-02 f=1	Sample		e314.0-9.met	1651-02_028.dxd	1	1	1
	1658-01 f=1	Sample		e314.0-9.met	1658-01_029.dxd	1	1	1
	1694-02 f=1	Sample		e314.0-9.met	1694-02_030.dxd	1	1	1
	ccv 50ppb w7685c	Sample		e314.0-9.met	w1610k q04_031.dxd	1	1	1
	ccv50ppb w7685c	Sample		e314.0-9.met	w1610k q05	1	1	1
	ccb	Sample		e314.0-9.met	w1610k k04	1	1	1
	1767-01 f=1	Sample		e314.0-9.met	1767-01	1	1	1
	1767-02 f=1	Sample		e314.0-9.met	1767-02	1	1	1
	1767-03 f=1	Sample		e314.0-9.met	1767-03	1	1	1
	ccv 50ppb w7685c	Sample		e314.0-9.met	w1610k q06	1	1	1
	ccb	Sample		e314.0-9.met	w1610k k05_037.dxd	1	1	1
	1773-01 f=1	Sample		e314.0-9.met	1773-01_038.dxd	1	1	1
	ccv 50ppb w7685c	Sample		e314.0-9.met	w1610k q07_039.dxd	1	1	1

Analyst Wei Way
Date 2/20/03
Instrument ICP

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

Chromium (VI) (7196) Worksheet

Batch # 03W155 Matrix: in

[Holding Time: 24 hours!!]

Test Date: 2/17/03Analyst: br

Lot #: Reagent Water

Diphenylcazide solution

Test Time: 14:40

SOP: G-22

Calibration	STD Lot #	$C_{std} \times V_{std} / V_f = C_i$	A_i	$RF_i = A_i / C_i$	Calibration results	Note
STD-1	W-	x / = mg/L			Least Square [RF]=	Cal. Code:
STD-2	W-	x / = mg/L			Average RF=	
STD-3	W-	x / = mg/L			C.C.= <u>0.997</u> ≥ 0.995	
STD-4	W-	x / = mg/L			RSD= % ($\leq 15\%$)	
STD-5	W-	x / = mg/L			Ref. page	
STD-6	W-	x / = mg/L			<u>A=0.000+0.836C</u>	

Analysis Type	Sample ID or Lot #	Samp. Amnt X_0 (g or mL)	Dilu./Ext $X/X_0 = f_1$	Treat. Ratio $V/X = f_2$	540 nm A	Concentration $C' = A / RF$	C (Sample) $C = f_1 f_2 C'$	Anomaly Note
CCV	Lot: W-7191	Expected Conc.: x	/ = <u>0.25</u> mg/L		<u>0.210</u>	<u>0.25</u> mg/L	REC. %	90-110 %
Method Blank	Bl. Lot: <u>T1115</u>		$/X_0 = 1$	95.0/ =	<u>0.000</u>	mg/L	<u>0.00</u> ppm	
LCS1	Bl. Lot: <u>16814-1</u>		$/X_0 = 1$	95.0/ =	<u>0.197</u>	mg/L	<u>0.226</u> ppm	
Sample-1	<u>4</u>		$/X_0 = 1$	95.0/ =	<u>0.000</u>	mg/L	<u>0.00</u> ppm	
MS on S-1	<u>4</u>		$/X_0 = 1$	95.0/ =	<u>0.199</u>	mg/L	<u>0.238</u> ppm	
MSD on S-1	<u>4</u>		$/X_0 = 1$	95.0/ =	<u>0.196</u>	mg/L	<u>0.234</u> ppm	
Sample 2	<u>2</u>		$/X_0 = 1$	95.0/ =	<u>0.003</u>	mg/L	<u>0.004</u> ppm	
Sample 3	<u>3</u>		$/X_0 = 1$	95.0/ =	<u>0.003</u>	mg/L	<u>0.004</u> ppm	
Sample 4	<u>4</u>		$/X_0 = 1$	95.0/ =	<u>0.004</u>	mg/L	<u>0.005</u> ppm	
Sample 5	<u>5</u>		$/X_0 = 1$	95.0/ =	<u>0.002</u>	mg/L	<u>0.002</u> ppm	
Sample 6	<u>6</u>		$/X_0 = 1$	95.0/ =	<u>0.003</u>	mg/L	<u>0.004</u> ppm	
Sample 7	<u>7</u>		$/X_0 = 1$	95.0/ =	<u>0.004</u>	mg/L	<u>0.005</u> ppm	
Sample 8	<u>8</u>		$/X_0 = 1$	95.0/ =	<u>0.004</u>	mg/L	<u>0.005</u> ppm	
Sample 9	<u>9</u>		$/X_0 = 1$	95.0/ =	<u>0.002</u>	mg/L	<u>0.002</u> ppm	
Sample 10			$/X_0 = 1$	95.0/ =		mg/L	ppm	
Blank	Lot:		$/X_0 = 1$	95.0/ =		mg/L	ppm	
LCS2	Bl. Lot: <u>T1115</u>		$/X_0 = 1$	95.0/ =	<u>0.190</u>	mg/L	<u>0.227</u> ppm	
Sample 11			$/X_0 = 1$	95.0/ =		mg/L	ppm	
Sample 12			$/X_0 = 1$	95.0/ =		mg/L	ppm	
Sample 13			$/X_0 = 1$	95.0/ =		mg/L	ppm	
Sample 14			$/X_0 = 1$	95.0/ =		mg/L	ppm	
Sample 15			$/X_0 = 1$	95.0/ =		mg/L	ppm	
Sample 16			$/X_0 = 1$	95.0/ =		mg/L	ppm	
Sample 17			$/X_0 = 1$	95.0/ =		mg/L	ppm	
Sample 18			$/X_0 = 1$	95.0/ =		mg/L	ppm	
Sample 19			$/X_0 = 1$	95.0/ =		mg/L	ppm	
Sample 20			$/X_0 = 1$	95.0/ =		mg/L	ppm	
MTX Dup.			$/X_0 = 1$	95.0/ =	<u>0.246</u>	<u>0.258</u> mg/L	ppm	

Type	STD Lot #	$C_{STD}(\mu\text{g/mL}) \times V_{STD}(\text{mL}) / X(\text{g or mL}) = T$	Spike Rec.	Ctl Limit (W/S)	PQL/MDL (in ppm)
MS	W- <u>7191</u>	x / = <u>0.25</u> ppm	%	80-120 %/80-120 %	PQL(w) 0.01
MSD	W- <u>1</u>	x / = ppm	%		PQL(s) 0.05
LCS	W- <u>7757</u>	x / = ppm	%	80-120 %/80-120 %	MDL(w) 0.005
LCSD	W- <u>1</u>	x / = ppm	%		MDL(s) 0.025

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

Chromium (VI) (7196) Worksheet

Batch # 03W1295 Matrix: W

[Holding Time: 24 hours!!]

Test Date: 1/29/03 Analyst: B.V.

Lot #: Reagent Water

Diphenylcazide solution

Test Time:

SOP: G-22

Calibration	STD Lot #	$C_{std} \times V_{std} / V_f = C_i$	A_i	$RF_i = A_i / C_i$	Calibration results	Note
STD-1	W-7191	x / = 0.000mg/L	0.000		Least Square [RF]=	Cal. Code:
STD-2	W-	x / = 0.012mg/L	0.006		Average RF=	A=0.000+0.836C
STD-3	W-	x / = 0.050mg/L	0.001		C.C.=0.977 (> 0.995)	
STD-4	W-	x / = 0.125mg/L	0.009		RSD= % (< 15%)	
STD-5	W-	x / = 0.250mg/L	0.014		Ref. page	
STD-6	W-	x / = 0.500mg/L	0.015		A=0.003+B*1.463	

Analysis Type	Sample ID or Lot #	Samp. Amt X_0 (g or mL)	Dilu./Ext $X/X_0=f_1$	Treat. Ratio $V/X=f_2$	540 nm A	Concentration $C'=A/RF$	C (Sample) $C=f_1 f_2 C'$	Anomaly Note
CCV	Lot: W-7076	Expected Conc.: x	/	= 0.25 mg/L	0.26	0.258 mg/L	REC. %	90-110 %
Method Blank	Bl. Lot: T1115		$/X_0 = 1$	95.0/ =	0.000	mg/L	0.00 ppm	
LCS1	Bl. Lot: "		$/X_0 =$	95.0/ =	0.204	mg/L	0.204 ppm	
Sample-1	1369-1		$/X_0 =$	95.0/ =	0.000	mg/L	0.00 ppm	
MS on S-1	6		$/X_0 =$	95.0/ =	0.223	mg/L	0.266 ppm	
MSD on S-1	6		$/X_0 =$	95.0/ =	0.230	mg/L	0.275 ppm	
Sample 2	12		$/X_0 =$	95.0/ =	0.004	mg/L	0.005 ppm	
Sample 3	3		$/X_0 =$	95.0/ =	0.002	mg/L	0.002 ppm	
Sample 4	4		$/X_0 =$	95.0/ =	0.001	mg/L	0.001 ppm	
Sample 5	5		$/X_0 =$	95.0/ =	0.002	mg/L	0.002 ppm	
Sample 6	6		$/X_0 =$	95.0/ =	0.004	mg/L	0.005 ppm	
Sample 7	-		$/X_0 =$	95.0/ =		mg/L	ppm	
Sample 8			$/X_0 =$	95.0/ =		mg/L	ppm	
Sample 9			$/X_0 =$	95.0/ =		mg/L	ppm	
Sample 10			$/X_0 =$	95.0/ =		mg/L	ppm	
Blank	Lot:		$/X_0 =$	95.0/ =		mg/L	ppm	
LCS2	Bl. Lot: T1115		$/X_0 = 1$	95.0/ =	0.210	mg/L	0.251 ppm	
Sample 11			$/X_0 =$	95.0/ =		mg/L	ppm	
Sample 12			$/X_0 =$	95.0/ =		mg/L	ppm	
Sample 13			$/X_0 =$	95.0/ =		mg/L	ppm	
Sample 14			$/X_0 =$	95.0/ =		mg/L	ppm	
Sample 15			$/X_0 =$	95.0/ =		mg/L	ppm	
Sample 16			$/X_0 =$	95.0/ =		mg/L	ppm	
Sample 17			$/X_0 =$	95.0/ =		mg/L	ppm	
Sample 18			$/X_0 =$	95.0/ =		mg/L	ppm	
Sample 19			$/X_0 =$	95.0/ =		mg/L	ppm	
Sample 20			$/X_0 =$	95.0/ =		mg/L	ppm	
MTX Dup.	losing 0.25mg/L		$/X_0 =$	95.0/ =	0.204	mg/L	0.204 ppm	

Type	STD Lot #	$C_{STD}(\mu\text{g/mL}) \times V_{STD}(\text{mL}) / X(\text{g or mL}) = T$	Spike Rec.	Ctl Limit (W/S)	PQL/MDL (in ppm)
MS	W-7076	x / = 0.25 ppm	%	80-120 %/80-120 %	PQL(w) 0.01
MSD	W-	x / = ppm	%		PQL(s) 0.05
LCS	W-7191	x / = ppm	%	80-120 %/80-120 %	MDL(w) 0.005
LCSD	W-	x / = ppm	%		MDL(s) 0.025

Applied P & Ch Laboratory

13760 Magnolia Ave. Chino CA 91710

Tel: (909) 590-1828 Fax: (909) 590-1498

Submitted to:

GEOFON, Inc.

Attention: Leo Williamson

22632 Golden Spring Dr Ste 270

Diamond Bar CA 91765

Tel: (909)396-7662 Fax: (909)396-1455

APCL Analytical Report

Service ID #: 801-031858

Collected by:

Collected on: 02/17-24/03

Sample Description: Water

Project Description: 04-4428.10 JPL

Received: 02/17-24/03

Extracted: N/A

Tested: N/A

Reported: 04/02/03

Analysis of Water Samples

Component Analyzed	Method	Unit	PQL	Analysis Result			
				DUPE-5-1Q03 03-01858-1	DUPE-6-1Q03 03-01858-2	EB-9-2/17/03 03-01858-3	EB-10-2/18/03 03-01858-4

CHROMIUM ^(a)

Component Analyzed	Method	Unit	PQL	Analysis Result			
				MW-5 03-01858-5	MW-6 03-01858-6	MW-7 03-01858-7	MW-8 03-01858-8

CHROMIUM ^(a)

Component Analyzed	Method	Unit	PQL	Analysis Result			
				MW-10 03-01858-9	MW-13 03-01858-10	MW-15 03-01858-11	MW-16 03-01858-12

CHROMIUM ^(a)

Component Analyzed	Method	Unit	PQL	Analysis Result			
				MW-11-1 03-01858-13	MW-11-2 03-01858-14	MW-11-3 03-01858-15	MW-22-1 03-01858-16

CHROMIUM ^(a)

Component Analyzed	Method	Unit	PQL	Analysis Result			
				MW-22-2 03-01858-17	MW-22-3 03-01858-18	MW-23-1 03-01858-19	MW-23-2 03-01858-20

CHROMIUM ^(a)

Component Analyzed	Method	Unit	PQL	Analysis Result			
				MW-23-3 03-01858-21	MW-23-4 03-01858-22	MW-24-1 03-01858-23	

CHROMIUM ^(a)

Applied P & Ch Laboratory

13760 Magnolia Ave. Chino CA 91710

Tel: (909) 590-1828 Fax: (909) 590-1498

APCL Analytical Report

Component Analyzed	Method	Unit	PQL	Analysis Result		
				MW-24-2	MW-24-3	MW-24-4
				03-01858-24	03-01858-25	03-01858-26
CHROMIUM ^(a)						

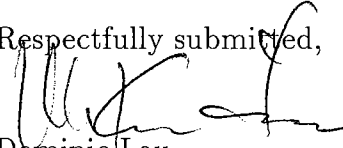
PQL: Practical Quantitation Limit. MDL: Method Detection Limit. CRDL: Contract Required Detection Limit

N.D.: Not Detected or less than the practical quantitation limit. "-": Analysis is not required.

J: Reported between PQL and MDL.

Listed Dilution Factors (DF) are relative to the method default DF. All unlisted DFs are 1.0

^(a) Subcontracted to Advanced Technology Laboratories Inc. See attached.

Respectfully submitted,

Dominic Lau
Laboratory Director
Applied P & Ch Laboratory



GEOFON

INCORPORATED
22632 GOLDEN SPRINGS DR., SUITE 270
DIAMOND BAR, CA 91765 • (909) 396-7662 • FAX (909) 396-1455

CHAIN-OF-CUSTODY RECORD

LABORATORY COPY

MMW-24

001

GEOFON LAB COORDINATOR

LAB COORDINATOR'S PHONE

LAB COORDINATOR'S FAX

LABORATORY SERVICE ID

LABORATORY CONTACT

MAIL REPORT (COMPANY NAME)

Brad Shojaee

(909) 396-7662

(909) 396-1455

—

Kenny Chan

GEOFON, INC.

PROJECT NAME
SPE LAM Mon-1903

PROJECT LOCATION
MMW-24 (E. of Security Bldg.)

PROJECT NUMBER
04-4428.10

LABORATORY PHONE
(909) 590-1828

LABORATORY FAX
(909) 590-1448

RECIPIENT NAME
Leo W. Williamson

PROJECT CONTACT
Leo W. Williamson

PROJECT PHONE NUMBER
(714) 920-8729

PROJECT FAX
(909) 396-1455

LABORATORY ADDRESS
13760 Magnolia Ave

CITY, STATE AND ZIP CODE
Chino, CA 91710

ADDRESS
22632 Golden Springs Dr. #270

PROJECT ADDRESS
4400 Oak Lane Dr.

CITY, STATE AND ZIP CODE
Pasadena, CA

CLIENT
US Major Supplier

CITY, STATE AND ZIP CODE
Chino, CA 91710

LABORATORY ADDRESS
Diamond Bar, CA 91765

PROJECT MANAGER
Asrar Faheem

PHONE
(909) 396-7662

PROJECT MANAGER'S FAX
(909) 396-1455

Item

Sample Identifier

Matrix

Date

Time

Preserved

of Cont.

QC Level

T.A.T.

Analyses

524.2 (VOCs)

314.0 (Perchlorates)

200.8 (Total Chromium)

719.6 (Hex. Chromium)

Comments

1 MMW-24-4

H₂O

2/17/03

1120

MMW

2

III

Normal

X

X

X

X

2 MMW-24-3

1205

MMW

3+4+1

X

X

X

X

X

X

3 MMW-24-2

1240

MMW

X

X

X

X

X

X

4 MMW-24-1

1315

MMW

X

X

X

X

X

X

5

6

7

8

9

10

SAMPLES COLLECTED BY: Leo W. Williamson

COURIER AND AIR BILL NUMBER:

COOLER TEMPERATURE UPON RECEIPT

RECEIVED BY

RECEIVED BY

DATE

TIME

SAMPLE'S CONDITION UPON RECEIPT

Leo W. Williamson

Asrar Faheem

2/17/03 1355

2/17/03 1440

Distribution: White - Laboratory (To be returned with Analytical Report); Goldenrod - Project File; Yellow - Project Data Manager



GEOFON

INCORPORATED
22632 GOLDEN SPRINGS DR., SUITE 270
DIAMOND BAR, CA 91765 • (909) 396-7662 • FAX (909) 396-1455

CHAIN-OF-CUSTODY RECORD

LABORATORY COPY

MMY-23

~~0019~~ 0010

GEOFON'S LAB COORDINATOR

LAB COORDINATOR'S PHONE

LAB COORDINATOR'S FAX

LABORATORY SERVICE ID

LABORATORY CONTACT

MAIL REPORT (COMPANY NAME)

Brad Shojane

(909) 396-7662

(909) 396-1455

—

Kenny Chan

GEOFON, INC.

PROJECT NAME: SFL by Men-1903

PROJECT LOCATION: MMY-23 (N. of Bldg. 233)

PROJECT NUMBER: 04-4428.10

LABORATORY PHONE: (909) 590-1828

LABORATORY FAX: (909) 590-1498

RECIPIENT NAME: Leo W. Williamson

PROJECT CONTACT: Leo W. Williamson

PROJECT PHONE NUMBER: (714) 920-8729

PROJECT FAX: (909) 396-1455

LABORATORY ADDRESS: 13760 Magnolia Ave.

CITY, STATE AND ZIP CODE: Chino, CA. 91710

ADDRESS: 22632 Golden Springs Dr. #270

PROJECT ADDRESS: 4800 Oak Grove Dr.

CITY, STATE AND ZIP CODE: Pasadena, CA.

CLIENT: US NAVY, SWDIV

CITY, STATE AND ZIP CODE: Chino, CA. 91710

CITY, STATE AND ZIP CODE: Diamond Bar, CA. 91765

PROJECT MANAGER: Asrar Fakhem

PROJECT MANAGER'S PHONE: (909) 396-7662

PROJECT MANAGER'S FAX: (909) 396-1455

Asrar Fakhem

PROJECT MANAGER'S PHONE: (909) 396-7662

PROJECT MANAGER'S FAX: (909) 396-1455

Analyses: 524.2 (NO₃), 354.0 (Perchlorates), 200.8 (Total Chromium), 7196 (Hex. Chrome)

Comments: MS/MSD

Item Sample Identifier

Matrix

Date

Time

Preserved

of Cont

QC Level

T.A.T

Analyses

524.2 (NO₃)

354.0 (Perchlorates)

200.8 (Total Chromium)

7196 (Hex. Chrome)

Comments

1 MMY-23-3

H₂O

2/17/03

845

HCl
HNO₃
NONE

3+1+1

III

Normal

X

X

X

X

X

X

X

X

X

X

X

X

X

2 MMY-23-2

H₂O

2/17/03

920

HCl
HNO₃
NONE

3+1+1

III

Normal

X

X

X

X

X

X

X

X

X

X

X

X

X

3 MMY-23-1

H₂O

2/17/03

955

HCl
HNO₃
NONE

3+1+1

III

Normal

X

X

X

X

X

X

X

X

X

X

X

X

X

4

H₂O

2/17/03

925

HCl
HNO₃
NONE

3+1+1

III

Normal

X

X

X

X

X

X

X

X

X

X

X

X

X

5 E3-2-2/17/03

H₂O

2/17/03

925

HCl
HNO₃
NONE

3+1+1

III

Normal

X

X

X

X

X

X

X

X

X

X

X

X

X

6 TB-2-2/17/03

H₂O

2/17/03

925

HCl
HNO₃
NONE

3+1+1

III

Normal

X

X

X

X

X

X

X

X

X

X

X

X

X

7

H₂O

2/17/03

925

HCl
HNO₃
NONE

3+1+1

III

Normal

X

X

X

X

X

X

X

X

X

X

X

X

X

8 MMY-23-4

H₂O

2/17/03

925

HCl
HNO₃
NONE

3+1+1

III

Normal

X

X

X

X

X

X

X

X

X

X

X

X

X

9

H₂O

2/17/03

925

HCl
HNO₃
NONE

3+1+1

III

Normal

X

X

X

X

X

X

X

X

X

X

X

X

X

10

H₂O

2/17/03

925

HCl
HNO₃
NONE

3+1+1

III

Normal

X

X

X

X

X

X

X

X

X

X

X

X

X

SAMPLES COLLECTED BY: Leo W. Williamson

COURIER AND AIR BILL NUMBER:

COOLER TEMPERATURE UPON RECEIPT:

REINVOICED BY

RECEIVED BY

DATE

TIME

SAMPLE'S CONDITION UPON RECEIPT

Leo W. Williamson

Barbara Fakhem

2/17/03

1355

Barbara Fakhem

Barbara Fakhem

2/17/03

1440

Distribution: White - Laboratory (To be returned with Analytical Report); Goldenrod - Project File; Yellow - Project Data Manager



GEOFON
INCORPORATED

CHAIN-OF-CUSTODY RECORD

LABORATORY COPY

22632 GOLDEN SPRINGS DR., SUITE 270
DIAMOND BAR, CA 91765 • (909) 396-7662 • FAX (909) 396-1455

MW-11

0013

GEOFON LAB COORDINATOR

LABORATORY SERVICE ID

MAIL REPORT (COMPANY NAME)

Brad Shojaee (909) 396-7662 (909) 396-1455

Kenny Chan

GEOFON, INC.

PROJECT NAME: JPL SW Men-1903

LABORATORY PHONE (909) 590-1428

RECIPIENT NAME Leo W. Williamson

PROJECT LOCATION: MW-11 (S. of Bldg. 277)

LABORATORY FAX (909) 590-1499

ADDRESS: 22632 Golden Springs Dr. #270

PROJECT CONTACT: Leo W. Williamson

CITY, STATE AND ZIP CODE: Chino, CA 91710

CITY, STATE AND ZIP CODE: Diamond Bar, CA 91765

PROJECT ADDRESS: 4800 Oak Lane Dr.

CLIENT: US Navy Swdir

PROJECT PHONE NUMBER: (909) 396-1455

PROJECT MANAGER: Astrar Fahem

PROJECT MANAGER'S FAX: (909) 396-1455

PROJECT MANAGER'S PHONE: (909) 396-7662

LABORATORY ADDRESS: 13760 Magnolia Ave

LABORATORY CONTACT: Kenny Chan

Matrix

Time Preserved

QC Level T.A.T

Item

Analyses

Comments

Sample Identifier

Date

of Cont

1

2/18/03

III

MW-11-4

1055

Normal

2

1145

X

MW-11-3

1220

X

3

1250

X

MW-11-2

X

X

4

X

X

MW-11-1

X

X

5

X

X

6

X

X

7

X

X

8

X

X

9

X

X

10

X

X

SAMPLES COLLECTED BY: Leo W. Williamson

COURIER AND AIR BILL NUMBER:

COOLER TEMPERATURE UPON RECEIPT

RELINQUISHED BY: Leo W. Williamson

RECEIVED BY: [Signature]

SAMPLE'S CONDITION UPON RECEIPT

DATE: 2/18/03

TIME: 13:50

1858

2/18/03

1500

Distribution: White - Laboratory (To be returned with Analytical Report); Goldenrod - Project File; Yellow - Project Data Manager



GEOFON
INCORPORATED

22632 GOLDEN SPRINGS DR., SUITE 270
DIAMOND BAR, CA 91765 • (909) 396-7662 • FAX (909) 396-1455

CHAIN-OF-CUSTODY RECORD

LABORATORY COPY

MW-22

0012

GEOPON'S LAB COORDINATOR

LAB COORDINATOR'S PHONE

LABORATORY SERVICE ID

LABORATORY CONTACT

MAIL REPORT (COMPANY NAME)

Brad Shojae

(909) 396-7662

(909) 396-1455

—

Kenny Chan

GEOFON INC.

PROJECT NAME:

PROJECT LOCATION

PROJECT PHONE NUMBER

PROJECT FAX

LABORATORY PHONE

LABORATORY FAX

RECIPIENT NAME

PROJECT CONTACT

CITY, STATE AND ZIP CODE

CLIENT

PROJECT MANAGER'S FAX

LABORATORY ADDRESS

CITY, STATE AND ZIP CODE

ADDRESS

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1858

DUPLICATE SAMPLE

MAS/MASD

COOLER TEMPERATURE UPON RECEIPT

SAMPLE'S CONDITION UPON RECEIPT

COURIER AND AIR BILL NUMBER

RECEIVED BY

DATE

TIME

SAMPLES COLLECTED BY:

RELINQUISHED BY

Leo W. Williamson

Heidi Williamson

Heidi Williamson

Distribution: White - Laboratory (To be returned with Analytical Report); Goldenrod - Project File; Yellow - Project Data Manager



GEOFON
INCORPORATED

CHAIN-OF-CUSTODY RECORD

LABORATORY COPY

22632 GOLDEN SPRINGS DR., SUITE 270
DIAMOND BAR, CA 91765 • (909) 396-7662 • FAX (909) 396-1455

SHA LLOW WELLS

0015

GEOFON'S LAB COORDINATOR

LAB COORDINATOR'S PHONE

LABORATORY SERVICE ID

LABORATORY CONTACT

MAIL REPORT (COMPANY NAME)

Brad Shojaee

(909) 396-7662

(909) 396-1455

—

Keany Chan

GEOFON, INC.

PROJECT NAME

PROJECT LOCATION

PROJECT PHONE NUMBER

PROJECT NUMBER

LABORATORY PHONE

LABORATORY FAX

RECIPIENT NAME

JOE GW Man - 1903

MM-13 / MM-6 / MW-10 / MM-45

04-4428.10

(909) 590-1828

(909) 590-1498

Leo W. Williamson

PROJECT CONTACT

PROJECT ADDRESS

CITY, STATE AND ZIP CODE

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LABORATORY ADDRESS

CITY, STATE AND ZIP CODE

ADDRESS

CITY, STATE AND ZIP CODE

Leo W. Williamson

(714) 920-8729

(909) 396-1455

US Navy, San Diego

13760 Magnolia Ave

China, CA. 91710

22632 Golden Springs Dr. #270

PROJECT ADDRESS

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1858

SAMPLES COLLECTED BY: Leo W. Williamson

COURIER AND AIR BILL NUMBER:

COOLER TEMPERATURE UPON RECEIPT

RE-INDICATED BY

RECEIVED BY

DATE

TIME

SAMPLE'S CONDITION UPON RECEIPT

DATE

TIME

Leo W. Williamson

Leo W. Williamson

2/20/03

15:00

2/20/03

16:15

Leo W. Williamson

Leo W. Williamson

2/20/03

16:15

2/20/03

16:15

Leo W. Williamson

Leo W. Williamson

2/20/03

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Leo W. Williamson

Leo W. Williamson

2/20/03

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2/20/03

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Distribution: White - Laboratory (To be returned with Analytical Report); Goldenrod - Project File; Yellow - Project Data Manager



INCORPORATED
2632 GOLDEN SPRINGS DR., SUITE 270
DIAMOND BAR, CA 91765 • (909) 396-7662 • FAX (909) 396-1455

CHAIN-OF-CUSTODY RECORD

SHALLON WELLS

LABORATORY COPY
0016

GEOFON LAB COORDINATOR		LAB COORDINATOR'S PHONE		LAB COORDINATOR'S FAX		LABORATORY SERVICE ID		LABORATORY CONTACT		MAIL REPORT (COMPANY NAME)	
Brad Shojae		(909) 396-7662		(909) 396-1455		-		Kenny Chan		GEOFON, INC.	
PROJECT NAME		PROJECT LOCATION		PROJECT NUMBER		LABORATORY PHONE		LABORATORY FAX		RECIENT NAME	
JPL GEN Mon-1903		MW-8 / MW-16 / MW-7		04-4428.10		(909) 590-1828		(909) 590-1498		Leo W. Williamson	
PROJECT CONTACT		PROJECT PHONE NUMBER		PROJECT FAX		LABORATORY ADDRESS		CITY, STATE AND ZIP CODE		ADDRESS	
Leo W. Williamson		(714) 920-8729		(909) 396-1455		13760 Magnolia Ave		91710		2632 Golden Springs Dr. #270	
PROJECT ADDRESS		CITY, STATE AND ZIP CODE		CLIENT		LABORATORY ADDRESS		CITY, STATE AND ZIP CODE		ADDRESS	
4800 Oak Grove Dr.		Pasadena, CA		US NAVY, SMOIR		Diamond Bar, CA.		91765		Diamond Bar, CA. 91765	
PROJECT MANAGER		PROJECT MANAGER'S PHONE		PROJECT MANAGER'S FAX		LABORATORY ADDRESS		CITY, STATE AND ZIP CODE		ADDRESS	
Asrar Fahren		(909) 396-7662		(909) 396-1455		Diamond Bar, CA.		91710		Diamond Bar, CA. 91765	
Item	Sample Identifier	Matrix	Date	Time	Preserved	# of Cont	QC Level	T.A.T	Analyses	Comments	
1	MW-8	H ₂ O	2/24/03	930	HC1	3441	III	Normal	524.2 (NO3)	AS/MSD	
2	MW-16			1150	HC1				314.0 (Total Chloride)		
3	MW-7			1350	HC1				200.8 (Total Chloride)		
4									71.6 (Net Chloride)		
5	DUPE-6-1903	H ₂ O	2/24/03	N/A	HC1	3441	IV	Normal			
6	TB-13-2/24/03				HC1	2	III				
7											
8											
9											
10											
SAMPLES COLLECTED BY: Leo W. Williamson		COURIER AND AIR BILL NUMBER:		RECEIVED BY: [Signature]		DATE: 2/24/03		TIME: 1410		COOLER TEMPERATURE UPON RECEIPT:	
RELINQUISHED BY: [Signature]		RECEIVED BY: [Signature]		DATE: 2/24/03		TIME: 1942		SAMPLE'S CONDITION UPON RECEIPT:			

1858

APCL Project: #1858

ATL #: 062092

I 000001



*Advanced Technology
Laboratories*

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

Table of Contents:

ATL #: 062092
APCL #: **#1858**

Section	Pages
Case Narrative	003-004
Sample Receiving Items	005-007
EPA 200.8	008-110



April 01, 2003

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

RE: #1858, JPL

Attention: Kenny Chan

ELAP No.: 1838

NELAP No.: 02107CA

Workorder No.: 062092

Enclosed are the results for sample(s) received on March 27, 2003 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,



Eddie F. Rodriguez
Laboratory Director

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



Advanced Technology Laboratories

Date: 17-Apr-03

CLIENT: Applied P & Ch Laboratories
Project: #1858, JPL
Lab Order: 062092

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Tag Number	Collection Date	Date Received
062092-001A	MW-24-3		02/17/2003 12:05:00 PM	03/27/2003
062092-002A	MW-24-2		02/17/2003 12:40:00 PM	03/27/2003
062092-003A	MW-24-1		02/17/2003 1:15:00 PM	03/27/2003
062092-004A	MW-24-4		02/17/2003 11:20:00 AM	03/27/2003
062092-005A	MW-23-3		02/17/2003 8:45:00 AM	03/27/2003
062092-006A	MW-23-2		02/17/2003 9:20:00 AM	03/27/2003
062092-007A	MW-23-1		02/17/2003 9:55:00 AM	03/27/2003
062092-008A	EB-9-2/17/03		02/17/2003 9:25:00 AM	03/27/2003
062092-009A	MW-23-4		02/17/2003 7:40:00 AM	03/27/2003
062092-010A	MW-11-3		02/18/2003 11:45:00 AM	03/27/2003
062092-011A	MW-11-2		02/18/2003 12:20:00 PM	03/27/2003
062092-012A	MW-11-1		02/18/2003 12:50:00 PM	03/27/2003
062092-013A	MW-22-3		02/18/2003 7:35:00 AM	03/27/2003
062092-014A	MW-22-2		02/18/2003 8:35:00 AM	03/27/2003
062092-015A	MW-22-1		02/18/2003 9:40:00 AM	03/27/2003
062092-016A	EB-10-2/18/03		02/18/2003 8:45:00 AM	03/27/2003
062092-017A	Dupe-5-1Q03		02/18/2003	03/27/2003
062092-018A	MW-5		02/19/2003 8:40:00 AM	03/27/2003
062092-019A	MW-13		02/20/2003 8:20:00 AM	03/27/2003
062092-020A	MW-6		02/20/2003 10:25:00 AM	03/27/2003
062092-021A	MW-10		02/20/2003 12:10:00 PM	03/27/2003
062092-022A	MW-15		02/20/2003	03/27/2003
062092-023A	MW-8		02/24/2003 9:30:00 AM	03/27/2003
062092-024A	MW-16		02/24/2003 11:50:00 AM	03/27/2003
062092-025A	MW-7		02/24/2003 1:50:00 PM	03/27/2003
062092-026A	Dupe-6-1Q03		02/24/2003	03/27/2003



Sample Receiving Items



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: ATL Contact: Pure Tel #: 5627989-4045 Fax #: 5627989-4040
 Address: 3275 Walnut Avenue City: Signal Hill State: CA Zip code: 90807
 APCL Client: #1858 APCL Contact: Kenny Chan
 Project Name/Code: JPL Job # JPL
 BILL TO APCL Sub Quotation #
 Due Date: ☐ Regular ☐ Rush: ___ days ___ hours Sampled by:

Field Sample ID No.	Sample Description	Date Collected	Sample Matrix	Preservation	# of Containers	Analysis Items	White - With report Yellow - Lab copy Pink - Originator
	MW-24-3	2/17/03	W	HNO3	1		
	MW-24-2	1240			1		
	MW-24-1	1315			1		
	MW-24-4	1120			1		
	MW-23-3	0845			2		
	MW-23-2	0920			1		
	MW-23-1	0955			1		
	EB-9-2/17/03	0925			1		
	MW-23-4	0740			1		
	MW-11-3	2/18/03			1		
	MW-11-2	1220			1		
	MW-11-1	1250			1		
	MW-22-3	0735			1		
	MW-22-2	0835			1		
	MW-22-1	0940			2		

QC Requirement: ☐ Regular; ☐ QA/QC Report; ☐ WIP; ☐ Raw Data; ☐ Extended Raw Data ☐ CLP; ☐ ACE ☐ AFCEE ☐ NEESA ___ (E, C or D); ☐ Other ___ (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 (54 °C).

Relinquished by Paul Kon Date/Time 3/25/03 11500 Received by Paul Kon Date/Time 3/27/03 11000
 Relinquished by Paul Kon Date/Time 3/29/03 1137 Received by Paul Kon Date/Time 032703 11400

APCL USE ONLY Service # ___ Note: ___

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 2 of 2

Subcontract Lab: ATL Contact: Puri Tel #: (562) 989-4045 Fax #: (562) 989-4040
 Address: 3275 Walnut Avenue City: Signal Hill State: CA Zip code: 90807
 APCL Client: #1858 APCL Contact: Kenny Chan
 Project Name/Code: JPL Job #:
 BILL TO APCL Sub Quotation #:

Due Date: ☐ Regular ☐ Rush: ___ days ___ hours Sampled by:

Field Sample ID No.	Sample Description	Date Collected	Sample Matrix	Preservation	# of Containers	Analysis	Items	White - With report Yellow - Lab copy Pink - Originator
	EB-10-2-18103	2/18/03	W	H1N03	1			Remarks W4
	Dupe-5-1003	2/18/03			1			Level & Packaging + EDD
	MW-5	2/19/03			1			
	MW-13	2/20/03			1			
	MW-6	2/20/03			1			
	MW-10	2/20/03			1			
	MW-15	2/20/03			1			
	MW-8	2/24/03			1			
	MW-16	2/24/03			2			MS/MSD
	MW-7	2/24/03			1			
	Dupe-6-1003	2/24/03			1			

QC Requirement: ☐ Regular; ☐ QA/QC Report; ☐ WIP; ☐ Raw Data; ☐ Extended Raw Data ☐ CLP; ☐ ACE ☐ AFCEE ☐ NEESA ___ (E, C or D); ☐ Other ___ (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 (5, 4 °C).

Relinquished by Paul Kon Date/Time 3/25/03 1500 Received by Richard [Signature] Date/Time 3-27-03 11:00am
 Relinquished by Richard [Signature] Date/Time 3/27/03 1137 Received by [Signature] Date/Time 032703 11:40am
 APCL USE ONLY Service # 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.
 APCL Form 4-101, Ver. 4.0, Jan. 17, 2003. Root-File: [CUST-DATA-LAB]CHAIN-ROOT-sub-TEX File: [CUST-DATA-LAB]CHAIN-TEXT

INORGANICS COMPLETE INVENTORY SHEET

Client: Applied P & Ch Laboratory
Attn: Kenny Chan
Client's Project: #1858

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

ATL Number: 062092
Date Sampled: 02/17/03
Date Received: 03/27/03

Method 200.8 (Metals)

	Topic	Page(s)
Sample Data	Inorganic Data Result Sheet	009-015
Standards Data	Initial Calibration	016
	Initial Calibration Verification and Continuing Calibration Verification/External Reference Standard	017-019
	Tune File	020-021
	Internal Standard Table	022-023
Raw QC Data	Blank Report Sheet	024-026
	Spike Sample Recovery	027-028
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	Duplicate Report Sheet	031-033
	Holding Times Summary Sheet	034-035
Miscellaneous Items	Preparation Log	036-037
	Analysis Run Log	038-039
	Standards Log	040-047
	List of Method Detection Limits	048
Raw Data Package	Standards Data Sample Data QC Data	049-110



Advanced Technology Laboratories

Date: 01-Apr-03

CLIENT: Applied P & Ch Laboratories
Project: #1858, JPL**Lab Order:** 062092**Lab ID:** 062092-001**Collection Date:** 2/17/2003 12:05:00 PM**Client Sample ID:** MW-24-3**Matrix:** WATER

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

ICP-MS METALS**EPA 200.8**

RunID: ICP4_030328C

QC Batch: R26260

Analyst: NS

Chromium	2.5	1.0		µg/L	1	3/28/2003
----------	-----	-----	--	------	---	-----------

Lab ID: 062092-002**Collection Date:** 2/17/2003 12:40:00 PM**Client Sample ID:** MW-24-2**Matrix:** WATER

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

ICP-MS METALS**EPA 200.8**

RunID: ICP4_030328C

QC Batch: R26260

Analyst: NS

Chromium	2.4	1.0		µg/L	1	3/28/2003
----------	-----	-----	--	------	---	-----------

Lab ID: 062092-003**Collection Date:** 2/17/2003 1:15:00 PM**Client Sample ID:** MW-24-1**Matrix:** WATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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ICP-MS METALS**EPA 200.8**

RunID: ICP4_030328C

QC Batch: R26260

Analyst: NS

Chromium	4.9	1.0		µg/L	1	3/28/2003
----------	-----	-----	--	------	---	-----------

Lab ID: 062092-004**Collection Date:** 2/17/2003 11:20:00 AM**Client Sample ID:** MW-24-4**Matrix:** WATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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ICP-MS METALS**EPA 200.8**

RunID: ICP4_030328C

QC Batch: R26260

Analyst: NS

Chromium	1.5	1.0		µg/L	1	3/28/2003
----------	-----	-----	--	------	---	-----------

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

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Advanced Technology
Laboratories

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

Advanced Technology Laboratories

Date: 01-Apr-03

CLIENT: Applied P & Ch Laboratories
Project: #1858, JPL**Lab Order:** 062092**Lab ID:** 062092-005**Collection Date:** 2/17/2003 8:45:00 AM**Client Sample ID:** MW-23-3**Matrix:** WATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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ICP-MS METALS**EPA 200.8**

RunID: ICP4_030328C

QC Batch: R26260

Analyst: NS

Chromium	3.9	1.0		µg/L	1	3/28/2003
----------	-----	-----	--	------	---	-----------

Lab ID: 062092-006**Collection Date:** 2/17/2003 9:20:00 AM**Client Sample ID:** MW-23-2**Matrix:** WATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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ICP-MS METALS**EPA 200.8**

RunID: ICP4_030328C

QC Batch: R26260

Analyst: NS

Chromium	3.8	1.0		µg/L	1	3/28/2003
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Lab ID: 062092-007**Collection Date:** 2/17/2003 9:55:00 AM**Client Sample ID:** MW-23-1**Matrix:** WATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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ICP-MS METALS**EPA 200.8**

RunID: ICP4_030328C

QC Batch: R26260

Analyst: NS

Chromium	3.4	1.0		µg/L	1	3/28/2003
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Lab ID: 062092-008**Collection Date:** 2/17/2003 9:25:00 AM**Client Sample ID:** EB-9-2/17/03**Matrix:** WATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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ICP-MS METALS**EPA 200.8**

RunID: ICP4_030328C

QC Batch: R26260

Analyst: NS

Chromium	ND	1.0		µg/L	1	3/28/2003
----------	----	-----	--	------	---	-----------

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

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Advanced Technology
Laboratories

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

Advanced Technology Laboratories

Date: 01-Apr-03

CLIENT: Applied P & Ch Laboratories
Project: #1858, JPL**Lab Order:** 062092**Lab ID:** 062092-009**Collection Date:** 2/17/2003 7:40:00 AM**Client Sample ID:** MW-23-4**Matrix:** WATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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ICP-MS METALS**EPA 200.8**

RunID: ICP4_030328C

QC Batch: R26260

Analyst: NS

Chromium	2.5	1.0		µg/L	1	3/28/2003
----------	-----	-----	--	------	---	-----------

Lab ID: 062092-010**Collection Date:** 2/18/2003 11:45:00 AM**Client Sample ID:** MW-11-3**Matrix:** WATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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ICP-MS METALS**EPA 200.8**

RunID: ICP4_030328C

QC Batch: R26260

Analyst: NS

Chromium	2.3	1.0		µg/L	1	3/28/2003
----------	-----	-----	--	------	---	-----------

Lab ID: 062092-011**Collection Date:** 2/18/2003 12:20:00 PM**Client Sample ID:** MW-11-2**Matrix:** WATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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ICP-MS METALS**EPA 200.8**

RunID: ICP4_030328C

QC Batch: R26260

Analyst: NS

Chromium	2.3	1.0		µg/L	1	3/28/2003
----------	-----	-----	--	------	---	-----------

Lab ID: 062092-012**Collection Date:** 2/18/2003 12:50:00 PM**Client Sample ID:** MW-11-1**Matrix:** WATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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ICP-MS METALS**EPA 200.8**

RunID: ICP4_030328C

QC Batch: R26260

Analyst: NS

Chromium	2.6	1.0		µg/L	1	3/28/2003
----------	-----	-----	--	------	---	-----------

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

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Advanced Technology
Laboratories

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011

Advanced Technology Laboratories

Date: 01-Apr-03

CLIENT: Applied P & Ch Laboratories
Project: #1858, JPL**Lab Order:** 062092**Lab ID:** 062092-013**Collection Date:** 2/18/2003 7:35:00 AM**Client Sample ID:** MW-22-3**Matrix:** WATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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ICP-MS METALS**EPA 200.8**

RunID: ICP4_030328C

QC Batch: R26260

Analyst: NS

Chromium	3.6	1.0		µg/L	1	3/28/2003
----------	-----	-----	--	------	---	-----------

Lab ID: 062092-014**Collection Date:** 2/18/2003 8:35:00 AM**Client Sample ID:** MW-22-2**Matrix:** WATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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ICP-MS METALS**EPA 200.8**

RunID: ICP4_030328C

QC Batch: R26260

Analyst: NS

Chromium	3.5	1.0		µg/L	1	3/28/2003
----------	-----	-----	--	------	---	-----------

Lab ID: 062092-015**Collection Date:** 2/18/2003 9:40:00 AM**Client Sample ID:** MW-22-1**Matrix:** WATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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ICP-MS METALS**EPA 200.8**

RunID: ICP4_030328C

QC Batch: R26260

Analyst: NS

Chromium	4.1	1.0		µg/L	1	3/28/2003
----------	-----	-----	--	------	---	-----------

Lab ID: 062092-016**Collection Date:** 2/18/2003 8:45:00 AM**Client Sample ID:** EB-10-2/18/03**Matrix:** WATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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ICP-MS METALS**EPA 200.8**

RunID: ICP4_030328C

QC Batch: R26260

Analyst: NS

Chromium	ND	1.0		µg/L	1	3/28/2003
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Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

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Advanced Technology
Laboratories

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Advanced Technology Laboratories

Date: 01-Apr-03

CLIENT: Applied P & Ch Laboratories
Project: #1858, JPL**Lab Order:** 062092**Lab ID:** 062092-017
Client Sample ID: Dupe-5-1Q03**Collection Date:** 2/18/2003
Matrix: WATER

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

ICP-MS METALS**EPA 200.8**

RunID: ICP4_030328C	QC Batch: R26260					Analyst: NS
Chromium	3.2	1.0		µg/L	1	3/28/2003

Lab ID: 062092-018
Client Sample ID: MW-5**Collection Date:** 2/19/2003 8:40:00 AM
Matrix: WATER

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

ICP-MS METALS**EPA 200.8**

RunID: ICP4_030328C	QC Batch: R26260					Analyst: NS
Chromium	6.8	1.0		µg/L	1	3/28/2003

Lab ID: 062092-019
Client Sample ID: MW-13**Collection Date:** 2/20/2003 8:20:00 AM
Matrix: WATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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ICP-MS METALS**EPA 200.8**

RunID: ICP4_030328C	QC Batch: R26260					Analyst: NS
Chromium	90	5.0		µg/L	5	3/28/2003

Lab ID: 062092-020
Client Sample ID: MW-6**Collection Date:** 2/20/2003 10:25:00 AM
Matrix: WATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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ICP-MS METALS**EPA 200.8**

RunID: ICP4_030328C	QC Batch: R26260					Analyst: NS
Chromium	6.4	1.0		µg/L	1	3/28/2003

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

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Advanced Technology
Laboratories

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

013

Advanced Technology Laboratories

Date: 01-Apr-03

CLIENT: Applied P & Ch Laboratories
Project: #1858, JPL**Lab Order:** 062092**Lab ID:** 062092-021**Collection Date:** 2/20/2003 12:10:00 PM**Client Sample ID:** MW-10**Matrix:** WATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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ICP-MS METALS**EPA 200.8**

RunID: ICP4_030328D

QC Batch: R26261

Analyst: NS

Chromium	11	1.0		µg/L	1	3/28/2003
----------	----	-----	--	------	---	-----------

Lab ID: 062092-022**Collection Date:** 2/20/2003**Client Sample ID:** MW-15**Matrix:** WATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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ICP-MS METALS**EPA 200.8**

RunID: ICP4_030328D

QC Batch: R26261

Analyst: NS

Chromium	6.3	1.0		µg/L	1	3/28/2003
----------	-----	-----	--	------	---	-----------

Lab ID: 062092-023**Collection Date:** 2/24/2003 9:30:00 AM**Client Sample ID:** MW-8**Matrix:** WATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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ICP-MS METALS**EPA 200.8**

RunID: ICP4_030328D

QC Batch: R26261

Analyst: NS

Chromium	9.4	1.0		µg/L	1	3/28/2003
----------	-----	-----	--	------	---	-----------

Lab ID: 062092-024**Collection Date:** 2/24/2003 11:50:00 AM**Client Sample ID:** MW-16**Matrix:** WATER

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

ICP-MS METALS**EPA 200.8**

RunID: ICP4_030328D

QC Batch: R26261

Analyst: NS

Chromium	7.2	1.0		µg/L	1	3/28/2003
----------	-----	-----	--	------	---	-----------

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

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Advanced Technology
Laboratories

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

Advanced Technology Laboratories

Date: 01-Apr-03

CLIENT: Applied P & Ch Laboratories
Project: #1858, JPL**Lab Order:** 062092**Lab ID:** 062092-025**Collection Date:** 2/24/2003 1:50:00 PM**Client Sample ID:** MW-7**Matrix:** WATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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ICP-MS METALS**EPA 200.8**

RunID: ICP4_030328D

QC Batch: R26261

Analyst: NS

Chromium	7.4	1.0		µg/L	1	3/28/2003
----------	-----	-----	--	------	---	-----------

Lab ID: 062092-026**Collection Date:** 2/24/2003**Client Sample ID:** Dupe-6-1Q03**Matrix:** WATER

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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ICP-MS METALS**EPA 200.8**

RunID: ICP4_030328D

QC Batch: R26261

Analyst: NS

Chromium	7.3	1.0		µg/L	1	3/28/2003
----------	-----	-----	--	------	---	-----------

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

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015



Client: Applied P & Ch Laboratory
 Attn: Kenny Chan
 Client's Project: JPL
 ATL Number: 062092
 Date Received: 03/27/03

(EPA 200.8) - INITIAL CALIBRATION

Instrument ID: ICP4
 Date(s) Analyzed: 03/28/03

Initial Calibration:

COMPOUND	INTENSITY			LEVEL 4	r2
	LEVEL 1	LEVEL 2	LEVEL 3		
Chromium	12024	52675	97295	184757	0.9999

Standard Concentration:	0.5 ppb	5 ppb	10 ppb	20 ppb
Standard ID:	MST030328K	MST030328J	MST030328I	MST030328H

Calibration Acceptance Criteria: > 0.995 Correlation



Client: Applied P & Ch Laboratory
Attn: Kenny Chan
Client's Project: JPL
ATL Number: 062092
Date Received: 03/27/03

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

Instrument ID: ICP4

Date Analyzed: 03/28/2003

Initial Calibration Verification:

Source:
CPI (1FF002)

Standard Code:
MST030328M

Continuing Calibration Verification:

CPI(1FF02)

MST030328M

Concentration Units: ug/L

[illegible]

ICV Limits: 90 -110%

CCV Limits: 85 -115%



*Advanced Technology
Laboratories*

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015

Client: Applied P & Ch Laboratory
Attn: Kenny Chan
Client's Project: JPL
ATL Number: 062092
Date Received: 03/27/03

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

Instrument ID: ICP4

Date Analyzed: 03/28/2003

Initial Calibration Verification:

Source:
CPI (1FF002)

Standard Code:
MST030328M

Continuing Calibration Verification:

CPI(1FF02)

MST030328M

Concentration Units: ug/L

[illegible]

ICV Limits: 90 -110%

CCV Limits: 85 -115%



Advanced Technology
Laboratories

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

018

Client: Applied P & Ch Laboratory
 Attn: Kenny Chan
 Client's Project: JPL
 ATL Number: 062092
 Date Received: 03/27/03

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

Instrument ID: ICP4

Date Analyzed: 03/28/2003

Initial Calibration Verification:

Source:
CPI (1FF002)

Standard Code:
MST030328M

Continuing Calibration Verification:

CPI(1FF02)

MST030328M

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	10.1	101	10.0	9.5	95	9.40	94	PM

ICV Limits: 90 -110%
 CCV Limits: 85 -115%



Instrument Tuning Report

File Name: 030328.tun
File Path: D:\ELAN\TUNING\2003\March

Analyte	Exact Mass	Meas. Mass	Mass DAC	Res. DAC	Meas. Pk. Width	Custom Res.
Be	9.012	9.028	2052	2040	0.712	
Mg	23.985	23.978	5702	2020	0.694	
Rh	102.905	102.878	24978	1955	0.743	
Ce	139.905	139.929	33977	2010	0.764	
Pb	207.977	207.978	50417	2270	0.744	
U	238.050	238.024	57638	2435	0.772	

n20

Daily Performance Report

Sample ID: 030328-daily

Sample Date/Time: Friday, March 28, 2003 10:16:42

Sample Description:

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

Dataset File: d:\elan\daily performance\2003\march\030328-daily.018

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	18189.0	18189.041	309.568	1.7
Rh	102.9	162617.0	162617.005	979.993	0.6
In	114.9	201652.8	201652.760	1911.811	0.9
Pb	208.0	104503.9	104503.858	710.728	0.7
[> Ba	137.9	183734.5	183734.495	800.401	0.4
[Ba++	69.0	4187.8	0.023	0.001	4.6
[> Ce	139.9	222236.8	222236.831	802.290	0.4
[CeO	155.9	5691.9	0.026	0.000	1.6
Bkgd	220.0	4.8	4.833	0.808	16.7

Current Optimization File Data

Current Value	Description
0.88	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

Client: Applied P & Ch Laboratory
 Attn: Kenny Chan
 Client's Project: JPL
 ATL Number: 062092
 Date Received: 03/27/03

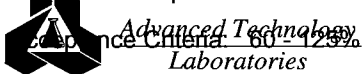
Instrument ID: ICP4 Internal Standard ID: MST021022I

Date Analyzed: 03/28/2003 Standard Concentration: 50 ug/L

QC Batch: R26260

			Scandium		Terbium	
			Area	% Rec	Area	% Rec
Calibration Blank			585608	---	1118182	---
Lab ID	Sample Description	APCL Lab ID:				
MB-R26260	MB-R26260	---	555989	95	934058	84
LCS-R26260	LCS-R26260	---	545299	93	915952	82
062092-005AMS	MW-23-3		622730	106	952473	85
062092-005AMSD	MW-23-3		628065	107	960238	86
062092-005A	MW-23-3		617675	105	961338	86
062092-005ADUP	MW-23-3		617122	105	963455	86
062092-001A	MW-24-3		573238	98	937935	84
062092-002A	MW-24-2		609106	104	936469	84
062092-003A	MW-24-1		611480	104	959964	86
062092-004A	MW-24-4		576555	98	949446	85
062092-006A	MW-23-2		641937	110	912527	82
062092-007A	MW-23-1		649363	111	906079	81
062092-008A	EB-9-2/17/03		550193	94	952392	85
062092-009A	MW-23-4		593527	101	938466	84
062092-010A	MW-11-3		587424	100	941587	84
062092-011A	MW-11-2		590824	101	944623	84
062092-012A	MW-11-1		595271	102	941591	84
062092-013A	MW-22-3		596328	102	932032	83
062092-014A	MW-22-2		604937	103	932881	83
062092-015A	MW-22-1		641625	110	921031	82
062092-015ADUP	MW-22-1		643787	110	908141	81
062092-016A	EB-10-2/18/03		542395	93	939589	84
062092-017A	Dupe-5-1Q03		610021	104	916282	82
062092-018A	MW-5		596160	102	935393	84
062092-019A	MW-13		627678	107	911400	82
062092-020A	MW-6		633289	108	917669	82

* Outside Acceptance Criteria



Client: Applied P & Ch Laboratory
Attn: Kenny Chan
Client's Project: JPL
ATL Number: 062092
Date Received: 03/27/03

Instrument ID: ICP4 Internal Standard ID: MST021022I

Date Analyzed: 03/28/2003 Standard Concentration: 50 ug/L

QC Batch: R26261

[illegible]

* Outside Acceptance Criteria



Ad Canada: Technolabs
Laboratories

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

123

ATL Number: 062092
Date Received: 03/27/03

(EPA 200.8) METHOD BLANKS *

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

Dilution Factor:	1
Matrix:	Water
Date Analyzed:	03/28/2003

QC Batch Number: R26260

[illegible]

ATL Number: 062092
Date Received: 03/27/03

(EPA 200.8) METHOD BLANKS *

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

Dilution Factor:	1
Matrix:	Water
Date Analyzed:	03/28/2003

QC Batch Number: R26261

[illegible]

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

ATL Number: 062092
Date Received: 03/27/03

(EPA 200.8) METALS MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Sample ID: 062092-005A
APCL Lab ID: ---
Sample Description: MW-23-3

Date Sampled: 02/17/2003
Date Digested: N/A
Digestion Method: N/A
MS Spike Code: MST030328G

Concentration Units: ug/L
Dilution Factor: 1
Matrix: Water
Date Analyzed: 03/28/2003

Instrument ID: ICP4

QC Batch Number: R26260

Analyte	Sample Concentration	Spike Added	Spike Result	Spike Dup. Result	Spike % Rec.	Spike Dup. % Rec.	RPD	QC Limits	
								RPD	% Rec.
Chromium	3.89	10	11.7	11.62	78	77	1	20	80 - 120

* Values outside of QC limits

RPD: 0 out of 1 outside limits

027



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: 062092
Date Received: 03/27/03

(EPA 200.8) METALS MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Sample ID: 062092-024A
APCL Lab ID: ---
Sample Description: MW-16

Concentration Units: ug/L
Dilution Factor: 1
Matrix: Water
Date Analyzed: 03/28/2003

Date Sampled: 02/24/2003
Date Digested: N/A
Digestion Method: N/A
MS Spike Code: MST021125A

Instrument ID: ICP4
QC Batch Number: R26261

Analyte	Sample Concentration	Spike Added	Spike Result	Spike Dup. Result	Spike % Rec.	Spike Dup % Rec.	RPD	QC Limits	
								RPD	% Rec.
Chromium	7.19	10	14.8	14.6	76	74	1	20	80 - 120

* Values outside of QC limits

RPD: 0 out of 1 outside limits

028

ATL Number: 062092
Date Received: 03/27/03

ATL Number: 062092
Date Received: 03/27/03

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

ATL Number: 062092
 Date Received: 03/27/03

(EPA 200.8) SAMPLE DUPLICATE

Lab Sample ID: 062092-005A
 APCL Lab ID: ---
 Sample Description: MW-23-3
 Date Sampled: 02/17/2003
 Date Digested: N/A
 Digestion Method: N/A

Concentration Units: ug/l
 Dilution Factor: 1
 Matrix: Water
 Date Analyzed: 03/28/2003
 Instrument ID: ICP 4
 QC Batch Number: R26260

Analyte	DLR	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Chromium	5	3.89		3.91		0		

Acceptance Criteria: +/- 30%



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

ATL Number: 062092
 Date Received: 03/27/03

(EPA 200.8) SAMPLE DUPLICATE

Lab Sample ID: 062092-015A
 APCL Lab ID: ---
 Sample Description: MW-22-1
 Date Sampled: 02/18/2003
 Date Digested: N/A
 Digestion Method: N/A

Concentration Units: ug/l
 Dilution Factor: 1
 Matrix: Water
 Date Analyzed: 03/28/2003
 Instrument ID: ICP 4
 QC Batch Number: R26260

Analyte	DLR	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Chromium	5	4.06		3.75		2		

Acceptance Criteria: +/- 30%



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

ATL Number: 062092
 Date Received: 03/27/03

(EPA 200.8) SAMPLE DUPLICATE

Lab Sample ID: 062092-024A
 APCL Lab ID: ---
 Sample Description: MW-16
 Date Sampled: 02/24/2003
 Date Digested: N/A
 Digestion Method: N/A

Concentration Units: ug/l
 Dilution Factor: 1
 Matrix: Water
 Date Analyzed: 03/28/2003
 Instrument ID: ICP 4
 QC Batch Number: R26261

Analyte	DLR	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Chromium	5	7.19		7.43		1		

Acceptance Criteria: +/- 30%

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Client: Applied P & Ch Laboratory
 Attn: Kenny Chan
 Client's Project: JPL
 ATL Number: 062092
 Date Received: 03/27/03

HOLDING TIME SUMMARY _ EPA 200.8

	Lab Sample ID	Client Sample ID	Sample Description	Date Sampled	Date Digested	Contract Holding Time
1	062092-001A	MW-24-3		02/17/2003	N/A	6 Months
2	062092-002A	MW-24-2		02/17/2003	N/A	6 Months
3	062092-003A	MW-24-1		02/17/2003	N/A	6 Months
4	062092-004A	MW-24-4		02/17/2003	N/A	6 Months
5	062092-005A	MW-23-3		02/17/2003	N/A	6 Months
6	062092-006A	MW-23-2		02/17/2003	N/A	6 Months
7	062092-007A	MW-23-1		02/17/2003	N/A	6 Months
8	062092-008A	EB-9-2/17/03		02/17/2003	N/A	6 Months
9	062092-009A	MW-23-4		02/17/2003	N/A	6 Months
10	062092-010A	MW-11-3		02/18/2003	N/A	6 Months
11	062092-011A	MW-11-2		02/18/2003	N/A	6 Months
12	062092-012A	MW-11-1		02/18/2003	N/A	6 Months
13	062092-013A	MW-22-3		02/18/2003	N/A	6 Months
14	062092-014A	MW-22-2		02/18/2003	N/A	6 Months
15	062092-015A	MW-22-1		02/18/2003	N/A	6 Months
16	062092-016A	EB-10-2/18/03		02/18/2003	N/A	6 Months
17	062092-017A	Dupe-5-1Q03		02/18/2003	N/A	6 Months
18	062092-018A	MW-5		02/19/2003	N/A	6 Months
19	062092-019A	MW-13		02/20/2003	N/A	6 Months
20	062092-020A	MW-6		02/20/2003	N/A	6 Months
21						

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

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Client: Applied P & Ch Laboratory
 Attn: Kenny Chan
 Client's Project: JPL
 ATL Number: 062092
 Date Received: 03/27/03

HOLDING TIME SUMMARY _ EPA 200.8

	Lab Sample ID	Client Sample ID	Sample Description	Date Sampled	Date Digested	Contract Holding Time
1	062092-021A	MW-10		02/20/2003	N/A	6 Months
2	062092-022A	MW-15		02/20/2003	N/A	6 Months
3	062092-023A	MW-8		02/24/2003	N/A	6 Months
4	062092-024A	MW-16		02/24/2003	N/A	6 Months
5	062092-025A	MW-7		02/24/2003	N/A	6 Months
6	062092-026A	Dupe-6-1Q03		02/24/2003	N/A	6 Months
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						

___0___ of ___6___ sample(s) were outside of holding time.



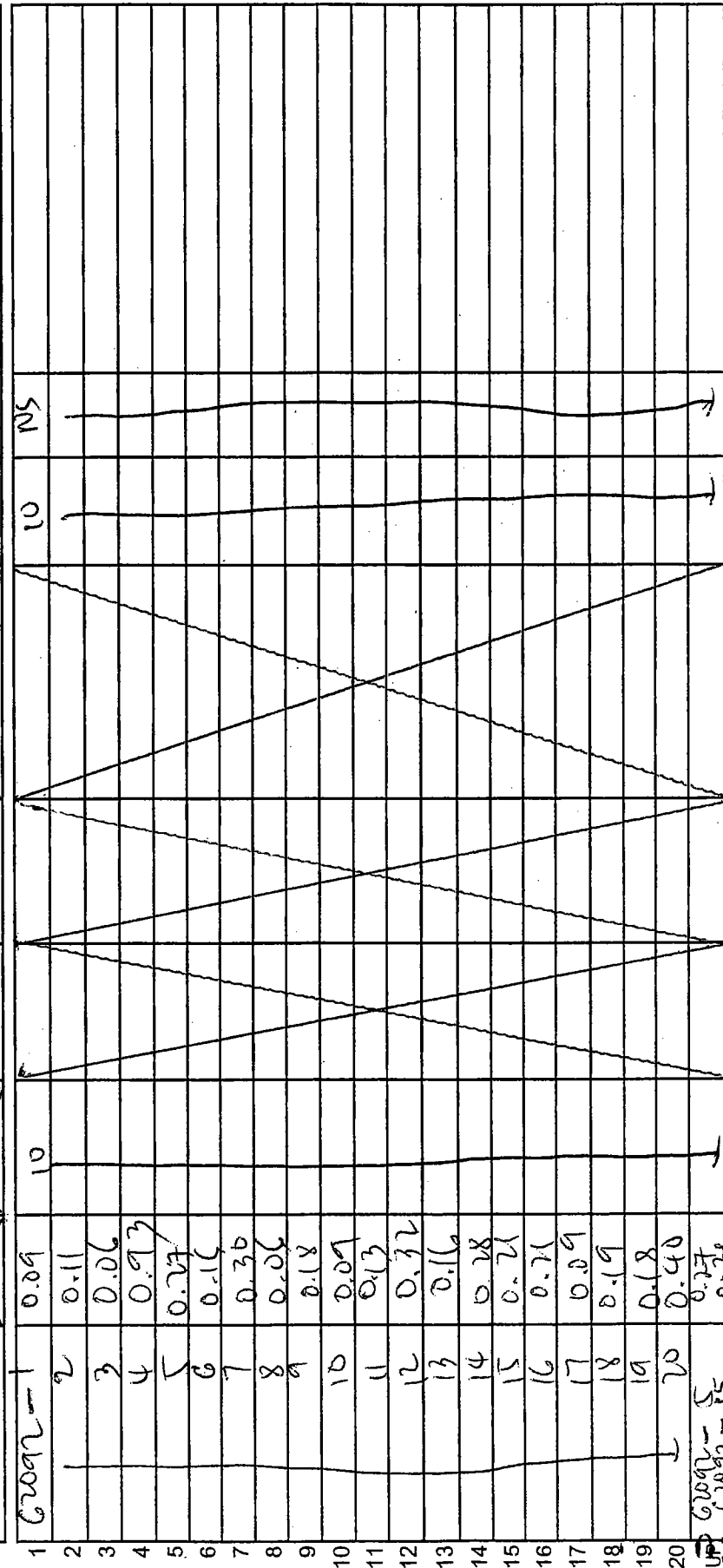
ICP-MS : Turbidity Check and Sample Preparation Log

QC Number: 026260

Date Read / Digested: 3/28/03

Method (Circle one):		Turb. Calibration		Matrix (Circle one):		Acid Lot #	
1) <u>(200.8)</u>		100 NTU: <u>10 NTU</u>		1) Drinking Water		Hydrochloric	
2) 3010A		Std Code: <u>SC-0000</u>		2) Ground Water		Nitric	
3) 3050B		Initials: <u>NO</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
MS <u>G2092-5</u>	0.27	10 ml	0.1 ml	1 ppm	NS0303286	10	NS	
MSD <u>+</u>	0.24		+					
Method Blank	-		-					
LCS	-		0.1	1 ppm	NS0303286			
Blank MS								
Blank MSD								



* Turbidity < 1 NTU DOES NOT need sample preparation.

Relinquished by / Date: _____

Received by / Date: _____

ICP-MS : Turbidity Check and Sample Preparation Log

QC Number: 126261

Date Read / Digested: 3/28/03

Method (Circle one):		Turb. Calibration		Matrix (Circle one):		Acid Lot #	
1) 200.8	100 NTU: <u>10 NTU</u>	1) Drinking Water	4) Soil	Hydrochloric	<u>N/A</u>	Nitric	<u>N/A</u>
2) 3010A	Std Code: <u>SC10-0022</u>	2) Ground Water	5) Solid				
3) 3050B	Initials: <u>WS</u>	3) Liquid	6) Other				
4) 3051							

Sample ID	Turbidity Result *	Sample Wt./Vol.	Spike Amt. Added	Spike / LCS Conc. (ppm)	Spike Code	Final Vol (ml)	Initials	Comments
MS 62092-24	0.23	10 ml	0.1 ml	1 ppm	1250303286	10	NS	
MSD	0.23							
Method Blank								
LCS			0.1	1 ppm	1250303286			
Blank MS								
Blank MSD								
1 62092-24	0.10	10				10	NS	
2 -22	0.13							
3 -23	0.79							
4 -24	0.23							
5 -25	0.09							
6 -26	0.09							
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20 62092-24	0.23	10				10	NS	

* Turbidity <1 NTU DOES NOT need sample preparation.

Relinquished by / Date: _____

Received by / Date: _____