

Level C Data Package Deliverables

Wet Chemistry



Applied P & Ch Laboratory

Applied P & Ch Laboratory
Wet Analysis Results for Method 7196

Client Name: GEOFON, Inc. Project No: 04-4428.10 Anal. Method 7196
Project ID: JPL Service ID: 35772 Collected by: JR

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
03-5772-1	EB-1-10-22-03	Water	10/22/03	10/22/03	10/22/03	03W4935	mg/L	0.01	<0.01	U
03-5772-2	MW-11-1	Water	10/22/03	10/22/03	10/22/03	03W4935	mg/L	0.01	<0.01	U
03-5772-3	MW-11-2	Water	10/22/03	10/22/03	10/22/03	03W4935	mg/L	0.01	<0.01	U
03-5772-4	MW-11-3	Water	10/22/03	10/22/03	10/22/03	03W4935	mg/L	0.01	<0.01	U
03-5772-5	MW-11-4	Water	10/22/03	10/22/03	10/22/03	03W4935	mg/L	0.01	<0.01	U
03-5772-6	MW-11-5	Water	10/22/03	10/22/03	10/22/03	03W4935	mg/L	0.01	<0.01	U
03-5772-7	MW-22-1	Water	10/22/03	10/22/03	10/22/03	03W4935	mg/L	0.01	<0.01	U
03-5772-8	MW-22-2	Water	10/22/03	10/22/03	10/22/03	03W4935	mg/L	0.01	<0.01	U
03-5772-9	MW-22-3	Water	10/22/03	10/22/03	10/22/03	03W4935	mg/L	0.01	<0.01	U
03-5772-10	MW-22-4	Water	10/22/03	10/22/03	10/22/03	03W4935	mg/L	0.01	<0.01	U
03-5772-11	MW-22-5	Water	10/22/03	10/22/03	10/22/03	03W4935	mg/L	0.01	<0.01	U
03W4935-MB-01	03W4935-MB-01	Water	10/22/03	10/22/03	10/22/03	03W4935	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.

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: 35772 Collected by: JR

Component Name: Perchlorate
 CAS No:

Lab ID	Sample ID	Matrix	Coll. Date	Rcv Date	Anal. Date	Batch	Unit	RL	Result	Q
03-5772-1	EB-1-10-22-03	Water	10/22/03	10/22/03	10/23/03	03W4946	µg/L	4	<4	U
03-5772-2	MW-11-1	Water	10/22/03	10/22/03	10/23/03	03W4946	µg/L	4	<4	U
03-5772-3	MW-11-2	Water	10/22/03	10/22/03	10/23/03	03W4946	µg/L	4	<4	U
03-5772-4	MW-11-3	Water	10/22/03	10/22/03	10/23/03	03W4946	µg/L	4	<4	U
03-5772-5	MW-11-4	Water	10/22/03	10/22/03	10/23/03	03W4946	µg/L	4	<4	U
03-5772-6	MW-11-5	Water	10/22/03	10/22/03	10/23/03	03W4946	µg/L	4	<4	U
03-5772-7	MW-22-1	Water	10/22/03	10/22/03	10/23/03	03W4946	µg/L	4	2.2	B
03-5772-8	MW-22-2	Water	10/22/03	10/22/03	10/23/03	03W4946	µg/L	4	2.4	B
03-5772-9	MW-22-3	Water	10/22/03	10/22/03	10/23/03	03W4946	µg/L	4	2.6	B
03-5772-10	MW-22-4	Water	10/22/03	10/22/03	10/23/03	03W4946	µg/L	4	<4	U
03-5772-11	MW-22-5	Water	10/22/03	10/22/03	10/23/03	03W4946	µg/L	4	<4	U
03W4946-MB-01	03W4946-MB-01	Water	10/23/03	10/23/03	10/23/03	03W4946	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.

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: 35772

Project ID: JPL

Project No: 04-4428.10

Sample Matrix: Water

Batch No: 03W4946

LCS Filename: -

Date Analyzed: 102303

Time Analyzed:

LCSD Filename: -

Date Analyzed: 102303

Time Analyzed:

Spiked Components	Unit	Spike Added	Concentration		LCS Rec% #	QC Limit, % REC
			Unspiked	LCS		
PERCHLORATE	µg/L	25	0	26.6	106	80-120
# of Out-of-control					0	

Spiked Components	Unit	Spike Added	LCSD Concentration	LCSD Rec% #	RPD% #	QC Limit, %	
						RPD	REC
PERCHLORATE	µg/L	25	27.5	110	4	20	80-120
# 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 314.0

Client Name: GEOFON, Inc.

Contract No:

Lab Code: APCL

Case No:

SAS No:

Service ID: 35772

Project ID: JPL

Project No: 04-4428.10

Sample Matrix: Water

Batch No: 03W4946

MS Filename: -

Date Analyzed: 102303

Time Analyzed:

MSD Filename: -

Date Analyzed: 102303

Time Analyzed:

MS Sample No: MW-23-2

Sample Lab ID: 03-5792-9

Spiked Components	Unit	Spike Added	Concentration		MS Rec% #	QC Limit, % REC
			Unspiked	MS		
PERCHLORATE	µg/L	25	5.4	33.9	114	75-125
# of Out-of-control					0	

Spiked Components	Unit	Spike Added	MSD Concentration	MSD Rec% #	RPD% #	QC Limit, %	
						RPD	REC
PERCHLORATE	µg/L	25	34.1	115	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: _____

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: 35772

Project ID: JPL

Project No: 04-4428.10

Sample Matrix: Water

Batch No: 03W4935

LCS Filename: -

Date Analyzed: 102203

Time Analyzed: 15:25

LCSD Filename: -

Date Analyzed: 102203

Time Analyzed: 15:25

Spiked Components	Unit	Spike Added	Concentration		LCS Rec% #	QC Limit, % REC
			Unspiked	LCS		
CHROMIUM (VI)	mg/L	0.25	0	0.239	96	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	0.238	95	1	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: 35772

Project ID: JPL

Project No: 04-4428.10

Sample Matrix: Water

Batch No: 03W4935

MS Filename: -

Date Analyzed: 102203

Time Analyzed: 15:25

MSD Filename: -

Date Analyzed: 102203

Time Analyzed: 15:25

MS Sample No: MW-11-1

Sample Lab ID: 03-5772-2

Spiked Components	Unit	Spike Added	Concentration		MS Rec% #	QC Limit, % REC
			Unspiked	MS		
CHROMIUM (VI)	mg/L	0.25	0	0.232	93	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	0.227	91	2	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: _____

6A

INITIAL CALIBRATION DATA

Lab Name: Applied P & Ch Lab Contract: 35772

Analysis: Chromium (VI) Calibration Date: 07/28/2003

Concentration (mg/L)	0.000	0.0125	0.025	0.125	0.250	0.50
Absorbance	0.000	0.007	0.017	0.107	0.212	0.420

$$A = -0.001 + 0.846C$$

A=Absorbance

C=Concentration (mg/L)

$$r = 0.9999$$

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:

35772

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	03W4946	µg/L	50	55.8	112	12	✓	85-115	10/23/2003
	Perchlorate	314.0	03W4946	µg/L	50	56.7	113	13	✓	85-115	10/23/2003
	Perchlorate	314.0	03W4946	µg/L	50	56.7	113	13	✓	85-115	10/23/2003
	Perchlorate	314.0	03W4946	µg/L	50	57.2	114	14	✓	85-115	10/23/2003
2	Chromium (VI)	7196	03W4935	mg/L	0.25	0.253	101	1	✓	90-110	10/22/2003
	Chromium (VI)	7196	03W4935	mg/L	0.25	0.247	99	-1	✓	90-110	10/22/2003

Applied P & Ch Laboratory

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Chromium (VI) (7196) Worksheet

Batch # PZ Matrix: W & S [Holding Time: 24 hours!!]

Test Date: 7/28/03 Analyst: PL

Lot #: Reagent Water PL 7/28/03
Diphenylcazide solution

Test Time: SOP: G

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- <u>7757</u>	$\times / = 0.00 \text{ mg/L}$	<u>0.000</u>		Least Square [RF]=	Cal. Code:
STD-2	W-	$\times / = 0.00 \text{ mg/L}$	<u>0.007</u>		Average RF=	
STD-3	W-	$\times / 0.075 = 0.00 \text{ mg/L}$	<u>0.017</u>		C.C. <u>0.999</u> (≥ 0.995)	
STD-4	W-	$\times / = 0.00 \text{ mg/L}$	<u>0.107</u>		RSD= <u>1</u> % ($\leq 15\%$)	
STD-5	W-	$\times / = 0.00 \text{ mg/L}$	<u>0.212</u>		Ref. page	
STD-6	W-	$\times / = 0.00 \text{ mg/L}$	<u>0.420</u>			

$$A = -0.001 + 0.846C$$

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) $C = f_1 f_2 C'$	Anom: Note
CCV	Lot: W- <u>7853</u>	Expected Conc.: $\times$	$/ = 0.00 \text{ mg/L}$					
Method Blank	Bl. Lot:		$/X_0 =$	$95.0/ =$	<u>0.218</u>	<u>0.259</u> mg/L	REC. %	90-110
LCS1	Bl. Lot:		$/X_0 =$	$95.0/ =$	<u>0.000</u>	<u>0.000</u> mg/L	ppm	
Sample-1	<u>4177-37</u>	<u>1ml → 100ml</u> $X_0 = 1$	$/X_0 =$	$95.0/ =$	<u>0.210</u>	<u>0.252</u> mg/L	ppm	
MS on S-1	<u>37</u>	<u>0.5ml → 100ml</u> $X_0 =$	$/X_0 =$	$95.0/ =$	<u>0.290</u>	<u>0.689</u> mg/L	ppm	
MSD on S-1	<u>4175-15</u>	<u>10.0g</u> $X_0 = 5$	$/X_0 =$	$95.0/ =$	<u>0.287</u>	<u>0.682</u> mg/L	ppm	report
Sample 2	<u>15</u>	<u>Y</u>	$/X_0 =$	$95.0/ =$	<u>0.050</u>	<u>3.04</u> mg/L	ppm	report
Sample 3			$/X_0 =$	$95.0/ =$	<u>0.247</u>	<u>2.94</u> mg/L	ppm	report
Sample 4			$/X_0 =$	$95.0/ =$		mg/L	ppm	
Sample 5			$/X_0 =$	$95.0/ =$		mg/L	ppm	
Sample 6			$/X_0 =$	$95.0/ =$		mg/L	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:		$/X_0 =$	$95.0/ =$		mg/L	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.			$/X_0 =$	$95.0/ =$	<u>0.208</u>	<u>0.259</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-	$\times / =$ ppm	%	80-120 %/80-120 %	PQL(w) 0.01
MSD	W-	$\times / =$ ppm	%	80-120 %/80-120 %	PQL(s) 0.05
LCS	W-	$\times / =$ ppm	%	80-120 %/80-120 %	MDL(w) 0.005
LCSD	W-	$\times / =$ ppm	%	80-120 %/80-120 %	MDL(s) 0.02184

Batch # 03W495 Matrix: W

[Holding Time: 24 hours!!]

Test Date: 12/22/03 Analyst: BR

Lot #: Reagent Water

Diphenylcazide solution

Test Time: 15:25

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.=0.9999 (> 0.995)	
STD-4	W-	x / = mg/L			RSD= % (< 15%)	
STD-5	W-	x / = mg/L			Ref. page	
STD-6	W-	x / = mg/L			$A = -0.001 + 0.846C$	

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-7757	Expected Conc.: x	/ = 2.25 mg/L		0.213	0.253 mg/L	REC. %	90-110 %
Method Blank	Bl. Lot: T1118		$/X_0 =$	95.0/ =	0.000	mg/L	0.001 ppm	
LCS1	Bl. Lot: V		$/X_0 =$	95.0/ =	0.201	mg/L	0.239 ppm	
Sample-1	5772 1		$/X_0 =$	95.0/ =	0.001	mg/L	0.002 ppm	
MS on S-1	2		$/X_0 =$	95.0/ =	0.195	mg/L	0.232 ppm	
MSD on S-1	2		$/X_0 =$	95.0/ =	0.191	mg/L	0.227 ppm	
Sample 2	2		$/X_0 =$	95.0/ =	0.001	mg/L	0.002 ppm	
Sample 3	3		$/X_0 =$	95.0/ =	0.004	mg/L	0.006 ppm	
Sample 4	4		$/X_0 =$	95.0/ =	0.004	mg/L	0.006 ppm	
Sample 5	5		$/X_0 =$	95.0/ =	0.004	mg/L	0.006 ppm	
Sample 6	6		$/X_0 =$	95.0/ =	0.005	mg/L	0.007 ppm	
Sample 7	7		$/X_0 =$	95.0/ =	0.004	mg/L	0.006 ppm	
Sample 8	8		$/X_0 =$	95.0/ =	0.004	mg/L	0.006 ppm	
Sample 9	9		$/X_0 =$	95.0/ =	0.003	mg/L	0.005 ppm	
Sample 10	10		$/X_0 =$	95.0/ =	0.003	mg/L	0.005 ppm	
Blank	Lot: T1118		$/X_0 =$	95.0/ =	0.000	mg/L	0.001 ppm	
LCS2	Bl. Lot: 11		$/X_0 =$	95.0/ =	0.200	mg/L	0.238 ppm	
Sample 11	11		$/X_0 =$	95.0/ =	0.003	mg/L	0.005 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 0.25 mg/L		$/X_0 =$	95.0/ =	0.208	0.247 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-7757	x / = 0.25 ppm	%	80-120 %/80-120 %	PQL(w) 0.01
MSD	W-1	x / = ppm	%		PQL(s) 0.05
LCS	W-7853	x / = ppm	%	80-120 %/80-120 %	MDL(w) 0.005
LCSD	W-1	x / = ppm	%		MDL(s) 0.025

Line	Sample	Sample Type	Level	Method	Data File	Volume	Dilution	Weight
1	#03w4946k ipc 25ppb w8032	Sample		e314-011.met	c:\data\03w4946k\w4946k ipc25ppb	1	1	1
2	ccv 50ppb w8082	Sample		e314-011.met	c:\data\03w4946k\w4946k q01	1	1	1
3	lcs 25ppb w8087	Sample		e314-011.met	c:\data\03w4946k\w4946k l01	1	1	1
4	Lcsd 25PPB W8033a	Sample		e314-011.met	c:\data\03w4946k\w4946k j01	1	1	1
5	ICCS 4ppb w8088	Sample		e314-011.met	c:\data\03w4946k\w4946k iccs 4ppb	1	1	1
6	mb	Sample		e314-011.met	c:\data\03w4946k\w4946k k01	1	1	1
7	5778-01 f=1	Sample		e314-011.met	c:\data\03w4946k\5778-01	1	1	1
8	5772-01 f=1	Sample		e314-011.met	c:\data\03w4946k\5772-01	1	1	1
9	5772-02 f=1	Sample		e314-011.met	c:\data\03w4946k\5772-02	1	1	1
10	5772-03 f=1	Sample		e314-011.met	c:\data\03w4946k\5772-03	1	1	1
11	5772-04 f=1	Sample		e314-011.met	c:\data\03w4946k\5772-04	1	1	1
12	5772-05 f=1	Sample		e314-011.met	c:\data\03w4946k\5772-05	1	1	1
13	ccv 50ppb w8082	Sample		e314-011.met	c:\data\03w4946k\w4946k q02	1	1	1
14	ccb	Sample		e314-011.met	c:\data\03w4946k\w4946k ccb	1	1	1
15	5772-06 F=1	Sample		e314-011.met	c:\data\03w4946k\5772-06	1	1	1
16	5772-07 F=1	Sample		e314-011.met	c:\data\03w4946k\5772-07	1	1	1
7	5772-08 F=1	Sample		e314-011.met	c:\data\03w4946k\5772-08	1	1	1
8	5772-09 F=1	Sample		e314-011.met	c:\data\03w4946k\5772-09	1	1	1
9	5772-10 F=1	Sample		e314-011.met	c:\data\03w4946k\5772-10	1	1	1
10	5772-11 F=1	Sample		e314-011.met	c:\data\03w4946k\5772-11	1	1	1
11	5792-09 F=1	Sample		e314-011.met	c:\data\03w4946k\5792-09	1	1	1
12	5792-09 MS 25PPB F=1W8033B	Sample		e314-011.met	c:\data\03w4946k\w4946k m01	1	1	1
13	5792-09 MSD 25PPB F=1W8033B	Sample		e314-011.met	c:\data\03w4946k\w4946k n01	1	1	1
14	ccv 50ppb w8082	Sample		e314-011.met	c:\data\03w4946k\w4946k q03	1	1	1
15	CCB	Sample		e314-011.met	c:\data\03w4946k\w4946k ccb	1	1	1
16	5792-01 F=1	Sample		e314-011.met	c:\data\03w4946k\5792-01	1	1	1
17	5792-06 F=1	Sample		e314-011.met	c:\data\03w4946k\5792-06	1	1	1
18	5792-02 F=1	Sample		e314-011.met	c:\data\03w4946k\5792-02	1	1	1
9	5792-03 F=1	Sample		e314-011.met	c:\data\03w4946k\5792-03	1	1	1
0	5792-04 F=1	Sample		e314-011.met	c:\data\03w4946k\5792-04	1	1	1
1	5792-05 F=1	Sample		e314-011.met	c:\data\03w4946k\5792-05	1	1	1
2	5792-07 F=1	Sample		e314-011.met	c:\data\03w4946k\5792-07	1	1	1
3	LCSD 25PPB W8033A	Sample		e314-011.met	c:\data\03w4946k\w4946k j01	1	1	1
4	CCV 50PPB W8082	Sample		e314-011.met	c:\data\03w4946k\w4946k q04	1	1	1
5		Sample		aastopcl.met		1	1	1

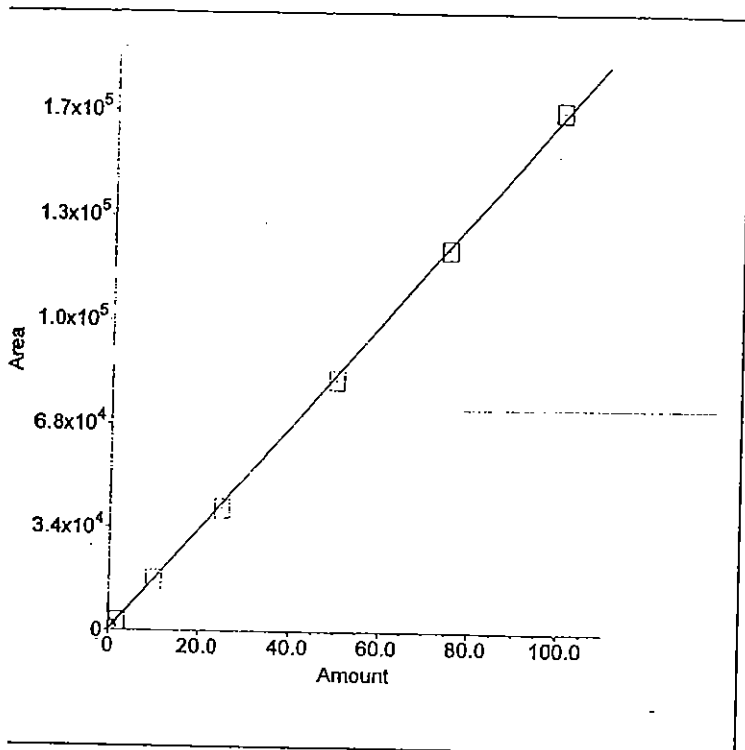
Analyst W. W
Date 10/23/03
Instrument LC-K

Line	Int. Std.	Comment
1	1	
2	1	
3	1	
4	1	
5	1	
6	1	
7	1	
8	1	
9	1	
10	1	
11	1	
12	1	
13	1	
14	1	
15	1	
16	1	
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25	1	
26	1	
27	1	
28	1	
29	1	
30	1	
31	1	
32	1	
33	1	
34	1	
35	1	

Default Method Path: C:\PEAKNET\METHOD
Default Data Path: C:\DATA\03W4560K
Comment:

ethod:C:\PEAKNET\METHOD\E314-011.MET Updated:03/13/2003 10:39:48 AM Total:1

Component: perchlorate
Standard: External Fit Type: Linear
Origin: Force Calibration: Area
 $r^2=0.999492$
 $mt=0.0005893*Resp+0$



Calibration : 7 points , 0, 2, 10, 25, 50, 75, 100 ppb

Analyst C. W

Date 03/12/03

Instrument LC-10

APCL Perchlorate Analysis Report

Sample Name : cal standard 25ppb W7827d

Data File Name : C:\DATA\E314-011\std-25pb_005.DXD

Method File Name : C:\PEAKNET\METHOD\c314-011.met

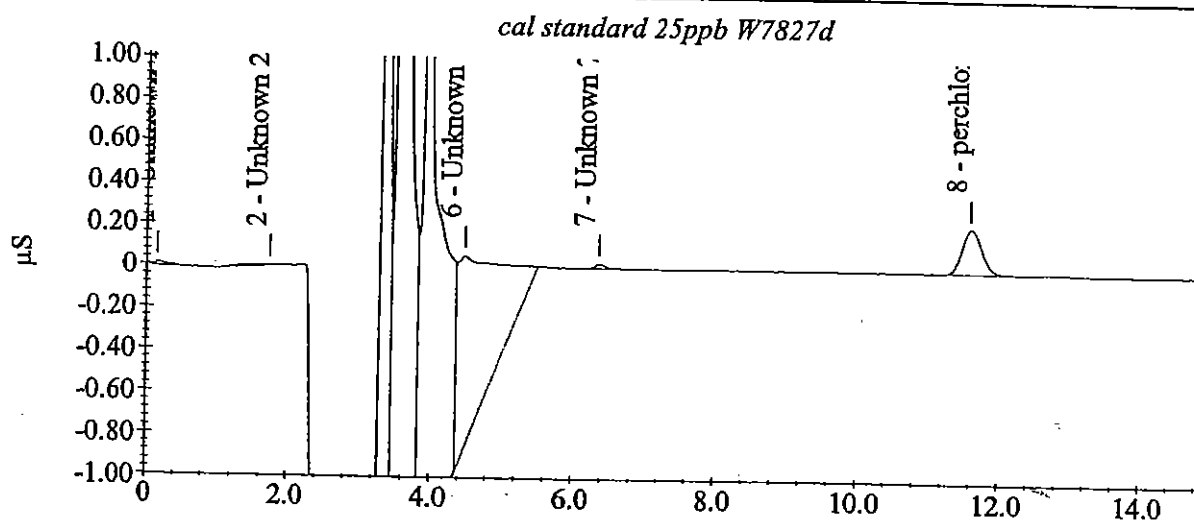
Date Time Collected : 03/12/2003 7:05:54 PM

System Operator : wei wang

Dilution Factor : 1.00

Peak Information : All Components

Peak #	Component Name	Retention Time	Amount (ppb)	Peak Area	Peak Height
8	perchlorate	11.60	26.84	40702	2125



APCL Perchlorate Analysis Report

Sample Name : cal standard 100ppb W7827g

Data File Name : C:\DATA\E314-011\std-100pb_008.DXD

Method File Name : C:\PEAKNET\METHOD\314-011.met

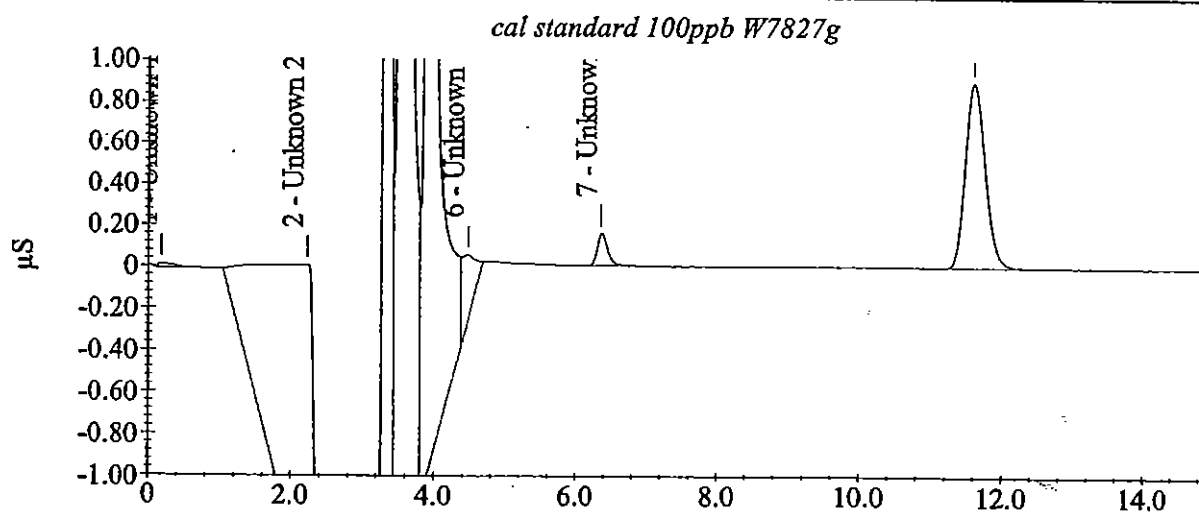
Date Time Collected : 03/12/2003 7:58:39 PM

System Operator : wei wang

Dilution Factor : 1.00

Peak Information : All Components

Peak #	Component Name	Retention Time	Amount (ppb)	Peak Area	Peak Height
8	perchlorate	11.62	113.21	171686	8927



APCL Perchlorate Analysis Report

Sample Name : ICV 50 ppb w7828a

Data File Name : C:\DATA\E314-011\icv-50pb_009.DXD

Method File Name : C:\PEAKNET\METHOD\E314-011.met

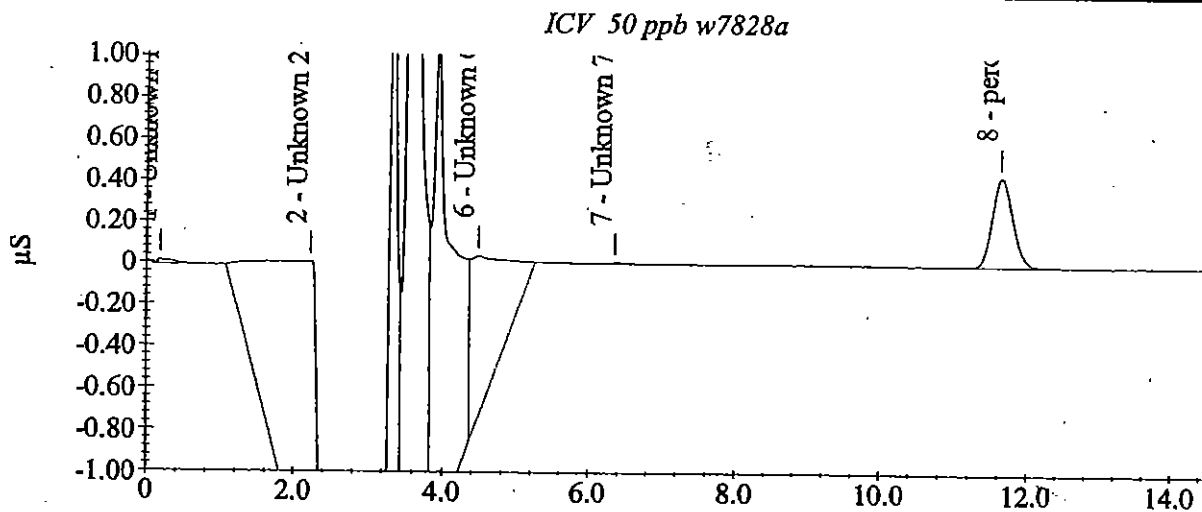
Date Time Collected : 03/12/2003 8:16:15 PM

System Operator : wei wang

Dilution Factor : 1.00

Peak Information : All Components

Peak #	Component Name	Retention Time	Amount (ppb)	Peak Area	Peak Height
8	perchlorate	11.65	49.49	83990	4321



APCL Perchlorate Analysis Report

Sample Name : cal standard 50ppb W7827e

Data File Name : C:\DATA\E314-011\std-50pb_006.DXD

Method File Name : C:\PEAKNET\METHOD\314-011.met

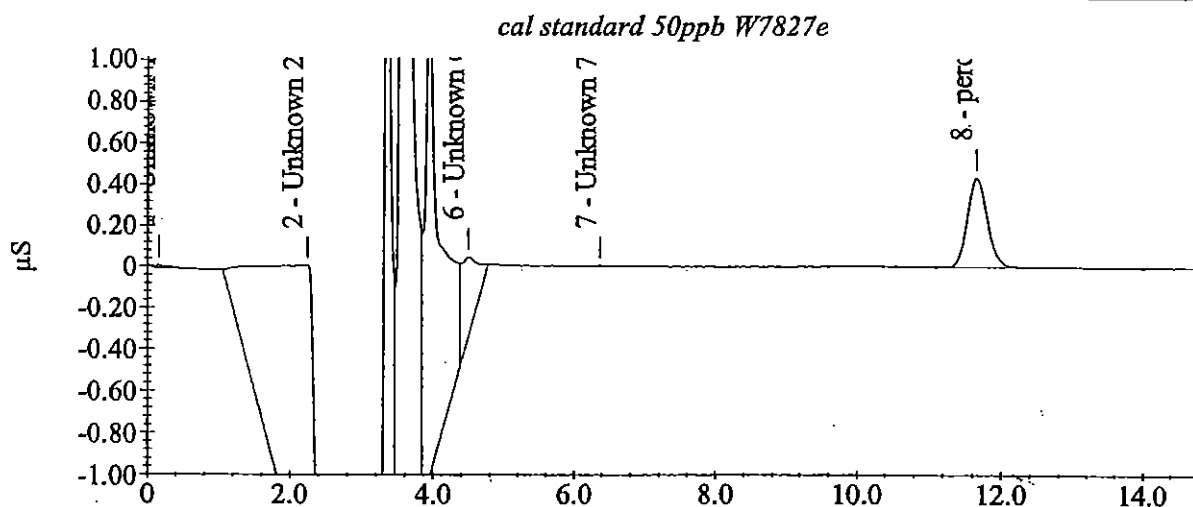
Date Time Collected : 03/12/2003 7:23:30 PM

System Operator : wei wang

Dilution Factor : 1.00

Peak Information : All Components

Peak #	Component Name	Retention Time	Amount (ppb)	Peak Area	Peak Height
8	perchlorate	11.67	54.89	83240	4320



APCL Perchlorate Analysis Report

Sample Name : Cal blank

Data File Name : C:\data\E314-011\Mb_001.DXD

Method File Name : c:\peaknet\method\c314-011.met

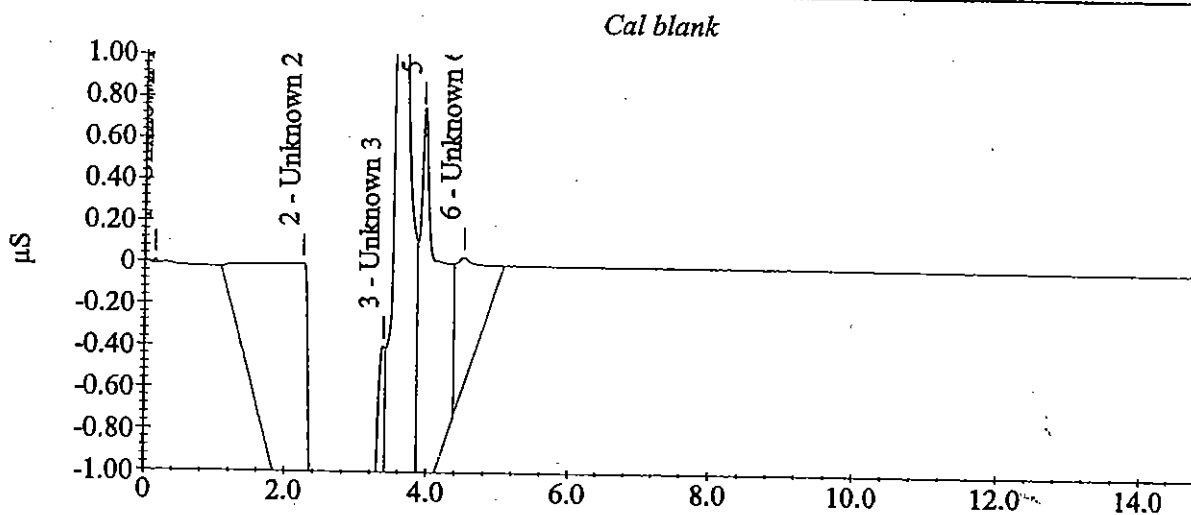
Date Time Collected : 03/12/2003 5:55:39 PM

System Operator : wei wang

Dilution Factor : 1.00

Peak Information : All Components

Peak #	Component Name	Retention Time	Amount (ppb)	Peak Area	Peak Height
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APCL Perchlorate Analysis Report

Sample Name : cal standard 75ppb W7827f

Data File Name : C:\DATA\E314-011\std-75pb_007.DXD

Method File Name : C:\PEAKNET\METHOD\314-011.met

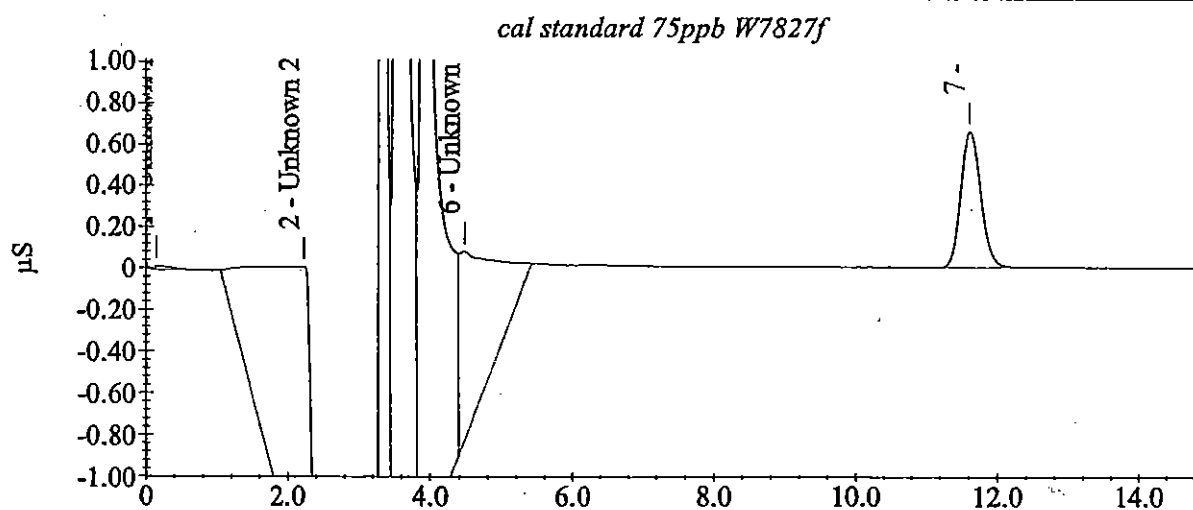
Date Time Collected : 03/12/2003 7:41:05 PM

System Operator : wei wang

Dilution Factor : 1.00

Peak Information : All Components

Peak #	Component Name	Retention Time	Amount (ppb)	Peak Area	Peak Height
7	perchlorate	11.62	83.23	126224	6553



APCL Perchlorate Analysis Report

Sample Name : icb

Data File Name : C:\DATA\E314-011\ICB_010.DXD

Method File Name : c:\PeakNet\method\E314-011.met

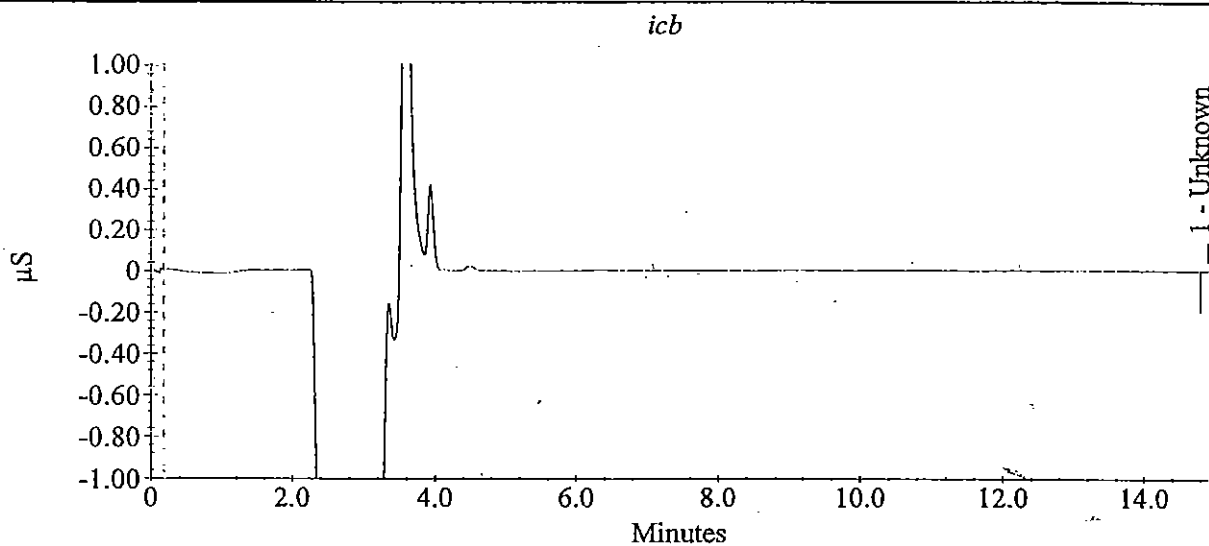
Date Time Collected : 03/12/2003 8:33:51 PM

System Operator : wei wang

Dilution Factor : 1.00

Peak Information : All Components

Peak #	Component Name	Retention Time	Amount (ppb)	Peak Area	Peak Height
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APCL Perchlorate Analysis Report

Sample Name : cal standard 10ppb W7827c

Data File Name : C:\DATA\E314-011\std-10pb_004.DXD

Method File Name : C:\PEAKNET\METHOD\314-011.met

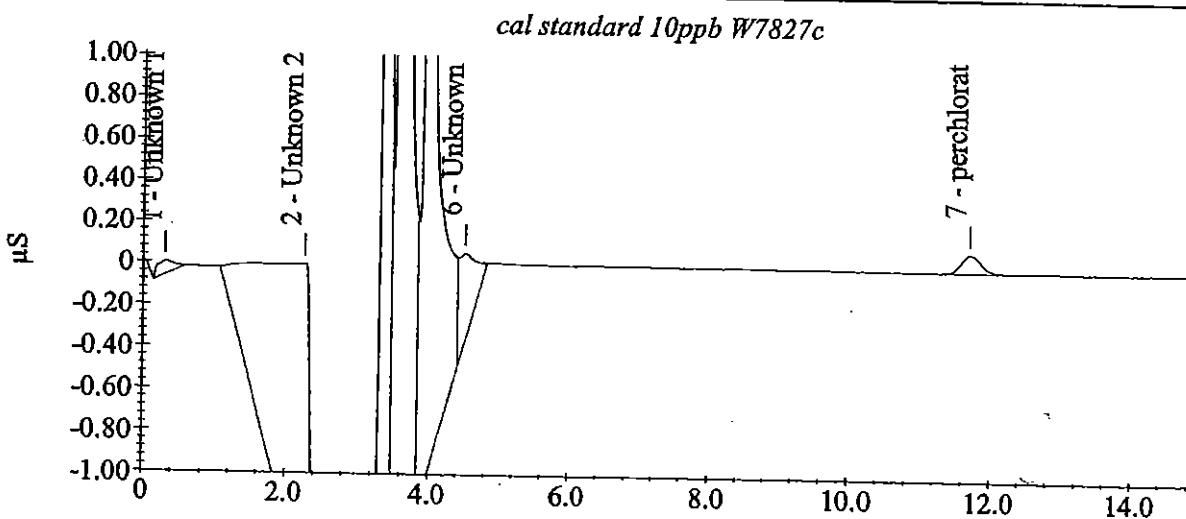
Date Time Collected : 03/12/2003 6:48:21 PM

System Operator : wei wang

Dilution Factor : 1.00

Peak Information : All Components

Peak #	Component Name	Retention Time	Amount (ppb)	Peak Area	Peak Height
7	perchlorate	11.70	11.16	16917	879



APCL Perchlorate Analysis Report

Sample Name : cal standard 2ppb W7827a

Data File Name : C:\DATA\E314-011\std-2pb_002.DXD

Method File Name : C:\PEAKNET\METHOD\314-011.met

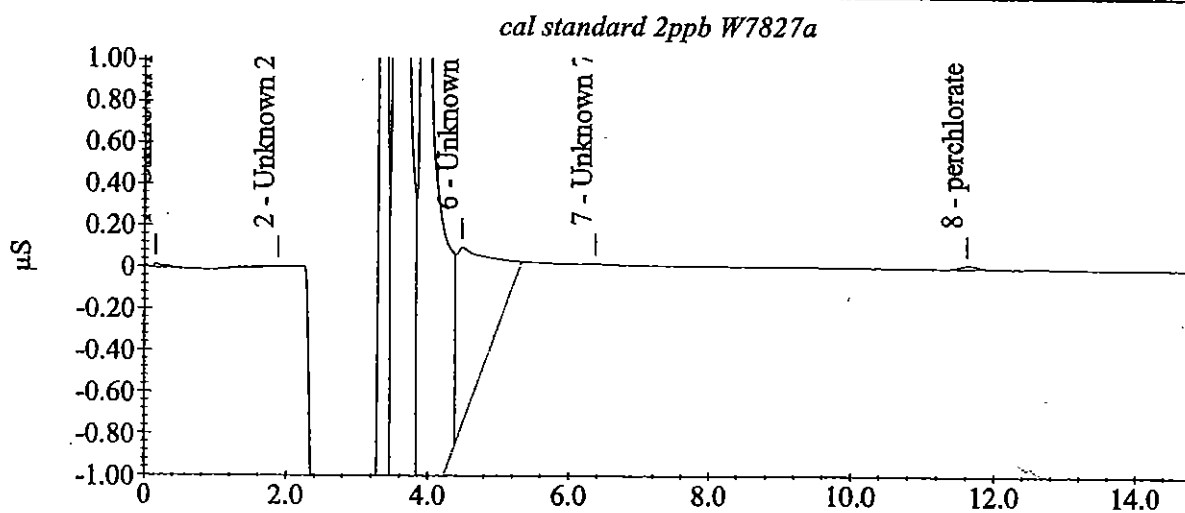
Date Time Collected : 03/12/2003 6:13:12 PM

System Operator : wei wang

Dilution Factor : 1.00

Peak Information : All Components

Peak #	Component Name	Retention Time	Amount (ppb)	Peak Area	Peak Height
8	perchlorate	11.62	1.92	2910	164



Line	Sample	Sample Type	Level	Method	Data File	Volume	Dilution
1	Cal blank	Sample		e314-011.met	c:\data\314-011\mb_001.dxd	1	1
2	cal standard 2ppb W7827a	Sample		e314-011.met	c:\data\314-011\std-2pb_002.dxd	1	1
3	cal standard 4ppb W7827b	Sample		e314-011.met	c:\data\314-011\std-4pb_003.dxd	1	1
4	cal standard 10ppb W7827c	Sample		e314-011.met	c:\data\314-011\std-10pb_004.dxd	1	1
5	cal standard 25ppb W7827d	Sample		e314-011.met	c:\data\314-011\std-25pb_005.dxd	1	1
6	cal standard 50ppb W7827e	Sample		e314-011.met	c:\data\314-011\std-50pb_006.dxd	1	1
7	cal standard 75ppb W7827f	Sample		e314-011.met	c:\data\314-011\std-75pb_007.dxd	1	1
8	cal standard 100ppb W7827g	Sample		e314-011.met	c:\data\314-011\std-100pb_008.dxd	1	1
9	ICV 50 ppb w7828a	Sample		e314-011.met	c:\data\314-011\icv-50pb_009.dxd	1	1
10	icb	Sample		e314-011.met	c:\data\314-011\icb_010.dxd	1	1
11	anion 100pm each ,25pb CLO4	Sample		e314-011.met	c:\data\314-011\mct-100_011.dxd	1	1
12	anion 200pm each ,25pb CLO4	Sample		e314-011.met	c:\data\314-011\mct-200_012.dxd	1	1
13	anion 300pm each ,25pb CLO4	Sample		e314-011.met	c:\data\314-011\mct-300_013.dxd	1	1
14	anion 400pm each ,25pb CLO4	Sample		e314-011.met	c:\data\314-011\mct-400_014.dxd	1	1
15	anion 500pm each ,25pb CLO4	Sample		e314-011.met	c:\data\314-011\mct-500_015.dxd	1	1
16	anion 600pm each ,25pb CLO4	Sample		e314-011.met	c:\data\314-011\mct-600_016.dxd	1	1
17	anion 800pm each ,25pb CLO4	Sample		e314-011.met	c:\data\314-011\mct-800_017.dxd	1	1
18	anion 1000pm each ,25pb CLO4	Sample		e314-011.met	c:\data\314-011\mct-1000_018.dxd	1	1
19	anion 400pm each 2pb	Sample		e314-011.met	c:\data\314-011\ipc-2pb_019.dxd	1	1
20	anion 400pm each 4pb	Sample		e314-011.met	c:\data\314-011\ipc-4pb_020.dxd	1	1
21	anion 400pm each 25pb	Sample		e314-011.met	c:\data\314-011\ipc-25pb_021.dxd	1	1
22	ICV 50 ppb	Sample		e314-011.met	c:\data\314-011\icv-50pb	1	1
23	MDL 4pb	Sample		e314-011.met	c:\data\314-011\mdl-02_023.dxd	1	1
24	MDL 4pb	Sample		e314-011.met	c:\data\314-011\mdl-03_024.dxd	1	1
25	MDL 4pb	Sample		e314-011.met	c:\data\314-011\mdl-04	1	1
26	MDL 4pb	Sample		e314-011.met	c:\data\314-011\mdl-05	1	1
27	MDL 4pb	Sample		e314-011.met	c:\data\314-011\mdl-06	1	1
28	MDL 4pb	Sample		e314-011.met	c:\data\314-011\mdl-07	1	1
29	MDL 4pb	Sample		e314-011.met	c:\data\314-011\mdl-08	1	1
30	IDP and IDA 25pb	Sample		e314-011.met	c:\data\314-011\idap-25pb	1	1
31	IDP and IDA 25pb	Sample		e314-011.met	c:\data\314-011\idap-25pb	1	1
32	IDP and IDA 25pb	Sample		e314-011.met	c:\data\314-011\idap-25pb	1	1
33	IDP and IDA 25pb	Sample		e314-011.met	c:\data\314-011\idap-25pb	1	1
34	IDP and IDA 25pb	Sample		e314-011.met	c:\data\314-011\idap-25pb	1	1
35	IDP and IDA 25pb	Sample		e314-011.met	c:\data\314-011\idap-25pb	1	1
36	IDP and IDA 25pb	Sample		e314-011.met	c:\data\314-011\idap-25pb	1	1
37	MCT anion 800pm each, 25pbCLO4	Sample		e314-011.met	c:\data\314-011\ipc-25pb	1	1
38	MCT anion 800pm each, 25pbCLO4	Sample		e314-011.met	c:\data\314-011\ipc-25pb	1	1
39	MCT anion 800pm each, 4pbCLO4	Sample		e314-011.met	c:\data\314-011\ipc-4pb	1	1
40	MCT anion 800pm each, 4pbCLO4	Sample		e314-011.met	c:\data\314-011\ipc-4pb	1	1
41	MDL 20pb soil	Sample		e314-011.met	c:\data\314-011\mdl-s01	1	5
42	MDL 20pb soil	Sample		e314-011.met	c:\data\314-011\mdl-s02	1	5
43	MDL 20pb soil	Sample		e314-011.met	c:\data\314-011\mdl-s03	1	5
44	MDL 20pb soil	Sample		e314-011.met	c:\data\314-011\mdl-s04	1	5
45	MDL 20pb soil	Sample		e314-011.met	c:\data\314-011\mdl-s05	1	5
46	MDL 20pb soil	Sample		e314-011.met	c:\data\314-011\mdl-s06	1	5
47	MDL 20pb soil	Sample		e314-011.met	c:\data\314-011\mdl-s07	1	5
48	standard 25ppb W7827d	Sample		e314-011.met	c:\data\314-011\std-25pb	1	1
49	anion 100pm each,4pb CLO4	Sample		e314-011.met	c:\data\314-011\am-100-4pb	1	1
50	anion 200pm each ,4pb CLO4	Sample		e314-011.met	c:\data\314-011\am-200-4pb	1	1
51	anion 300pm each ,4pb CLO4	Sample		e314-011.met	c:\data\314-011\am-300-4pb	1	1
52	anion 100pm each,2pb CLO4	Sample		e314-011.met	c:\data\314-011\am-100-2pb	1	1
53	anion 200pm each,2pb CLO4	Sample		e314-011.met	c:\data\314-011\am-200-2pb	1	1
54	anion 300pm each,2pb CLO4	Sample		e314-011.met	c:\data\314-011\am-300-2pb	1	1
55	1982-01 B S.C 4450us/cm	Sample		e314-011.met	c:\data\314-011\1982-01	1	1
56	1982-01 B S.C 4450us/cm	Sample		e314-011.met	c:\data\314-011\1982-01	1	2
57	1982-02 f=10	Sample		e314-011.met	c:\data\314-011\1982-02_057.dxd	1	10
58		Sample		aastopcl.met		1	1

Peak	Height	Area	Area%	Comment
1	1	1	1	
2	1	1	1	
3	1	1	1	
4	1	1	1	
5	1	1	1	
6	1	1	1	
7	1	1	1	
8	1	1	1	
9	1	1	1	
10	1	1	1	
11	1	1	1	
12	1	1	1	
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55	1	1	1	
56	1	1	1	
57	1	1	1	
58	1	1	1	

Default Method Path: C:\PEAKNET\METHOD
Default Data Path: C:\DATA\03W1286K
Comment:
Remark:

Condition information:

1. Column

Separator column: AS16 4mm

Guard column: AS16 4mm

2. Eluent: NaOH 38mM

3. Flow rate: 1.2mL/min

4. Suppressor: ASRS-ULTRA 4mm

5. Detector: CD20

6. Analyst: Charles Wu and Wei Wang

7. Date: 03 / 12 / 2003

8. Instrument: IC-K DX-500 Dionex

Applied P & Ch Laboratory

13760 Magnolia Ave. Chino CA 91710

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

Submitted to:

GEOFON, Inc.

Attention: Brad Shojaee

22632 Golden Spring Dr Ste 270

Diamond Bar 91765

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

APCL Analytical Report

Service ID #: 801-035802

Received: 10/23/03

Collected by: JR

Extracted: N/A

Collected on: 10/23/03

Tested: N/A

Reported: 11/13/03

Sample Description: Water

Project Description: 04.4428.10 JPL

Analysis of Water Samples

Component Analyzed	Method	Unit	PQL	Analysis Result			
				Dupe-4-4-Q03	EB-2-10-23-03	MW-12-1	MW-12-2
				03-05802-1	03-05802-2	03-05802-3	03-05802-4

CHROMIUM ^(a)

Component Analyzed	Method	Unit	PQL	Analysis Result			
				MW-12-3	MW-12-4	MW-12-5	MW-23-1
				03-05802-5	03-05802-6	03-05802-7	03-05802-8

CHROMIUM ^(a)

Component Analyzed	Method	Unit	PQL	Analysis Result			
				MW-23-2	MW-23-3	MW-23-4	MW-23-5
				03-05802-9	03-05802-10	03-05802-11	03-05802-12

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.

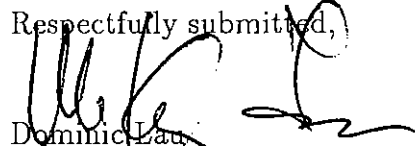
"-": Analysis is not required.

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

Applied P & Ch Laboratory

13760 Magnolia Ave. Chino CA 91710

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

Sample Login: Check List

03-05802 (0470_ 177) (2202777_ 177)

10/24/03

Part 1: General Information

☐ Company Information	Name:	GEOFON, Inc.
	Address:	22632 Golden Spring Dr Ste 270 ,Diamond Bar ,CA 91765
☐ Project Information	Project Description:	JPL
	Project #:	04.4428.10
☐ Billing Information	P.O. #:	
	Bill Address:	22632 Golden Spring Dr Ste 270 ,Diamond Bar ,CA 91765
	Lab Project ID:	
	Client Database #:	3
☐ Receiving Information	Who Received Sample?	Kenny Chan
	Receiving Date/Time:	10/23/03 1425
	COC No.	0061 0067
☐ Shipping Information	Shipping Company	APCL pick up
	Packing Information:	Cooler/Ice Chester
	Cooler Temperature:	3.6 °C
☐ Container Information	Container Provider:	Client
☐ Sampling Information	Sampling Person:	JR
	Sampling Company:	Client
☐ Turn-Around-Time Option:		Normal
☐ QC Option:		NEESA C
☐ Disposal Option:		Not specify

Part 2: Sample Information

Seq. #	Sample ID (on COC)	Sample Sub-ID	APCL Sample ID	Matrix	Cont- tainer	Preser- vative	Vol, ml Am. g	# of Replica	Condition G, L, B	Collected mmddyy	Hold ?	Composite Group	TAT Days
1	MW-12-5,	Cr	03-05802-7	W	P	N	500	1	G	102303	N	0	9 ☐
2	MW-12-4,	Cr	03-05802-6	W	P	N	500	1	G	102303	N	0	9 ☐
3	MW-12-3,	Cr	03-05802-5	W	P	N	500	1	G	102303	N	0	9 ☐
4	MW-12-2,	Cr	03-05802-4	W	P	N	500	1	G	102303	N	0	9 ☐
5	MW-12-1,	Cr	03-05802-3	W	P	N	500	1	G	102303	N	0	9 ☐
6	Dupe-4-4-Q03	Cr	03-05802-1	W	P	N	500	1	G	102303	N	0	9 ☐
7	MW-23-5,	Cr	03-05802-12	W	P	N	500	1	G	102303	N	0	9 ☐
8	MW-23-4,	Cr	03-05802-11	W	P	N	500	1	G	102303	N	0	9 ☐
9	MW-23-3,	Cr	03-05802-10	W	P	N	500	1	G	102303	N	0	9 ☐
10	MW-23-2,	Cr	03-05802-9	W	P	N	500	2	G	102303	N	0	9 ☐
11	MW-23-1,	Cr	03-05802-8	W	P	N	500	1	G	102303	N	0	9 ☐
12	EB-2-10-23-03,	Cr	03-05802-2	W	P	N	500	1	G	102303	N	0	9 ☐

Part 3: Analysis Information

Test Items: ☐ 200.7/6010B Chromium, Cr, by ICP

Seq. #	Client's Sample ID (as given on COC)	Sample Sub-ID	APCL Sample ID	Matrix	CR	
1	MW-12-5	Cr	03-05802-7	W	X	☐
2	MW-12-4	Cr	03-05802-6	W	X	☐
3	MW-12-3	Cr	03-05802-5	W	X	☐
4	MW-12-2	Cr	03-05802-4	W	X	☐
5	MW-12-1	Cr	03-05802-3	W	X	☐
6	Dupe-4-4-Q03	Cr	03-05802-1	W	X	☐
7	MW-23-5	Cr	03-05802-12	W	X	☐
8	MW-23-4	Cr	03-05802-11	W	X	☐
9	MW-23-3	Cr	03-05802-10	W	X	☐
10	MW-23-2	Cr	03-05802-9	W	X	☐
11	MW-23-1	Cr	03-05802-8	W	X	☐
12	EB-2-10-23-03	Cr	03-05802-2	W	X	☐

☐ Client's Requirement: **PERFORM MS/MSD ON SAMPLE #**

9

Login By JASON M. NARIO

Check By 12X

Applied P & Ch Laboratory

19760 Magnolia Ave., Chino CA 91710

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

Sample Receiving Checklist

APCL ServiceID **5802** Client Name/Project: Geobon JPL

1. Sample Arrival

Date/Time Received 10/23/03 1425 Date/Time Opened 10/23/03 1425 By (name): Kenneth Chen
Custody Transfer: ☐ Client ☐ Golden State ☐ UPS ☐ US Mail ☐ FedEx ☒ APCL Emp: Ken B

2. Chain-of-Custody (CoC)

☒ With Samples? ☐ Faxed? ☐ Client has Copy? ☐ Signed, dated? By: _____
☒ Project ID? ☒ Analyses Clear? ☐ Hold Samples? #on Hold _____ # Received 13
☐ CoC/Docs Zip-Locked under lid? ☐ Compos.#: _____ ☒ #Samples OK?
☐ Discrepancies? ☐ Client notified? ☐ Response (attach docs): _____

3. Shipping Container/Cooler

☒ Cooler Used? # of 1 Cooled by: ☒ Ice ☐ Blue Ice ☐ Dry Ice ☐ None
Temp °C 3.6
(Cooler temperature measured from temp blank if present, otherwise measured from the cooler).
Cooler Custody Seal? ☐ Absent ☐ Intact ☐ Tampered?

4. Sample Preservation

☐ pH <2 ☐ pH >12
If Not, pH = _____ Preserved by: ☐ Client ☐ APCL ☐ Third Party

5. Holding-time Requirements

☐ pH 24hr ☐ BACT 6/24hr ☒ Cr^{VI} 24hr ☐ NO₃⁻ 48hr ☐ BOD 48hr
☐ Cl₂ ASAP ☐ Turbidity 48hr ☐ DO ASAP ☐ Fe(II) ASAP
☐ HT Expired? ☐ Client notified?

6. Sample Container Condition

☒ Intact? ☐ Broken? ☐ Documented? Number: _____
Type: ☒ plastic ☒ glass ☐ Tube: brass/SS ☐ Tedlar Bag
☒ Quantity OK? ☐ Leaking? ☐ Anomaly?
☒ Caps tight? ☐ Air Bubbles? ☐ Anomaly?
Labels: ☐ Unique ID? ☒ Date/Time ☐ Preserved?

7. Turn Around Time

☐ RUSH TAT: _____ ☒ Std (7-10 days) ☐ Not Marked

8. Sample Matrix

☐ Drinking H₂O ☐ Other Liq ☐ Soil ☐ Wipe ☐ Polymer ☐ Air ☐ Other: _____
☒ Ground H₂O ☐ Sludge ☐ Filter ☐ Oil/Petro ☐ Paint ☐ W. Water ☐ Extract ☐ Unknown

9. Pre-Login Check List Completed & OK?

☒ ALL OK? (if not, attach docs) ☐ Client Contact? (Name: _____) Date/Time: _____

Received/Checked by: [Signature] Printed: 23 Oct 2003 7:22 a.m.

*HT: Samples must be analyzed for results to reflect total concentrations. Results generated outside required of holding times are considered minimal values and may be used to define waste as hazardous but not as non-hazardous.

DocumentFile: [local.textfiles]smpcl.tex.

Applied P & Ch Laboratories
Project: JPL GW Mon-4Q03, 04.4428.10
ATL Work Order: 065631

0001



Advanced Technology
Laboratories

3275 Walnut Avenue Signal Hill, CA 90755 Tel: 562 989-4045 Fax: 562 989-4040

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ATL Work Order: 065631

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Raw Data:	
Method 200.8	0021-0080

0002



Advanced Technology Laboratories

Date: 19-Nov-03

CLIENT: Applied P & Ch Laboratories
Project: JPL GW Mon-4Q03, 04.4428.10
Lab Order: 065631

CASE NARRATIVE

Results were J-Flag. "J" is used to flag those results that are between the PQL (Practical Quantitation Limit) and the calculated MDL (Method Detection Limit). Results that are "J" flagged are estimated values since it becomes difficult to accurately quantitate the analyte near the MDL.

QC Batch R32297 (EPA 200.8)

Matrix Spike (MS) and /or Matrix Spike Duplicate (MSD) are outside recovery criteria; however, the analytical batch was validated by the Laboratory Control Sample (LCS).



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 1

Subcontract Lab: ATL Contact: Puri Tel #: (562) 989-4015 Fax #: (562) 989-4040
 Address: 3275 Walnut Avenue City: Signal Hill State: CA Zip code: 90807
 APCL Client: # 5802 APCL Contact: Kenny Chan
 Project Name/Code: JPL G W Mon - 4003 Job # 04.4428.18
 BILL TO APCL Sub Quotation # ---

Field Sample ID No.	Sample Description, ID	Date Collected	Sample Matrix	Preservation	# of Containers	Analysis	Items	White - With report Yellow - Lab copy Pink - Originator	Remarks
	MW-12-5	102303 1049	W	HNO ₃	1				Level 4 pkg
	MW-12-4	102303 1113	W	HNO ₃	1				and EDD.
	MW-12-3	102303 1132	W	HNO ₃	1				
	MW-12-2	102303 1150	W	HNO ₃	1				
	MW-12-1	102303 1216	W	HNO ₃	1				
	Dupe - 4-4-Q003	102303 1241	W	HNO ₃	1				
	MW-23-5	102303 0712	W	HNO ₃	1				
	MW-23-4	102303 0724	W	HNO ₃	1				
	MW-23-3	102303 0754	W	HNO ₃	1				
	MW-23-2	102303 0824	W	HNO ₃	2				
	MW-23-1	102303 0901	W	HNO ₃	1				
	FB-2-10-23-03	102303 0855	W	HNO ₃	1				← NSIMSD

QC Requirement: ☐ Regular; ☐ QA/QC Report; ☐ WIP; ☐ Raw Data; ☐ Extended Raw Data ☐ CLP; ☐ ACE ☒ AFCE ☒ NNEESA ☐ (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 (2.8°C).

Relinquished by [Signature] Date/Time 10/24/13 10:00 Received by [Signature] Date/Time 10/23/13 14:40

Relinquished by --- Date/Time --- Received by --- Date/Time ---

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 terminate its service or withhold delivery of any reports, if in APCL's sole discretion the terms of the contract are not followed.

Advanced Technology Laboratories

Date: 10-Nov-03

CLIENT: Applied P & Ch Laboratories
Project: JPL GW Mon-4Q03, 04.4428.10
Lab Order: 065631
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
065631-001A	MW-12-5	Water	10/23/2003	10/31/2003	11/10/2003
065631-002A	MW-12-4	Water	10/23/2003	10/31/2003	11/10/2003
065631-003A	MW-12-3	Water	10/23/2003	10/31/2003	11/10/2003
065631-004A	MW-12-2	Water	10/23/2003	10/31/2003	11/10/2003
065631-005A	MW-12-1	Water	10/23/2003	10/31/2003	11/10/2003
065631-006A	Dupe-4-4-Q03	Water	10/23/2003	10/31/2003	11/10/2003
065631-007A	MW-23-5	Water	10/23/2003	10/31/2003	11/10/2003
065631-008A	MW-23-4	Water	10/23/2003	10/31/2003	11/10/2003
065631-009A	MW-23-3	Water	10/23/2003	10/31/2003	11/10/2003
065631-010A	MW-23-2	Water	10/23/2003	10/31/2003	11/10/2003
065631-011A	MW-23-1	Water	10/23/2003	10/31/2003	11/10/2003
065631-012A	EB-2-10-23-03	Water	10/23/2003	10/31/2003	11/10/2003



Advanced Technology Laboratories

Date: 10-Nov-03

CLIENT: Applied P & Ch Laboratories

Client Sample ID: MW-12-5

Lab Order: 065631

Project: JPL GW Mon-4Q03, 04.4428.10

Collection Date: 10/23/2003 10:49:00 AM

Lab ID: 065631-001A

Matrix: WATER

Analyte	Result	Qual	MDL	PQL	Units	DF	Date Analyzed
ICP-MS METALS			EPA 200.8			Analyst: NS	
RunID: ICP4_031105A	QC Batch: R32297		PrepDate:				
Chromium	4.7		0.11	1.0	µg/L	1	11/5/2003 12:33:35 P

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits
J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank E - Value above quantitation range
* - Value exceeds Maximum Contaminant Level H-Samples exceed holding time

Results are wet unless otherwise specified

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Advanced Technology
Laboratories

3275 Walnut Avenue Signal Hill, CA 90755 Tel: 562 989-4045 Fax: 562 989-4040

0007

Advanced Technology Laboratories

Date: 10-Nov-03

CLIENT: Applied P & Ch Laboratories

Client Sample ID: MW-12-4

Lab Order: 065631

Project: JPL GW Mon-4Q03, 04.4428.10

Collection Date: 10/23/2003 11:13:00 AM

Lab ID: 065631-002A

Matrix: WATER

Analyte	Result	Qual	MDL	PQL	Units	DF	Date Analyzed
ICP-MS METALS			EPA 200.8			Analyst: NS	
RunID: ICP4_031105A	QC Batch: R32297		PrepDate:				
Chromium	2.8		0.11	1.0	µg/L	1	11/5/2003 12:36:04 P

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
H-Samples exceed holding time

Page 2 of 12

Results are wet unless otherwise specified

0008



Advanced Technology Laboratories

Date: 10-Nov-03

CLIENT: Applied P & Ch Laboratories

Client Sample ID: MW-12-3

Lab Order: 065631

Project: JPL GW Mon-4Q03, 04.4428.10

Collection Date: 10/23/2003 11:32:00 AM

Lab ID: 065631-003A

Matrix: WATER

Analyte	Result	Qual	MDL	PQL	Units	DF	Date Analyzed
ICP-MS METALS			EPA 200.8			Analyst: NS	
RunID: ICP4_031105A	QC Batch: R32297		PrepDate:				
Chromium	1.6		0.11	1.0	µg/L	1	11/5/2003 12:38:34 P

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits
J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank E - Value above quantitation range
* - Value exceeds Maximum Contaminant Level H-Samples exceed holding time

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Results are wet unless otherwise specified

0009



Advanced Technology
Laboratories

3275 Walnut Avenue Signal Hill, CA 90755 Tel: 562 989-4045 Fax: 562 989-4040

Advanced Technology Laboratories

Date: 10-Nov-03

CLIENT: Applied P & Ch Laboratories**Client Sample ID:** MW-12-2**Lab Order:** 065631**Project:** JPL GW Mon-4Q03, 04.4428.10**Collection Date:** 10/23/2003 11:50:00 AM**Lab ID:** 065631-004A**Matrix:** WATER

Analyte	Result	Qual	MDL	PQL	Units	DF	Date Analyzed
ICP-MS METALS			EPA 200.8			Analyst: NS	
RunID: ICP4_031105A	QC Batch:	R32297	PrepDate:				
Chromium	2.9		0.11	1.0	µg/L	1	11/5/2003 12:41:03 P

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits
J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank E - Value above quantitation range
* - Value exceeds Maximum Contaminant Level H-Samples exceed holding time

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Results are wet unless otherwise specified

0010



Advanced Technology
Laboratories

3275 Walnut Avenue Signal Hill, CA 90755 Tel: 562 989-4045 Fax: 562 989-4040

Advanced Technology Laboratories

Date: 10-Nov-03

CLIENT: Applied P & Ch Laboratories

Client Sample ID: MW-12-1

Lab Order: 065631

Project: JPL GW Mon-4Q03, 04.4428.10

Collection Date: 10/23/2003 12:16:00 PM

Lab ID: 065631-005A

Matrix: WATER

Analyte	Result	Qual	MDL	PQL	Units	DF	Date Analyzed
ICP-MS METALS			EPA 200.8			Analyst: NS	
RunID: ICP4_031105A	QC Batch: R32297		PrepDate:				
Chromium	8.1		0.11	1.0	µg/L	1	11/5/2003 12:43:34 P

Qualifiers: ND - Not Detected at the Reporting Limit

S - Spike Recovery outside accepted recovery limits

J - Analyte detected below quantitation limits

R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

E - Value above quantitation range

* - Value exceeds Maximum Contaminant Level

H-Samples exceed holding time

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Results are wet unless otherwise specified

0011



Advanced Technology
Laboratories

3275 Walnut Avenue Signal Hill, CA 90755 Tel: 562 989-4045 Fax: 562 989-4040

Advanced Technology Laboratories

Date: 10-Nov-03

CLIENT: Applied P & Ch Laboratories

Client Sample ID: Dupe-4-4-Q03

Lab Order: 065631

Project: JPL GW Mon-4Q03, 04.4428.10

Collection Date: 10/23/2003 12:41:00 PM

Lab ID: 065631-006A

Matrix: WATER

Analyte	Result	Qual	MDL	PQL	Units	DF	Date Analyzed
ICP-MS METALS			EPA 200.8			Analyst: NS	
RunID: ICP4_031105A	QC Batch: R32297	PrepDate:					
Chromium	8.4		0.11	1.0	µg/L	1	11/5/2003 12:46:05 P

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
H-Samples exceed holding time

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Results are wet unless otherwise specified



Advanced Technology
Laboratories

3275 Walnut Avenue Signal Hill, CA 90755 Tel: 562 989-4045 Fax: 562 989-4040

0012

Advanced Technology Laboratories

Date: 10-Nov-03

CLIENT: Applied P & Ch Laboratories**Client Sample ID:** MW-23-5**Lab Order:** 065631**Project:** JPL GW Mon-4Q03, 04.4428.10**Collection Date:** 10/23/2003 7:12:00 AM**Lab ID:** 065631-007A**Matrix:** WATER

Analyte	Result	Qual	MDL	PQL	Units	DF	Date Analyzed
ICP-MS METALS			EPA 200.8			Analyst: NS	
RunID: ICP4_031105A	QC Batch:	R32297	PrepDate:				
Chromium	1.8		0.11	1.0	µg/L	1	11/5/2003 12:48:36 P

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
H-Samples exceed holding time

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Results are wet unless otherwise specified

0013



Advanced Technology
Laboratories

3275 Walnut Avenue Signal Hill, CA 90755 Tel: 562 989-4045 Fax: 562 989-4040

Advanced Technology Laboratories

Date: 10-Nov-03

CLIENT: Applied P & Ch Laboratories

Client Sample ID: MW-23-4

Lab Order: 065631

Project: JPL GW Mon-4Q03, 04.4428.10

Collection Date: 10/23/2003 7:34:00 AM

Lab ID: 065631-008A

Matrix: WATER

Analyte	Result	Qual	MDL	PQL	Units	DF	Date Analyzed
ICP-MS METALS			EPA 200.8			Analyst: NS	
RunID: ICP4_031105A	QC Batch:	R32297	PrepDate:				
Chromium	2.6		0.11	1.0	µg/L	1	11/5/2003 12:51:08 P

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
H-Samples exceed holding time

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Results are wet unless otherwise specified

0014



Advanced Technology
Laboratories

3275 Walnut Avenue Signal Hill, CA 90755 Tel: 562 989-4045 Fax: 562 989-4040

Advanced Technology Laboratories

Date: 10-Nov-03

CLIENT: Applied P & Ch Laboratories

Client Sample ID: MW-23-3

Lab Order: 065631

Project: JPL GW Mon-4Q03, 04.4428.10

Collection Date: 10/23/2003 7:54:00 AM

Lab ID: 065631-009A

Matrix: WATER

Analyte	Result	Qual	MDL	PQL	Units	DF	Date Analyzed
ICP-MS METALS			EPA 200.8			Analyst: NS	
RunID: ICP4_031105A	QC Batch: R32297		PrepDate:				
Chromium	4.2		0.11	1.0	µg/L	1	11/5/2003 12:58:49 P

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
H-Samples exceed holding time

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Results are wet unless otherwise specified

0015



Advanced Technology
Laboratories

3275 Walnut Avenue Signal Hill, CA 90755 Tel: 562 989-4045 Fax: 562 989-4040

Advanced Technology Laboratories

Date: 10-Nov-03

CLIENT: Applied P & Ch Laboratories

Client Sample ID: MW-23-2

Lab Order: 065631

Project: JPL GW Mon-4Q03, 04.4428.10

Collection Date: 10/23/2003 8:24:00 AM

Lab ID: 065631-010A

Matrix: WATER

Analyte	Result	Qual	MDL	PQL	Units	DF	Date Analyzed
ICP-MS METALS			EPA 200.8			Analyst: NS	
RunID: ICP4_031105A	QC Batch: R32297		PrepDate:				
Chromium	3.5		0.11	1.0	µg/L	1	11/5/2003 1:01:22 PM

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
H-Samples exceed holding time

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Results are wet unless otherwise specified

0016



Advanced Technology
Laboratories

3275 Walnut Avenue Signal Hill, CA 90755 Tel: 562 989-4045 Fax: 562 989-4040

Advanced Technology Laboratories

Date: 10-Nov-03

CLIENT: Applied P & Ch Laboratories

Client Sample ID: MW-23-1

Lab Order: 065631

Project: JPL GW Mon-4Q03, 04.4428.10

Collection Date: 10/23/2003 9:01:00 AM

Lab ID: 065631-011A

Matrix: WATER

Analyte	Result	Qual	MDL	PQL	Units	DF	Date Analyzed
ICP-MS METALS			EPA 200.8			Analyst: NS	
RunID: ICP4_031105A	QC Batch:	R32297	PrepDate:				
Chromium	4.6		0.11	1.0	µg/L	1	11/5/2003 1:06:25 PM

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
H-Samples exceed holding time

Results are wet unless otherwise specified

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0017



Advanced Technology
Laboratories

3275 Walnut Avenue Signal Hill, CA 90755 Tel: 562 989-4045 Fax: 562 989-4040

Advanced Technology Laboratories

Date: 10-Nov-03

CLIENT: Applied P & Ch Laboratories

Client Sample ID: EB-2-10-23-03

Lab Order: 065631

Project: JPL GW Mon-4Q03, 04.4428.10

Collection Date: 10/23/2003 8:55:00 AM

Lab ID: 065631-012A

Matrix: WATER

Analyte	Result	Qual	MDL	PQL	Units	DF	Date Analyzed
ICP-MS METALS			EPA 200.8			Analyst: NS	
RunID: ICP4_031105A	QC Batch:	R32297	PrepDate:				
Chromium	ND		0.11	1.0	µg/L	1	11/5/2003 1:08:52 PM

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
H-Samples exceed holding time

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Results are wet unless otherwise specified

0018



Advanced Technology
Laboratories

3275 Walnut Avenue Signal Hill, CA 90755 Tel: 562 989-4045 Fax: 562 989-4040



Advanced Technology Laboratories

Date: 10-Nov-03

Advanced Technology
Laboratories

CLIENT: Applied P & Ch Laboratories
Work Order: 065631
Project: JPL GW Mon-4Q03, 04.4428.10

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID: MB-R32297	SampType: MBLK	TestCode: 200.8_W	Units: µg/L	Prep Date:	Run ID: ICP4_031105A						
Client ID: ZZZZZ	Batch ID: R32297	TestNo: EPA 200.8		Analysis Date: 11/5/2003	SeqNo: 480785						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: LCS-R32297	SampleType: LCS	TestCode: 200.8_W	Units: µg/L	Prep Date:	Run ID: ICP4_031105A						
Client ID: ZZZZZ	Batch ID: R32297	TestNo: EPA 200.8		Analysis Date: 11/5/2003	SeqNo: 480784						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.4	1.0	10	0	104	85	115	0	0	0	

Sample ID: 065631-010AMS	SampType: MS	TestCode: 200.8_W	Units: µg/L	Prep Date:	Run ID: ICP4_031105A						
Client ID: MW-23-2	Batch ID: R32297	TestNo: EPA 200.8		Analysis Date: 11/5/2003	SeqNo: 480780						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	11.3	1.0	10	3.494	78	80	120	0	0	0	S

Sample ID: 065631-010AMSD	SampType: MSD	TestCode: 200.8_W	Units: µg/L	Prep Date:	Run ID: ICP4_031105A						
Client ID: MW-23-2	Batch ID: R32297	TestNo: EPA 200.8		Analysis Date: 11/5/2003	SeqNo: 480781						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	11.26	1.0	10	3.494	77.7	80	120	11.3	0.301	20	S

Sample ID: 065631-010ADUP	SampType: DUP	TestCode: 200.8_W	Units: µg/L	Prep Date:	Run ID: ICP4_031105A						
Client ID: MW-23-2	Batch ID: R32297	TestNo: EPA 200.8		Analysis Date: 11/5/2003	SeqNo: 480786						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	3.313	1.0	0	0	0	0	0	3.494	5.32	20	

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

0019



CLIENT: Applied P & Ch Laboratories
Work Order: 065631
Project: JPL GW Mon-4Q03, 04.4428.10

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID: 065631-012ADUP	SampType: DUP	TestCode: 200.8_W	Units: µg/L	Prep Date:	Run ID: ICP4_031105A						
Client ID: EB-2-10-23-03	Batch ID: R32297	TestNo: EPA 200.8		Analysis Date: 11/5/2003	SeqNo: 480787						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0	0	0	0	0	0	0	0	0	30

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
R - RPD outside accepted recovery limits

S - Spike Recovery outside accepted recovery limits
B - Analyte detected in the associated Method Blank
Calculations are based on raw values

DO- Surrogate dilute out
H - Sample exceeded holding time

0020

Method 200.8

ATL Number: 065631

(EPA 200.8) - INITIAL CALIBRATION

Instrument ID: ICP4

Date(s) Analyzed: 11/05/03

Initial Calibration:

	INTENSITY				
COMPOUND	STD1	STD2	STD3	STD4	r2
CHROMIUM	14950	54673	97728	185764	0.999963

Standard Concentration	0.5 ppb	5 ppb	10 ppb	20 ppb
Standard ID:	MST031105E	MST031105D	MST031105C	MST031105B

Calibration Acceptance Criteria: > 0.995 Correlation

0022



(EPA 200.8) BLANK *

Instrument ID:	ICP 4
Date Digested:	11/5/03
Digestion Method:	7/18/00

Dilution Factor: 1
Matrix: Water
Date Analyzed: 11/5/03

QC Batch Number: MB-R32297

[illegible]

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

Instrument ID: ICP4

Date Analyzed: 11/5/03

Standard Code:
MST031105G

LEEMAN LABS

MST031105G

Concentration Units: ug/L

[illegible]

ICV Limits: 90 -110%

CCV Limits: 85 -115%



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

Instrument ID: ICP4

Date Analyzed: 11/5/03

Initial Calibration Verification:

Continuing Calibration Verification:

Concentration Units: ug/L

[illegible]

ICV Limits: 90 -110%

CCV Limits: 85 -115%





ATL Number: 065631

Instrument ID: ICP4 Internal Standard ID: MST031104A

Date Analyzed: 11/05/2003 Standard Concentration: 50 ug/L

QC Batch: R32297

Lab ID	Sample Description	Lithium		Sc		Ge		In		Terbium	
		Intensity	% Rec	Intensity	% Rec	Intensity	% Rec	Intensity	% Rec	Intensity	% Rec
	Calibration Blank		---	616968	---		---		---		---
	Sample Description										
MB-R32297				566330	92						
LCS-R32297				569606	92						
065631-001A				652346	106						
065631-002A				653813	106						
065631-003A				610881	99						
065631-004A				624328	101						
065631-005A				613775	99						
065631-006A				616979	100						
065631-007A				578550	94						
065631-008A				620996	101						
065631-009A				627756	102						
065631-010A				642077	104						
065631-010ADUP				638264	103						
065631-011A				640372	104						
065631-012A				575357	93						
065631-012ADUP				566743	92						
065631-010AMS				710514	115						
065631-010AMSD				706490	115						

* Outside Acceptance Criteria

Acceptance Criteria: 60 - 125%

ICP-MS : Turbidity Check and Sample Preparation Log

Date Read / Digested: 11-5-03

Lab Number: R32297

Method (Circle one):		Turb. Calibration		Matrix (Circle one):		Acid Lot #	
1) 200.8		100 NTU: 10 NTU		1) Drinking Water		Hydrochloric	
2) 3010A		Std Code: SCL-0029		2) Ground Water		Nitric	
3) 3050B		Initials: NJ		3) Liquid			
4) 3051				(6) Other: water			

Sample ID	Turbidity Result *	Sample Wt./Vol.	Spike / LCS Amt. Added	Spike / LCS Conc. (ppm)	Spike Code	Final Vol (ml)	Initials	Comments
MS 065631-010A	0.12	10	0.10 ml	1 ppm	MS031105A	10	NJ	
MSD	+							
Method Blank	-							
LCS	-		0.10 ml	1 ppm	MS031105F			
Blank MS								
Blank MSD								

1	065631-001A	-0.02	10			10	NJ	
2	-0.02	0.15						
3	-0.03	-0.01						
4	-0.04	0.07						
5	-0.05	0.06						
6	-0.06	0.03						
7	-0.07	0.93						
8	-0.08	0.10						
9	-0.09	0.03						
10	-0.10	0.12						
11	-0.11	0.11						
12	-0.12	-0.09						
13								
14								
15								
16								
17								
18								
19								
20	065631-010A	-0.06	10			10	NJ	
DUP	065631-012A	-0.02						

* Turbidity < 1 NTU DOES NOT need sample preparation.

Advanced Technology Laboratories, Logbook # 6

Sample/Batch Report

User Name: Nancy

Computer Name: ICPMS PE 6100

Sample File: D:\ELAN\Elan\data03Sept\Sample\2003\November\110503.sam

Report Date/Time: Wednesday, November 05, 2003 15:36:00

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-	> R32298	NS 11/6/03					
10		LCS-							
11		065632-022A							
12		065632-023A							
13		065632-024A							
14		065632-025A							
15		065632-026A							
16		065632-027A							
17		065632-028A							
18		065632-029A							
7		CCV							
8		CCB							
19		065632-030A							
20		065632-030ADUP							
21		065632-031A							
22		065632-032A							
23		065632-033A							
24		065632-034A							
25		065632-035A							
26		065632-036A							
27		065632-036ADUP							
28		065632-037A							
7		CCV							
8		CCB							
29		065632-038A							
30		065632-039A							
31		065632-040A							
32		065632-036AMS							
33		065632-036AMSD							
7		CCV							
8		CCB							
34		MB-	> R32300						
35		LCS-							
36		065632-020A							
37		065632-042A							
38		065632-043A							
39		065632-043ADUP							
40		065632-043AMS							
41		065632-043AMSD							
7		CCV							
8		CCB							
42		MB-	> R32297	NS 11/6/03					
43		LCS-							
44		065631-001A							
45		065631-002A							
46		065631-003A							
47		065631-004A							

CAL: HSTD31105 B/20
C/10
D/15
E/0.5

ICV/CCV: HSTD31105 G

LCS: HSTD31105 F

MS/MSD: HSTD31105 A

ISL69 { LCS: MSP030220A
MS/MSD: MSP030414Q
ICP4
11/11/03

0028

48	065631-005A
49	065631-006A
50	065631-007A
51	065631-008A
7	CCV
8	CCB
52	065631-009A
53	065631-010A
54	065631-010ADUP
55	065631-011A
56	065631-012A
57	065631-012ADUP
58	065631-010AMS
59	065631-010AMSD
7	CCV 6
8	CCB
60	MB-15669
61	LCS-15669
62	065632-021A
63	065632-021ADUP
64	065632-021AMS
65	065632-021AMSD
7	CCV 7
8	CCB

Instrument Tuning Report

File Name: 110503.tun

File Path: D:\ELAN\Elan\data03Sept\TUNING\2003\November

Analyte	Exact Mass	Meas. Mass	Mass DAC	Res. DAC	Meas. Pk. Width	Custom Res.
Be	9.012	8.977	2045	2040	0.716	
Mg	23.985	23.979	5698	2020	0.721	
Rh	102.905	102.879	24965	1965	0.728	
Ce	139.905	139.879	33963	2025	0.730	
Pb	207.977	207.978	50416	2270	0.754	
U	238.050	238.024	57622	2435	0.770	

0030

Report Date/Time: Wednesday, November 05, 2003 09:48:11

Page 1

ELAN Instrument Control Session

File Edit Analysis Options Window Help



Data Only Method - c:\elandata\Method\ATL Methods 030317\ATL-TUNING250.mth

Timing Processing Equation Calibration In Sampling NDE

Sweeps / Reading: Est. Reading Time: 0:00:28.175
 Readings / Replicate: Est. Replicate Time: 0:00:28.175
 Replicates: Est. Sample Time: 0:02:49.050
 Tuning File:
 Optimization File: ☐ Enable Short

	Analyte	Begin Mass	End Mass	Scan Mode	MCA	Dwell Time	Int
	[3]	[amu]	[amu]	[1]	Channels	per AMU [ms]	[10]
1		5	10	Scanning	20	20	32768
2		22	26	Scanning	20	20	32768
3		102	104	Scanning	20	20	32768
4		139	141	Scanning	20	20	32768
5		206	209	Scanning	20	20	32768

Tuning - D:\ELAN\elandata03Sept\TUNING\2003\November\110503.tun

☒ Tune Mass Spec ☐ Peak Width Only
 Peak Search Window [amu]: Resolution DAC: for Analyte: B

	Analyte	Mass	Measured	Mass Calibration	Resolution	Meas
		[amu]	Mass [amu]	DAC Value	DAC Value	Width
1	Be	9.0122	8.977	2045	2040	7.8
2	Mg	23.985	23.9787	5698	2020	21
3	Rh	102.905	102.879	24965	1965	10
4	Ce	139.905	139.879	33963	2025	7.5
5	Pb	207.977	207.978	50416	2270	
6	U	238.05	238.024	57622	2435	

Daily Performance Report

Sample ID: 110503-daily

Sample Date/Time: Wednesday, November 05, 2003 09:48:41

Sample Description:

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

Dataset File: d:\elan\elandata\03sept\daily performance\2003\november\110503-daily.002

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		40406.1		40406.081		1042.389		2.6
Rh	102.9		207802.5		207802.454		302.755		0.1
In	114.9		265952.7		265952.736		5351.347		2.0
Pb	208.0		158265.5		158265.495		2903.462		1.8
[> Ba	137.9		221410.1		221410.132		1895.886		0.9
[Ba++	69.0		3404.4		0.015		0.000		0.8
[> Ce	139.9		257212.9		257212.887		7.199		0.0
[CeO	155.9		7349.0		0.029		0.000		0.3
Bkgd	220.0		7.5		7.500		3.536		47.1

Current Optimization File Data

Current Value	Description
0.84	Nebulizer Gas Flow
10.00	Lens Voltage
1100.00	ICP RF Power
-1925.00	Analog Stage Voltage
1925.00	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	9.0	6983.7
Co	59	9	10.0	94863.9
In	115	9	11.5	192753.7

Quantitative Analysis Summary

Sample Date/Time: Wednesday, November 05, 2003 10:07:02

Dataset File: D:\ELAN\Eladata03Sept\Dataset\2003\November\110503\Blank.001

Method File: c:\elandata\Method\atl methods 030317\atl-epa 200.8 cr apcl.mth

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

Number of Replicates: 3

Sample ID: Blank

Sample Type:

Summary

Analyte	Mass	Blank Intensity	Meas. Intensity	Int. RSD	Conc. Mean	Conc. SD	Conc. RSD
Li	7		90829	2.6		ug/L	%
Ge	72		129518	0.6		ug/L	%
[> Sc-1	45		616968	0.7		ug/L	%
[Cr	52		9272	4.2		ug/L	%
In	115		1301215	0.7		ug/L	%
Tb	159		1575022	1.1		ug/L	%
Sc	45		616968	0.7		ug/L	%

Quantitative Analysis Summary

Sample Date/Time: Wednesday, November 05, 2003 10:09:31

Dataset File: D:\ELAN\Eladata03Sept\Dataset\2003\November\110503\Standard 1.002

Method File: c:\elandata\Method\atl methods 030317\atl-epa 200.8 cr apcl.mth

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

Number of Replicates: 3

Sample ID: Standard 1

Sample Type:

Summary

	Analyte	Mass	Blank Intensity	Meas. Intensity	Int. RSD	Conc. Mean	Conc. SD	Conc. RSD
	Li	7	90829	87683	1.5		ug/L	%
	Ge	72	129518	129380	0.8		ug/L	%
[>	Sc-1	45	616968	611825	0.7		ug/L	%
[	Cr	52	9272	14950	0.9	0.500	0.019 ug/L	3.9 %
	In	115	1301215	1319168	0.4		ug/L	%
	Tb	159	1575022	1565698	0.8		ug/L	%
	Sc	45	616968	611825	0.7		ug/L	%

0034

Quantitative Analysis Summary

Sample Date/Time: Wednesday, November 05, 2003 10:12:15

Dataset File: D:\ELAN\Eladata03Sept\Dataset\2003\November\110503\Standard 2.003

Method File: c:\elandata\Method\atl methods 030317\atl-epa 200.8 cr apcl.mth

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

Number of Replicates: 3

Sample ID: Standard 2

Sample Type:

Summary

Analyte	Mass	Blank Intensity	Meas. Intensity	Int. RSD	Conc. Mean	Conc. SD	Conc. RSD
Li	7	90829	86402	1.6		ug/L	%
Ge	72	129518	127004	0.5		ug/L	%
[> Sc-1	45	616968	609610	0.9		ug/L	%
[Cr	52	9272	54673	0.7	4.987	0.019 ug/L	0.4 %
In	115	1301215	1291222	0.8		ug/L	%
Tb	159	1575022	1542319	0.4		ug/L	%
Sc	45	616968	609610	0.9		ug/L	%

Quantitative Analysis Summary

Sample Date/Time: Wednesday, November 05, 2003 10:15:01

Dataset File: D:\ELAN\Elan\data03Sep\Dataset\2003\November\110503\Standard 3.004

Method File: c:\elandata\Method\atl methods 030317\atl-epa 200.8 cr apcl.mth

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

Number of Replicates: 3

Sample ID: Standard 3

Sample Type:

Summary

Analyte	Mass	Blank Intensity	Meas. Intensity	Int. RSD	Conc. Mean	Conc. SD	Conc. RSD
Li	7	90829	87953	1.6		ug/L	%
Ge	72	129518	126333	0.8		ug/L	%
[> Sc-1	45	616968	600657	0.4		ug/L	%
[Cr	52	9272	97728	0.9	9.972	0.068 ug/L	0.7 %
In	115	1301215	1267321	1.0		ug/L	%
Tb	159	1575022	1524276	0.4		ug/L	%
Sc	45	616968	600657	0.4		ug/L	%

Quantitative Analysis Summary

Sample Date/Time: Wednesday, November 05, 2003 10:17:48

Dataset File: D:\ELAN\Eladata03Sept\Dataset\2003\November\110503\Standard 4.005

Method File: c:\elandata\Method\atl methods 030317\atl-epa 200.8 cr apcl.mth

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

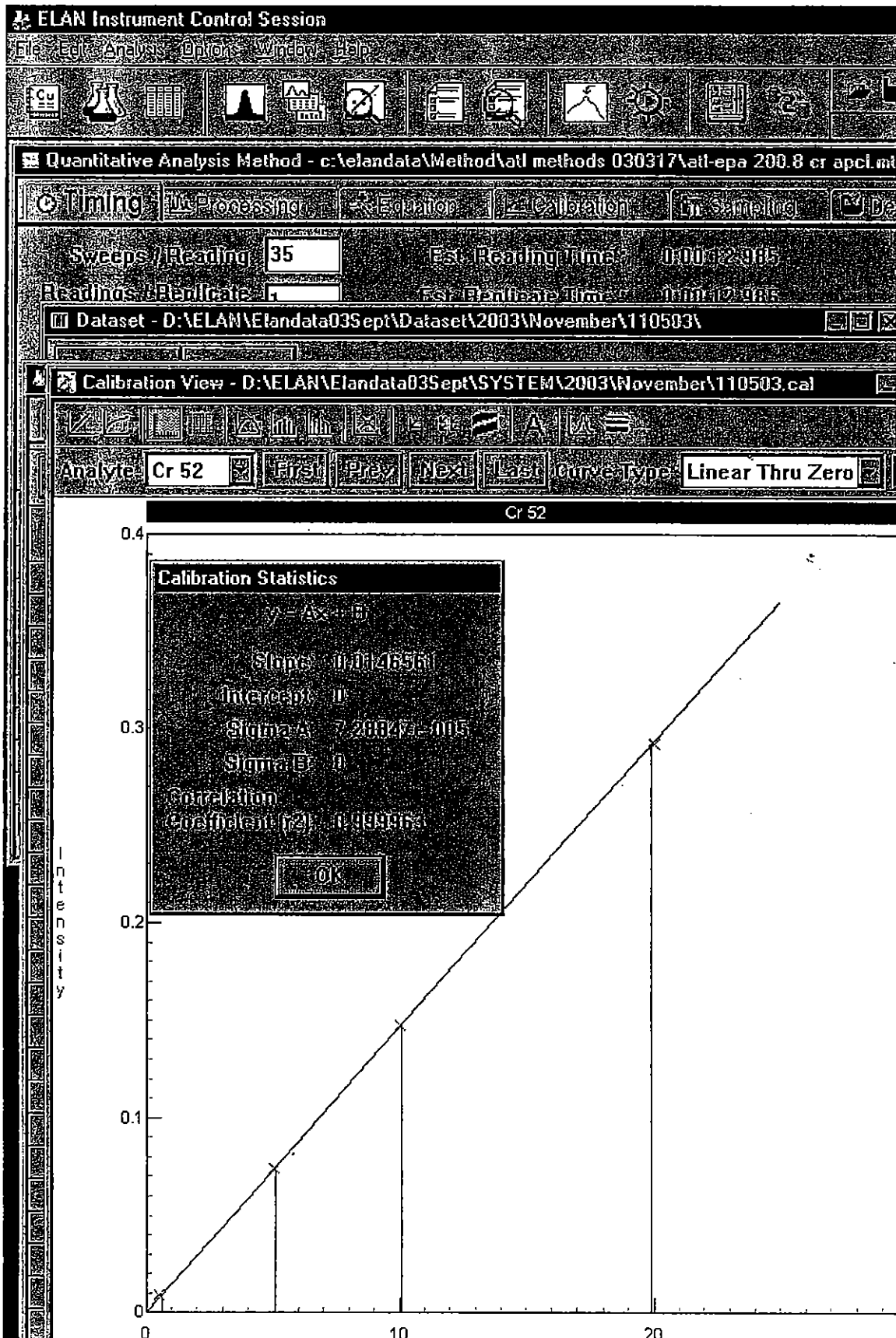
Number of Replicates: 3

Sample ID: Standard 4

Sample Type:

Summary

Analyte	Mass	Blank Intensity	Meas. Intensity	Int. RSD	Conc. Mean	Conc. SD	Conc. RSD
Li	7	90829	90115	1.0		ug/L	%
Ge	72	129518	127667	0.7		ug/L	%
[> Sc-1	45	616968	604749	1.0		ug/L	%
[Cr	52	9272	185764	0.5	19.935	0.247 ug/L	1.2 %
In	115	1301215	1280189	0.8		ug/L	%
Tb	159	1575022	1522969	0.7		ug/L	%
Sc	45	616968	604749	1.0		ug/L	%



Quantitative Analysis Summary

Sample Date/Time: Wednesday, November 05, 2003 10:20:36

Dataset File: D:\ELAN\Elan\data03Sept\Dataset\2003\November\110503\CV.006

Method File: c:\elandata\Method\atl methods 030317\atl-epa 200.8 cr apcl.mth

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

Number of Replicates: 3

Sample ID: ICV

Sample Type:

Summary

	Analyte	Mass	Blank Intensity	Meas. Intensity	Int. RSD	Conc. Mean	Conc. SD	Conc. RSD
	Li	7	90829	88787	1.4		ug/L	%
	Ge	72	129518	126153	0.4		ug/L	%
[>	Sc-1	45	616968	597446	1.0		ug/L	%
[	Cr	52	9272	97561	1.4	10.117	0.152 ug/L	1.5 %
	In	115	1301215	1252997	0.4		ug/L	%
	Tb	159	1575022	1507170	0.3		ug/L	%
	Sc	45	616968	597446	1.0		ug/L	%

Quantitative Analysis Summary

Sample Date/Time: Wednesday, November 05, 2003 10:23:07

Dataset File: D:\ELAN\Elan\data03Sept\Dataset\2003\November\110503\ICB.007

Method File: c:\elandata\Method\atl methods 030317\atl-epa 200.8 cr apcl.mth

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

Number of Replicates: 3

Sample ID: ICB

Sample Type:

Summary

Analyte	Mass	Blank Intensity	Meas. Intensity	Int. RSD	Conc. Mean	Conc. SD	Conc. RSD
Li	7	90829	89323	1.1		ug/L	%
Ge	72	129518	126458	1.4		ug/L	%
[> Sc-1	45	616968	598152	0.9		ug/L	%
[Cr	52	9272	10653	2.0	0.190	0.030 ug/L	16.0 %
In	115	1301215	1255560	1.3		ug/L	%
Tb	159	1575022	1503616	1.5		ug/L	%
Sc	45	616968	598152	0.9		ug/L	%

Quantitative Analysis Summary

Sample Date/Time: Wednesday, November 05, 2003 12:13:52

Dataset File: D:\ELAN\Eladata03Sept\Dataset\2003\November\110503\CCV.047

Method File: c:\elandata\Method\atl methods 030317\atl-epa 200.8 cr apcl.mth

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

Number of Replicates: 3

Sample ID: CCV

Sample Type:

Summary

Analyte	Mass	Blank Intensity	Meas. Intensity	Int. RSD	Conc. Mean	Conc. SD	Conc. RSD
Li	7	90829	67562	2.4		ug/L	%
Ge	72	129518	116941	1.5		ug/L	%
[> Sc-1	45	616968	557930	1.7		ug/L	%
[Cr	52	9272	93070	1.6	10.357	0.013 ug/L	0.1 %
In	115	1301215	1231420	1.2		ug/L	%
Tb	159	1575022	1446463	1.6		ug/L	%
Sc	45	616968	557930	1.7		ug/L	%

Quantitative Analysis Summary

Sample Date/Time: Wednesday, November 05, 2003 12:16:26

Dataset File: D:\ELAN\Eladata03Sept\Dataset\2003\November\110503\CCB.048

Method File: c:\elandata\Method\atl methods 030317\atl-epa 200.8 cr apcl.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	90829	68280	1.5		ug/L	%
Ge	72	129518	117295	0.1		ug/L	%
Sc-1	45	616968	563829	0.7		ug/L	%
Cr	52	9272	9492	1.7	0.123	0.028 ug/L	22.5 %
In	115	1301215	1239307	0.4		ug/L	%
Tb	159	1575022	1466025	0.5		ug/L	%
Sc	45	616968	563829	0.7		ug/L	%

Quantitative Analysis Summary

Sample Date/Time: Wednesday, November 05, 2003 12:28:38

Dataset File: D:\ELAN\Elan\data03\Sept\Dataset\2003\November\110503\MB-.049

Method File: c:\elandata\Method\atl methods 030317\atl-epa 200.8 cr apcl.mth

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

Number of Replicates: 3

Sample ID: MB- 1132297 NS 11/6/03

Sample Type:

Summary

	Analyte	Mass	Blank Intensity	Meas. Intensity	Int. RSD	Conc. Mean	Conc. SD	Conc. RSD
	Li	7	90829	71789	2.5		ug/L	%
	Ge	72	129518	118706	0.8		ug/L	%
[>	Sc-1	45	616968	566330	0.3		ug/L	%
[	Cr	52	9272	8854	3.1	0.041	0.036 ug/L	85.7 %
	In	115	1301215	1237440	0.9		ug/L	%
	Tb	159	1575022	1476733	1.4		ug/L	%
	Sc	45	616968	566330	0.3		ug/L	%

Quantitative Analysis Summary

Sample Date/Time: Wednesday, November 05, 2003 12:31:06

Dataset File: D:\ELAN\Elan\data03Sept\Dataset\2003\November\110503\LCS-.050

Method File: c:\elandata\Method\atl methods 030317\atl-epa 200.8 cr apcl.mth

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

Number of Replicates: 3

Sample ID: LCS- R32207 NS 11/6/03

Sample Type:

Summary

Analyte	Mass	Blank Intensity	Meas. Intensity	Int. RSD	Conc. Mean	Conc. SD	Conc. RSD
Li	7	90829	72381	1.0		ug/L	%
Ge	72	129518	118293	1.8		ug/L	%
[> Sc-1	45	616968	569606	1.5		ug/L	%
[Cr	52	9272	95332	0.7	10.396	0.168 ug/L	1.6 %
In	115	1301215	1242892	0.3		ug/L	%
Tb	159	1575022	1491543	1.0		ug/L	%
Sc	45	616968	569606	1.5		ug/L	%

Quantitative Analysis Summary

Sample Date/Time: Wednesday, November 05, 2003 12:33:35

Dataset File: D:\ELAN\Eladata03Sept\Dataset\2003\November\110503\065631-001A.051

Method File: c:\elandata\Method\atl methods 030317\atl-epa 200.8 cr apcl.mth

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

Number of Replicates: 3

Sample ID: 065631-001A

Sample Type:

Summary

Analyte	Mass	Blank Intensity	Meas. Intensity	Int. RSD	Conc. Mean	Conc. SD	Conc. RSD
Li	7	90829	70538	0.3		ug/L	%
Ge	72	129518	124013	0.9		ug/L	%
[> Sc-1	45	616968	652346	0.9		ug/L	%
[Cr	52	9272	54619	1.9	4.688	0.159 ug/L	3.4 %
In	115	1301215	1286717	0.3		ug/L	%
Tb	159	1575022	1506791	1.2		ug/L	%
Sc	45	616968	652346	0.9		ug/L	%

Quantitative Analysis Summary

Sample Date/Time: Wednesday, November 05, 2003 12:36:04

Dataset File: D:\ELAN\Eladata03Sept\Dataset\2003\November\110503\065631-002A.052

Method File: c:\elandata\Method\atl methods 030317\atl-epa 200.8 or apcl.mth

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

Number of Replicates: 3

Sample ID: 065631-002A

Sample Type:

Summary

	Analyte	Mass	Blank Intensity	Meas: Intensity	Int. RSD	Conc. Mean	Conc. SD	Conc. RSD
	Li	7	90829	71109	1.9		ug/L	%
	Ge	72	129518	125465	0.7		ug/L	%
[>	Sc-1	45	616968	653813	1.4		ug/L	%
[	Cr	52	9272	36376	2.1	2.771	0.031 ug/L	1.1 %
	In	115	1301215	1299190	0.5		ug/L	%
	Tb	159	1575022	1506678	1.0		ug/L	%
	Sc	45	616968	653813	1.4		ug/L	%

Quantitative Analysis Summary

Sample Date/Time: Wednesday, November 05, 2003 12:38:34

Dataset File: D:\ELAN\Eladata03Sept\Dataset\2003\November\110503\065631-003A.053

Method File: c:\elandata\Method\atl methods 030317\atl-epa 200.8 or apl.mth

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

Number of Replicates: 3

Sample ID: 065631-003A

Sample Type:

Summary

Analyte	Mass	Blank Intensity	Meas. Intensity	Int. RSD	Conc. Mean	Conc. SD	Conc. RSD
Li	7	90829	69310	3.3		ug/L	%
Ge	72	129518	121846	0.2		ug/L	%
[> Sc-1	45	616968	610881	0.5		ug/L	%
[Cr	52	9272	23849	0.9	1.638	0.012 ug/L	0.7 %
In	115	1301215	1249534	1.1		ug/L	%
Tb	159	1575022	1470768	0.2		ug/L	%
Sc	45	616968	610881	0.5		ug/L	%

Quantitative Analysis Summary

Sample Date/Time: Wednesday, November 05, 2003 12:41:03

Dataset File: D:\ELAN\Eladata03Sept\Dataset\2003\November\110503\065631-004A.054

Method File: c:\elandata\Method\atl methods 030317\atl-epa 200.8 cr apci.mth

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

Number of Replicates: 3

Sample ID: 065631-004A

Sample Type:

Summary

Analyte	Mass	Blank Intensity	Meas. Intensity	Int. RSD	Conc. Mean	Conc. SD	Conc. RSD
Li	7	90829	69651	0.7		ug/L	%
Ge	72	129518	119758	0.2		ug/L	%
[> Sc-1	45	616968	624328	0.5		ug/L	%
[Cr	52	9272	35955	2.0	2.904	0.082 ug/L	2.8 %
In	115	1301215	1232507	0.3		ug/L	%
Tb	159	1575022	1447318	1.0		ug/L	%
Sc	45	616968	624328	0.5		ug/L	%

Quantitative Analysis Summary

Sample Date/Time: Wednesday, November 05, 2003 12:43:34

Dataset File: D:\ELAN\Eladata03Sept\Dataset\2003\November\110503\065631-005A.055

Method File: c:\elandata\Method\atl methods 030317\atl-epa 200.8 cr apcl.mth

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

Number of Replicates: 3

Sample ID: 065631-005A

Sample Type:

Summary

Analyte	Mass	Blank Intensity	Meas. Intensity	Int. RSD	Conc. Mean	Conc. SD	Conc. RSD
Li	7	90829	71519	2.3		ug/L	%
Ge	72	129518	118482	1.1		ug/L	%
[> Sc-1	45	616968	613775	0.1		ug/L	%
[Cr	52	9272	81737	1.3	8.061	0.119 ug/L	1.5 %
In	115	1301215	1227141	0.8		ug/L	%
Tb	159	1575022	1436207	0.5		ug/L	%
Sc	45	616968	613775	0.1		ug/L	%

Quantitative Analysis Summary

Sample Date/Time: Wednesday, November 05, 2003 12:46:05

Dataset File: D:\ELAN\Eladata03Sept\Dataset\2003\November\110503\065631-006A.056

Method File: c:\elandata\Method\atl methods 030317\atl-epa 200.8 cr apcl.mth

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

Number of Replicates: 3

Sample ID: 065631-006A

Sample Type:

Summary

Analyte	Mass	Blank Intensity	Meas. Intensity	Int. RSD	Conc. Mean	Conc. SD	Conc. RSD
Li	7	90829	73545	0.8		ug/L	%
Ge	72	129518	118886	1.0		ug/L	%
Sc-1	45	616968	616979	1.1		ug/L	%
Cr	52	9272	85334	1.7	8.412	0.122 ug/L	1.5 %
In	115	1301215	1247624	0.4		ug/L	%
Tb	159	1575022	1456493	0.2		ug/L	%
Sc	45	616968	616979	1.1		ug/L	%

Quantitative Analysis Summary

Sample Date/Time: Wednesday, November 05, 2003 12:48:36

Dataset File: D:\ELAN\Eladata03Sept\Dataset\2003\November\110503\065631-007A.057

Method File: c:\elandata\Method\atl methods 030317\atl-epa 200.8 cr apcl.mth

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

Number of Replicates: 3

Sample ID: 065631-007A

Sample Type:

Summary

Analyte	Mass	Blank Intensity	Meas. Intensity	Int. RSD	Conc. Mean	Conc. SD	Conc. RSD
Li	7	90829	66535	0.4		ug/L	%
Ge	72	129518	120107	0.5		ug/L	%
Sc-1	45	616968	578550	0.2		ug/L	%
Cr	52	9272	24165	0.6	1.825	0.017 ug/L	0.9 %
In	115	1301215	1205800	0.7		ug/L	%
Tb	159	1575022	1442820	0.6		ug/L	%
Sc	45	616968	578550	0.2		ug/L	%

Quantitative Analysis Summary

Sample Date/Time: Wednesday, November 05, 2003 12:51:08

Dataset File: D:\ELAN\Elan\data03\Sept\Dataset\2003\November\110503\065631-008A.058

Method File: c:\elandata\Method\atl methods 030317\atl-epa 200.8 or apcl.mth

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

Number of Replicates: 3

Sample ID: 065631-008A

Sample Type:

Summary

Analyte	Mass	Blank Intensity	Meas. Intensity	Int. RSD	Conc. Mean	Conc. SD	Conc. RSD
Li	7	90829	67533	1.4		ug/L	%
Ge	72	129518	119141	0.2		ug/L	%
[> Sc-1	45	616968	620996	0.6		ug/L	%
[Cr	52	9272	33203	0.7	2.623	0.049 ug/L	1.9 %
In	115	1301215	1226982	0.6		ug/L	%
Tb	159	1575022	1432720	0.6		ug/L	%
Sc	45	616968	620996	0.6		ug/L	%

0052

Quantitative Analysis Summary

Sample Date/Time: Wednesday, November 05, 2003 12:53:41

Dataset File: D:\ELAN\Eladata03Sept\Dataset\2003\November\110503\CCV.059

Method File: c:\elandata\Method\atl methods 030317\atl-epa 200.8 cr apcl.mth

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

Number of Replicates: 3

Sample ID: CCV

Sample Type:

Summary

Analyte	Mass	Blank Intensity	Meas. Intensity	Int. RSD	Conc. Mean	Conc. SD	Conc. RSD
Li	7	90829	69867	2.6		ug/L	%
Ge	72	129518	113168	0.7		ug/L	%
[> Sc-1	45	616968	546609	0.3		ug/L	%
[Cr	52	9272	90233	1.1	10.238	0.158 ug/L	1.5 %
In	115	1301215	1176808	0.7		ug/L	%
Tb	159	1575022	1398509	0.7		ug/L	%
Sc	45	616968	546609	0.3		ug/L	%

Quantitative Analysis Summary

Sample Date/Time: Wednesday, November 05, 2003 12:56:16

Dataset File: D:\ELAN\Eladata03Sept\Dataset\2003\November\110503\CCB.060

Method File: c:\elandata\Method\atl methods 030317\atl-epa 200.8 cr apcl.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	90829	68006	4.7		ug/L	%
Ge	72	129518	113897	1.2		ug/L	%
[> Sc-1	45	616968	538248	1.2		ug/L	%
[Cr	52	9272	9911	1.4	0.231	0.033 ug/L	14.1 %
In	115	1301215	1183925	1.3		ug/L	%
Tb	159	1575022	1406897	1.0		ug/L	%
Sc	45	616968	538248	1.2		ug/L	%

Quantitative Analysis Summary

Sample Date/Time: Wednesday, November 05, 2003 12:58:49

Dataset File: D:\ELAN\Eladata03Sept\Dataset\2003\November\110503\065631-009A.061

Method File: c:\elandata\Method\atl methods 030317\atl-epa 200.8 cr apcl.mth

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

Number of Replicates: 3

Sample ID: 065631-009A

Sample Type:

Summary

Analyte	Mass	Blank Intensity	Meas. Intensity	Int. RSD	Conc. Mean	Conc. SD	Conc. RSD
Li	7	90829	66515	0.8		ug/L	%
Ge	72	129518	118727	0.2		ug/L	%
Sc-1	45	616968	627756	0.8		ug/L	%
Cr	52	9272	48305	0.3	4.225	0.058 ug/L	1.4 %
In	115	1301215	1227885	0.3		ug/L	%
Tb	159	1575022	1431882	0.5		ug/L	%
Sc	45	616968	627756	0.8		ug/L	%

Quantitative Analysis Summary

Sample Date/Time: Wednesday, November 05, 2003 13:01:22

Dataset File: D:\ELAN\Eladata03Sept\Dataset\2003\November\110503\065631-010A.062

Method File: c:\elandata\Method\atl methods 030317\atl-epa 200.8 cr apcl.mth

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

Number of Replicates: 3

Sample ID: 065631-010A

Sample Type:

Summary

Analyte	Mass	Blank Intensity	Meas. Intensity	Int. RSD	Conc. Mean	Conc. SD	Conc. RSD
Li	7	90829	67039	1.6		ug/L	%
Ge	72	129518	115871	0.6		ug/L	%
[> Sc-1	45	616968	642077	1.7		ug/L	%
[Cr	52	9272	42528	1.1	3.494	0.048 ug/L	1.4 %
In	115	1301215	1177837	1.0		ug/L	%
Tb	159	1575022	1392113	0.8		ug/L	%
Sc	45	616968	642077	1.7		ug/L	%

Quantitative Analysis Summary

Sample Date/Time: Wednesday, November 05, 2003 13:03:56

Dataset File: D:\ELAN\Eladata03Sept\Dataset\2003\November\110503\065631-010ADUP.063

Method File: c:\elandata\Method\atl methods 030317\atl-epa 200.8 cr apcl.mth

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

Number of Replicates: 3

Sample ID: 065631-010ADUP

Sample Type:

Summary

Analyte	Mass	Blank Intensity	Meas. Intensity	Int. RSD	Conc. Mean	Conc. SD	Conc. RSD
Li	7	90829	67895	0.9		ug/L	%
Ge	72	129518	114733	0.9		ug/L	%
[> Sc-1	45	616968	638264	1.3		ug/L	%
[Cr	52	9272	40575	0.4	3.313	0.040 ug/L	1.2 %
In	115	1301215	1179851	1.0		ug/L	%
Tb	159	1575022	1388872	0.1		ug/L	%
Sc	45	616968	638264	1.3		ug/L	%

Quantitative Analysis Summary

Sample Date/Time: Wednesday, November 05, 2003 13:06:25

Dataset File: D:\ELAN\Elan\data03Sept\Dataset\2003\November\110503\065631-011A.064

Method File: c:\elandata\Method\atl methods 030317\atl-epa 200.8 cr apcl.mth

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

Number of Replicates: 3

Sample ID: 065631-011A

Sample Type:

Summary

Analyte	Mass	Blank Intensity	Meas. Intensity	Int. RSD	Conc. Mean	Conc. SD	Conc. RSD
Li	7	90829	69672	2.1		ug/L	%
Ge	72	129518	112887	1.2		ug/L	%
[> Sc-1	45	616968	640372	1.6		ug/L	%
[Cr	52	9272	53068	1.7	4.629	0.090 ug/L	1.9 %
In	115	1301215	1165684	0.9		ug/L	%
Tb	159	1575022	1382707	1.1		ug/L	%
Sc	45	616968	640372	1.6		ug/L	%

0058

Quantitative Analysis Summary

Sample Date/Time: Wednesday, November 05, 2003 13:08:52

Dataset File: D:\ELAN\Eladata03Sept\Dataset\2003\November\110503\065631-012A.065

Method File: c:\elandata\Method\atl methods 030317\atl-epa 200.8 cr apcl.mth

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

Number of Replicates: 3

Sample ID: 065631-012A

Sample Type:

Summary

Analyte	Mass	Blank Intensity	Meas. Intensity	Int. RSD	Conc. Mean	Conc. SD	Conc. RSD
Li	7	90829	72795	1.4		ug/L	%
Ge	72	129518	122254	0.7		ug/L	%
[> Sc-1	45	616968	575357	1.3		ug/L	%
[Cr	52	9272	7461	1.0	-0.141	0.008 ug/L	6.0 %
In	115	1301215	1317364	1.8		ug/L	%
Tb	159	1575022	1546637	1.1		ug/L	%
Sc	45	616968	575357	1.3		ug/L	%

Quantitative Analysis Summary

Sample Date/Time: Wednesday, November 05, 2003 13:11:19

Dataset File: D:\ELAN\Eladata03Sept\Dataset\2003\November\110503\065631-012ADUP.066

Method File: c:\elandata\Method\atl methods 030317\atl-epa 200.8 cr apcl.mth

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

Number of Replicates: 3

Sample ID: 065631-012ADUP

Sample Type:

Summary

Analyte	Mass	Blank Intensity	Meas. Intensity	Int. RSD	Conc. Mean	Conc. SD	Conc. RSD
Li	7	90829	70748	0.6		ug/L	%
Ge	72	129518	119576	1.4		ug/L	%
[> Sc-1	45	616968	566743	1.1		ug/L	%
[Cr	52	9272	6537	2.1	-0.238	0.012 ug/L	4.9 %
In	115	1301215	1297175	1.1		ug/L	%
Tb	159	1575022	1521852	0.3		ug/L	%
Sc	45	616968	566743	1.1		ug/L	%

Quantitative Analysis Summary

Sample Date/Time: Wednesday, November 05, 2003 13:13:46

Dataset File: D:\ELAN\Elan\data03\Sept\Dataset\2003\November\110503\065631-010AMS.067

Method File: c:\elandata\Method\atl methods 030317\atl-epa 200.8 cr apcl.mth

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

Number of Replicates: 3

Sample ID: 065631-010AMS

Sample Type:

Summary

Analyte	Mass	Blank Intensity	Meas. Intensity	Int. RSD	Conc. Mean	Conc. SD	Conc. RSD
Li	7	90829	76358	0.7		ug/L	%
Ge	72	129518	123039	0.8		ug/L	%
Sc-1	45	616968	710514	1.1		ug/L	%
Cr	52	9272	128302	1.0	11.296	0.025 ug/L	0.2 %
In	115	1301215	1315605	0.7		ug/L	%
Tb	159	1575022	1557804	1.1		ug/L	%
Sc	45	616968	710514	1.1		ug/L	%

0061

Quantitative Analysis Summary

Sample Date/Time: Wednesday, November 05, 2003 13:16:14

Dataset File: D:\ELAN\Elan\data03\Sept\Dataset\2003\November\110503\065631-010AMSD.068

Method File: c:\elandata\Method\atl methods 030317\atl-epa 200.8 cr apcl.mth

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

Number of Replicates: 3

Sample ID: 065631-010AMSD

Sample Type:

Summary

Analyte	Mass	Blank Intensity	Meas. Intensity	Int. RSD	Conc. Mean	Conc. SD	Conc. RSD
Li	7	90829	76722	0.5		ug/L	%
Ge	72	129518	122807	0.3		ug/L	%
[> Sc-1	45	616968	706490	0.4		ug/L	%
[Cr	52	9272	127227	0.6	11.262	0.094 ug/L	0.8 %
In	115	1301215	1311994	0.2		ug/L	%
Tb	159	1575022	1556362	1.6		ug/L	%
Sc	45	616968	706490	0.4		ug/L	%

0062

Quantitative Analysis Summary

Sample Date/Time: Wednesday, November 05, 2003 13:18:45

Dataset File: D:\ELAN\Eladata03Sept\Dataset\2003\November\110503\CCV.069

Method File: c:\elandata\Method\atl methods 030317\atl-epa 200.8 cr apcl.mth

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

Number of Replicates: 3

Sample ID: CCV

Sample Type:

Summary

Analyte	Mass	Blank Intensity	Meas. Intensity	Int. RSD	Conc. Mean	Conc. SD	Conc. RSD
Li	7	90829	75879	0.7		ug/L	%
Ge	72	129518	120944	0.4		ug/L	%
[> Sc-1	45	616968	585567	0.8		ug/L	%
[Cr	52	9272	97576	0.9	10.344	0.010 ug/L	0.1 %
In	115	1301215	1311206	0.6		ug/L	%
Tb	159	1575022	1533488	0.7		ug/L	%
Sc	45	616968	585567	0.8		ug/L	%

0063

Quantitative Analysis Summary

Sample Date/Time: Wednesday, November 05, 2003 13:21:19

Dataset File: D:\ELAN\Eladata03Sept\Dataset\2003\November\110503\CCB.070

Method File: c:\elandata\Method\atl methods 030317\atl-epa 200.8 cr apcl.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	90829	73325	2.2		ug/L	%
Ge	72	129518	119222	0.8		ug/L	%
[> Sc-1	45	616968	585275	0.2		ug/L	%
[Cr	52	9272	12228	3.2	0.400	0.049 ug/L	12.2 %
In	115	1301215	1303078	1.4		ug/L	%
Tb	159	1575022	1550370	0.6		ug/L	%
Sc	45	616968	585275	0.2		ug/L	%

0064

Quantitative Analysis Summary

Sample Date/Time: Wednesday, November 05, 2003 14:23:28

Dataset File: D:\ELAN\Eladata03Sept\Dataset\2003\November\110503\MB-15669.071

Method File: c:\elandata\Method\atl methods 030317\atl-epa 200.8 cr apcl.mth

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

Number of Replicates: 3

Sample ID: MB-15669

Sample Type:

Summary

Analyte	Mass	Blank Intensity	Meas. Intensity	Int. RSD	Conc. Mean	Conc. SD	Conc. RSD
Li	7	90829	69843	1.5		ug/L	%
Ge	72	129518	122315	0.3		ug/L	%
[> Sc-1	45	616968	583164	0.4		ug/L	%
[Cr	52	9272	10007	1.7	0.146	0.024 ug/L	16.6 %
In	115	1301215	1333441	0.9		ug/L	%
Tb	159	1575022	1586036	1.3		ug/L	%
Sc	45	616968	583164	0.4		ug/L	%

0065

Quantitative Analysis Summary

Sample Date/Time: Wednesday, November 05, 2003 14:25:57

Dataset File: D:\ELAN\Eladata03Sept\Dataset\2003\November\110503\LCS-15669.072

Method File: c:\elandata\Method\atl methods 030317\atl-epa 200.8 cr apcl.mth

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

Number of Replicates: 3

Sample ID: LCS-15669

Sample Type:

Summary

Analyte	Mass	Blank Intensity	Meas. Intensity	Int. RSD	Conc. Mean	Conc. SD	Conc. RSD
Li	7	90829	70086	3.9		ug/L	%
Ge	72	129518	121684	0.9		ug/L	%
[> Sc-1	45	616968	580555	0.3		ug/L	%
[Cr	52	9272	79689	0.9	8.340	0.090 ug/L	1.1 %
In	115	1301215	1321528	0.5		ug/L	%
Tb	159	1575022	1580849	0.3		ug/L	%
Sc	45	616968	580555	0.3		ug/L	%

0066

Quantitative Analysis Summary

Sample Date/Time: Wednesday, November 05, 2003 14:28:26

Dataset File: D:\ELAN\Eladata03Sept\Dataset\2003\November\110503\065632-021A.073

Method File: c:\elandata\Method\atl methods 030317\atl-epa 200.8 cr apcl.mth

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

Number of Replicates: 3

Sample ID: 065632-021A

Sample Type:

Summary

Analyte	Mass	Blank Intensity	Meas. Intensity	Int. RSD	Conc. Mean	Conc. SD	Conc. RSD
Li	7	90829	72408	3.3		ug/L	%
Ge	72	129518	126666	0.5		ug/L	%
[> Sc-1	45	616968	624439	2.0		ug/L	%
[Cr	52	9272	12036	0.4	0.290	0.028 ug/L	9.5 %
In	115	1301215	1379250	0.8		ug/L	%
Tb	159	1575022	1638901	2.0		ug/L	%
Sc	45	616968	624439	2.0		ug/L	%

0067

Quantitative Analysis Summary

Sample Date/Time: Wednesday, November 05, 2003 14:30:56

Dataset File: D:\ELAN\Eladata03Sept\Dataset\2003\November\110503\065632-021ADUP.074

Method File: c:\elandata\Method\atl methods 030317\atl-epa 200.8 cr apcl.mth

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

Number of Replicates: 3

Sample ID: 065632-021ADUP

Sample Type:

Summary

Analyte	Mass	Blank Intensity	Meas. Intensity	Int. RSD	Conc. Mean	Conc. SD	Conc. RSD
Li	7	90829	70020	1.2		ug/L	%
Ge	72	129518	124657	0.5		ug/L	%
[> Sc-1	45	616968	612642	0.6		ug/L	%
[Cr	52	9272	9606	3.0	0.045	0.038 ug/L	85.8 %
In	115	1301215	1346703	1.8		ug/L	%
Tb	159	1575022	1619035	1.3		ug/L	%
Sc	45	616968	612642	0.6		ug/L	%

0068

Quantitative Analysis Summary

Sample Date/Time: Wednesday, November 05, 2003 14:33:26

Dataset File: D:\ELAN\Eladata03Sept\Dataset\2003\November\110503\065632-021AMS.075

Method File: c:\elandata\Method\atl methods 030317\atl-epa 200.8 cr apcl.mth

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

Number of Replicates: 3

Sample ID: 065632-021AMS

Sample Type:

Summary

Analyte	Mass	Blank Intensity	Meas. Intensity	Int. RSD	Conc. Mean	Conc. SD	Conc. RSD
Li	7	90829	72333	2.0		ug/L	%
Ge	72	129518	127263	0.9		ug/L	%
[> Sc-1	45	616968	622343	2.8		ug/L	%
[Cr	52	9272	81190	1.5	7.878	0.156 ug/L	2.0 %
In	115	1301215	1379095	0.9		ug/L	%
Tb	159	1575022	1652446	1.5		ug/L	%
Sc	45	616968	622343	2.8		ug/L	%

0069

Quantitative Analysis Summary

Sample Date/Time: Wednesday, November 05, 2003 14:35:57

Dataset File: D:\ELAN\Elan\data03\Sept\Dataset\2003\November\110503\065632-021AMSD.076

Method File: c:\elandata\Method\atl methods 030317\atl-epa 200.8 cr apcl.mth

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

Number of Replicates: 3

Sample ID: 065632-021AMSD

Sample Type:

Summary

Analyte	Mass	Blank Intensity	Meas. Intensity	Int. RSD	Conc. Mean	Conc. SD	Conc. RSD
Li	7	90829	73070	0.9		ug/L	%
Ge	72	129518	127716	0.7		ug/L	%
[> Sc-1	45	616968	634833	0.9		ug/L	%
[Cr	52	9272	83213	0.3	7.919	0.060 ug/L	0.8 %
In	115	1301215	1369402	0.9		ug/L	%
Tb	159	1575022	1641729	0.3		ug/L	%
Sc	45	616968	634833	0.9		ug/L	%

0070

Quantitative Analysis Summary

Sample Date/Time: Wednesday, November 05, 2003 14:38:29

Dataset File: D:\ELAN\Elan\data03Sept\Dataset\2003\November\110503\CCV.077

Method File: c:\elandata\Method\atl methods 030317\atl-epa 200.8 cr apcl.mth

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

Number of Replicates: 3

Sample ID: CCV

Sample Type:

Summary

Analyte	Mass	Blank Intensity	Meas. Intensity	Int. RSD	Conc. Mean	Conc. SD	Conc. RSD
Li	7	90829	73583	1.3		ug/L	%
Ge	72	129518	129930	0.4		ug/L	%
[> Sc-1	45	616968	626874	0.8		ug/L	%
[Cr	52	9272	105238	0.7	10.429	0.104 ug/L	1.0 %
In	115	1301215	1423693	0.5		ug/L	%
Tb	159	1575022	1686951	0.4		ug/L	%
Sc	45	616968	626874	0.8		ug/L	%

0071

Quantitative Analysis Summary

Sample Date/Time: Wednesday, November 05, 2003 14:41:04

Dataset File: D:\ELAN\Elan\data03Sept\Dataset\2003\November\110503\CCB.078

Method File: c:\elandata\Method\atl methods 030317\atl-epa 200.8 cr apcl.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	90829	75558	1.5		ug/L	%
Ge	72	129518	131121	0.5		ug/L	%
[> Sc-1	45	616968	635208	1.3		ug/L	%
[Cr	52	9272	11375	2.8	0.197	0.035 ug/L	18.0 %
In	115	1301215	1441855	0.8		ug/L	%
Tb	159	1575022	1703766	0.4		ug/L	%
Sc	45	616968	635208	1.3		ug/L	%

0072

Metals Working Standard Prep Log

Date	Standard Name	Working Std Code	Stock Info		Preparation	
			Stock Std Code	Stock Concentration	Amount Taken from Stock	
10-31-03	ICPMS - IAW/CEW @ 10	MST031031G	MST031031F	1 ppm	0.5	1
11-4-03	ICPMS - Internal Std.	MST031104A	MST030247A	1000 ppm	1	5
			B Ge			
			C Tb			
			D Sc			
			E In			
			F Tm			
	ICPMS - STD ₁	MST031104B	MST030402A	10 ppm	5	10
	-20		MST031104B	1 ppm	1	
	-10		C	20 ppb	25	
	-5		D	10 ppb	25	
	-0.5		E	5 ppb	5	
	ICPMS - LCS ₁					
	I IAW/CEW @ 10		MST021210D	10 ppm	5	
			MST031104	1 ppm	0.5	
11-5-03	ICPMS - STD ₁	MST031105A	MST030402A	10 ppm	5	15
	-20		MST031105A	1 ppm	1	
	-10		B	20 ppb	25	
	-5		C	10 ppb	25	
	-0.5		D	5 ppb	5	
	ICPMS - LCS ₁					
	I IAW/CEW @ 10		MST021210D	10 ppm	5	20

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		
50	10 ppb	DI H ₂ O + 1% HNO ₃	01-29-04	01-29-04		WJ
100	10 ppm	DI H ₂ O + 1% HNO ₃	02-02-04	02-02-04		WJ
50	1 ppm	DI H ₂ O + 1% HNO ₃	02-02-04	02-02-04		WJ
	20 ppb					
	10 ppb					
	5 ppb					
	0.5 ppb					
	1 ppm					
	10 ppb					
50	1 ppm	DI H ₂ O + 1% HNO ₃	02-02-04	02-02-04		WJ
	20 ppb					
	10 ppb					
	5 ppb					
	0.5 ppb					
	1 ppm					

Check working std versus all manufacturer's

1 5 10 15 20

Metals Working Standard Prep. Log

[illegible]

Check working std versus all manufacturer's

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Metals Working Standard Prep Log

Date	Standard Name	Working Std Code	Stock Info		Preparation	
			Stock Std Code	Stock Concentration	Amount Taken from Stock	
10-24-03	ICPMS - 500	MST031021H	MST031021G	1000 ppb	25	
	↓ - 100	↓ I	↓ H	500 ppb	10	
	ICPMS - ICP/KW@500	↓ J	↓ E	1 ppm / 10 ppm	2.5	
10-27-03	ICPMS - Tuning Stock Soln	MST031017L	MST-00523E Mg	1000 ppm	0.5	
			MST030414H Cu			
			MST030417J Pb			
			MST030414E Cd			
			↓ C Ba			
			MST030417G Ce			
			MST030414F Pb			
			↓ D Be			
			↓ G Co			
			MST030217H TL			
			↓ I W			
			↓ E In			
	10 ppb Tuning Solution	MST031017H	MST031017L	1 ppm	5	
10-23-03	ICPMS - STD,	MST031023A	MST030402A	10 ppm	5	
			MST030402B	1000 ppm	0.05	
	-20	↓ B	MST031023A	1 ppm	1	
	-10	↓ C	↓ B	20 ppb	25	
	-5	↓ D	↓ C	10 ppb	25	

0077

Metals Working Standard Prep Log

[illegible]

Check working std versus all manufacturer's

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Standard LOG

Standard ID: MST030402A
Standard Name: CHECKMATE STANDARD 1
Date Prepared: Type: Stock
Date Expires: 3/24/04 BY: Nancy Sibucan
Department: ICPMS_PR Status: New
Vendor: LEEMAN LABS
Lot Number: 573501a
Comments:

Stock Source		Base Units	Final Volume:	Amount Added
Analytes	CAS	Conc:	µg/mL	
A ALUMINUM			10.02	
A ANTIMONY			10.02	
A ARSENIC			10.02	
A BARIUM			10.02	
A BERYLLIUM			10.02	
A BORON			10.02	
A CADMIUM			10.02	
A CALCIUM			100.1	
A CHROMIUM			10.02	
A COBALT			10.02	
A COPPER			10.02	
A IRON			10.07	
A LEAD			10.03	
A MAGNESIUM			100.1	
A MANGANESE			10.03	
A MOLYBDENUM			10.04	
A NICKEL			10.02	
A POTASSIUM			100	
A SELENIUM			10.02	
A SILICON			10.04	
A SODIUM			100.1	
A THALLIUM			10.02	
A VANADIUM			10.03	
A ZINC			10.02	

Advanced Technology Laboratories

Standard LOG

Standard ID: MST021216D
Standard Name: Check Mate Standard 1
Date Prepared: 11/29/03
Date Expires: 11/29/03
Department: ICPMS_PR
Vendor: LEEMAN LABS
Lot Number: 549701

Type: Stock
BY: Nancy Sibucan

Status: New

Comments:

Final Volume: 500 mL

Stock Source		Base Units	Amount Added	
Analytes		CAS	Conc:	µg/mL
A	ALUMINUM			10
A	ANTIMONY			10
A	ARSENIC			10
A	BARIUM			10
A	BERYLLIUM			10
A	BORON			10
A	CADMIUM			10
A	CALCIUM			100
A	CHROMIUM			10
A	COBALT			10
A	COPPER			10
A	IRON			10.05
A	LEAD			10.01
A	MAGNESIUM			99.99
A	MANGANESE			10.01
A	MOLYBDENUM			10.02
A	NICKEL			10
A	POTASSIUM			100
A	SELENIUM			10
A	SILICON			10.02
A	SODIUM			100.3
A	THALLIUM			10
A	VANADIUM			10.01
A	ZINC			10