Level C Data Package Deliverables

Wet Chemistry

Applied P & Ch Laboratory

Applied P & Ch Laboratory

Wet Analysis Results for Method SM2320B

Client Name: GEOFON, Inc. Project No: 04-4428.10 Anal. Method SM2320B
Project ID: JPL Service ID: 33414 Collected by:

Component Name: Bicarbonate
CAS No:

Lab ID	Sample ID	Matrix	Coll. Date	Rcv Date	Anal. Date	Batch	Unit	RL	Result	Q
03-3414-1	MW-5	Water	05/28/03	05/28/03	06/02/03	03W3113	mg/L	2	146	
03-3414-2	MW-8	Water	05/28/03	05/28/03	06/02/03	03W3113	mg/L	2	153	
03W3113-MB-01	03W3113-MB-01	Water	06/02/03	06/02/03	06/02/03	03W3113	mg/L	2	< 2	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 SM2320B

Client Name: GEOFON, Inc. Project No: 04-4428.10 Anal. Method SM2320B
Project ID: JPL Service ID: 33414 Collected by:

Component Name: Carbonate
CAS No:

Lab ID	Sample ID	Matrix	Coll. Date	Rcv Date	Anal. Date	Batch	Unit	RL	Result	Q
03-3414-1	MW-5	Water	05/28/03	05/28/03	06/02/03	03W3113	mg-$CaCO_3$/L	2	< 2	U
03-3414-2	MW-8	Water	05/28/03	05/28/03	06/02/03	03W3113	mg-$CaCO_3$/L	2	< 2	U
03W3113-MB-01	03W3113-MB-01	Water	06/02/03	06/02/03	06/02/03	03W3113	mg-$CaCO_3$/L	2	< 2	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 9040B

Client Name: GEOFON, Inc. Project No: 04-4428.10 Anal. Method 9040B
Project ID: JPL Service ID: 33414 Collected by:

Component Name: pH
CAS No: 10-29-7

Lab ID	Sample ID	Matrix	Coll. Date	Rcv Date	Anal. Date	Batch	Unit	RL	Result	Q
03-3414-1	MW-5	Water	05/28/03	05/28/03	05/28/03	03W3065	pH unit	0.01	6.84	
03-3414-2	MW-8	Water	05/28/03	05/28/03	05/28/03	03W3065	pH unit	0.01	7.00	
03W3065-MB-01	03W3065-MB-01	Water	05/28/03	05/28/03	05/28/03	03W3065	pH unit	0.01	6.86	

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 160.1

Client Name: GEOFON, Inc. Project No: 04-4428.10 Anal. Method 160.1
Project ID: JPL Service ID: 33414 Collected by:

Component Name: Solids, Total Dissolved (TDS)
CAS No: 10-33-3

Lab ID	Sample ID	Matrix	Coll. Date	Rcv Date	Anal. Date	Batch	Unit	RL	Result	Q
03-3414-1	MW-5	Water	05/28/03	05/28/03	05/29/03	03W3071	mg/L	10	263	
03-3414-2	MW-8	Water	05/28/03	05/28/03	05/29/03	03W3071	mg/L	10	277	
03W3071-MB-01	03W3071-MB-01	Water	05/29/03	05/29/03	05/29/03	03W3071	mg/L	10	<10	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 No: 04-4428.10 Anal. Method 7196
Project ID: JPL Service ID: 33414 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
03-3414-1	MW-5	Water	05/28/03	05/28/03	05/28/03	03W3063	mg/L	0.01	<0.01	U
03-3414-2	MW-8	Water	05/28/03	05/28/03	05/28/03	03W3063	mg/L	0.01	<0.01	U
03W3063-MB-01	03W3063-MB-01	Water	05/28/03	05/28/03	05/28/03	03W3063	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: 33414 Collected by:

Component Name: Perchlorate
CAS No:

Lab ID	Sample ID	Matrix	Coll. Date	Rcv Date	Anal. Date	Batch	Unit	RL	Result	Q
03-3414-1	MW-5	Water	05/28/03	05/28/03	05/29/03	03W3074	µg/L	4	<4	U
03-3414-2	MW-8	Water	05/28/03	05/28/03	05/29/03	03W3074	µg/L	4	4.2	
03W3074-MB-01	03W3074-MB-01	Water	05/29/03	05/29/03	05/29/03	03W3074	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 300.0

Client Name: GEOFON, Inc. Project No: 04-4428.10 Anal. Method 300.0
Project ID: JPL Service ID: 33414 Collected by:

Component Name: Chloride Cl^-
CAS No: 16887-00-6

Lab ID	Sample ID	Matrix	Coll. Date	Rcv Date	Anal. Date	Batch	Unit	RL	Result	Q
03-3414-1	MW-5	Water	05/28/03	05/28/03	05/28/03	03W3052	mg/L	0.4	9.0	
03-3414-2	MW-8	Water	05/28/03	05/28/03	05/28/03	03W3052	mg/L	0.4	14.1	
03W3052-MB-01	03W3052-MB-01	Water	05/28/03	05/28/03	05/28/03	03W3052	mg/L	0.2	<0.2	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 300.0

Client Name: GEOFON, Inc. Project No: 04-4428.10 Anal. Method 300.0
Project ID: JPL Service ID: 33414 Collected by:

Component Name: Nitrate as N
CAS No: 14797-55-8

Lab ID	Sample ID	Matrix	Coll. Date	Rcv Date	Anal. Date	Batch	Unit	RL	Result	Q
03-3414-1	MW-5	Water	05/28/03	05/28/03	05/28/03	03W3052	mg/L	0.08	2.3	
03-3414-2	MW-8	Water	05/28/03	05/28/03	05/28/03	03W3052	mg/L	0.08	1.4	
03W3052-MB-01	03W3052-MB-01	Water	05/28/03	05/28/03	05/28/03	03W3052	mg/L	0.04	<0.04	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 300.0

Client Name: GEOFON, Inc. Project No: 04-4428.10 Anal. Method 300.0
Project ID: JPL Service ID: 33414 Collected by:

Component Name: Sulfate SO_4^{--}
CAS No: 14808-79-8

Lab ID	Sample ID	Matrix	Coll. Date	Rcv Date	Anal. Date	Batch	Unit	RL	Result	Q
03-3414-1	MW-5	Water	05/28/03	05/28/03	05/28/03	03W3052	mg/L	1	22.1	
03-3414-2	MW-8	Water	05/28/03	05/28/03	05/28/03	03W3052	mg/L	1	36.4	
03W3052-MB-01	03W3052-MB-01	Water	05/28/03	05/28/03	05/28/03	03W3052	mg/L	0.5	<0.5	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 SM2320B

Client Name:	GEOFON, Inc.	Contract No:		Lab Code:	APCL
Case No:		SAS No:		Service ID:	33414
Project ID:	JPL	Project No:	04-4428.10	Sample Matrix:	Water
		Batch No:	03W3113		
LCS Filename:	-	Date Analyzed:	060203	Time Analyzed:	11:45
LCSD Filename:	-	Date Analyzed:	060203	Time Analyzed:	11:45

Spiked Components	Unit	Spike Added	Concentration Unspiked	Concentration LCS	LCS Rec% #	QC Limit, % REC
BICARBONATE	mg/L	100	0	101	101	80-120
# of Out-of-control					0	

Spiked Components	Unit	Spike Added	LCSD Concentration	LCSD Rec% #	RPD% #	QC Limit, % RPD	QC Limit, % REC
BICARBONATE	mg/L	100	99.6	100	1	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: _____

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FORM-3

Applied P & Ch Laboratory

Lab Control Spike/Lab Control Spike Duplicate Recovery for Method 160.1

Client Name:	GEOFON, Inc.	Contract No:		Lab Code:	APCL
Case No:		SAS No:		Service ID:	33414
Project ID:	JPL	Project No:	04-4428.10	Sample Matrix:	Water
		Batch No:	03W3071		
LCS Filename:	-	Date Analyzed:	052903	Time Analyzed:	09:36
LCSD Filename:	-	Date Analyzed:	052903	Time Analyzed:	09:36

Spiked Components	Unit	Spike Added	Concentration Unspiked	Concentration LCS	LCS Rec% #	QC Limit, % REC
SOLIDS, TOTAL DISSOLVED (TDS)	mg/L	400	0	385	96	88-108
# of Out-of-control					0	

Spiked Components	Unit	Spike Added	LCSD Concentration	LCSD Rec% #	RPD% #	QC Limit, % RPD	QC Limit, % REC
SOLIDS, TOTAL DISSOLVED (TDS)	mg/L	400	391	98	2	20	88-108
# 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: _____

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FORM-3

Applied P & Ch Laboratory

Matrix Spike/Matrix Spike Duplicate Recovery for Method 160.1

Client Name:	GEOFON, Inc.	Contract No:		Lab Code:	APCL
Case No:		SAS No:		Service ID:	33414
Project ID:	JPL	Project No:	04-4428.10	Sample Matrix:	Water
		Batch No:	03W3071		
MS Filename:	-	Date Analyzed:	052903	Time Analyzed:	09:36
MSD Filename:	-	Date Analyzed:	052903	Time Analyzed:	09:36
MS Sample No:	**AE420**	Sample Lab ID:	03-3389-9		

Spiked Components	Unit	Spike Added	Concentration Unspiked	Concentration MS	MS Rec%	#	QC Limit, % REC
SOLIDS, TOTAL DISSOLVED (TDS)	mg/L	400	4140	4450	78	*	80-119
# of Out-of-control					1		

Spiked Components	Unit	Spike Added	MSD Concentration	MSD Rec%	#	RPD%	#	QC Limit, % RPD	REC
SOLIDS, TOTAL DISSOLVED (TDS)	mg/L	400	4500	90		14		20	80-119
# 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:	33414
Project ID:	JPL	Project No:	04-4428.10	Sample Matrix:	Water
		Batch No:	03W3063		
LCS Filename:	-	Date Analyzed:	052803	Time Analyzed:	16:04
LCSD Filename:	-	Date Analyzed:	052803	Time Analyzed:	16:04

Spiked Components	Unit	Spike Added	Concentration Unspiked	Concentration LCS	LCS Rec% #	QC Limit, % REC
CHROMIUM (VI)	mg/L	0.25	0	0.258	103	80-115
# of Out-of-control					0	

Spiked Components	Unit	Spike Added	LCSD Concentration	LCSD Rec% #	RPD% #	QC Limit, % RPD	QC Limit, % REC
CHROMIUM (VI)	mg/L	0.25	0.264	106	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: _____

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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:	33414
Project ID:	JPL	Project No:	04-4428.10	Sample Matrix:	Water
		Batch No:	03W3063		
MS Filename:	-	Date Analyzed:	052803	Time Analyzed:	16:04
MSD Filename:	-	Date Analyzed:	052803	Time Analyzed:	16:04
MS Sample No:	**MW-5**	Sample Lab ID:	03-3414-1		

Spiked Components	Unit	Spike Added	Concentration Unspiked	Concentration MS	MS Rec% #	QC Limit, % REC
CHROMIUM (VI)	mg/L	0.25	0	0.233	92	78-115
# of Out-of-control					0	

Spiked Components	Unit	Spike Added	MSD Concentration	MSD Rec% #	RPD% #	QC Limit, % RPD	QC Limit, % REC
CHROMIUM (VI)	mg/L	0.25	0.238	94	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: _____

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:	33414
Project ID:	JPL	Project No:	04-4428.10	Sample Matrix:	Water
		Batch No:	03W3074		
LCS Filename:	-	Date Analyzed:	052903	Time Analyzed:	
LCSD Filename:	-	Date Analyzed:	052903	Time Analyzed:	

Spiked Components	Unit	Spike Added	Concentration Unspiked	Concentration LCS	LCS Rec% #	QC Limit, % REC
PERCHLORATE	µg/L	50	0	48.6	97	80-120
# of Out-of-control					0	

Spiked Components	Unit	Spike Added	LCSD Concentration	LCSD Rec% #	RPD% #	QC Limit, % RPD	QC Limit, % REC
PERCHLORATE	µg/L	50	50.6	101	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: _____

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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:	33414
Project ID:	JPL	Project No:	04-4428.10	Sample Matrix:	Water
		Batch No:	03W3074		
MS Filename:	-	Date Analyzed:	052903	Time Analyzed:	
MSD Filename:	-	Date Analyzed:	052903	Time Analyzed:	
MS Sample No:	**MW-6**	Sample Lab ID:	03-3444-1		

Spiked Components	Unit	Spike Added	Concentration Unspiked	Concentration MS	MS Rec% #	QC Limit, % REC
PERCHLORATE	µg/L	50	2.3	51.9	99	75-125
# of Out-of-control					0	

Spiked Components	Unit	Spike Added	MSD Concentration	MSD Rec% #	RPD% #	QC Limit, % RPD	QC Limit, % REC
PERCHLORATE	µg/L	50	53.5	102	3	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: _____

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FORM-3

Applied P & Ch Laboratory

Lab Control Spike/Lab Control Spike Duplicate Recovery for Method 300.0

Client Name:	GEOFON, Inc.	Contract No:		Lab Code:	APCL
Case No:		SAS No:		Service ID:	33414
Project ID:	JPL	Project No:	04-4428.10	Sample Matrix:	Water
		Batch No:	03W3052		
LCS Filename:	-	Date Analyzed:	052803	Time Analyzed:	10:48
LCSD Filename:	-	Date Analyzed:	052803	Time Analyzed:	11:01

Spiked Components	Unit	Spike Added	Concentration Unspiked	Concentration LCS	LCS Rec% #	QC Limit, % REC
CHLORIDE CL^-	mg/L	4.0	0	4.15	104	80-120
NITRATE AS N	mg/L	1.5	0	1.56	104	80-120
SULFATE SO_4^{--}	mg/L	15	0	15.3	102	80-120
# of Out-of-control					0	

Spiked Components	Unit	Spike Added	LCSD Concentration	LCSD Rec% #	RPD% #	QC Limit, % RPD	QC Limit, % REC
CHLORIDE CL^-	mg/L	4.0	4.23	106	2	20	80-120
NITRATE AS N	mg/L	1.5	1.56	104	0	20	80-120
SULFATE SO_4^{--}	mg/L	15	15.2	101	1	25	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 300.0

Client Name:	GEOFON, Inc.	Contract No:		Lab Code:	APCL
Case No:		SAS No:		Service ID:	33414
Project ID:	JPL	Project No:	04-4428.10	Sample Matrix:	Water
		Batch No:	03W3052		
MS Filename:	-	Date Analyzed:	052803	Time Analyzed:	15:51
MSD Filename:	-	Date Analyzed:	052803	Time Analyzed:	16:04
MS Sample No:	**AE420**	Sample Lab ID:	03-3389-9		

Spiked Components	Unit	Spike Added	Concentration Unspiked	Concentration MS	MS Rec% #	QC Limit, % REC
CHLORIDE CL^-	mg/L	800	312	1090	97	75-125
NITRATE AS N	mg/L	300	19.5	312	98	75-125
SULFATE SO_4^{--}	mg/L	3000	2090	5070	99	75-125
# of Out-of-control					0	

Spiked Components	Unit	Spike Added	MSD Concentration	MSD Rec% #	RPD% #	QC Limit, % RPD	QC Limit, % REC
CHLORIDE CL^-	mg/L	800	1080	96	1	20	75-125
NITRATE AS N	mg/L	300	312	98	0	20	75-125
SULFATE SO_4^{--}	mg/L	3000	5030	98	1	25	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: _____

6A

INITIAL CALIBRATION DATA

Lab Name: Applied P & Ch Lab Contract: 33414

Analysis: Chromium (VI) Calibration Date: 01/29/2003

Concentration (mg/L)	0.000	0.0125	0.050	0.125	0.250	0.50
Absorbance	0.000	0.006	0.041	0.109	0.214	0.415

A= 0.000 + 0.836C

A=Absorbance

C=Concentration (mg/L)

r= 0.9997

Wet Chemistry QC Report B
Duplicate Results

Matrix: Water

APCL Service ID: 03-3414

Analysis	Batch ID	Analysis Date	Sample Name	Unit	Result	Duplicate Result	RPD %	RPD Control limit
Alkalinity	03W3113	06/02/2003	03-3444-1	mg-$CaCO_3$/L	284	282	1	20
PH	03W3065	05/28/2003	MW-8	ph unit	7.00	7.03	0	20

Note: N/A = Not applicable; NR: Not requested; NC= Not Calculated; ND: Not detected.

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: 33414

Project ID: JPL Project No.: 04-4428.10

#	Component Name	Method	Batch No.	Unit	Expe-cted	Test Result	Rec. %	Dev. %	Flag	Control Limit, %	Test Date
2	Chloride Cl^-	300.0	03W3052	mg/L	4.0	4.06	102	2	√	90-110	05/28/2003
	SULFATE SO_4^{--}, BY I	300.0	03W3052	mg/L	15	15.1	101	1	√	90-110	05/28/2003
	Chloride Cl^-	300.0	03W3052	mg/L	4.0	4.08	102	2	√	90-110	05/28/2003
	SULFATE SO_4^{--}, BY I	300.0	03W3052	mg/L	15	15.1	101	1	√	90-110	05/28/2003
	Chloride Cl^-	300.0	03W3052	mg/L	4.0	4.01	100	0	√	90-110	05/28/2003
	SULFATE SO_4^{--}, BY I	300.0	03W3052	mg/L	15	14.9	99	-1	√	90-110	05/28/2003
3	Perchlorate	314.0	03W3074	µg/L	50	49.7	99	-1	√	90-110	05/29/2003
	Perchlorate	314.0	03W3074	µg/L	50	52.5	105	5	√	90-110	05/29/2003
	Perchlorate	314.0	03W3074	µg/L	50	50.8	102	2	√	90-110	05/29/2003
	Perchlorate	314.0	03W3074	µg/L	50	52.3	105	5	√	90-110	05/29/2003
6	Chromium (VI)	7196	03W3063	mg/L	0.25	0.248	99	-1	√	90-110	05/28/2003
	Chromium (VI)	7196	03W3063	mg/L	0.25	0.252	101	1	√	90-110	05/28/2003

Applied P & Ch Laboratory
13700 Magnolia Ave. Chino CA 91710
Tel: (909) 590-1828 Fax: (909) 590-1498

Alkalinity/OH/CO_3/HCO_3 (310.1/SM2320B) Worksheet

Batch # 03W3113 Matrix: W Titrant H_2SO_4 Lot # W791-2 Concentration (C) 0.0257 N; Test Date: 6/26/03 Analyst: DL SOP: G-51

#	Sample ID	Dilution $V_f/V_i=f_1$	Smpl Amnt V, mL	H_2SO_4 (mL) by Phnln S_A	E_A	A	H_2SO_4 (mL) by MR-BCG S_B	E_B	B	Phnln-Alk., P	Tot. Alk., T (in unit of mg$CaCO_3$/L)	OH^-	CO_3^{2-}	HCO_3^-	Note & Anomaly
1	MB: T1116	/ =	100			0			0		0	0	0	0	
2	LCS	/ =	100						7.90		100.9				
3	LCSD	/ =	100						7.80		99.6				
4	3391-1	/ =	100			0			4.50		115.0	0	0	115.0	
5	-2	/ =	100			0			4.50		115.0	0	0	115.0	
6	3413-1	/ =	100			0			9.15		233.8	0	0	233.8	
7	3414-1	/ =	100			0			5.70		145.6	0	0	145.6	
8	-2	/ =	100			0			6.00		153.3	0	0	153.3	
9	3444-1	/ =	100			0			11.10		283.6	0	0	283.6	
10	-2	/ =	100			0			4.85		123.9	0	0	123.9	
11	-3	/ =	100			0			7.60		194.2	0	0	194.2	
12	3461-1	/ =	100			0			8.55		218.5	0	0	218.5	
13	-2	/ =	100			0			6.85		175.0	0	0	175.0	
14	-3	/ =	100			0			8.55		218.5	0	0	218.5	
15		/ =													
16		/ =													
17		/ =													
18		/ =													
19		/ =													
20		/ =													
Dup.	3444-1	/ =	100			0			11.05		282.3	0	0	282.3	

Titration Results	OH^- ($CaCO_3$ mg/L)	CO_3^{2-} ($CaCO_3$ mg/L)	HCO_3^- ($CaCO_3$ mg/L)
P=0	0	0	T
P<T/2	0	2P	T-2P
P=T/2	0	2P	0
P>T/2	2P-T	2(T-P)	0
P = T	T	0	0

Calculation:

$A=S_A-E_A$

$B=S_B-E_B$

$P=50{,}000\ f_1\ A\ C\ /V$

$T=50{,}000\ f_1\ (A+B)\ C\ /V$

APCL Form 5-101, Nov. 29, 1999 Ver 3.2

Using blue pen. Correcting by red pen.

File: [CUST.DOC.WET]ALK.TEX

Root-File: [CUST.DOC.WET]ALK-ROOT.TEX

1-Page-File: [CUST.DOC.WET]ALK1.TEX

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pH (150.1/9045B) Worksheet

056

Temperature compensation must be performed by the instrument automatically.

Analyst _____ SOP: G-44

Batch # 03W3048 Analysis Date: 4/27/03
Starting Time: 15:55 Ending Time: ____:____
Matrix ☐ Aaueous ☐ Soil

Standard	4.00	7.00	10.00
Lot #		030660-24	030619-24
Temperature °C		24.4	24.4
pH Reading		7.01	10.07
T-corrected pH		7.00	10.00
Control Limit		±0.05 pH unit	

Batch # 03W3061 Analysis Date: 4/28/03
Starting Time: 16:24 Ending Time: ____:____
Matrix ☒ Aaueous ☐ Soil

Standard	4.00	7.00	10.00
Lot #		030660-24	030619-24
Temperature °C		24.0	24.0
pH Reading		6.99	10.00
T-corrected pH		7.00	10.07
Control Limit		±0.05 pH unit	

#	Sample ID	Pre-treat	pH	Note
MB	TIII6		6.82	
1	3391-1		7.00	
2	-2		7.18	
3	3421-8		7.22	
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
Dup.	3391-1		7.02	

#	Sample ID	Pre-treat	pH	Note
MB	TIII6		6.86	
1	3414-1		6.84	
2	-2		7.00	
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
Dup.	3414-2		7.03	

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Analysis Anomaly Record

Batch #: 03W3071 Method: 1601 Matrix: W Date: 7/28/03

Samples Involved: 3389-9

- **Anomaly for MS/MSD/MD**
  - ☐ 1. MS/MSD out of control limit, sample matrix interference suspected
  - ☐ 2. MS or MSD out of control limit, but $\overline{MS}$ is O.K.
  - ☐ 3. One of MS/MSD, and $\overline{MS}$ out of control limit, but not enough sample for re-analysis
  - ☐ 4. Not enough sample for MS/MSD, LCS/LCSD may be used
  - ☑ 5. Spiked samples contain high concentration of analytes (>4 × spiked concentration)
  - ☐ 6. MS/MSD out of control limit, but post spike is O.K.
  - ☐ 7. MS/MSD out of control limit, due to the heterogenous matrix
  - ☐ 8. MS/MSD out of control limit, due to the very special matrix
  - ☐ 9. Not enough sample for matrix duplicate (MD)
- **Anomaly for Holding time (HT)**
  - ☐ 10. HT has been exceeded when received, authorized by the Client to carry on with the analyses
  - ☐ 11. Extraction HT was passed, authorized by the Client to carry on with the analyses
  - ☐ 12. Analysis HT was passed, authorized by the Client to carry on with the analyses
- **Surrogates Anomaly**
  - ☐ 13. Surrogate recovery out of control limit (see Level-1 Part III), sample matrix interference suspected
  - ☐ 14. Surrogate recovery out of control limit (see Level-1 Part III), but not enough sample for re-analysis
  - ☐ 15. Surrogate recovery out of control limit, due to very special matrix
  - ☐ 16. Surrogate diluted out (for highly contaminated samples)
  - ☐ 17. Lower surrogate recovery due to cleanup process
- **Chromatogram Pattern Anomaly**
  - ☐ 18. Not a typical gasoline chromatogram pattern
  - ☐ 19. Not a typical diesel chromatogram pattern
  - ☐ 20. Not a typical diesel chromatogram pattern, but similar to heavy-oil or motor oil
  - ☐ 21. Not a typical kerosene chromatogram pattern
  - ☐ 22. Not a typical jet fuel chromatogram pattern
  - ☐ 23. Not a complete PCB chromatogram pattern, interference/degration suspected
- **Other anomaly**

Problem Description: _____

Reason: _____

Analyst: _____ Date: 7/29/03

Note: _____

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Solid Analysis (160.1, 160.2, 160.3) Worksheet

atch # 03W307 Matrix W Method: 160.1 Balance No. _____ Date: 5/29/03 Analyst: DC

EPA 160.1 TDS – Total Dissolved (filterable) Solids — Dry for 1hr. or more at 180 °C

EPA 160.2 TSS – Total Suspended (nonfilterable) Soilds — Dry for 1hr. or more at 103-105 °C

EPA 160.3 TS – Total Solids — Dry for 1hr. or more at 103-105 °C

Other method (specify):

Result= $10^6 \times \Delta W \times f_1 / V$ SOP: G-81

#	Analysis Type	Sample ID (STD Lot #)	Treatment Ratio $V_1/X=f_1$	Volume V, mL	W_1 g	W_2 1st, g	W_2 2nd, g	$\Delta W = W_2 - W_1$, g	Results (ppm)	Note
1	Blank	T1116	1 =	100	103.1221	103.1221	103.1224	0.0003	3	GC
2	LCS	T1116	1 =	100	104.3113	104.3496	104.3498	0.0385	385	3
3	Sample-1	3392-2	1 =	100	115.1056	115.1442	115.1440	0.0384	384	G
4	MS on S-1	3389-9	1 =	50.0	111.7875	112.0702	112.0100	0.2225	4450	R
5	MSD on S-1	↓ -9	1 =	50.0	103.5388	103.7641	103.7639	0.2251	4502	26
6	Sample-2	3396-1	1 =	100	115.9208	116.2320	116.2317	0.3109	3109	YQ
7	Sample-3	-2	1 =	100	115.8746	116.1842	116.1842	0.3096	3096	CK
8	Sample-4	-3	1 =	100	113.1434	113.4346	113.4349	0.2607	2607	25
9	Sample-5	↓ -4	1 =	100	116.9460	117.2356	117.2356	0.2796	2796	W
10	~~Sample-6~~	~~3394-2~~	1 =	100	113.0638	113.1105	113.1105	0.0467	467	PR
11	Sample-7	3394-11	1 =	100	117.9022	117.9982	117.9980	0.0958	958	7
12	Sample-8	-12	1 =	100	116.0616	116.1245	116.1243	0.0627	627	31
13	Sample-9	-13	1 =	100	111.2759	111.2763	111.2760	0.0001	1	J
14	~~Sample-10~~	~~3390-2~~	1 =	100	114.7876	114.8794	114.8794	0.0942	942	12
15	LCSD	T1116	1 =	100	117.6077	117.6468	117.6466	0.0391	391	XJ
16	Sample-11	3391-1	1 =	100	103.3015	103.3548	103.3544	0.0529	529	L
17	Sample-12	↓ -2	1 =	100	113.8632	113.8976	113.8979	0.0347	347	6
18	Sample-13	3389-4	1 =	100	115.8629	116.1586	116.1588	0.2959	2959	30
19	Sample-14	-1	1 =	100	114.1726	114.2306	114.2309	0.0583	583	4
20	Sample-15	↓ -9	1 =	50.0	99.0867	99.2942	99.2939	0.2072	4144	42
21	Sample-16	3413-1	1 =	100	108.5866	108.8817	108.8819	0.3289	3289	1P
22	Sample-17	3414-1	1 =	100	107.7204	107.7467	107.7467	0.0263	263	0
23	Sample-18	↓ -2	1 =	100	112.3013	112.3336	112.3334	0.0277	277	K
24	Sample-19		1 =							
25	Sample-20		1 =							
26	Mtx Dup.	3389-9	1 =	100	116.6468	116.8562	116.8564	0.2096	4192	2J

Type	STD Lot #	$C_{STD}(\mu g/mL) \times V_{STD}(mL)/X(g \text{ or } mL) = T$	Spike Rec.	Ctl Limit (W/S)
MS	W- 7618	× 1 = 46 ppm	%	85-115 %/80-120 %
MSD	W- ↓	× 1 = ↓ ppm	%	" "
LCS	W- 7619	× 1 = ppm	%	90-110 %/85-115 %
LCSD	W- ↓	× 1 = ↓ ppm	%	" "

PQL/MDL (in ppm)	
PQL(w)	10
PQL(s)	50
MDL(w)	4
MDL(s)	20

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Balance Daily Calibration Worksheet

Weight Set: S/N: T2006

Calib. Date	Lab Balance: Balance #	1 g ±0.05g	10 g ±0.1g	200 g ±0.5g	Note (C)	Digital Balance: Balance #	1 g ±0.02g	10 g ±0.05g	200 g ±0.10g	Note (D) (C) (AR).	Analytical Balance: Balance #	1 g ±0.0002g	10 g ±0.0005g	200 g ±0.0010g	Note (D) (C) (AR)	Calib. by
5/23/03	A-01	not	in	use	✓	B-01	1.00	10.00	200.00	✓ ✓ ✓	C-01	1.0000	10.0002	200.0002	✓ ✓ ✓	JL
	~~A-02~~					B-05	1.00	9.99	200.00	✓ ✓ ✓	C-02	1.0001	10.0000	200.0000	✓ ✓ ✓	
	A-03	1.00	9.99	200.00	✓	B-06	1.00	10.01	200.01	✓ ✓ ✓	C-					
	A-04					B-07	1.00	10.00	200.00	✓ ✓ ✓	C-					
	A-		5/23/03			B-					C-		5/23/03			
	A-					B-		5/23/03			C-					
5/27/03	A-01	not	in	use	✓	B-01	1.00	10.00	200.00	✓ ✓ ✓	C-01	1.0000	10.0002	200.0001	✓ ✓ ✓	JL
	~~A-02~~					B-05	1.00	9.99	200.00	✓ ✓ ✓	C-02	1.0001	10.0000	200.0000	✓ ✓ ✓	
	A-03	1.00	9.99	200.00	✓	B-06	1.00	10.01	200.01	✓ ✓ ✓	C-					
	A-04					B-07	1.00	10.00	200.00	✓ ✓ ✓	C-					
	A-		5/27/03			B-					C-		5/27/03			
	A-					B-		5/27/03			C-					
5/28/03	A-01	not	in	use	✓	B-01	1.00	10.00	200.00	✓ ✓ ✓	C-01	1.0000	10.0002	200.0001	✓ ✓ ✓	JL
	~~A-02~~					B-05	1.00	9.99	200.00	✓ ✓ ✓	C-02	1.0001	10.0000	200.0000	✓ ✓ ✓	
	A-03	1.00	9.99	200.00	✓	B-06	1.00	10.01	200.00	✓ ✓ ✓	C-					
	A-04					B-07	0.99	10.00	200.00	✓ ✓ ✓	C-					
	A-		5/28/03			B-					C-		5/28/03			
	A-					B-		5/28/03			C-					
5/29/03	A-01	not	in	use	✓	B-01	1.00	10.00	200.00	✓ ✓ ✓	C-01	1.0000	10.0002	200.0001	✓ ✓ ✓	JL
	~~A-02~~					B-05	1.00	9.99	200.00	✓ ✓ ✓	C-02	1.0001	10.0000	200.0000	✓ ✓ ✓	
	A-03	1.00	9.99	200.00	✓	B-06	1.00	10.01	200.00	✓ ✓ ✓	C-					
	A-04					B-07	0.99	10.00	200.00	✓ ✓ ✓	C-					
	A-		5/29/03			B-			5/29/03		C-			5/29/03		
	A-					B-					C-					

Notation: (C) – Cleanliness; (D) – Display; (AR) – Auto Rezeroing.

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Chromium (VI) (7196) Worksheet

Batch # 03W3063 Matrix: W [Holding Time: 24 hours!!] Test Date: 5/28/03 Analyst:

Lot #: Reagent Water _____ Diphenylcazide solution _____ Test Time: 16:04 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-	× / = mg/L			Least Square [RF]=	Cal. Code:
STD-2	W-	× / = mg/L			Average $\overline{RF}$=	
STD-3	W-	× / = mg/L			C.C.=0.999 (≥ 0.995)	
STD-4	W-	× / = mg/L			RSD= % (≤ 15%)	
STD-5	W-	× / = mg/L			Ref. page	
STD-6	W-	× / = mg/L			A=0.000+0.836C	

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 $C' \times f_1 f_2 / RF$	C (Sample) $C = f_1 f_2 C'$	Anomaly Note
CCV	Lot: W-7850	Expected Conc.: × / =0.25 mg/L			0.207	0.248 mg/L	REC. %	90-110 %
Method Blank	Bl. Lot: T1116		/X_0 = 1	95.0/ =	0.000	0.000 mg/L	0.000 ppm	
LCS1	Bl. Lot: "		/X_0 = 1	95.0/ =	0.216	0.258 mg/L	0.258 ppm	
Sample-1	3414-1		/X_0 = 1	95.0/ =	0.002	0.002 mg/L	0.002 ppm	
MS on S-1	1		/X_0 = 1	95.0/ =	0.193	0.231 mg/L	0.231 ppm	
MSD on S-1	1		/X_0 = 1	95.0/ =	0.197	0.236 mg/L	0.236 ppm	
Sample 2	2		/X_0 = 1	95.0/ =	0.001	0.001 mg/L	0.001 ppm	
Sample 3			/X_0 =	95.0/ =		mg/L	ppm	
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: T1116		/X_0 = 1	95.0/ =	0.221	mg/L	0.264 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.	clone of 0.25 W		/X_0 =	95.0/ =	0.211	0.25 mg/L	ppm	

Type	STD Lot #	$C_{STD}(\mu g/mL) \times V_{STD}(mL)/X(g \text{ or } mL) = T$	Spike Rec.	Ctl Limit (W/S)
MS	W-7850	× / = 0.25 ppm	%	80-120 %/80-120 %
MSD	W-	× / = ppm	%	.. ..
LCS	W-7559	× / = ppm	%	80-120 %/80-120 %
LCSD	W-	× / = ppm	%	.. ..

PQL/MDL (in ppm)	
PQL(w)	0.01
PQL(s)	0.05
MDL(w)	0.005
MDL(s)	0.025

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Chromium (VI) (7196) Worksheet

Batch # 03W1295 Matrix: W [Holding Time: 24 hours!!] Test Date: 1/29/03 Analyst: BN

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	× / =0.000 mg/L	0.000		Least Square [RF]=	Cal. Code:
STD-2	W-	× / =0.012 mg/L	0.006		Average RF=	A=0.000+0.836C
STD-3	W-	× / =0.050 mg/L	0.041		C.C.=0.9917 (≥ 0.995)	
STD-4	W-	× / =0.125 mg/L	0.109		RSD= % (≤ 15%)	
STD-5	W-	× / =0.250 mg/L	0.214		Ref. page	
STD-6	W- √	× / =0.500 mg/L	0.415		A=0.003+Bx 1/29/03	

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 $C' = A/\bar{RF}$	C (Sample) $C = f_1 f_2 C'$	Anomaly Note
CCV	Lot: W-7076.	Expected Conc.: × / = 0.25 mg/L			0.216	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	0.244 ppm	
Sample-1	1369-1		/X_0 =	95.0/ =	0.000	mg/L	0.00 ppm	
MS on S-1	"		/X_0 =	95.0/ =	0.223	mg/L	0.266 ppm	
MSD on S-1	"		/X_0 =	95.0/ =	0.230	mg/L	0.275 ppm	
Sample 2	2		/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 0.25 mg/L		/X_0 =	95.0/ =	0.204	mg/L	0.248 ppm	

Type	STD Lot #	$C_{STD(\mu g/mL)} \times V_{STD(mL)} / X_{(g \text{ or } mL)} = T$	Spike Rec.	Ctl Limit (W/S)
MS	W- 7076	× / =0.25 ppm	%	80-120 %/80-120 %
MSD	W- "	× / = ppm	%	" "
LCS	W- 7191	× / = ppm	%	80-120 %/80-120 %
LCSD	W- "	× / = √ ppm	%	" "

PQL/MDL (in ppm)	
PQL(w)	0.01
PQL(s)	0.05
MDL(w)	0.005
MDL(s)	0.025

APCL form 5-155 May 08, 1996. Ver. 3.1 No pencil. Use blue pen for record. Use red pen for correction.
File:[CUST.DOC.WET]CR6.TEX Root-file: CR6_ROOT.TEX 1-Page-File: CR61.TEX
Control limits are subjected to change. The updated values are given in the latest version of APCL Technical Handbook Vol. 2

DIONEX METHOD PARAMETERS - E300-063.MET

Method Comment: APCL EPA 300 ANALYSIS DX-100
Column ID: Dionex AS4A-SC
Analyst ID: David

System Parameters

System Name: DX-100

Number of Detectors	1
Run Time (minutes)	10.00
Sampling Rate (seconds)	0.20
Detector 1 Type	COND
Detector 1 real time plot scale maximum (uS)	30.000
minimum	-3.000
Detector 1 Output Equivalent to 1 Volt (in uS)	30.00
Detector 1 ACI Analog Input Connection	DET1
Save Data File	Yes

Data File Name: C:\DX\DATA\03W1991\W1991Q01.D10

-- DETECTOR 1 PARAMETERS --

Report Options

Create ASCII Report File	No
Print Report	Yes
Print All Components	Yes
Print Components Found	No
Print Missing Components	No
Print All Peaks	No
Print Unknown Peaks	No
Print Chromatogram	Yes
Autoscale Chromatogram Maximum	No
Autoscale Chromatogram Minimum	No
Fill Peaks with Color	No
Draw Grid Lines on Chromatogram	No
Show Component Fraction Numbers	No
Label with Peak Number	No
Label with Retention Times on Chromatogram	Yes
Label with Component Name	Yes

Format File Name: C:\DX\METHOD\DEFAULT.PRF

Integration Parameters

Starting Peak Width (seconds)	10.0
Peak Threshold	2.000
Peak Area Reject	1000
Area Reject for Reference Peaks	1000

Data Events

Time	Description
0.13	Start peak detection
10.00	Stop peak detection

Calibration Parameters

Number Of Levels for Calibration	6
Force Calibration Curve Through Origin	No
Calibration Fit Type	Linear
Replace Or Average Calibrations	Replace
External or Internal Calibration	External
Calculate Unknowns by Area or Height	Area
Default Sample Volume	1.0
Default Dilution Factor	1.0
Default Response Factor for Unknown Peaks	0.0
Calibration Standard Volume	1.0
Internal Standard Amount in Samples	1.0
Amount Units	ppm

Component # 4 Bromide Retention Time 3.45
Reference Comp. Nitrate-N Window Size 0.20 min.
Amount = K0 + K1*Area
K0 = 4.58974E-002
K1 = 4.83279E-006

Level	Amount	Area	Height
1	7.50000E-002	13830	1488
2	1.50000E+000	298206	30100
3	3.00000E+000	591234	61776
4	6.00000E+000	1219933	128845
5	7.50000E+000	1559887	166594
6	0.00000E+000	0	0

Component # 5 Nitrate-N Retention Time 3.87
Reference Comp. Nitrate-N Window Size 0.25 min.
Amount = K0 + K1*Area
K0 = 4.24689E-002
K1 = 8.05553E-007

Level	Amount	Area	Height
1	3.75000E-002	40157	3802
2	7.50000E-001	849179	77129
3	1.50000E+000	1713421	152776
4	3.00000E+000	3610927	313707
5	3.75000E+000	4688990	396441
6	0.00000E+000	0	0

Component # 6 Phosphate-P Retention Time 6.38
Reference Comp. Phosphate-P Window Size 0.60 min.
Amount = K0 + K1*Area
K0 = 8.68926E-002
K1 = 2.12227E-006

Level	Amount	Area	Height
1	7.50000E-002	24783	1450
2	1.50000E+000	642376	38579
3	3.00000E+000	1301126	79971
4	6.00000E+000	2756481	168994
5	7.50000E+000	3546397	217521
6	0.00000E+000	0	0

Component Table -- Last Modified: 17:42 on Fri, 21 Mar 2003

Component # 1 Fluoride Retention Time 1.32
Reference Comp. Fluoride Window Size 0.15 min.
Amount = K0 + K1*Area
K0 = -9.62851E-004
K1 = 1.37614E-006

Level	Amount	Area	Height
1	2.50000E-002	28534	2732
2	5.00000E-001	373164	44629
3	1.00000E+000	707646	82595
4	2.00000E+000	1435865	173007
5	2.50000E+000	1837162	220914
6	0.00000E+000	0	0

Component # 2 Chloride Retention Time 1.97
Reference Comp. Chloride Window Size 0.15 min.
Amount = K0 + K1*Area
K0 = 1.28188E-001
K1 = 1.95287E-006

Level	Amount	Area	Height
1	1.00000E-001	51206	7044
2	2.00000E+000	909455	126181
3	4.00000E+000	1856586	261681
4	8.00000E+000	3987563	585791
5	1.00000E+001	5142155	754321
6	0.00000E+000	0	0

Component # 3 Nitrite-N Retention Time 2.33
Reference Comp. Chloride Window Size 0.15 min.
Amount = K0 + K1*Area
K0 = 2.38085E-002
K1 = 9.76240E-007

Level	Amount	Area	Height
1	3.75000E-002	30884	3582
2	7.50000E-001	734006	79701
3	1.50000E+000	1468106	162005
4	3.00000E+000	3021523	336616
5	3.75000E+000	3856614	429219
6	0.00000E+000	0	0

Component # 7 Sulfate Retention Time 7.92
Reference Comp. Sulfate Window Size 0.90 min.
Amount = K0 + K1*Area
K0 = 5.32283E-001
K1 = 2.53252E-006

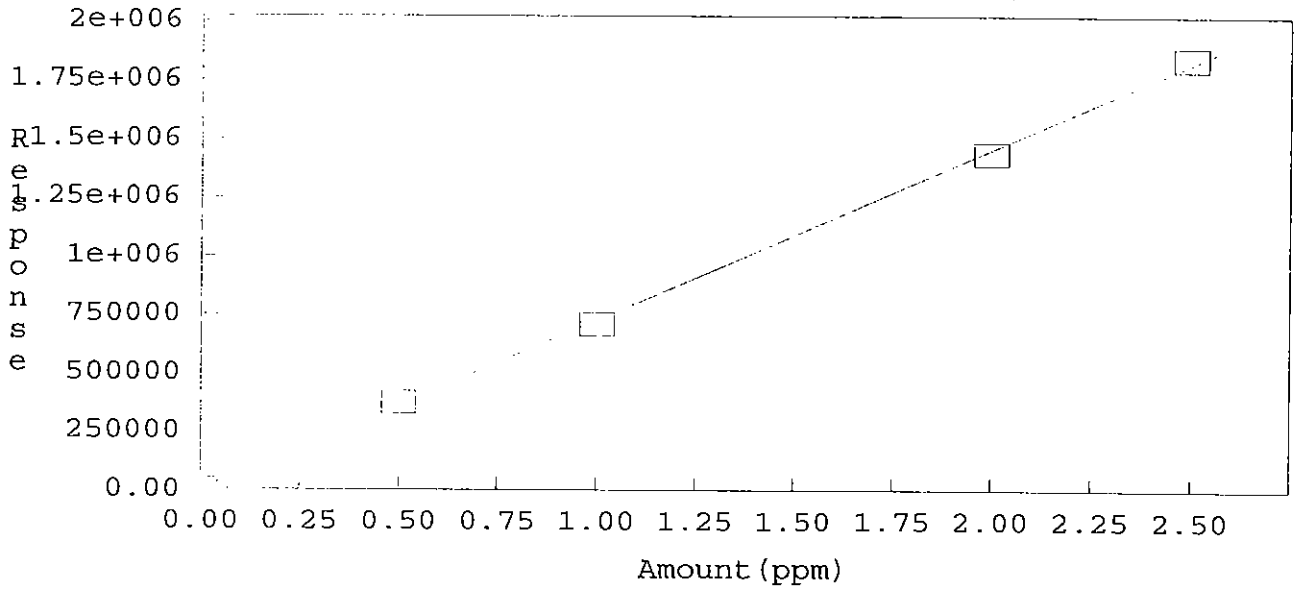
Level	Amount	Area	Height
1	3.76000E-001	129999	6524
2	7.50000E+000	2598757	138579
3	1.50000E+001	5330209	287851
4	3.00000E+001	11507107	615917
5	3.75000E+001	14859049	776426
6	0.00000E+000	0	0

Timed Events File: C:\DX\METHOD\W761CAL.TE

Step	Time	Description
Init		ACI Autosmp OFF
Init		ACI pump st ON
Init		ACI inject OFF
Init		ACI auto zer OFF
Init		ACI TTL 1 OFF
Init		ACI TTL 2 OFF
Init		ACI TTL 3 OFF
Init		ACI TTL 4 OFF
Init		ACI OFF
Init		ACI OFF
1	0.0	ACI Autosmp ON
1	0.0	ACI auto zer ON
2	2.5	ACI Autosmp OFF
2	2.5	ACI inject ON
2	2.5	ACI TTL 1 ON
2	2.5	Start Sampling

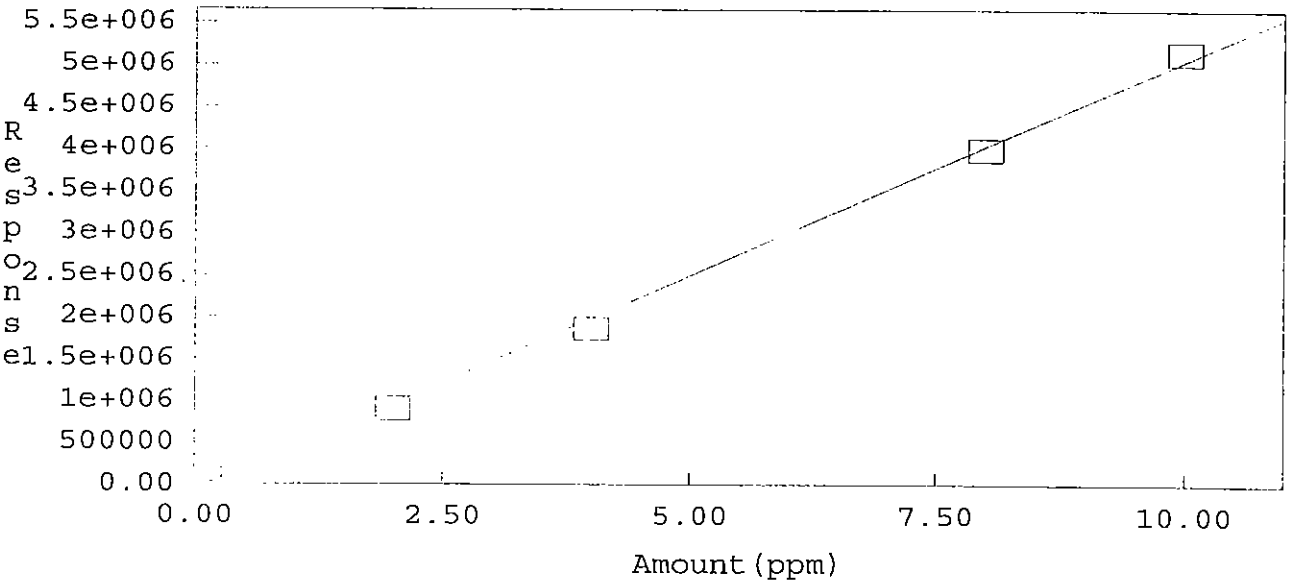
Method: E300-063.MET - Last Updated: 17:42 on Fri, 21 Mar 2003

Component: Fluoride
Fit Type: Linear
r^2 = 0.999552
Amt = Resp * 1.376e-006 + -0.000962
Resp = Amt * 7.267e+005 + 699.7
Standardization: External
Calibration: Area



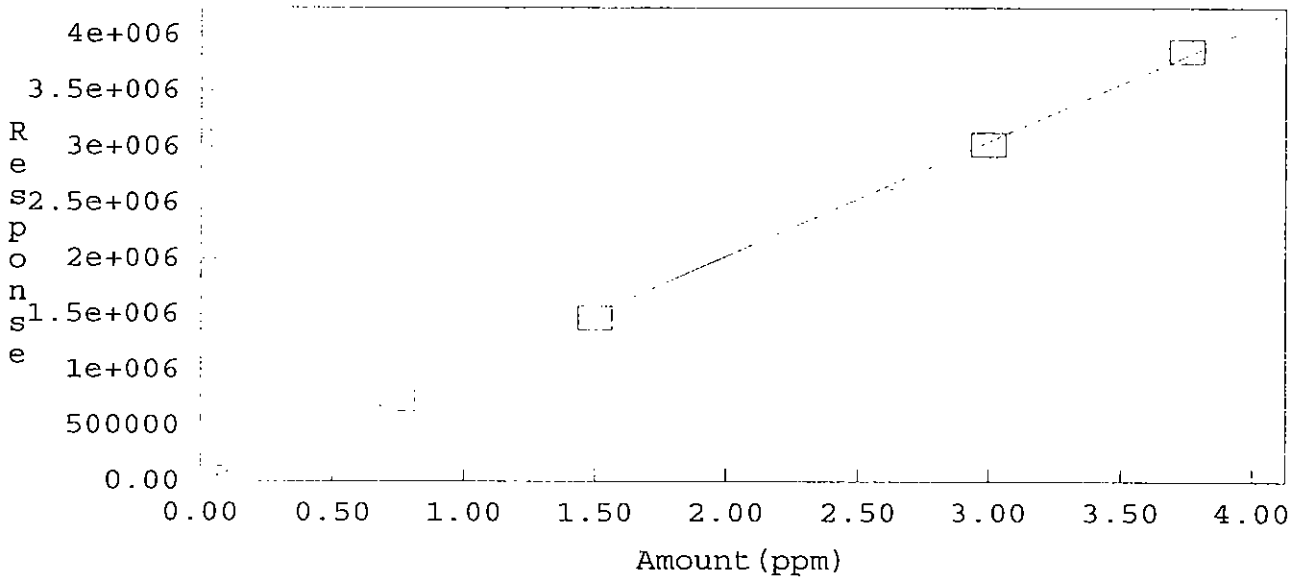
Method: C:\DX\METHOD\E300-063.MET

Component: Chloride
Fit Type: Linear
r^2 = 0.998409
Amt = Resp * 1.953e-006 + 0.1282
Resp = Amt * 5.121e+005 + -6.564e+00
Standardization: External
Calibration: Area



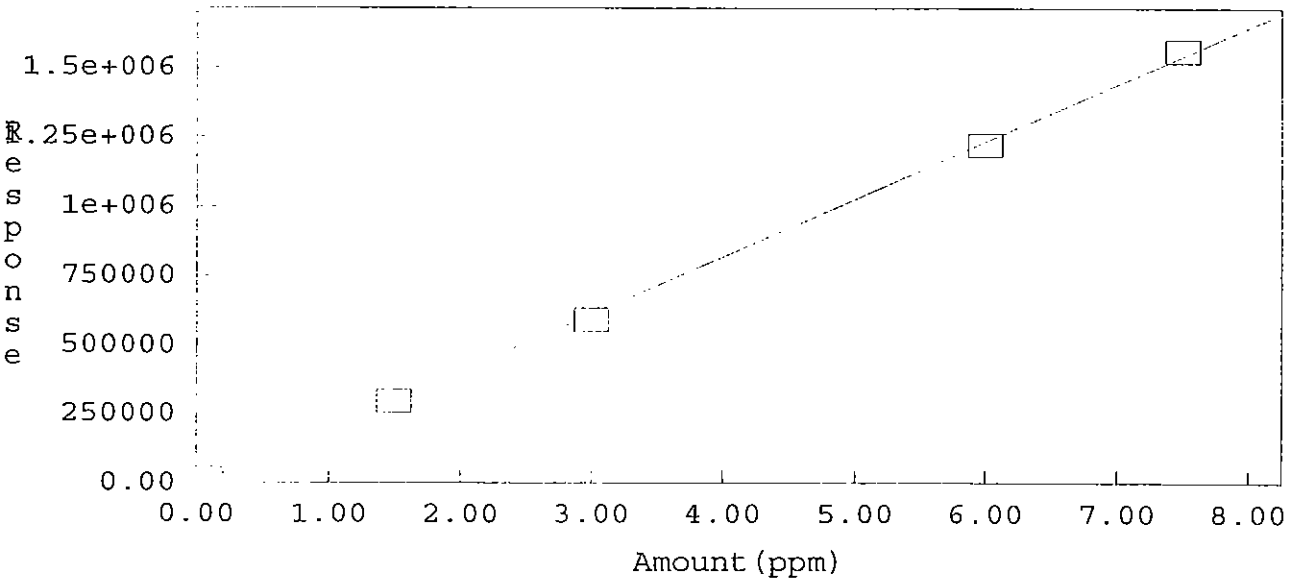
Method: C:\DX\METHOD\E300-063.MET

Component: Nitrite-N
Fit Type: Linear
r^2 = 0.999594
Amt = Resp * 9.762e-007 + 0.02381
Resp = Amt * 1.024e+006 + -2.439e+00
Standardization: External
Calibration: Area



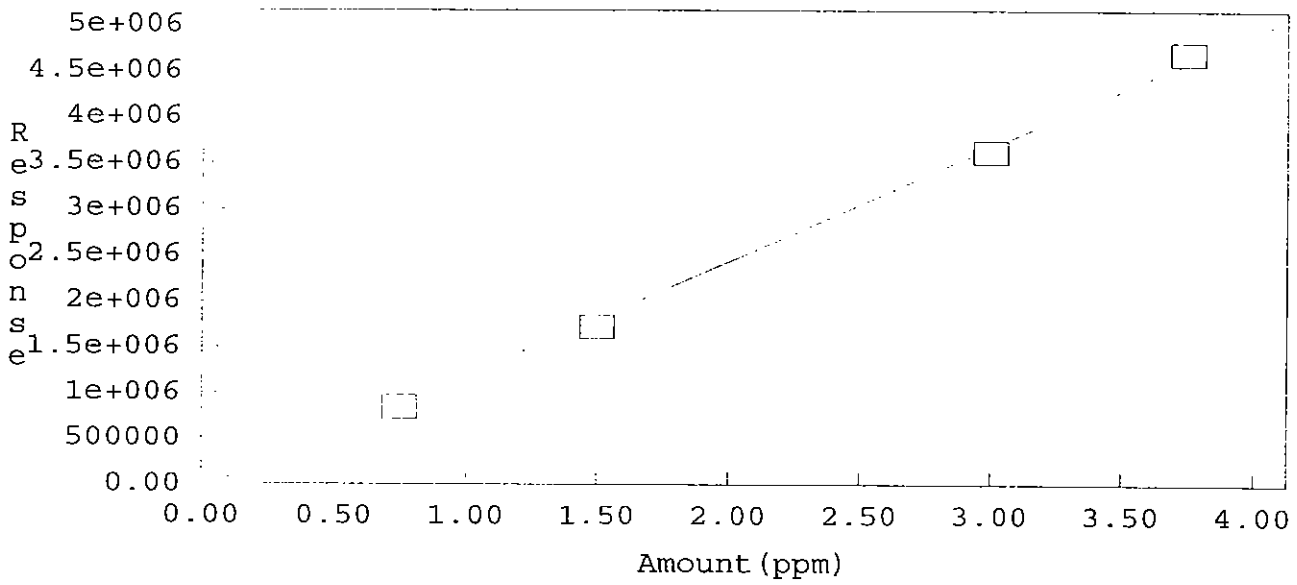
Method: C:\DX\METHOD\E300-063.MET

Component: Bromide
Fit Type: Linear
r^2 = 0.999518
Amt = Resp * 4.833e-006 + 0.0459
Resp = Amt * 2.069e+005 + -9497
Standardization: External
Calibration: Area



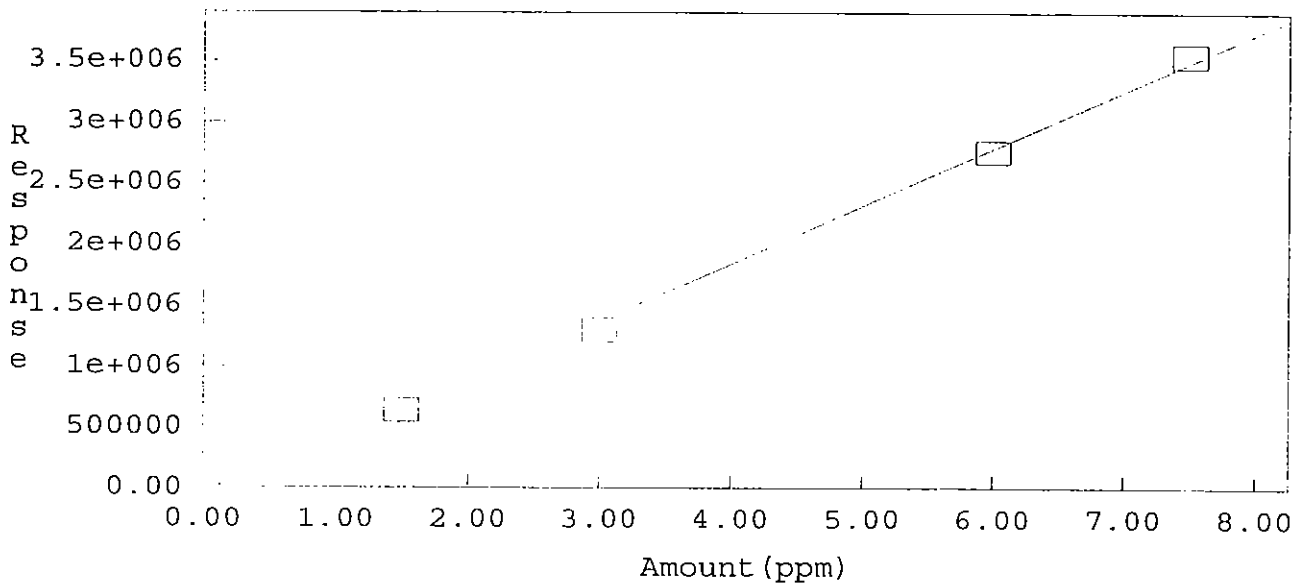
Method: C:\DX\METHOD\E300-063.MET

Component: Nitrate-N
Fit Type: Linear
r^2 = 0.998618
Amt = Resp * 8.056e-007 + 0.04247
Resp = Amt * 1.241e+006 + -5.272e+00
Standardization: External
Calibration: Area



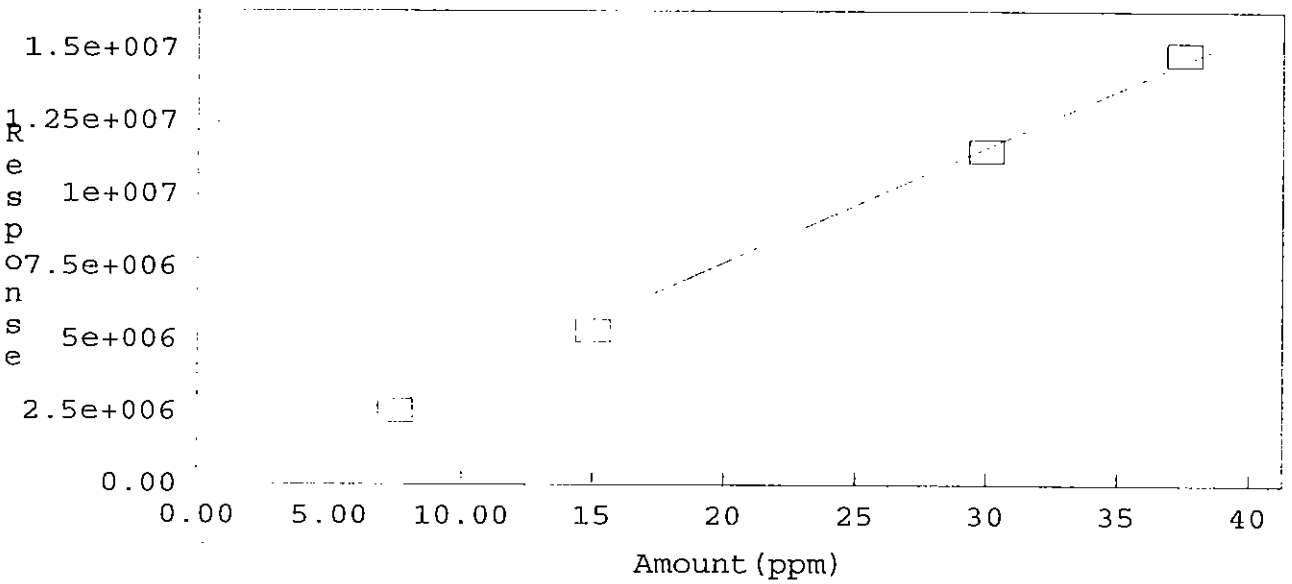
Method: C:\DX\METHOD\E300-063.MET

Component: Phosphate-P
Fit Type: Linear
r^2 = 0.998898
Amt = Resp * 2.122e-006 + 0.08689
Resp = Amt * 4.712e+005 + -4.094e+00
Standardization: External
Calibration: Area



Method: C:\DX\METHOD\E300-063.MET

Component: Sulfate
Fit Type: Linear
r^2 = 0.998245
Amt = Resp * 2.533e-006 + 0.5323
Resp = Amt * 3.949e+005 + -2.102e+00
Standardization: External
Calibration: Area



DIONEX SCHEDULE - C:\DX\SCHEDULE\E300-063.SCH

Inj#	Sample Name	Method	Data File	Vol.	Dil.	Int.Std.
1	autocal1r	..\E300-063	..\W7767Q01.D01	1	1	1
2	autocal2r	..\E300-063	..\W7767Q01.D02	1	1	1
3	autocal3r	..\E300-063	..\W7767Q01.D03	1	1	1
4	autocal4r	..\E300-063	..\W7767Q01.D04	1	1	1
5	autocal5r	..\E300-063	..\W7767Q01.D05	1	1	1
6	autocal6r	..\E300-063	..\W7767Q01.D06	1	1	1
7	icv-w7768-100X	..\E300-063	..\W7768Q01.D07	1	1	1
8	icb	..\E300-063	..\W7767Q01.D08	1	1	1

Comment:

Analyst DL

Date 3/21/03

Instrument J

APCL

Applied Physics & Chemistry Laboratory

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

July 11, 2003

GEOFON, Inc.
Attention: Leo Williamson
22632 Golden Spring Dr Ste 270
Diamond Bar CA 91765

Dear Leo Williamson,

This package contains samples in our Service ID 03-3444 and your project : 04-4428.10 JPL
Enclosed please find:

(1) Original analytical report.
(2) Original Chain of Custody.
(3) One diskette containing EDD deliverable.
(4) One original Level C Data Package Deliverable.

If anything is missing or you have any questions, please feel free to contact me.

Respectfully submitted,

Regina Kirakozova
Associate QA/QC Director
Applied P & Ch Laboratory

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

APCL Analytical Report

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

Service ID #: 801-033444
Collected by: Leo Williamson
Collected on: 05/29/03

Received: 05/29/03
Extracted: N/A
Tested: 05/29-06/05/03
Reported: 06/11/03

Sample Description: Water
Project Description: 04-4428.10 JPL

Analysis of Water Samples

Component Analyzed	Method	Unit	PQL	Analysis Result MW-6 03-03444-1	MW-7 03-03444-2	MW-15 03-03444-3	TB-16-5/29/03 03-03444-4
BICARBONATE	SM2320B	mg/L	2	284	124	194	-
CARBONATE	SM2320B	mg-$CaCO_3$/L	2	< 2	< 2	< 2	-
PH	9040B	pH unit	0.01	6.63	7.18	7.00	-
SOLIDS, TOTAL DISSOLVED (TDS)	160.1	mg/L	10	812	314	329	-
CHROMIUM (VI)	7196	mg/L	0.01	< 0.01	< 0.01	< 0.01	-
Dilution Factor				1	100	1	1
PERCHLORATE	314.0	µg/L	4	2.3J	5,560	< 4	-
Dilution Factor				20	4	4	1
CHLORIDE CL^-	300.0	mg/L	0.2	118	29.2	22.1	-
NITRATE AS N	300.0	mg/L	0.04	10.7	9.0	1.4	-
SULFATE SO_4^{--}	300.0	mg/L	0.5	165	43.0	47.9	-
Dilution Factor				1	1	1	1
ARSENIC	200.9	µg/L	5	< 5	< 5	2.1J	-
CALCIUM	200.7	µg/L	200	162,000	54,200	57,400	-
IRON	200.7	µg/L	50	785	138	389	-
MAGNESIUM	200.7	µg/L	100	51,200	17,200	18,400	-
POTASSIUM	200.7	µg/L	400	2,690	2,250	2,800	-
SODIUM	200.7	µg/L	2000	35,100	17,800	24,500	-
VOLATILE ORGANIC COMPOUNDS							
Dilution Factor				1	1 (a)	1	1
BENZENE	524.2	µg/L	0.5	< 0.5	< 0.5	< 0.5	< 0.5
BROMOBENZENE	524.2	µg/L	0.5	< 0.5	< 0.5	< 0.5	< 0.5
BROMOCHLOROMETHANE	524.2	µg/L	0.5	< 0.5	< 0.5	< 0.5	< 0.5
BROMODICHLOROMETHANE	524.2	µg/L	0.5	< 0.5	< 0.5	< 0.5	< 0.5
BROMOFORM	524.2	µg/L	0.5	< 0.5	< 0.5	< 0.5	< 0.5
BROMOMETHANE	524.2	µg/L	0.5	< 0.5	< 0.5	< 0.5	< 0.5
N-BUTYLBENZENE	524.2	µg/L	0.5	< 0.5	< 0.5	< 0.5	< 0.5
SEC-BUTYLBENZENE	524.2	µg/L	0.5	< 0.5	< 0.5	< 0.5	< 0.5
TERT-BUTYLBENZENE	524.2	µg/L	0.5	< 0.5	< 0.5	< 0.5	< 0.5
2-BUTANONE	524.2	µg/L	10	< 10	< 10	< 10	< 10
CARBON TETRACHLORIDE	524.2	µg/L	0.5	< 0.5	73.7	< 0.5	< 0.5
CHLOROBENZENE	524.2	µg/L	0.5	< 0.5	< 0.5	< 0.5	< 0.5
CHLORODIBROMOMETHANE	524.2	µg/L	0.5	< 0.5	< 0.5	< 0.5	< 0.5
CHLOROETHANE	524.2	µg/L	0.5	< 0.5	< 0.5	< 0.5	< 0.5
CHLOROFORM	524.2	µg/L	0.5	0.5J	10	< 0.5	< 0.5
CHLOROMETHANE	524.2	µg/L	0.5	< 0.5	< 0.5	< 0.5	< 0.5
2-CHLOROTOLUENE	524.2	µg/L	0.5	< 0.5	< 0.5	< 0.5	< 0.5
4-CHLOROTOLUENE	524.2	µg/L	0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-DIBROMO-3-CHLOROPROPANE	524.2	µg/L	1.1 (b)	< 1.1	< 1.1	< 1.1	< 1.1
1,2-DIBROMOETHANE (EDB)	524.2	µg/L	0.5	< 0.5	< 0.5	< 0.5	< 0.5
DIBROMOMETHANE	524.2	µg/L	0.5	< 0.5	< 0.5	< 0.5	< 0.5

Applied P & Ch Laboratory
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APCL Analytical Report

Component Analyzed	Method	Unit	PQL	Analysis Result MW-6 03-03444-1	MW-7 03-03444-2	MW-15 03-03444-3	TB-16-5/29/03 03-03444-4
1,2-DICHLOROBENZENE	524.2	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
1,3-DICHLOROBENZENE	524.2	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
1,4-DICHLOROBENZENE	524.2	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
DICHLORODIFLUOROMETHANE	524.2	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
1,1-DICHLOROETHANE	524.2	µg/L	0.5	0.9	<0.5	<0.5	<0.5
1,2-DICHLOROETHANE	524.2	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
1,1-DICHLOROETHENE	524.2	µg/L	0.5	0.7	4.2	<0.5	<0.5
CIS-1,2-DICHLOROETHENE	524.2	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
TRANS-1,2-DICHLOROETHENE	524.2	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
1,2-DICHLOROPROPANE	524.2	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
1,3-DICHLOROPROPANE	524.2	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
2,2-DICHLOROPROPANE	524.2	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
1,1-DICHLOROPROPENE	524.2	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
CIS-1,3-DICHLOROPROPENE	524.2	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
TRANS-1,3-DICHLOROPROPENE	524.2	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
ETHYLBENZENE	524.2	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
HEXACHLOROBUTADIENE	524.2	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
ISOPROPYLBENZENE (CUMENE)	524.2	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
P-ISOPROPYLTOLUENE	524.2	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
METHYLENE CHLORIDE	524.2	µg/L	1.8 (b)	<1.8	2.3	2.6	3.6
METHYL-T-BUTYL ETHER (MTBE)	524.2	µg/L	1	<1	<1	<1	<1
4-METHYL-2-PENTANONE (MIBK)	524.2	µg/L	10	4J	6J	4J	5J
NAPHTHALENE	524.2	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
N-PROPYLBENZENE	524.2	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
STYRENE	524.2	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
1,1,1,2-TETRACHLOROETHANE	524.2	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
1,1,2,2-TETRACHLOROETHANE	524.2	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
TETRACHLOROETHENE	524.2	µg/L	0.5	3.0	9.9	<0.5	<0.5
TOLUENE	524.2	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
1,2,3-TRICHLOROBENZENE	524.2	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
1,2,4-TRICHLOROBENZENE	524.2	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
1,1,1-TRICHLOROETHANE	524.2	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
1,1,2-TRICHLOROETHANE	524.2	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
TRICHLOROETHENE	524.2	µg/L	0.5	<0.5	8.1	<0.5	<0.5
TRICHLOROFLUOROMETHANE	524.2	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
1,2,3-TRICHLOROPROPANE	524.2	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
112TRICHLORO-122TRIFLUOROETHANE	524.2	µg/L	0.5	<0.5	3.6	<0.5	<0.5
1,2,4-TRIMETHYLBENZENE	524.2	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
1,3,5-TRIMETHYLBENZENE	524.2	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
VINYL CHLORIDE	524.2	µg/L	0.5	<0.5	<0.5	<0.5	<0.5

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APCL Analytical Report

Component Analyzed	Method	Unit	PQL	Analysis Result MW-6 03-03444-1	MW-7 03-03444-2	MW-15 03-03444-3	TB-16-5/29/03 03-03444-4
O-XYLENE	524.2	μg/L	0.5	<0.5	<0.5	<0.5	<0.5
M/P-XYLENE	524.2	μg/L	0.5	<0.5	<0.5	<0.5	<0.5

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) Sample also contained F-113.

(b) MDL reported.

Respectfully submitted,

Dominic Lau
Laboratory Director
Applied P & Ch Laboratory

Level C Data Package Deliverables

General Information

Project: 04-4428.10 JPL

APCL Service ID: 03-3444

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

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

SHALLOW WELLS 0038

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	~~Leo W. W~~ GEOFON, INC
PROJECT NAME: SPL GW MON-2003	**PROJECT LOCATION** MW-6/MW-7/MW-	**PROJECT NUMBER** 04-4428.10	**LABORATORY PHONE** (909) 590-1928	**LABORATORY FAX** (909) 590-1498	**RECIPIENT NAME** Leo W. Williamson
PROJECT CONTACT Leo W. Williamson	**PROJECT PHONE NUMBER** (714) 920-9729	**PROJECT FAX** (909) 396-1455	**LABORATORY ADDRESS** 13760 Magnolia Ave		**ADDRESS** 22632 Golden Springs Dr. #270
PROJECT ADDRESS 4800 Oak Grove Dr.	**CITY, STATE AND ZIPCODE** Pasadena, CA.	**CLIENT** US NAVY SWDIV	**CITY, STATE AND ZIPCODE** Chino, A. 91710		**CITY, STATE AND ZIPCODE** Diamond Bar, CA. 91765
PROJECT MANAGER Asiar Faheem	**PROJECT MANAGER'S 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)	200.7 & 200.8 (Minerals)	7196 (Hex. Chrome)	SM2320B (Carb. / Bi-carb.)	300.0 (Cl/SO4/NO3)	314.0 (Perchlorates)	160.0 (TDS) + 9040B (pH)	200.8 (Cr + Pb)	Comments
1	MW-6	H_2O	5/29/03	1025	HCl NONE HNO_3	3+1+1	III	NORMAL	X	X	X	X	X	X	X	X	MINERALS: Na/K/Ca/As/Mg/Fe MS/MSD
2	MW-7	↓	↓	1220	↓	↓	↓	↓	X	X	X	X	X	X	X	X	~~MS/MSD~~
3	MW-15	↓	↓	1315	↓	↓	↓	↓	X	X	X	X	X	X	X	X	
4																	
5	TB-16-5/29/03	H_2O	5/29/03	—	HCl	2	III	NORMAL	X								
6																	
7																	
8																	
9																	
10																	

3444

SAMPLES COLLECTED BY: Leo W. Williamson

COURIER AND AIR BILL NUMBER:

COOLER TEMPERATURE UPON RECEIPT

RELINQUISHED BY	RECEIVED BY	DATE	TIME	SAMPLE'S CONDITION UPON RECEIPT
Leo W. Williamson	S. Burkhalter	5-29-03	14:00	
1- Burkhalter		5/29/03	1710	

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

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

Case Narrative

Project: JPL/04-4428.10

For GEOFON, Inc.

APCL Service No: 03-3444

1. Sample Identification

The sample identifications are listed in the following table:

GEOFON, Inc. Sample ID	APCL Sample ID
MW-6	03-03444-1
MW-7	03-03444-2
MW-15	03-03444-3
TB-16-5/29/03	03-03444-4

2. Analytical Methodology

Samples are analyzed by EPA methods

524.2 (Volatile Organic Compounds),
7196 (Chromium (VI)),
314.0 (Perchlorate, low level),
300.0 (Chloride Cl^- by IC),
300.0 (Nitrate (NO_3^-) as N by IC),
SM2320B (Carbonate),
9040B (pH),
160.1 (Solids, Total Dissolved (TDS)),
200.7 (Sodium, Na, by ICP),
200.9 (Arsenic, As, by GFAA),

3. Holding Time

All samples were extracted, digested and analyzed within the holding times defined by the appropriate EPA methods of the analyses.

4. Preservation

All samples were preserved and stored according to the appropriate EPA methods.

5. Tele-log

None

6. Anomaly

(1) 200.8:

Calcium and Magnesium recoveries in the MS/MSD spiked on the sample MW-6 were outside of control limits, due to high level of spiking elements in the parent sample.

"I certify that these data are technically accurate, complete, and in compliance with the terms and conditions of the contract, for other than the conditions detailed above. Release of the data contained in the hardcopy data package and its electronic data deliverable submitted on diskette had been authorized by the Laboratory Manager or her/his designee, as verified by the following signature."

Respectfully submitted,

Regina Kirakozova
Associate QA/QC Director
Applied P & Ch Laboratory

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

Sample Receiving Checklist

APCL ServiceID: 3444 **Client Name/Project:** Geotek

1. Sample Arrival

Date/Time Received 5/29/03 1710 Date/Time Opened 5/29/03 1710 By (name): Kenny Chan

Custody Transfer: ☐ Client ☐ Golden State ☐ UPS ☐ US Mail ☐ FedEx ☑ APCL Empl: Scott B.

2. Chain-of-Custody (CoC)

☑ With Samples? ☐ Faxed? ☐ Client has Copy? ☐ Signed, dated? By:

☑ Project ID? ☑ Analyses Clear? ☐ Hold Samples? #on Hold ____ # Received 4

☑ 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 3.8 ____ ____ ____ ____ ____

(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 ☐ NO_3^- 48hr ☐ BOD 48hr

☐ Cl_2 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 H_2O ☐ Other Liq ☐ Soil ☐ Wipe ☐ Polymer ☐ Air ☐ Other: ____

☑ Ground H_2O ☐ 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] Date: 29 May 2003 Time: 7:40 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: [neal.texfiles]smprcl.tex.

Applied P & Ch Laboratory
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Sample Login: Check List

03-03444 (0470_ 152) (2202777_ 152)

05/29/03

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:	*05/29/03 1710*
	COC No.	
☐ Shipping Information	Shipping Company	*APCL pick up*
	Packing Information:	*Cooler/Ice Chester*
	Cooler Temperature:	*3.8 °C*
☐ Container Information	Container Provider:	*Client*
☐ Sampling Information	Sampling Person:	
	Sampling Company:	*Client*
☐ Turn-Around-Time Option:		*Rush 5 working day(s)*
☐ 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-6	VOC	03-03444-1-α	W	V	C	40	6	G	052903	N	0	7	☐
	MW-6	Metal	03-03444-1-β	W	P	N	500	2	G	052903	N	0	7	☐
	MW-6	300	03-03444-1-γ	W	P		1000	2	G	052903	N	0	7	☐
2	MW-7	VOC	03-03444-2-α	W	V	C	40	6	G	052903	N	0	7	☐
	MW-7	Metal	03-03444-2-β	W	P	N	500	2	G	052903	N	0	7	☐
	MW-7	300	03-03444-2-γ	W	P		1000	2	G	052903	N	0	7	☐
3	MW-15	VOC	03-03444-3-α	W	V	C	40	3	G	052903	N	0	7	☐
	MW-15	Metal	03-03444-3-β	W	P	N	500	1	G	052903	N	0	7	☐
	MW-15	300	03-03444-3-γ	W	P		1000	1	G	052903	N	0	7	☐
4	TB-16-5/29/03	VOC	03-03444-4	W	V	C	40	2	G	052903	N	0	7	☐

Part 3: Analysis Information

Test Items:

☐ *524.2*	Volatile Organic Compounds
☐ *7196A*	Chromium (VI)
☐ *314.0/300.0*	Perchlorate, low level
☐ *300.0*	Chloride Cl^- by IC
☐ *300.0*	Sulfate (SO_4^{--}), by IC
☐ *300.0/SM4500NO3C*	Nitrate (NO_3^-) as N by IC
☐ *SM2320B*	Carbonate
☐ *SM2320B*	Bicarbonate
☐ *9040B/150.1*	pH
☐ *160.1*	Solids, Total Dissolved (TDS)
☐ *200.7/6010B*	Sodium, Na, by ICP
☐ *200.7/6010B*	Calcium, Ca, by ICP
☐ *200.7/6010B*	Potassium, K, by ICP
☐ *200.7/6010B*	Magnesium, Mg, by ICP
☐ *200.7/6010B*	Iron, Fe, by ICP
☐ *206.2/7060A*	Arsenic, As, by GFAA
☐ *8270-SIM*	1,4-Dioxane

Seq. #	Client"s Sample ID (as given on COC)	Sample Sub-ID	APCL Sample ID	Matrix	524.2	CHROMIUM	PERCH	CL	SO4	NO3	CARBON	BICARB	
1	MW-6	VOC	03-03444-1-α	W	X								☐
	MW-6	Metal	03-03444-1-β	W									☐

Level C Data Package Deliverables

Volatile Organics

Applied P & Ch Laboratory

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Organic Analysis Results for Method 524.2

Client Name:	GEOFON, Inc.	Project No:	04-4428.10	Collection Date:	06/05/2003
Project ID:	JPL	Service ID:	33444	Collected by:	
		Lab Sample ID:	03G2810-MB-01	Received Date:	06/05/2003
Sample ID:	**03G2810-MB-01**	Sample Matrix	Water	Moisture %:	–
Sample Type:	Method Blank	Prep. Method:	5030	Instrument ID:	GC/MS: G
Anal. Method:	524.2	Prep. Date:	06/05/03	Anal. Date:	06/05/03
Batch No:	03G2810	Prep. No:	–	Anal. Time:	15:46
Data File Name:	G2810K01	Sample Amount:	25 mL	Dilution Factor:	1
Methanol Vol.	–				
Test Level:	Low	Sparge Size:	25 mL	Heated Purge: (Y/N)	N

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	BENZENE	71-43-2	µg/L	0.5	<0.5	U
2	BROMOBENZENE	108-86-1	µg/L	0.5	<0.5	U
3	BROMOCHLOROMETHANE	74-97-5	µg/L	0.5	<0.5	U
4	BROMODICHLOROMETHANE	75-27-4	µg/L	0.5	<0.5	U
5	BROMOFORM	75-25-2	µg/L	0.5	<0.5	U
6	BROMOMETHANE	74-83-9	µg/L	0.5	<0.5	U
7	N-BUTYLBENZENE	104-51-8	µg/L	0.5	<0.5	U
8	SEC-BUTYLBENZENE	135-98-8	µg/L	0.5	<0.5	U
9	TERT-BUTYLBENZENE	98-06-6	µg/L	0.5	<0.5	U
10	2-BUTANONE	78-93-3	µg/L	10	<10	U
11	CARBON TETRACHLORIDE	56-23-5	µg/L	0.5	<0.5	U
12	CHLOROBENZENE	108-90-7	µg/L	0.5	<0.5	U
13	CHLORODIBROMOMETHANE	124-48-1	µg/L	0.5	<0.5	U
14	CHLOROETHANE	75-00-3	µg/L	0.5	<0.5	U
15	CHLOROFORM	67-66-3	µg/L	0.5	<0.5	U
16	CHLOROMETHANE	74-87-3	µg/L	0.5	<0.5	U
17	2-CHLOROTOLUENE	95-49-8	µg/L	0.5	<0.5	U
18	4-CHLOROTOLUENE	106-43-4	µg/L	0.5	<0.5	U
19	1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	µg/L	1.1	<1.1	U
20	1,2-DIBROMOETHANE (EDB)	106-93-4	µg/L	0.5	<0.5	U
21	DIBROMOMETHANE	74-95-3	µg/L	0.5	<0.5	U
22	1,2-DICHLOROBENZENE	95-50-1	µg/L	0.5	<0.5	U
23	1,3-DICHLOROBENZENE	541-73-1	µg/L	0.5	<0.5	U
24	1,4-DICHLOROBENZENE	106-46-7	µg/L	0.5	<0.5	U
25	DICHLORODIFLUOROMETHANE	75-71-8	µg/L	0.5	<0.5	U
26	1,1-DICHLOROETHANE	75-34-3	µg/L	0.5	<0.5	U
27	1,2-DICHLOROETHANE	107-06-2	µg/L	0.5	<0.5	U
28	1,1-DICHLOROETHENE	75-35-4	µg/L	0.5	<0.5	U
29	CIS-1,2-DICHLOROETHENE	156-59-2	µg/L	0.5	<0.5	U
30	TRANS-1,2-DICHLOROETHENE	156-60-5	µg/L	0.5	<0.5	U
31	1,2-DICHLOROPROPANE	78-87-5	µg/L	0.5	<0.5	U
32	1,3-DICHLOROPROPANE	142-28-9	µg/L	0.5	<0.5	U
33	2,2-DICHLOROPROPANE	594-20-7	µg/L	0.5	<0.5	U
34	1,1-DICHLOROPROPENE	563-58-6	µg/L	0.5	<0.5	U
35	CIS-1,3-DICHLOROPROPENE	10061-01-5	µg/L	0.5	<0.5	U
36	TRANS-1,3-DICHLOROPROPENE	10061-02-6	µg/L	0.5	<0.5	U
37	ETHYLBENZENE	100-41-4	µg/L	0.5	<0.5	U
38	HEXACHLOROBUTADIENE	87-68-3	µg/L	0.5	<0.5	U
39	ISOPROPYLBENZENE (CUMENE)	98-82-8	µg/L	0.5	<0.5	U

#	Component Name	CAS No	Unit	RL	Result	Qualifier
40	P-ISOPROPYLTOLUENE	99-87-6	µg/L	0.5	<0.5	U
41	METHYLENE CHLORIDE	75-09-2	µg/L	1.8	<1.8	U
42	METHYL-T-BUTYL ETHER (MTBE)	1634-04-4	µg/L	1	<1	U
43	4-METHYL-2-PENTANONE (MIBK)	108-10-1	µg/L	10	<10	U
44	NAPHTHALENE	91-20-3	µg/L	0.5	<0.5	U
45	N-PROPYLBENZENE	103-65-1	µg/L	0.5	<0.5	U
46	STYRENE	100-42-5	µg/L	0.5	<0.5	U
47	1,1,1,2-TETRACHLOROETHANE	630-20-6	µg/L	0.5	<0.5	U
48	1,1,2,2-TETRACHLOROETHANE	79-34-5	µg/L	0.5	<0.5	U
49	TETRACHLOROETHENE	127-18-4	µg/L	0.5	<0.5	U
50	TOLUENE	108-88-3	µg/L	0.5	<0.5	U
51	1,2,3-TRICHLOROBENZENE	87-61-6	µg/L	0.5	<0.5	U
52	1,2,4-TRICHLOROBENZENE	120-82-1	µg/L	0.5	<0.5	U
53	1,1,1-TRICHLOROETHANE	71-55-6	µg/L	0.5	<0.5	U
54	1,1,2-TRICHLOROETHANE	79-00-5	µg/L	0.5	<0.5	U
55	TRICHLOROETHENE	79-01-6	µg/L	0.5	<0.5	U
56	TRICHLOROFLUOROMETHANE	75-69-4	µg/L	0.5	<0.5	U
57	1,2,3-TRICHLOROPROPANE	96-18-4	µg/L	0.5	<0.5	U
58	112TRICHLORO-122TRIFLUOROETHANE	76-13-1	µg/L	0.5	<0.5	U
59	1,2,4-TRIMETHYLBENZENE	95-63-6	µg/L	0.5	<0.5	U
60	1,3,5-TRIMETHYLBENZENE	108-67-8	µg/L	0.5	<0.5	U
61	VINYL CHLORIDE	75-01-4	µg/L	0.5	<0.5	U
62	O-XYLENE	95-47-6	µg/L	0.5	<0.5	U
63	M/P-XYLENE	108-38-3	µg/L	0.5	<0.5	U

Surrogates			Control Limit, %	Surro. Rec.%
1	4-BROMO-FLUOROBENZENE (BFB)	460-00-4	70-129	109
2	1,2-DICHLOROETHANE-D4	17060-07-0	70-129	86
3	DIBROMOFLUOROMETHANE	1868-53-7	70-122	100
4	TOLUENE-D8	2037-26-5	73-129	109
# of out-of-control				0

Internal Standard			Control Limit, %	IS Rec.%
1	CHLOROBENZENE-D5	3114-55-4	50-200	85
2	1,4-DICHLOROBENZENE-D4	3855-82-1	50-200	92
3	FLUOROBENZENE	462-06-6	50-200	88
# of out-of-control				0

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

Qualifier: U - Not Detected or less than MDL
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e.g. for TIC)
E - Exceed calibration range
B - A positive value was found in the method blank
D - Diluted

Applied P & Ch Laboratory

Organic Analysis Results for Method 524.2

Client Name:	GEOFON, Inc.	Project No:	04-4428.10	Collection Date:	05/29/2003
Project ID:	JPL	Service ID:	33444	Collected by:	
		Lab Sample ID:	03-3444-1	Received Date:	05/29/2003
Sample ID:	MW-6	Sample Matrix	Water	Moisture %:	–
Sample Type:	Field Sample	Prep. Method:	5030	Instrument ID:	GC/MS: G
Anal. Method:	524.2	Prep. Date:	06/05/03	Anal. Date:	06/05/03
Batch No:	03G2810	Prep. No:	–	Anal. Time:	18:40
Data File Name:	3444-01	Sample Amount:	25 mL	Dilution Factor:	1
Methanol Vol.	–				
Test Level:	Low	Sparge Size:	25 mL	Heated Purge: (Y/N)	N

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	BENZENE	71-43-2	µg/L	0.5	<0.5	U
2	BROMOBENZENE	108-86-1	µg/L	0.5	<0.5	U
3	BROMOCHLOROMETHANE	74-97-5	µg/L	0.5	<0.5	U
4	BROMODICHLOROMETHANE	75-27-4	µg/L	0.5	<0.5	U
5	BROMOFORM	75-25-2	µg/L	0.5	<0.5	U
6	BROMOMETHANE	74-83-9	µg/L	0.5	<0.5	U
7	N-BUTYLBENZENE	104-51-8	µg/L	0.5	<0.5	U
8	SEC-BUTYLBENZENE	135-98-8	µg/L	0.5	<0.5	U
9	TERT-BUTYLBENZENE	98-06-6	µg/L	0.5	<0.5	U
10	2-BUTANONE	78-93-3	µg/L	10	<10	U
11	CARBON TETRACHLORIDE	56-23-5	µg/L	0.5	<0.5	U
12	CHLOROBENZENE	108-90-7	µg/L	0.5	<0.5	U
13	CHLORODIBROMOMETHANE	124-48-1	µg/L	0.5	<0.5	U
14	CHLOROETHANE	75-00-3	µg/L	0.5	<0.5	U
15	CHLOROFORM	67-66-3	µg/L	0.5	0.5	J
16	CHLOROMETHANE	74-87-3	µg/L	0.5	<0.5	U
17	2-CHLOROTOLUENE	95-49-8	µg/L	0.5	<0.5	U
18	4-CHLOROTOLUENE	106-43-4	µg/L	0.5	<0.5	U
19	1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	µg/L	1.1 (b)	<1.1	U
20	1,2-DIBROMOETHANE (EDB)	106-93-4	µg/L	0.5	<0.5	U
21	DIBROMOMETHANE	74-95-3	µg/L	0.5	<0.5	U
22	1,2-DICHLOROBENZENE	95-50-1	µg/L	0.5	<0.5	U
23	1,3-DICHLOROBENZENE	541-73-1	µg/L	0.5	<0.5	U
24	1,4-DICHLOROBENZENE	106-46-7	µg/L	0.5	<0.5	U
25	DICHLORODIFLUOROMETHANE	75-71-8	µg/L	0.5	<0.5	U
26	1,1-DICHLOROETHANE	75-34-3	µg/L	0.5	0.9	
27	1,2-DICHLOROETHANE	107-06-2	µg/L	0.5	<0.5	U
28	1,1-DICHLOROETHENE	75-35-4	µg/L	0.5	0.7	
29	CIS-1,2-DICHLOROETHENE	156-59-2	µg/L	0.5	<0.5	U
30	TRANS-1,2-DICHLOROETHENE	156-60-5	µg/L	0.5	<0.5	U
31	1,2-DICHLOROPROPANE	78-87-5	µg/L	0.5	<0.5	U
32	1,3-DICHLOROPROPANE	142-28-9	µg/L	0.5	<0.5	U
33	2,2-DICHLOROPROPANE	594-20-7	µg/L	0.5	<0.5	U
34	1,1-DICHLOROPROPENE	563-58-6	µg/L	0.5	<0.5	U
35	CIS-1,3-DICHLOROPROPENE	10061-01-5	µg/L	0.5	<0.5	U
36	TRANS-1,3-DICHLOROPROPENE	10061-02-6	µg/L	0.5	<0.5	U
37	ETHYLBENZENE	100-41-4	µg/L	0.5	<0.5	U
38	HEXACHLOROBUTADIENE	87-68-3	µg/L	0.5	<0.5	U
39	ISOPROPYLBENZENE (CUMENE)	98-82-8	µg/L	0.5	<0.5	U

#	Component Name	CAS No	Unit	RL	Result	Qualifier
40	P-ISOPROPYLTOLUENE	99-87-6	µg/L	0.5	<0.5	U
41	METHYLENE CHLORIDE	75-09-2	µg/L	1.8 (b)	<1.8	U
42	METHYL-T-BUTYL ETHER (MTBE)	1634-04-4	µg/L	1	<1	U
43	4-METHYL-2-PENTANONE (MIBK)	108-10-1	µg/L	10	4	J
44	NAPHTHALENE	91-20-3	µg/L	0.5	<0.5	U
45	N-PROPYLBENZENE	103-65-1	µg/L	0.5	<0.5	U
46	STYRENE	100-42-5	µg/L	0.5	<0.5	U
47	1,1,1,2-TETRACHLOROETHANE	630-20-6	µg/L	0.5	<0.5	U
48	1,1,2,2-TETRACHLOROETHANE	79-34-5	µg/L	0.5	<0.5	U
49	TETRACHLOROETHENE	127-18-4	µg/L	0.5	3.0	
50	TOLUENE	108-88-3	µg/L	0.5	<0.5	U
51	1,2,3-TRICHLOROBENZENE	87-61-6	µg/L	0.5	<0.5	U
52	1,2,4-TRICHLOROBENZENE	120-82-1	µg/L	0.5	<0.5	U
53	1,1,1-TRICHLOROETHANE	71-55-6	µg/L	0.5	<0.5	U
54	1,1,2-TRICHLOROETHANE	79-00-5	µg/L	0.5	<0.5	U
55	TRICHLOROETHENE	79-01-6	µg/L	0.5	<0.5	U
56	TRICHLOROFLUOROMETHANE	75-69-4	µg/L	0.5	<0.5	U
57	1,2,3-TRICHLOROPROPANE	96-18-4	µg/L	0.5	<0.5	U
58	112TRICHLORO-122TRIFLUOROETHANE	76-13-1	µg/L	0.5	<0.5	U
59	1,2,4-TRIMETHYLBENZENE	95-63-6	µg/L	0.5	<0.5	U
60	1,3,5-TRIMETHYLBENZENE	108-67-8	µg/L	0.5	<0.5	U
61	VINYL CHLORIDE	75-01-4	µg/L	0.5	<0.5	U
62	O-XYLENE	95-47-6	µg/L	0.5	<0.5	U
63	M/P-XYLENE	108-38-3	µg/L	0.5	<0.5	U

Surrogates		Control Limit, %	Surro. Rec.%
1 1-BROMO-4-FLUOROBENZENE (4-BROMOFL	460-00-4	70-129	107
2 1,2-DICHLOROETHANE-D4	17060-07-0	70-129	81
3 DIBROMOFLUOROMETHANE	1868-53-7	70-122	92
4 TOLUENE-D8	2037-26-5	73-129	98
# of out-of-control			0

Internal Standard		Control Limit, %	IS Rec.%
1 CHLOROBENZENE-D5	3114-55-4	50-200	96
2 1,4-DICHLOROBENZENE-D4	3855-82-1	50-200	99
3 FLUOROBENZENE	462-06-6	50-200	101
# of out-of-control			0

Not Detected is shown as PQL, with dilution and moisture corrected if applicable.
(b)MDL reported.

Qualifier: U - Not Detected or less than MDL
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e.g. for TIC)
E - Exceed calibration range
B - A positive value was found in the method blank
D - Diluted

Applied P & Ch Laboratory

Organic Analysis Results for Method 524.2

Client Name:	GEOFON, Inc.	Project No:	04-4428.10	Collection Date:	05/29/2003
Project ID:	JPL	Service ID:	33444	Collected by:	
		Lab Sample ID:	03-3444-2	Received Date:	05/29/2003
Sample ID:	**MW-7**	Sample Matrix	Water	Moisture %:	–
Sample Type:	Field Sample	Prep. Method:	5030	Instrument ID:	GC/MS: G
Anal. Method:	524.2	Prep. Date:	06/05/03	Anal. Date:	06/05/03
Batch No:	03G2810	Prep. No:	–	Anal. Time:	19:09
Data File Name:	3444-02	Sample Amount:	25 mL	Dilution Factor:	1 [a]
Methanol Vol.	–				
Test Level:	Low	Sparge Size:	25 mL	Heated Purge: (Y/N)	N

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	BENZENE	71-43-2	µg/L	0.5	<0.5	U
2	BROMOBENZENE	108-86-1	µg/L	0.5	<0.5	U
3	BROMOCHLOROMETHANE	74-97-5	µg/L	0.5	<0.5	U
4	BROMODICHLOROMETHANE	75-27-4	µg/L	0.5	<0.5	U
5	BROMOFORM	75-25-2	µg/L	0.5	<0.5	U
6	BROMOMETHANE	74-83-9	µg/L	0.5	<0.5	U
7	N-BUTYLBENZENE	104-51-8	µg/L	0.5	<0.5	U
8	SEC-BUTYLBENZENE	135-98-8	µg/L	0.5	<0.5	U
9	TERT-BUTYLBENZENE	98-06-6	µg/L	0.5	<0.5	U
10	2-BUTANONE	78-93-3	µg/L	10	<10	U
11	CARBON TETRACHLORIDE	56-23-5	µg/L	0.5	73.7	
12	CHLOROBENZENE	108-90-7	µg/L	0.5	<0.5	U
13	CHLORODIBROMOMETHANE	124-48-1	µg/L	0.5	<0.5	U
14	CHLOROETHANE	75-00-3	µg/L	0.5	<0.5	U
15	CHLOROFORM	67-66-3	µg/L	0.5	10	
16	CHLOROMETHANE	74-87-3	µg/L	0.5	<0.5	U
17	2-CHLOROTOLUENE	95-49-8	µg/L	0.5	<0.5	U
18	4-CHLOROTOLUENE	106-43-4	µg/L	0.5	<0.5	U
19	1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	µg/L	1.1 [b]	<1.1	U
20	1,2-DIBROMOETHANE (EDB)	106-93-4	µg/L	0.5	<0.5	U
21	DIBROMOMETHANE	74-95-3	µg/L	0.5	<0.5	U
22	1,2-DICHLOROBENZENE	95-50-1	µg/L	0.5	<0.5	U
23	1,3-DICHLOROBENZENE	541-73-1	µg/L	0.5	<0.5	U
24	1,4-DICHLOROBENZENE	106-46-7	µg/L	0.5	<0.5	U
25	DICHLORODIFLUOROMETHANE	75-71-8	µg/L	0.5	<0.5	U
26	1,1-DICHLOROETHANE	75-34-3	µg/L	0.5	<0.5	U
27	1,2-DICHLOROETHANE	107-06-2	µg/L	0.5	<0.5	U
28	1,1-DICHLOROETHENE	75-35-4	µg/L	0.5	4.2	
29	CIS-1,2-DICHLOROETHENE	156-59-2	µg/L	0.5	<0.5	U
30	TRANS-1,2-DICHLOROETHENE	156-60-5	µg/L	0.5	<0.5	U
31	1,2-DICHLOROPROPANE	78-87-5	µg/L	0.5	<0.5	U
32	1,3-DICHLOROPROPANE	142-28-9	µg/L	0.5	<0.5	U
33	2,2-DICHLOROPROPANE	594-20-7	µg/L	0.5	<0.5	U
34	1,1-DICHLOROPROPENE	563-58-6	µg/L	0.5	<0.5	U
35	CIS-1,3-DICHLOROPROPENE	10061-01-5	µg/L	0.5	<0.5	U
36	TRANS-1,3-DICHLOROPROPENE	10061-02-6	µg/L	0.5	<0.5	U
37	ETHYLBENZENE	100-41-4	µg/L	0.5	<0.5	U
38	HEXACHLOROBUTADIENE	87-68-3	µg/L	0.5	<0.5	U
39	ISOPROPYLBENZENE (CUMENE)	98-82-8	µg/L	0.5	<0.5	U

#	Component Name	CAS No	Unit	RL	Result	Qualifier
40	P-ISOPROPYLTOLUENE	99-87-6	µg/L	0.5	<0.5	U
41	METHYLENE CHLORIDE	75-09-2	µg/L	1.8 [b]	2.3	
42	METHYL-T-BUTYL ETHER (MTBE)	1634-04-4	µg/L	1	<1	U
43	4-METHYL-2-PENTANONE (MIBK)	108-10-1	µg/L	10	6	J
44	NAPHTHALENE	91-20-3	µg/L	0.5	<0.5	U
45	N-PROPYLBENZENE	103-65-1	µg/L	0.5	<0.5	U
46	STYRENE	100-42-5	µg/L	0.5	<0.5	U
47	1,1,1,2-TETRACHLOROETHANE	630-20-6	µg/L	0.5	<0.5	U
48	1,1,2,2-TETRACHLOROETHANE	79-34-5	µg/L	0.5	<0.5	U
49	TETRACHLOROETHENE	127-18-4	µg/L	0.5	9.9	
50	TOLUENE	108-88-3	µg/L	0.5	<0.5	U
51	1,2,3-TRICHLOROBENZENE	87-61-6	µg/L	0.5	<0.5	U
52	1,2,4-TRICHLOROBENZENE	120-82-1	µg/L	0.5	<0.5	U
53	1,1,1-TRICHLOROETHANE	71-55-6	µg/L	0.5	<0.5	U
54	1,1,2-TRICHLOROETHANE	79-00-5	µg/L	0.5	<0.5	U
55	TRICHLOROETHENE	79-01-6	µg/L	0.5	8.1	
56	TRICHLOROFLUOROMETHANE	75-69-4	µg/L	0.5	<0.5	U
57	1,2,3-TRICHLOROPROPANE	96-18-4	µg/L	0.5	<0.5	U
58	112TRICHLORO-122TRIFLUOROETHANE	76-13-1	µg/L	0.5	3.6	
59	1,2,4-TRIMETHYLBENZENE	95-63-6	µg/L	0.5	<0.5	U
60	1,3,5-TRIMETHYLBENZENE	108-67-8	µg/L	0.5	<0.5	U
61	VINYL CHLORIDE	75-01-4	µg/L	0.5	<0.5	U
62	O-XYLENE	95-47-6	µg/L	0.5	<0.5	U
63	M/P-XYLENE	108-38-3	µg/L	0.5	<0.5	U

Surrogates			Control Limit, %	Surro. Rec.%
1	1-BROMO-4-FLUOROBENZENE (4-BROMOFL	460-00-4	70-129	109
2	1,2-DICHLOROETHANE-D4	17060-07-0	70-129	86
3	DIBROMOFLUOROMETHANE	1868-53-7	70-122	96
4	TOLUENE-D8	2037-26-5	73-129	100
# of out-of-control				0

Internal Standard			Control Limit, %	IS Rec.%
1	CHLOROBENZENE-D5	3114-55-4	50-200	93
2	1,4-DICHLOROBENZENE-D4	3855-82-1	50-200	96
3	FLUOROBENZENE	462-06-6	50-200	97
# of out-of-control				0

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

[a]Sample also contained F-113

[b]MDL reported.

Qualifier: U - Not Detected or less than MDL
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e.g. for TIC)
E - Exceed calibration range
B - A positive value was found in the method blank
D - Diluted

Applied P & Ch Laboratory

Organic Analysis Results for Method 524.2

Client Name:	GEOFON, Inc.	Project No:	04-4428.10	Collection Date:	05/29/2003
Project ID:	JPL	Service ID:	33444	Collected by:	
		Lab Sample ID:	03-3444-3	Received Date:	05/29/2003
Sample ID:	**MW-15**	Sample Matrix	Water	Moisture %:	–
Sample Type:	Field Sample	Prep. Method:	5030	Instrument ID:	GC/MS: G
Anal. Method:	524.2	Prep. Date:	06/05/03	Anal. Date:	06/05/03
Batch No:	03G2810	Prep. No:	–	Anal. Time:	19:37
Data File Name:	3444-03	Sample Amount:	25 mL	Dilution Factor:	1
Methanol Vol.	–				
Test Level:	Low	Sparge Size:	25 mL	Heated Purge: (Y/N)	N

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	BENZENE	71-43-2	µg/L	0.5	<0.5	U
2	BROMOBENZENE	108-86-1	µg/L	0.5	<0.5	U
3	BROMOCHLOROMETHANE	74-97-5	µg/L	0.5	<0.5	U
4	BROMODICHLOROMETHANE	75-27-4	µg/L	0.5	<0.5	U
5	BROMOFORM	75-25-2	µg/L	0.5	<0.5	U
6	BROMOMETHANE	74-83-9	µg/L	0.5	<0.5	U
7	N-BUTYLBENZENE	104-51-8	µg/L	0.5	<0.5	U
8	SEC-BUTYLBENZENE	135-98-8	µg/L	0.5	<0.5	U
9	TERT-BUTYLBENZENE	98-06-6	µg/L	0.5	<0.5	U
10	2-BUTANONE	78-93-3	µg/L	10	<10	U
11	CARBON TETRACHLORIDE	56-23-5	µg/L	0.5	<0.5	U
12	CHLOROBENZENE	108-90-7	µg/L	0.5	<0.5	U
13	CHLORODIBROMOMETHANE	124-48-1	µg/L	0.5	<0.5	U
14	CHLOROETHANE	75-00-3	µg/L	0.5	<0.5	U
15	CHLOROFORM	67-66-3	µg/L	0.5	<0.5	U
16	CHLOROMETHANE	74-87-3	µg/L	0.5	<0.5	U
17	2-CHLOROTOLUENE	95-49-8	µg/L	0.5	<0.5	U
18	4-CHLOROTOLUENE	106-43-4	µg/L	0.5	<0.5	U
19	1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	µg/L	1.1 (b)	<1.1	U
20	1,2-DIBROMOETHANE (EDB)	106-93-4	µg/L	0.5	<0.5	U
21	DIBROMOMETHANE	74-95-3	µg/L	0.5	<0.5	U
22	1,2-DICHLOROBENZENE	95-50-1	µg/L	0.5	<0.5	U
23	1,3-DICHLOROBENZENE	541-73-1	µg/L	0.5	<0.5	U
24	1,4-DICHLOROBENZENE	106-46-7	µg/L	0.5	<0.5	U
25	DICHLORODIFLUOROMETHANE	75-71-8	µg/L	0.5	<0.5	U
26	1,1-DICHLOROETHANE	75-34-3	µg/L	0.5	<0.5	U
27	1,2-DICHLOROETHANE	107-06-2	µg/L	0.5	<0.5	U
28	1,1-DICHLOROETHENE	75-35-4	µg/L	0.5	<0.5	U
29	CIS-1,2-DICHLOROETHENE	156-59-2	µg/L	0.5	<0.5	U
30	TRANS-1,2-DICHLOROETHENE	156-60-5	µg/L	0.5	<0.5	U
31	1,2-DICHLOROPROPANE	78-87-5	µg/L	0.5	<0.5	U
32	1,3-DICHLOROPROPANE	142-28-9	µg/L	0.5	<0.5	U
33	2,2-DICHLOROPROPANE	594-20-7	µg/L	0.5	<0.5	U
34	1,1-DICHLOROPROPENE	563-58-6	µg/L	0.5	<0.5	U
35	CIS-1,3-DICHLOROPROPENE	10061-01-5	µg/L	0.5	<0.5	U
36	TRANS-1,3-DICHLOROPROPENE	10061-02-6	µg/L	0.5	<0.5	U
37	ETHYLBENZENE	100-41-4	µg/L	0.5	<0.5	U
38	HEXACHLOROBUTADIENE	87-68-3	µg/L	0.5	<0.5	U
39	ISOPROPYLBENZENE (CUMENE)	98-82-8	µg/L	0.5	<0.5	U

#	Component Name	CAS No	Unit	RL	Result	Qualifier
40	P-ISOPROPYLTOLUENE	99-87-6	µg/L	0.5	<0.5	U
41	METHYLENE CHLORIDE	75-09-2	µg/L	1.8 (b)	2.6	
42	METHYL-T-BUTYL ETHER (MTBE)	1634-04-4	µg/L	1	<1	U
43	4-METHYL-2-PENTANONE (MIBK)	108-10-1	µg/L	10	4	J
44	NAPHTHALENE	91-20-3	µg/L	0.5	<0.5	U
45	N-PROPYLBENZENE	103-65-1	µg/L	0.5	<0.5	U
46	STYRENE	100-42-5	µg/L	0.5	<0.5	U
47	1,1,1,2-TETRACHLOROETHANE	630-20-6	µg/L	0.5	<0.5	U
48	1,1,2,2-TETRACHLOROETHANE	79-34-5	µg/L	0.5	<0.5	U
49	TETRACHLOROETHENE	127-18-4	µg/L	0.5	<0.5	U
50	TOLUENE	108-88-3	µg/L	0.5	<0.5	U
51	1,2,3-TRICHLOROBENZENE	87-61-6	µg/L	0.5	<0.5	U
52	1,2,4-TRICHLOROBENZENE	120-82-1	µg/L	0.5	<0.5	U
53	1,1,1-TRICHLOROETHANE	71-55-6	µg/L	0.5	<0.5	U
54	1,1,2-TRICHLOROETHANE	79-00-5	µg/L	0.5	<0.5	U
55	TRICHLOROETHENE	79-01-6	µg/L	0.5	<0.5	U
56	TRICHLOROFLUOROMETHANE	75-69-4	µg/L	0.5	<0.5	U
57	1,2,3-TRICHLOROPROPANE	96-18-4	µg/L	0.5	<0.5	U
58	112TRICHLORO-122TRIFLUOROETHANE	76-13-1	µg/L	0.5	<0.5	U
59	1,2,4-TRIMETHYLBENZENE	95-63-6	µg/L	0.5	<0.5	U
60	1,3,5-TRIMETHYLBENZENE	108-67-8	µg/L	0.5	<0.5	U
61	VINYL CHLORIDE	75-01-4	µg/L	0.5	<0.5	U
62	O-XYLENE	95-47-6	µg/L	0.5	<0.5	U
63	M/P-XYLENE	108-38-3	µg/L	0.5	<0.5	U

Surrogates		Control Limit, %	Surro. Rec.%
1 1-BROMO-4-FLUOROBENZENE (4-BROMOFL	460-00-4	70-129	108
2 1,2-DICHLOROETHANE-D4	17060-07-0	70-129	82
3 DIBROMOFLUOROMETHANE	1868-53-7	70-122	94
4 TOLUENE-D8	2037-26-5	73-129	101
# of out-of-control			0

Internal Standard		Control Limit, %	IS Rec.%
1 CHLOROBENZENE-D5	3114-55-4	50-200	94
2 1,4-DICHLOROBENZENE-D4	3855-82-1	50-200	96
3 FLUOROBENZENE	462-06-6	50-200	99
# of out-of-control			0

Not Detected is shown as PQL, with dilution and moisture corrected if applicable.
(b)MDL reported.

Qualifier: U - Not Detected or less than MDL
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e.g. for TIC)
E - Exceed calibration range
B - A positive value was found in the method blank
D - Diluted

Applied P & Ch Laboratory

Organic Analysis Results for Method 524.2

Client Name:	GEOFON, Inc.	Project No:	04-4428.10	Collection Date:	05/29/2003
Project ID:	JPL	Service ID:	33444	Collected by:	
		Lab Sample ID:	03-3444-4	Received Date:	05/29/2003
Sample ID:	**TB-16-5/29/03**	Sample Matrix	Water	Moisture %:	–
Sample Type:	Field Sample	Prep. Method:	5030	Instrument ID:	GC/MS: G
Anal. Method:	524.2	Prep. Date:	06/05/03	Anal. Date:	06/05/03
Batch No:	03G2810	Prep. No:	–	Anal. Time:	16:44
Data File Name:	3444-04	Sample Amount:	25 mL	Dilution Factor:	1
Methanol Vol.	–				
Test Level:	Low	Sparge Size:	25 mL	Heated Purge: (Y/N)	N

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	BENZENE	71-43-2	µg/L	0.5	<0.5	U
2	BROMOBENZENE	108-86-1	µg/L	0.5	<0.5	U
3	BROMOCHLOROMETHANE	74-97-5	µg/L	0.5	<0.5	U
4	BROMODICHLOROMETHANE	75-27-4	µg/L	0.5	<0.5	U
5	BROMOFORM	75-25-2	µg/L	0.5	<0.5	U
6	BROMOMETHANE	74-83-9	µg/L	0.5	<0.5	U
7	N-BUTYLBENZENE	104-51-8	µg/L	0.5	<0.5	U
8	SEC-BUTYLBENZENE	135-98-8	µg/L	0.5	<0.5	U
9	TERT-BUTYLBENZENE	98-06-6	µg/L	0.5	<0.5	U
10	2-BUTANONE	78-93-3	µg/L	10	<10	U
11	CARBON TETRACHLORIDE	56-23-5	µg/L	0.5	<0.5	U
12	CHLOROBENZENE	108-90-7	µg/L	0.5	<0.5	U
13	CHLORODIBROMOMETHANE	124-48-1	µg/L	0.5	<0.5	U
14	CHLOROETHANE	75-00-3	µg/L	0.5	<0.5	U
15	CHLOROFORM	67-66-3	µg/L	0.5	<0.5	U
16	CHLOROMETHANE	74-87-3	µg/L	0.5	<0.5	U
17	2-CHLOROTOLUENE	95-49-8	µg/L	0.5	<0.5	U
18	4-CHLOROTOLUENE	106-43-4	µg/L	0.5	<0.5	U
19	1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	µg/L	1.1 (b)	<1.1	U
20	1,2-DIBROMOETHANE (EDB)	106-93-4	µg/L	0.5	<0.5	U
21	DIBROMOMETHANE	74-95-3	µg/L	0.5	<0.5	U
22	1,2-DICHLOROBENZENE	95-50-1	µg/L	0.5	<0.5	U
23	1,3-DICHLOROBENZENE	541-73-1	µg/L	0.5	<0.5	U
24	1,4-DICHLOROBENZENE	106-46-7	µg/L	0.5	<0.5	U
25	DICHLORODIFLUOROMETHANE	75-71-8	µg/L	0.5	<0.5	U
26	1,1-DICHLOROETHANE	75-34-3	µg/L	0.5	<0.5	U
27	1,2-DICHLOROETHANE	107-06-2	µg/L	0.5	<0.5	U
28	1,1-DICHLOROETHENE	75-35-4	µg/L	0.5	<0.5	U
29	CIS-1,2-DICHLOROETHENE	156-59-2	µg/L	0.5	<0.5	U
30	TRANS-1,2-DICHLOROETHENE	156-60-5	µg/L	0.5	<0.5	U
31	1,2-DICHLOROPROPANE	78-87-5	µg/L	0.5	<0.5	U
32	1,3-DICHLOROPROPANE	142-28-9	µg/L	0.5	<0.5	U
33	2,2-DICHLOROPROPANE	594-20-7	µg/L	0.5	<0.5	U
34	1,1-DICHLOROPROPENE	563-58-6	µg/L	0.5	<0.5	U
35	CIS-1,3-DICHLOROPROPENE	10061-01-5	µg/L	0.5	<0.5	U
36	TRANS-1,3-DICHLOROPROPENE	10061-02-6	µg/L	0.5	<0.5	U
37	ETHYLBENZENE	100-41-4	µg/L	0.5	<0.5	U
38	HEXACHLOROBUTADIENE	87-68-3	µg/L	0.5	<0.5	U
39	ISOPROPYLBENZENE (CUMENE)	98-82-8	µg/L	0.5	<0.5	U

#	Component Name	CAS No	Unit	RL	Result	Qualifier
40	P-ISOPROPYLTOLUENE	99-87-6	µg/L	0.5	<0.5	U
41	METHYLENE CHLORIDE	75-09-2	µg/L	1.8 (b)	3.6	
42	METHYL-T-BUTYL ETHER (MTBE)	1634-04-4	µg/L	1	<1	U
43	4-METHYL-2-PENTANONE (MIBK)	108-10-1	µg/L	10	5	J
44	NAPHTHALENE	91-20-3	µg/L	0.5	<0.5	U
45	N-PROPYLBENZENE	103-65-1	µg/L	0.5	<0.5	U
46	STYRENE	100-42-5	µg/L	0.5	<0.5	U
47	1,1,1,2-TETRACHLOROETHANE	630-20-6	µg/L	0.5	<0.5	U
48	1,1,2,2-TETRACHLOROETHANE	79-34-5	µg/L	0.5	<0.5	U
49	TETRACHLOROETHENE	127-18-4	µg/L	0.5	<0.5	U
50	TOLUENE	108-88-3	µg/L	0.5	<0.5	U
51	1,2,3-TRICHLOROBENZENE	87-61-6	µg/L	0.5	<0.5	U
52	1,2,4-TRICHLOROBENZENE	120-82-1	µg/L	0.5	<0.5	U
53	1,1,1-TRICHLOROETHANE	71-55-6	µg/L	0.5	<0.5	U
54	1,1,2-TRICHLOROETHANE	79-00-5	µg/L	0.5	<0.5	U
55	TRICHLOROETHENE	79-01-6	µg/L	0.5	<0.5	U
56	TRICHLOROFLUOROMETHANE	75-69-4	µg/L	0.5	<0.5	U
57	1,2,3-TRICHLOROPROPANE	96-18-4	µg/L	0.5	<0.5	U
58	112TRICHLORO-122TRIFLUOROETHANE	76-13-1	µg/L	0.5	<0.5	U
59	1,2,4-TRIMETHYLBENZENE	95-63-6	µg/L	0.5	<0.5	U
60	1,3,5-TRIMETHYLBENZENE	108-67-8	µg/L	0.5	<0.5	U
61	VINYL CHLORIDE	75-01-4	µg/L	0.5	<0.5	U
62	O-XYLENE	95-47-6	µg/L	0.5	<0.5	U
63	M/P-XYLENE	108-38-3	µg/L	0.5	<0.5	U

Surrogates			Control Limit, %	Surro. Rec.%
1	1-BROMO-4-FLUOROBENZENE (4-BROMOFL	460-00-4	70-129	104
2	1,2-DICHLOROETHANE-D4	17060-07-0	70-129	86
3	DIBROMOFLUOROMETHANE	1868-53-7	70-122	97
4	TOLUENE-D8	2037-26-5	73-129	105
# of out-of-control				0

Internal Standard			Control Limit, %	IS Rec.%
1	CHLOROBENZENE-D5	3114-55-4	50-200	93
2	1,4-DICHLOROBENZENE-D4	3855-82-1	50-200	100
3	FLUOROBENZENE	462-06-6	50-200	94
# of out-of-control				0

Not Detected is shown as PQL, with dilution and moisture corrected if applicable.
(b)MDL reported.

Qualifier: U - Not Detected or less than MDL
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e.g. for TIC)
E - Exceed calibration range
B - A positive value was found in the method blank
D - Diluted

FORM-2A

Applied P & Ch Laboratory

Surrogate Recovery Summary for Method 524.2

Client Name:	GEOFON, Inc.	Contract No:		Lab Code:	APCL
Case No:		SAS No:		SDG Number:	033444
Project ID:	JPL	Project No:	04-4428.10	Sample Matrix:	Water
		Batch No:	03G2810		

#	Client Sample No	Lab Sample ID	S1 % #	S2 % #	S3 % #	S4 % #	TOT OUT
1	03G2810-LCS-01	03G2810-LCS-01	98	90	95	95	0
2	MW-6MS	03-3444-1MS	109	102	108	109	0
3	MW-6MSD	03-3444-1MSD	104	99	103	106	0
4	MW-7MS	03-3444-2MS	108	103	107	106	0
5	MW-7MSD	03-3444-2MSD	99	97	101	103	0
6	03G2810-MB-01	03G2810-MB-01	109	86	100	109	0
7	TB-16-5/29/03	03-3444-4	104	86	97	105	0
8	MW-6	03-3444-1	107	81	92	98	0
9	MW-7	03-3444-2	109	86	96	100	0
10	MW-15	03-3444-3	108	82	94	101	0
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							

	QC Control Limit
S1 = 1-BROMO-4-FLUOROBENZENE (4-BROMOFL	70-129
S2 = 1,2-DICHLOROETHANE-D4	70-129
S3 = DIBROMOFLUOROMETHANE	70-122
S4 = TOLUENE-D8	73-129

Column to be used to flag recovery values:

* – Values outside of contract required QC Limits D – Surrogate diluted out I – Matrix Interference

FORM-3A

Applied P & Ch Laboratory

Lab Control Spike/Lab Control Spike Duplicate Recovery for Method 524.2

Client Name:	GEOFON, Inc.	Contract No:		Lab Code:	APCL
Case No:		SAS No:		Service ID:	33444
Project ID:	JPL	Project No:	04-4428.10	Sample Matrix:	Water
		Batch No:	03G2810		
LCS Filename:	G2810L01	Date Analyzed:	060503	Time Analyzed:	12:19
LCSD Filename:	–	Date Analyzed:	–	Time Analyzed:	–

Spiked Components	Unit	Spike Added	Concentration Unspiked	Concentration LCS	LCS Rec% #	QC Limit, % REC
BENZENE	µg/L	20	0	19.3	97	65-120
CHLOROBENZENE	µg/L	20	0	20.9	105	65-134
1,1-DICHLOROETHENE	µg/L	20	0	18.1	91	65-127
TOLUENE	µg/L	20	0	18.7	94	65-134
TRICHLOROETHENE	µg/L	20	0	19.0	95	67-122
# 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-3A

Applied P & Ch Laboratory

Matrix Spike/Matrix Spike Duplicate Recovery for Method 524.2

Client Name:	GEOFON, Inc.	Contract No:		Lab Code:	APCL
Case No:		SAS No:		Service ID:	33444
Project ID:	JPL	Project No:	04-4428.10	Sample Matrix:	Water
		Batch No:	03G2810		
MS Filename:	G2810M01	Date Analyzed:	060503	Time Analyzed:	12:49
MSD Filename:	G2810N01	Date Analyzed:	060503	Time Analyzed:	13:18
MS Sample No:	**MW-6**	Sample Lab ID:	03-3444-1		

Spiked Components	Unit	Spike Added	Concentration Unspiked	Concentration MS	MS Rec% #	QC Limit, % REC
BENZENE	µg/L	20	0	21.5	108	65-121
CHLOROBENZENE	µg/L	20	0	23.8	119	65-134
1,1-DICHLOROETHENE	µg/L	20	0.7	21.6	105	65-127
TOLUENE	µg/L	20	0	21.3	107	65-134
TRICHLOROETHENE	µg/L	20	0	22.6	113	65-125
# of Out-of-control					0	

Spiked Components	Unit	Spike Added	MSD Concentration	MSD Rec% #	RPD% #	QC Limit, % RPD	QC Limit, % REC
BENZENE	µg/L	20	20.5	103	5	28	65-121
CHLOROBENZENE	µg/L	20	22.0	110	8	35	65-134
1,1-DICHLOROETHENE	µg/L	20	20.4	99	6	31	65-127
TOLUENE	µg/L	20	20.6	103	4	35	65-134
TRICHLOROETHENE	µg/L	20	20.9	105	7	30	65-125
# 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-3A

Applied P & Ch Laboratory

Matrix Spike/Matrix Spike Duplicate Recovery for Method 524.2

Client Name:	GEOFON, Inc.	Contract No:		Lab Code:	APCL
Case No:		SAS No:		Service ID:	33444
Project ID:	JPL	Project No:	04-4428.10	Sample Matrix:	Water
		Batch No:	03G2810		
MS Filename:	G2810M02	Date Analyzed:	060503	Time Analyzed:	13:49
MSD Filename:	G2810N02	Date Analyzed:	060503	Time Analyzed:	14:18
MS Sample No:	**MW-7**	Sample Lab ID:	03-3444-2		

Spiked Components	Unit	Spike Added	Concentration Unspiked	Concentration MS	MS Rec% #	QC Limit, % REC
BENZENE	µg/L	20	0	20.4	102	65-121
CHLOROBENZENE	µg/L	20	0	22.8	114	65-134
1,1-DICHLOROETHENE	µg/L	20	4.2	25.2	105	65-127
TOLUENE	µg/L	20	0	20.7	104	65-134
TRICHLOROETHENE	µg/L	20	8.1	30.7	113	65-125
# of Out-of-control					0	

Spiked Components	Unit	Spike Added	MSD Concentration	MSD Rec% #	RPD% #	QC Limit, % RPD	QC Limit, % REC
BENZENE	µg/L	20	19.4	97	5	28	65-121
CHLOROBENZENE	µg/L	20	22.6	113	1	35	65-134
1,1-DICHLOROETHENE	µg/L	20	24.1	100	5	31	65-127
TOLUENE	µg/L	20	20.2	101	3	35	65-134
TRICHLOROETHENE	µg/L	20	29.7	108	5	30	65-125
# 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-4A

Applied P & Ch Laboratory

Method Blank Summary for Method 524.2

Client Name:	GEOFON, Inc.	Contract No:		Lab Code:	APCL
Case No:		SAS No:		Service ID:	33444
Project ID:	JPL	Project No:	04-4428.10	Analysis Date:	06/05/03
		Sample Matrix:	Water	Analysis Time:	15:46
Sample ID:	**03G2810-MB-01**	Batch No:	03G2810	Instrument ID:	GC/MS: G
Lab Sample ID:	03G2810-MB-01	Data File Name:	G2810K01	GC Column:	DB-VEX
		Heated Purge: (Y/N)	N	Column ID:	0.45 mm

This Method Blank applies to the following samples and QC samples:

#	Client Sample No	Lab Sample ID	Sample Type	Data Filename	Analysis Date	Analysis Time
1	03G2810-LCS-01	03G2810-LCS-01	Lab Control Spike	G2810L01	06/05/03	12:19
2	MW-6MS	03-3444-1MS	Matrix Spike	G2810M01	06/05/03	12:49
3	MW-6MSD	03-3444-1MSD	Matrix Spike Duplicate	G2810N01	06/05/03	13:18
4	MW-7MS	03-3444-2MS	Matrix Spike	G2810M02	06/05/03	13:49
5	MW-7MSD	03-3444-2MSD	Matrix Spike Duplicate	G2810N02	06/05/03	14:18
6	TB-16-5/29/03	03-3444-4	Field Sample	3444-04	06/05/03	16:44
7	MW-6	03-3444-1	Field Sample	3444-01	06/05/03	18:40
8	MW-7	03-3444-2	Field Sample	3444-02	06/05/03	19:09
9	MW-15	03-3444-3	Field Sample	3444-03	06/05/03	19:37
10						
11						
12						
13						
14						
15						
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17						
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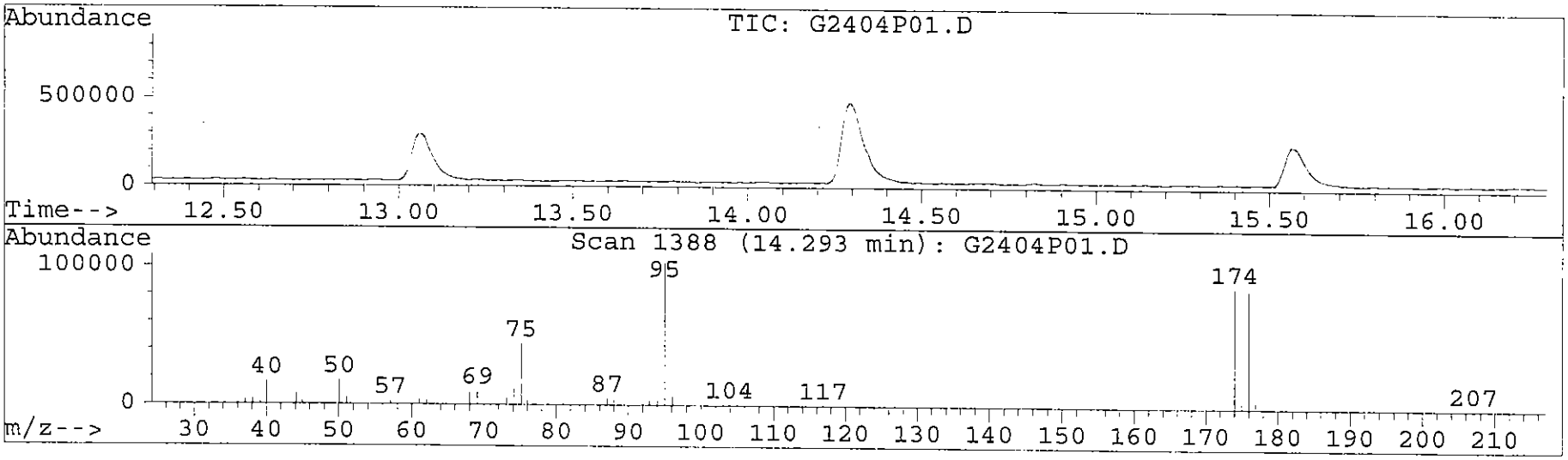
21						
22						
23						
24						
25						

BFB

Data File : C:\HPCHEM\1\DATA\03G2404\G2404P01.D
Acq On : 15 May 03 10:18 am
Sample : ##03g2404, w
Misc :

Vial: 18
Operator: Eddie
Inst : GCMS-G
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\E524G004.M
Title : **Applied P &Ch Lab** EPA 524.2



Peak Apex is scan: 1388

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	16.7	17208	PASS
75	95	30	60	43.0	44184	PASS
95	95	100	100	100.0	102784	PASS
96	95	5	9	6.1	6301	PASS
173	174	0	2	0.0	0	PASS
174	95	50	100	84.8	87112	PASS
175	174	5	9	7.7	6735	PASS
176	174	95	101	97.9	85240	PASS
177	176	5	9	6.8	5764	PASS

G2404P01.D E524G004.M Thu May 15 17:23:19 2003

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

BROMOFLUOROBENZENE (BFB)

Lab Name : APPLIED P & CH LAB Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Lab File ID: G2404 P01 BFB Injection Date: 5/15/03

Instrument ID: GCMS-G BFB Injection Time: 1018

GC Column: VOCOL ID: 0.32 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	%RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	16.7
75	30.0 - 60.0% of mass 95	43.0
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.1
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 100.0% of mass 95	84.8
175	5.0 - 9.0% of mass 174	6.6 (7.7)1
176	95.0 - 101.0% of mass 174	82.9 (97.9)1
177	5.0 - 9.0% of mass 176	5.6 (6.8)2

1-Value is % mass 174 2-Value is % mass 176

This check applies to the following SAMPLES, MS, MSD, BLANKS and STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD003	004-003	004-0003.D	05/15/03	1047
02	VSTD002	004-002	004-0002.D	05/15/03	1145
03	VSTD010	004-0010	004-0010.D	05/15/03	1214
04	VSTD020	004-0020	004-0020.D	05/15/03	1243
05	VSTD040	004-0040	004-0040.D	05/15/03	1312
06	VSTD080	004-0080	004-0080.D	05/15/03	1341
07					
08					
09					
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21					
22					

INITIAL CALIBRATION SUMMARY

Method File	E524G004
Last Calibration Update	Fri May 16 10:36:26 2003

Level 1 File Name	4-003.D	Level 1 ID	0.3
Level 2 File Name	4-002.D	Level 2 ID	2
Level 3 File Name	4-010.D	Level 3 ID	10
Level 4 File Name	4-020.D	Level 4 ID	20
Level 5 File Name	4-040.D	Level 5 ID	40
Level 6 File Name	4-080.D	Level 6 ID	80
Level 7 File Name	4-020.D	Level 7 ID	cc

Compound Name	Level 1 Response	Level 2 Response	Level 3 Response	Level 4 Response	Level 5 Response	Level 6 Response	Level 7 Response	Coeff X^0	Coeff X^1 / ave RF	Coeff X^2	R^2 / RSD
1 Fluorobenzene I1 1	815158	799651	824804	746757	764394	689688	-1	------	------	------	------
3 di-Cl-di-F-methane 85 87	4181	35493	168476	314256	706635	1288384	-1	0.0000	0.2120	0.0000	0.1090
4 Chloromethane 50 52	1706	19850	102587	246113	534218	1069891	-1	-0.0408	0.1954	0.0000	0.9966
9 F114 85 135	4199	44804	220942	386132	819274	1556249	-1	-0.0188	0.2815	0.0000	0.9991
5 vinyl chloride 62 64	3355	33999	162051	300841	621901	1167862	-1	0.0000	0.1938	0.0000	0.1466
6 bromomethane 94 96	4372	26980	129267	267214	519945	1000442	-1	0.0000	0.1724	0.0000	0.0536
7 Chloroethane 64 66	3179	26106	123679	236431	478026	873637	-1	0.0000	0.1527	0.0000	0.0781
8 tri-Cl-F-methane 101 103	8951	64415	295972	594414	1265977	2395096	-1	0.0000	0.3956	0.0000	0.0724
111 isopropyl alcohol x10	3587	6299	29925	70395	111196	226721	-1	0.0000	0.0040	0.0000	0.1113
100 ethyl ether x5	26492	132391	571623	1090032	2124645	3947698	-1	0.0028	0.1423	0.0000	0.9997
102 Acrolein x10	1454	15421	124387	164659	294058	649263	-1	-0.0048	0.0115	0.0000	0.9858
119 methyl acetate	7468	34881	93789	329077	525452	898426	-1	0.0239	0.1624	0.0000	0.9860
104 Carbon disulfide	15360	108670	470593	924294	1876377	3448920	-1	0.0000	0.6226	0.0000	0.0560
103 Acrylonitrilex10	4460	38141	123788	403095	766254	1455017	-1	-0.0461	0.0268	0.0000	0.9965
95 Acetone x10	18003	42021	146218	266351	522927	928171	-1	0.0183	0.0166	0.0000	0.9999
108 F-113	7993	56604	258951	515229	1098171	2025833	-1	0.0000	0.3443	0.0000	0.0590
13 11-dichloroethene 61 96	8587	60316	284348	535921	1112083	2068506	-1	0.0000	0.3617	0.0000	0.0355
101 Acetonnitrilex10	2831	10077	31282	102405	196047	363830	-1	-0.0063	0.0067	0.0000	0.9966
109 Iodomethane	6929	75147	336586	628909	1205092	2300947	-1	-0.0067	0.4140	0.0000	0.9991
113 Tert butyl alcohol x10	1373	18588	77974	138129	265783	388696	-1	0.0000	0.0092	0.0000	0.1787
18 methylene chloride 49 84	-1	48402	184549	355095	696481	1289109	-1	0.0000	0.2451	0.0000	0.1330

112 Allyl chloride	13441	77142	331252	615063	1148799	1977528	-1	0.0468	0.3564	0.0000	0.9986
200 Nitro methane x10	6304	66437	325452	650702	1254351	2397871	-1	0.0000	0.0391	0.0000	0.1719
10 t-Bu-Me-ether 73 57	11529	91189	366763	722425	1502372	2824413	-1	0.0000	0.4955	0.0000	0.0864
19 t-12-di-Cl-ethene 96 61	5258	44435	215839	423127	799696	1549462	-1	0.0000	0.2634	0.0000	0.0969
98 Vinyl acetate x5	3645	167151	292003	1342007	2982123	5784036	-1	-0.2666	0.2134	0.0000	0.9933
21 11-dichloroethane 63 83	11126	88915	412703	833014	1647004	3000180	-1	0.0000	0.5252	0.0000	0.0765
91 2-butanone MEKx10	25733	153111	642126	1432839	2827847	5285771	-1	0.0000	0.0938	0.0000	0.0952
115 Di isoprop ether	40820	232542	1079994	2060781	4081017	7613956	-1	0.0000	1.4212	0.0000	0.0923
22 c-12-di-Cl-ethene 96 61	6716	44823	222557	432230	852613	1623067	-1	0.0000	0.2812	0.0000	0.0324
23 22-Dichloropropane 77 97	11379	71432	324674	629042	1268689	2353196	-1	0.0000	0.4280	0.0000	0.0585
24 Br-Cl-methane 128 130	619	19664	94361	180264	365219	680793	-1	-0.0056	0.1234	0.0000	0.9997
25 chloroform 83 85	15134	81585	381866	741343	1478585	2772452	-1	0.0000	0.5124	0.0000	0.1068
201 Ethyl acetate x2	2846	46100	136924	355515	703484	1425799	-1	-0.0563	0.1306	0.0000	0.9958
116 ETBE	33538	144136	644550	1245123	2437411	4486393	-1	0.0049	0.8099	0.0000	0.9998
117 Iso-butyl alcohol X10	940	62706	135151	357401	710558	1430613	-1	-0.0353	0.0259	0.0000	0.9953
26 tetrahydrofuranx5	257	8307	43847	84254	161549	290888	-1	0.0000	0.0107	0.0000	0.0325
27 Di-Br-F-Methane (S1) 111 1	8284	60816	289627	568312	1126216	2075916	-1	0.0000	0.3713	0.0000	0.0331
34 111-tri-Cl-ethane 97 99	8942	65770	311389	599971	1237882	2397744	-1	0.0000	0.3993	0.0000	0.0616
30 12-dichloroethane 64 62	1802	33229	153871	310815	631494	1211777	-1	-0.0194	0.2197	0.0000	0.9990
35 11-Di-Cl-propene 75 110	8689	58001	275836	532605	1078521	2009125	-1	0.0000	0.3543	0.0000	0.0301
29 1,2-di-Cl-ethane-d4 [Surr] 10	4884	26465	134448	261823	505671	963545	-1	0.0000	0.1688	0.0000	0.0341
36 benzene 78 52	20191	142907	668867	1302042	2578473	4754791	-1	0.0000	0.8512	0.0000	0.0359
37 CCl4 117 119	8483	58348	273728	543038	1134691	2073848	-1	0.0000	0.3590	0.0000	0.0461
97 thiophene	9443	75171	331986	649163	1291816	2373848	-1	0.0000	0.4243	0.0000	0.0680
118 TAME	2423	114119	445234	894867	1715454	3200762	-1	-0.0058	0.5780	0.0000	0.9994
39 12-di-Cl-propane 63 76	5331	41840	206799	390600	777542	1446554	-1	0.0000	0.2514	0.0000	0.0677
40 trichloroethene 130 132	7533	51222	233771	454200	926225	1695738	-1	0.0000	0.3044	0.0000	0.0393
96 Me-methacrylate	1437	15341	47596	161499	295494	591170	-1	-0.0168	0.1076	0.0000	0.9949
42 Br-di-Cl-methane 83 85	12659	54887	257854	508851	988624	1842908	-1	-0.0042	0.3328	0.0000	0.9996
41 dibromomethane 174 172	618	19288	93298	195812	390733	738622	-1	-0.0102	0.1342	0.0000	0.9994

Compound Name	Level 1 Response	Level 2 Response	Level 3 Response	Level 4 Response	Level 5 Response	Level 6 Response	Level 7 Response	Coeff X^0	Coeff X^1 / ave RF	Coeff X^2	R^2 / RSD
45 c-13-di-Cl-propene 75 110	7615	48884	239463	477602	948616	1759634	-1	------	------	------	------
55 toluene-d8(S2) 100 99	13666	83281	390496	768293	1521774	2828221	-1	0.0000	0.5038	0.0000	0.0376
92 2-ClEt-Vi-ether10	5311	41678	205749	413282	830636	1543091	-1	0.0000	0.0259	0.0000	0.0904
56 toluene 91 92	24063	127484	612856	1179183	2400670	4445368	-1	0.0000	0.8174	0.0000	0.1033

107 Et methacrylate	3479	23955	53825	215372	441923	820108	-1	-0.0241	0.1510	0.0000	0.9952
93 2-Hexanone x5	1510	42848	144809	430950	860345	1584358	-1	-0.0326	0.0581	0.0000	0.9977
48 112-tri-Cl-Et 97 83	906	19429	109523	184224	367637	694437	-1	-0.0023	0.1252	0.0000	0.9994
58 1,2-di-br-ethane 107 109	1824	20769	99010	199115	395372	752280	-1	-0.0087	0.1362	0.0000	0.9993
51 di-Br-Cl-methane 129 127	7347	33435	155803	299945	605212	1137349	-1	-0.0082	0.2056	0.0000	0.9995
46 t-13-di-cl-propene 75 110	7615	48884	239463	477602	948616	1759634	-1	0.0000	0.3094	0.0000	0.0348
105 1-Chlorohexane	11922	55414	207900	393247	824539	1487258	-1	-0.0003	0.2692	0.0000	0.9998
47 Cl-benzene-d5, I2	231880	227963	249245	222899	243736	235423	-1	0.0000	1.0000	0.0000	0.0000
54 MIBK	4406	1842	61603	163289	329191	585241	-1	0.0022	0.3172	0.0000	0.9942
49 1,3-di-cl-propane 76 78	5042	34635	178128	334360	648825	1196619	-1	0.0000	0.7083	0.0000	0.0687
59 tetra-Cl-ethene 166 168	5645	43932	206527	398332	812967	1516368	-1	0.0000	0.8560	0.0000	0.0716

Compound Name	Level 1 Response	Level 2 Response	Level 3 Response	Level 4 Response	Level 5 Response	Level 6 Response	Level 7 Response	Coeff X^0	Coeff X^1 / ave RF	Coeff X^2	R^2 / RSD
60 chlorobenzene 112 77	11129	80876	394322	752942	1478617	2729365	-1	0.0000	------	------	------
61 1112-tetra-Cl-Et 131 133	4438	35454	177813	344569	695345	1340863	-1	0.0000	0.7212	0.0000	0.0707
64 ethylbenzene 91 106	21645	144618	668986	1270086	2566878	4842788	-1	0.0000	2.8368	0.0000	0.0896
65 m/p-Xylenes x2	30844	222047	1015495	1972002	3905278	7205695	-1	0.0000	2.1361	0.0000	0.0886
99 1-4-di-Cl-butane	6740	36572	153006	301374	572112	1066373	-1	0.0798	0.5616	0.0000	0.9979
52 bromoform 173 175	2520	15462	69675	136091	278788	522738	-1	0.0000	0.3083	0.0000	0.1137
66 styrene 104 78	15564	84384	382712	759242	1511886	2814241	-1	0.1396	1.4904	0.0000	0.9987
67 o-xylene 91 106	15170	107821	489526	954644	1857499	3377446	-1	0.0000	2.0583	0.0000	0.1015
68 1122-Tetra-Cl-Et 83 85	2369	17006	81453	170717	330326	601304	-1	0.0000	0.3469	0.0000	0.0735
110 t-1,4-dichloro-2-butene	598	5155	17689	36488	58046	107382	-1	0.0000	0.0781	0.0000	0.2649
106 Cl-benzyl	1709	34984	130453	246745	493146	894786	-1	0.0686	0.4730	0.0000	0.9980
62 1,4-DCB-d4 150 152 I3	220209	211064	218269	198057	195846	179706	-1	0.0000	1.0000	0.0000	0.0000
69 123-tri-Cl-Pr 110 97	247	4417	25007	46613	92169	179941	-1	0.0000	0.1159	0.0000	0.0641
70 4-Br-1-F-Bz (S3) 174 95	7551	36349	170967	334015	639559	1173651	-1	0.0000	0.8241	0.0000	0.0360
71 isopropylbenzene 105 120	20338	154289	681700	1327629	2705126	5006864	-1	0.0000	3.3574	0.0000	0.0661
72 bromobenzene 156 158	3634	32102	153148	304357	590583	1107164	-1	0.0000	0.7174	0.0000	0.1196
73 n-propylbenzene 120 78	5459	46356	210844	394872	801684	1463801	-1	0.0000	0.9881	0.0000	0.0916
74 2-Cl-Tl 126 128	3366	25894	120864	249899	481903	908178	-1	0.0000	0.5924	0.0000	0.0839
75 4-Cl-Tl 126 128	4268	41895	196931	372201	722805	1334882	-1	0.0000	0.8886	0.0000	0.1380
76 135-tri-Me-Bz 105 120	17066	117538	539476	1018963	2059638	3828683	-1	0.0000	2.6173	0.0000	0.0399
79 tert-butylbenzene 119 91	16192	139975	610164	1182229	2412602	4386919	-1	0.0000	2.9464	0.0000	0.1001
78 124-tri-Me-Bz 105 120	13993	99021	441266	843153	1722397	3314335	-1	0.0000	2.1864	0.0000	0.0560
80 13-di-Cl-Bz 146 148	8334	52974	229141	454607	873397	1637769	-1	0.0000	1.1613	0.0000	0.0711

82 14-di-Cl-Bz 146 148	9119	77324	360564	688087	1350534	2427479	-1	0.0000	1.6689	0.0000	0.0921
81 sec-butylbenzene 105 134	27562	188712	808141	1585357	3307792	5902646	-1	0.0000	4.1126	0.0000	0.0619
77 4-iso-Pr-toluene 119 134	19882	146089	661221	1200767	2437020	4387114	-1	0.0000	3.1156	0.0000	0.0554
84 12-di-Cl-benzene 146 148	6500	51953	234009	454651	862171	1667156	-1	0.0000	1.1158	0.0000	0.0757
85 n-butylbenzene 91 134	17225	125422	538366	1017966	2160614	4022017	-1	0.0000	2.6951	0.0000	0.0677
86 12-diBr-3-Cl-Pra 157 155	-1	1829	14905	28995	56245	114486	-1	-0.0147	0.0803	0.0000	0.9979
87 124-tri-Cl-Bz 180 182	2922	30767	135221	262726	578192	1051545	-1	-0.0553	0.7381	0.0000	0.9992
88 naphthalene 128 129	1954	26649	107459	235161	598470	1033706	-1	-0.0995	0.7367	0.0000	0.9955
90 123-tri-Cl-Bz 180 182	1279	22090	101362	206041	447433	779205	-1	-0.0222	0.5495	0.0000	0.9986
89 hx-Cl-butadiene 225 260	4633	32362	134569	257067	538819	952000	-1	0.0000	0.6806	0.0000	0.0759

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Response Factor Report GCMS-G

Method : C:\HPCHEM\1\METHODS\E524G004.M
Title : **Applied P &Ch Lab** EPA 524.2
Last Update : Fri May 16 10:36:26 2003
Response via : Initial Calibration

Calibration Files
0.3 =4-003.D 2 =4-002.D 10 =4-010.D
20 =4-020.D 40 =4-040.D 80 =4-080.D

			Compound	0.3	2	10	20	40	80	Avg	%RSD	r^2
1)	I	1	Fluorobenzene I1	----------ISTD----------								
2)		3	di-Cl-di-F-metha	0.171	0.222	0.204	0.210	0.231	0.234	0.212	10.90	
3)	P	4	Chloromethane	0.070	0.124	0.124	0.165	0.175	0.194	0.142	31.72#	0.996
4)		9	F114 85 135	0.172	0.280	0.268	0.259	0.268	0.282	0.255	16.33	0.999
5)	C	5	vinyl chloride	0.137	0.213	0.196	0.201	0.203	0.212	0.194	14.66	
6)		6	bromomethane	0.179	0.169	0.157	0.179	0.170	0.181	0.172	5.36	
7)		7	Chloroethane	0.130	0.163	0.150	0.158	0.156	0.158	0.153	7.81	
8)		8	tri-Cl-F-methane	0.366	0.403	0.359	0.398	0.414	0.434	0.396	7.24	
9)		111	isopropyl alcoh		0.004	0.004	0.005	0.004	0.004	0.004#	11.13	
10)		100	ethyl ether x5	0.217	0.166	0.139	0.146	0.139	0.143	0.158	19.19	1.000
11)		102	Acrolein x10		0.010	0.015	0.011	0.010	0.012	0.011#	19.61	0.986
12)		119	methyl acetate		0.218	0.114	0.220	0.172	0.163	0.177	24.90	0.980
13)		104	Carbon disulfid	0.628	0.679	0.571	0.619	0.614	0.625	0.623	5.60	
14)		103	Acrylonitrilex1		0.024	0.015	0.027	0.025	0.026	0.023#	20.79	0.996
15)		95	Acetone x10		0.026	0.018	0.018	0.017	0.017	0.019#	20.91	1.000
16)		108	F-113	0.327	0.354	0.314	0.345	0.359	0.367	0.344	5.90	
17)	M,C	13	11-dichloroethen	0.351	0.377	0.345	0.359	0.364	0.375	0.362	3.55	
18)		101	Acetonnitrilex1	0.012	0.006	0.004	0.007	0.006	0.007	0.007#	36.67	0.996
19)		109	Iodomethane	0.283	0.470	0.408	0.421	0.394	0.417	0.399	15.58	0.999
20)		113	Tert butyl alco		0.012	0.009	0.009	0.009	0.007	0.009#	17.87	
21)		18	methylene chlori		0.303	0.224	0.238	0.228	0.234	0.245	13.30	
22)		112	Allyl chloride	0.550	0.482	0.402	0.412	0.376	0.358	0.430	16.86	0.998
23)		200	Nitro methane x	0.026	0.042	0.039	0.044	0.041	0.043	0.039#	17.19	~~0.~~
24)		10	t-Bu-Me-ether	0.471	0.570	0.445	0.484	0.491	0.512	0.496	8.64	
25)		19	t-12-di-Cl-ethen	0.215	0.278	0.262	0.283	0.262	0.281	0.263	9.69	
26)		98	Vinyl acetate x5	0.030	0.209	0.071	0.180	0.195	0.210	0.149	52.56	0.993
27)	P	21	11-dichloroethan	0.455	0.556	0.500	0.558	0.539	0.544	0.525	7.65	
28)		91	2-butanone MEKx1	0.105	0.096	0.078	0.096	0.092	0.096	0.094	9.52	

(#) = Out of Range

Response Factor Report GCMS-G

Method : C:\HPCHEM\1\METHODS\E524G004.M
Title : **Applied P &Ch Lab** EPA 524.2
Last Update : Fri May 16 10:36:26 2003
Response via : Initial Calibration

Calibration Files
0.3 =4-003.D 2 =4-002.D 10 =4-010.D
20 =4-020.D 40 =4-040.D 80 =4-080.D

		Compound	0.3	2	10	20	40	80	Avg	%RSD	r^2
29)		115 Di isoprop ethe	1.669	1.454	1.309	1.380	1.335	1.380	1.421	9.23	
30)		22 c-12-di-Cl-ethen	0.275	0.280	0.270	0.289	0.279	0.294	0.281	3.24	
31)		23 22-Dichloropropa	0.465	0.447	0.394	0.421	0.415	0.426	0.428	5.85	
32)		24 Br-Cl-methane	0.025	0.123	0.114	0.121	0.119	0.123	0.104	37.24	1.000
33)	C	25 chloroform	0.619	0.510	0.463	0.496	0.484	0.502	0.512	10.68	
34)		201 Ethyl acetate x		0.144	0.083	0.119	0.115	0.129	0.118	19.14	0.996
35)		116 ETBE	1.371	0.901	0.781	0.834	0.797	0.813	0.916	24.75	1.000
36)		117 Iso-butyl alcoh	0.004	0.039	0.016	0.024	0.023	0.026	0.022#	52.71	0.995
37)		26 tetrahydrofuranx		0.010	0.011	0.011	0.011	0.011	0.011#	3.25	
38)	S	27 Di-Br-F-Methane		0.380	0.351	0.381	0.368	0.376	0.371	3.31	
39)		34 111-tri-Cl-ethan	0.366	0.411	0.378	0.402	0.405	0.435	0.399	6.16	
40)		30 12-dichloroethan	0.074	0.208	0.187	0.208	0.207	0.220	0.184	29.91	0.999
41)		35 11-Di-Cl-propene	0.355	0.363	0.334	0.357	0.353	0.364	0.354	3.01	
42)	S	29 1,2-di-Cl-ethane		0.165	0.163	0.175	0.165	0.175	0.169	3.41	
43)	M	36 benzene	0.826	0.894	0.811	0.872	0.843	0.862	0.851	3.59	
44)		37 CCl4	0.347	0.365	0.332	0.364	0.371	0.376	0.359	4.61	
45)		97 thiophene	0.386	0.470	0.403	0.435	0.422	0.430	0.424	6.80	
46)		118 TAME	0.099	0.714	0.540	0.599	0.561	0.580	0.515	41.29	0.999
47)	C	39 12-di-Cl-propane	0.218	0.262	0.251	0.262	0.254	0.262	0.251	6.77	
48)	M	40 trichloroethene	0.308	0.320	0.283	0.304	0.303	0.307	0.304	3.93	
49)		96 Me-methacrylate	0.059	0.096	0.058	0.108	0.097	0.107	0.087	26.49	0.994
50)		42 Br-di-Cl-methane	0.518	0.343	0.313	0.341	0.323	0.334	0.362	21.31	1.000
51)		41 dibromomethane	0.025	0.121	0.113	0.131	0.128	0.134	0.109	38.23	0.999
52)		45 c-13-di-Cl-prope	0.311	0.306	0.290	0.320	0.310	0.319	0.309	3.48	
53)	S	55 toluene-d8(S2)		0.521	0.473	0.514	0.498	0.513	0.504	3.76	
54)		92 2-ClEt-Vi-ether1	0.022	0.026	0.025	0.028	0.027	0.028	0.026#	9.04	
55)	M C	56 toluene	0.984	0.797	0.743	0.790	0.785	0.806	0.817	10.33	
56)		107 Et methacrylate	0.142	0.150	0.065	0.144	0.145	0.149	0.132	24.94	0.995
57)		93 2-Hexanone x5	0.012	0.054	0.035	0.058	0.056	0.057	0.045#	40.36	0.998

(#) = Out of Range

Response Factor Report GCMS-G

Method : C:\HPCHEM\1\METHODS\E524G004.M
Title : **Applied P &Ch Lab** EPA 524.2
Last Update : Fri May 16 10:36:26 2003
Response via : Initial Calibration

Calibration Files
0.3 =4-003.D 2 =4-002.D 10 =4-010.D
20 =4-020.D 40 =4-040.D 80 =4-080.D

			Compound	0.3	2	10	20	40	80	Avg	%RSD	r²
58)		48	112-tri-Cl-Et	0.037	0.121	0.133	0.123	0.120	0.126	0.110	32.76	0.999
59)		58	1,2-di-br-ethane	0.075	0.130	0.120	0.133	0.129	0.136	0.121	19.23	0.999
60)		51	di-Br-Cl-methane	0.300	0.209	0.189	0.201	0.198	0.206	0.217	19.04	1.000
61)		46	t-13-di-cl-prope	0.311	0.306	0.290	0.320	0.310	0.319	0.309	3.48	
62)		105	1-Chlorohexane	0.488	0.346	0.252	0.263	0.270	0.270	0.315	28.95	1.000
63)	I	47	Cl-benzene-d5, I2	ISTD								
64)		54	MIBK	0.633	0.040	0.247	0.366	0.338	0.311	0.323	59.49	0.993
65)		49	1,3-di-cl-propan	0.725	0.760	0.715	0.750	0.665	0.635	0.708	6.87	
66)		59	tetra-Cl-ethene	0.811	0.964	0.829	0.894	0.834	0.805	0.856	7.16	
67)	M P	60	chlorobenzene	1.600	1.774	1.582	1.689	1.517	1.449	1.602	7.29	
68)		61	1112-tetra-Cl-Et	0.638	0.778	0.713	0.773	0.713	0.712	0.721	7.07	
69)	C	64	ethylbenzene	3.112	3.172	2.684	2.849	2.633	2.571	2.837	8.96	
70)		65	m/p-Xylenes x2	2.217	2.435	2.037	2.212	2.003	1.913	2.136	8.86	
71)		99	1-4-di-Cl-butane	0.969	0.802	0.614	0.676	0.587	0.566	0.702	22.19	0.997
72)	P	52	bromoform	0.362	0.339	0.280	0.305	0.286	0.278	0.308	11.37	
73)		66	styrene	2.237	1.851	1.535	1.703	1.551	1.494	1.729	16.33	0.998
74)		67	o-xylene	2.181	2.365	1.964	2.141	1.905	1.793	2.058	10.15	
75)	P	68	1122-Tetra-Cl-Et	0.341	0.373	0.327	0.383	0.339	0.319	0.347	7.35	
76)		110	t-1,4-dichloro-	0.086	0.113	0.071	0.082	0.060	0.057	0.078	26.49	
77)		106	Cl-benzyl	0.246	0.767	0.523	0.553	0.506	0.475	0.512	32.62	0.997
78)	I	62	1,4-DCB-d4 150 152	ISTD								
79)		69	123-tri-Cl-Pr		0.105	0.115	0.118	0.118	0.125	0.116	6.41	
80)	S	70	4-Br-1-F-Bz (S3)		0.861	0.783	0.843	0.816	0.816	0.824	3.60	
81)		71	isopropylbenzene	3.079	3.655	3.123	3.352	3.453	3.483	3.357	6.61	
82)		72	bromobenzene	0.550	0.760	0.702	0.768	0.754	0.770	0.717	11.96	
83)		73	n-propylbenzene	0.826	1.098	0.966	0.997	1.023	1.018	0.988	9.16	
84)		74	2-Cl-Tl 126	0.510	0.613	0.554	0.631	0.615	0.632	0.592	8.39	

(#) = Out of Range

Response Factor Report GCMS-G

Method : C:\HPCHEM\1\METHODS\E524G004.M
Title : **Applied P &Ch Lab** EPA 524.2
Last Update : Fri May 16 10:36:26 2003
Response via : Initial Calibration

Calibration Files
0.3 =4-003.D 2 =4-002.D 10 =4-010.D
20 =4-020.D 40 =4-040.D 80 =4-080.D

	Compound		0.3	2	10	20	40	80	Avg	%RSD	
85)	75 4-Cl-Tl	126	0.646	0.992	0.902	0.940	0.923	0.929	0.889	13.80	
86)	76 135-tri-Me-Bz		2.583	2.784	2.472	2.572	2.629	2.663	2.617	3.99	
87)	79 tert-butylbenzen		2.451	3.316	2.795	2.985	3.080	3.051	2.946	10.01	
88)	78 124-tri-Me-Bz		2.118	2.346	2.022	2.129	2.199	2.305	2.186	5.60	
89)	80 13-di-Cl-Bz	146	1.262	1.255	1.050	1.148	1.115	1.139	1.161	7.11	
90)	82 14-di-Cl-Bz	146	1.380	1.832	1.652	1.737	1.724	1.689	1.669	9.21	
91)	81 sec-butylbenzene		4.172	4.470	3.703	4.002	4.222	4.106	4.113	6.19	
92)	77 4-iso-Pr-toluene		3.010	3.461	3.029	3.031	3.111	3.052	3.116	5.54	
93)	84 12-di-Cl-benzene		0.984	1.231	1.072	1.148	1.101	1.160	1.116	7.57	
94)	85 n-butylbenzene		2.607	2.971	2.467	2.570	2.758	2.798	2.695	6.77	
95)	86 12-diBr-3-Cl-Pra			0.043	0.068	0.073	0.072	0.080	0.067	20.80	0.998
96)	87 124-tri-Cl-Bz		0.442	0.729	0.620	0.663	0.738	0.731	0.654	17.40	0.999
97)	88 naphthalene		0.296	0.631	0.492	0.594	0.764	0.719	0.583	29.17	0.994
98)	90 123-tri-Cl-Bz		0.194	0.523	0.464	0.520	0.571	0.542	0.469	29.72	0.999
99)	89 hx-Cl-butadiene		0.701	0.767	0.617	0.649	0.688	0.662	0.681	7.59	

(#) = Out of Range

Continuing Calibration Concentration Summary

Data File G2404Q01.D
Method File E524G004

Compound Name	Amount	Actual	Units	%Dev	Target Response
1 Fluorobenzene I1 1	10	10.00	ppb	0.00	649888
3 di-Cl-di-F-methane 85 87	20	20.14	ppb	0.70	277528
4 Chloromethane 50 52	20	21.53	ppb	7.65	246888
9 F114 85 135	20	17.01	ppb	14.97	298895
5 vinyl chloride 62 64	20	21.36	ppb	6.82	269070
6 bromomethane 94 96	20	24.95	ppb	24.76	279586
7 Chloroethane 64 66	20	21.23	ppb	6.16	210692
8 tri-Cl-F-methane 101 103	20	21.76	ppb	8.80	559460
111 isopropyl alcohol x10	200	203.55	ppb	1.78	52983
100 ethyl ether x5	100	107.60	ppb	7.60	996988
102 Acrolein x10	200	139.76	ppb	30.12	100897
119 methyl acetate	20	21.45	ppb	7.23	241873
104 Carbon disulfide	20	18.24	ppb	8.80	738097
103 Acrylonitrilex10	200	214.62	ppb	7.31	344451
95 Acetone x10	200	396.54	ppb	98.27	439971
108 F-113	20	21.41	ppb	7.07	479223
13 11-dichloroethene 61 96	20	20.09	ppb	0.46	472350
101 Acetonnitrilex10	200	243.89	ppb	21.95	101324
[illegible] Iodomethane	20	13.22	ppb	33.89	351403
Tert butyl alcohol x10	200	216.00	ppb	8.00	129323
18 methylene chloride 49 84	20	23.61	ppb	18.05	376106
112 Allyl chloride	20	22.42	ppb	12.12	549774
200 Nitro methane x10	200	197.96	ppb	1.02	503531
10 t-Bu-Me-ether 73 57	20	21.00	ppb	4.99	676223
19 t-12-di-Cl-ethene 96 61	20	21.43	ppb	7.15	366814
98 Vinyl acetate x5	100	143.85	ppb	43.85	1821937
21 11-dichloroethane 63 83	20	21.03	ppb	5.16	717926
91 2-butanone MEKx10	200	234.40	ppb	17.20	1429484
115 Di isoprop ether	20	18.37	ppb	8.14	1696951
22 c-12-di-Cl-ethene 96 61	20	20.62	ppb	3.09	376787
23 22-Dichloropropane 77 97	20	21.99	ppb	9.97	611798
24 Br-Cl-methane 128 130	20	21.08	ppb	5.42	165470
25 chloroform 83 85	20	20.12	ppb	0.61	670049
201 Ethyl acetate x2	40	46.95	ppb	17.39	361793
116 ETBE	20	22.19	ppb	10.95	1171113
117 Iso-butyl alcohol X10	200	238.82	ppb	19.41	378345
26 tetrahydrofuranx5	100	105.40	ppb	5.40	73174
27 Di-Br-F-Methane (S1) 111 1	20	21.39	ppb	6.97	516235
34 111-tri-Cl-ethane 97 99	20	21.29	ppb	6.44	552365
30 12-dichloroethane 64 62	20	21.09	ppb	5.45	288522
35 11-Di-Cl-propene 75 110	20	20.00	ppb	0.02	460611
29 1,2-di-Cl-ethane-d4 [Surr] 10	20	22.15	ppb	10.74	242901
36 benzene 78 52	20	20.55	ppb	2.74	1136626
[illegible]Cl4 117 119	20	21.01	ppb	5.06	490276

97 thiophene	20	20.54	ppb	2.72	566534
TAME	20	21.35	ppb	6.73	798122
39 12-di-Cl-propane 63 76	20	21.07	ppb	5.34	344200
40 trichloroethene 130 132	20	20.87	ppb	4.36	412821
96 Me-methacrylate	20	21.65	ppb	8.25	140547
42 Br-di-Cl-methane 83 85	20	21.90	ppb	9.50	470944
41 dibromomethane 174 172	20	20.55	ppb	2.73	172546
45 c-13-di-Cl-propene 75 110	20	21.45	ppb	7.23	431214
55 toluene-d8(S2) 100 99	20	20.92	ppb	4.62	685077
92 2-ClEt-Vi-ether10	200	223.46	ppb	11.73	376438

Compound Name	Amount	Actual	Units	%Dev	Target Response
56 toluene 91 92	20	19.45	ppb	2.77	1033014
107 Et methacrylate	20	27.67	ppb	38.34	255854
93 2-Hexanone x5	100	146.36	ppb	46.36	531705
48 112-tri-Cl-Et 97 83	20	20.22	ppb	1.10	163013
58 1,2-di-br-ethane 107 109	20	20.86	ppb	4.30	179065
51 di-Br-Cl-methane 129 127	20	21.16	ppb	5.82	277463
46 t-13-di-cl-propene 75 110	20	21.45	ppb	7.23	431214
105 1-Chlorohexane	20	19.65	ppb	1.75	343562
47 Cl-benzene-d5, I2	10	10.00	ppb	0.00	204425
54 MIBK	20	23.65	ppb	18.24	153762
49 1,3-di-cl-propane 76 78	20	20.32	ppb	1.58	294186
59 tetra-Cl-ethene 166 168	20	19.77	ppb	1.13	346025
60 chlorobenzene 112 77	20	20.73	ppb	3.67	678907
'112-tetra-Cl-Et 131 133	20	22.02	ppb	10.09	324606
thylbenzene 91 106	20	19.75	ppb	1.24	1145468

Compound Name	Amount	Actual	Units	%Dev	Target Response
65 m/p-Xylenes x2	40	39.48	ppb	1.30	1723939
99 1-4-di-Cl-butane	20	22.55	ppb	12.74	275180
52 bromoform 173 175	20	21.37	ppb	6.85	134679
66 styrene 104 78	20	20.97	ppb	4.85	667454
67 o-xylene 91 106	20	20.91	ppb	4.53	879630
68 1122-Tetra-Cl-Et 83 85	20	21.50	ppb	7.52	152489
110 t-1,4-dichloro-2-butene	20	24.42	ppb	22.08	38966
106 Cl-benzyl	20	25.41	ppb	27.04	259687
62 1,4-DCB-d4 150 152 I3	10	10.00	ppb	0.00	177200
69 123-tri-Cl-Pr 110 97	20	22.77	ppb	13.86	46786
70 4-Br-1-F-Bz (S3) 174 95	20	20.47	ppb	2.34	298875
71 isopropylbenzene 105 120	20	20.08	ppb	0.39	1194531
72 bromobenzene 156 158	20	21.33	ppb	6.63	271114
73 n-propylbenzene 120 78	20	19.94	ppb	0.29	349176
74 2-Cl-Tl 126 128	20	21.49	ppb	7.47	225624
75 4-Cl-Tl 126 128	20	21.36	ppb	6.82	336390
76 135-tri-Me-Bz 105 120	20	20.52	ppb	2.58	951479
79 tert-butylbenzene 119 91	20	20.34	ppb	1.70	1061912
78 124-tri-Me-Bz 105 120	20	20.47	ppb	2.37	793217
80 13-di-Cl-Bz 146 148	20	21.95	ppb	9.75	451713
82 14-di-Cl-Bz 146 148	20	20.48	ppb	2.39	605588
sec-butylbenzene 105 134	20	18.63	ppb	6.87	1357391

77	4-iso-Pr-toluene 119 134	20	20.27	ppb	1.36	1119193
	2-di-Cl-benzene 146 148	20	21.15	ppb	5.73	418081
85	n-butylbenzene 91 134	20	19.11	ppb	4.45	912663
86	12-diBr-3-Cl-Pra 157 155	20	20.75	ppb	3.74	26931
87	124-tri-Cl-Bz 180 182	20	19.47	ppb	2.66	244810
88	naphthalene 128 129	20	18.09	ppb	9.54	218555
90	123-tri-Cl-Bz 180 182	20	19.04	ppb	4.81	181441
				Ave.% Dev	9.11	

Evaluate Continuing Calibration Report

1034

Data File : C:\HPCHEM\1\DATA\03G2404\G2404Q01.D Vial: 18
Acq On : 16 May 03 11:08 am Operator: Eddie
Sample : f=1 ccv/icv/bfb Inst : GCMS-G
Misc : Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\E524G004.M
Title : **Applied P &Ch Lab** EPA 524.2
Last Update : Fri May 16 10:36:26 2003
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 35% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1 Fluorobenzene I1 1	1.000	1.000	0.0	87	0.00
2		3 di-Cl-di-F-methane 85 8	0.212	0.214	-0.7	88	0.00
3	P	4 Chloromethane 50 5	0.142	0.190	-33.8#	100	0.00
4		9 F114 85 135	0.255	0.230	9.7	77	0.00
5	C	5 vinyl chloride 62 6	0.194	0.207	-6.8	89	0.00
6		6 bromomethane 94 9	0.172	0.215	-24.8#	105	0.00
7		7 Chloroethane 64 66	0.153	0.162	-6.2	89	0.00
8		8 tri-Cl-F-methane 101 10	0.396	0.430	-8.8	94	0.00
9		111 isopropyl alcohol x10	0.004	0.004#	-1.8	75	0.00
10		100 ethyl ether x5	0.158	0.153	3.0	91	0.00
11		102 Acrolein x10	0.011	0.008#	32.1#	61	0.00
12		119 methyl acetate	0.177	0.186	-4.9	74	0.00
13		104 Carbon disulfide	0.623	0.568	8.8	80	0.00
14		103 Acrylonitrilex10	0.023	0.027#	-13.0	85	0.00
15		95 Acetone x10	0.019	0.034#	-76.7#	165#	0.00
16		108 F-113	0.344	0.369	-7.1	93	0.00
17	M,C	13 11-dichloroethene 61 9	0.362	0.363	-0.5	88	0.00
18		101 Acetonnitrilex10	0.007	0.008#	-12.6	99	0.00
19		109 Iodomethane	0.399	0.270	32.2#	56	0.00
20		113 Tert butyl alcohol x10	0.009	0.010#	-8.0	94	0.00
21		18 methylene chloride 49 8	0.245	0.289	-18.1	106	0.00
22		112 Allyl chloride	0.430	0.423	1.6	89	0.00
23		200 Nitro methane x10	0.039	0.039#	1.0	77	0.00
24		10 t-Bu-Me-ether 73 57	0.496	0.520	-5.0	94	0.00
25		19 t-12-di-Cl-ethene 96 6	0.263	0.282	-7.2	87	0.00
26		98 Vinyl acetate x5	0.149	0.280	-88.1#	136	0.00
27	P	21 11-dichloroethane 63 8	0.525	0.552	-5.2	86	0.00

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\03G2404\G2404Q01.D Vial: 18
Acq On : 16 May 03 11:08 am Operator: Eddie
Sample : f=1 ccv/icv/bfb Inst : GCMS-G
Misc : Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\E524G004.M
Title : **Applied P &Ch Lab** EPA 524.2
Last Update : Fri May 16 10:36:26 2003
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 35% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
28		91 2-butanone MEKx10	0.094	0.110	-17.2	100	0.00
29		115 Di isoprop ether	1.421	1.306	8.1	82	0.00
30		22 c-12-di-Cl-ethene 96 6	0.281	0.290	-3.1	87	0.00
31		23 22-Dichloropropane 77 9	0.428	0.471	-10.0	97	0.00
32		24 Br-Cl-methane 128 13	0.104	0.127	-22.0#	92	0.00
33	C	25 chloroform 83 8	0.512	0.516	-0.6	90	0.00
34		201 Ethyl acetate x2	0.118	0.139	-17.9	102	0.00
35		116 ETBE	0.916	0.901	1.7	94	0.00
36		117 Iso-butyl alcohol X10	0.022	0.029#	-31.8#	106	0.00
37		26 tetrahydrofuranx5	0.011	0.011#	-5.4	87	0.00
38	S	27 Di-Br-F-Methane (S1) 11	0.371	0.397	-7.0	91	0.00
39		34 111-tri-Cl-ethane 97 9	0.399	0.425	-6.4	92	0.00
40		30 12-dichloroethane 64 6	0.184	0.222	-20.8#	93	0.00
41		35 11-Di-Cl-propene 75 11	0.354	0.354	-0.0	86	0.00
42	S	29 1,2-di-Cl-ethane-d4 [Sur	0.169	0.187	-10.7	93	0.00
43	M	36 benzene 78 5	0.851	0.874	-2.7	87	0.00
44		37 CCl4 117 11	0.359	0.377	-5.1	90	0.00
45		97 thiophene	0.424	0.436	-2.7	87	0.00
46		118 TAME	0.515	0.614	-19.1	89	0.00
47	C	39 12-di-Cl-propane 63 7	0.251	0.265	-5.3	88	0.00
48	M	40 trichloroethene 130 13	0.304	0.318	-4.4	91	0.00
49		96 Me-methacrylate	0.087	0.108	-23.7#	87	0.00
50		42 Br-di-Cl-methane 83 8	0.362	0.362	-0.1	93	0.00
51		41 dibromomethane 174 17	0.109	0.133	-22.2#	88	0.00
52		45 c-13-di-Cl-propene 75 11	0.309	0.332	-7.2	90	0.00
53	S	55 toluene-d8(S2) 100	0.504	0.527	-4.6	89	0.00
54		92 2-ClEt-Vi-ether10	0.026	0.029#	-11.7	91	0.00

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\03G2404\G2404Q01.D Vial: 18
Acq On : 16 May 03 11:08 am Operator: Eddie
Sample : f=1 ccv/icv/bfb Inst : GCMS-G
Misc : Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\E524G004.M
Title : **Applied P &Ch Lab** EPA 524.2
Last Update : Fri May 16 10:36:26 2003
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 35% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
55	M C	56 toluene 91 9	0.817	0.795	2.8	88	0.00
56		107 Et methacrylate	0.132	0.197	-48.6#	119	0.00
57		93 2-Hexanone x5	0.045	0.082	-80.2#	123	0.00
58		48 112-tri-Cl-Et 97 8	0.110	0.125	-13.9	88	0.00
59		58 1,2-di-br-ethane 107 109	0.121	0.138	-14.3	90	0.00
60		51 di-Br-Cl-methane 129 12	0.217	0.213	1.7	93	0.00
61		46 t-13-di-cl-propene 75 11	0.309	0.332	-7.2	90	0.00
62		105 1-Chlorohexane	0.315	0.264	16.0	87	0.00
63	I	47 Cl-benzene-d5, I2	1.000	1.000	0.0	92	0.00
64		54 MIBK	0.323	0.376	-16.6	94	0.00
65		49 1,3-di-cl-propane 76 78	0.708	0.720	-1.6	88	0.00
66		59 tetra-Cl-ethene 166 16	0.856	0.846	1.1	87	0.00
67	M P	60 chlorobenzene 112 7	1.602	1.661	-3.7	90	0.00
68		61 1112-tetra-Cl-Et 131 13	0.721	0.794	-10.1	94	0.00
69	C	64 ethylbenzene 91 10	2.837	2.802	1.2	90	0.00
70		65 m/p-Xylenes x2	2.136	2.108	1.3	87	0.00
71		99 1-4-di-Cl-butane	0.702	0.673	4.2	91	0.00
72	P	52 bromoform 173 17	0.308	0.329	-6.9	99	0.00
73		66 styrene 104 7	1.729	1.633	5.6	88	0.00
74		67 o-xylene 91 10	2.058	2.151	-4.5	92	0.00
75	P	68 1122-Tetra-Cl-Et 83 8	0.347	0.373	-7.5	89	0.00
76		110 t-1,4-dichloro-2-butene	0.078	0.095	-22.1#	107	0.00
77		106 Cl-benzyl	0.512	0.635	-24.1#	105	0.00
78	I	62 1,4-DCB-d4 150 152 I3	1.000	1.000	0.0	89	0.00
79		69 123-tri-Cl-Pr 110 9	0.116	0.132	-13.9	100	0.00

(#) = Out of Range

Data File : C:\HPCHEM\1\DATA\03G2404\G2404Q01.D Vial: 18
Acq On : 16 May 03 11:08 am Operator: Eddie
Sample : f=1 ccv/icv/bfb Inst : GCMS-G
Misc : Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\E524G004.M
Title : **Applied P &Ch Lab** EPA 524.2
Last Update : Fri May 16 10:36:26 2003
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 35% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

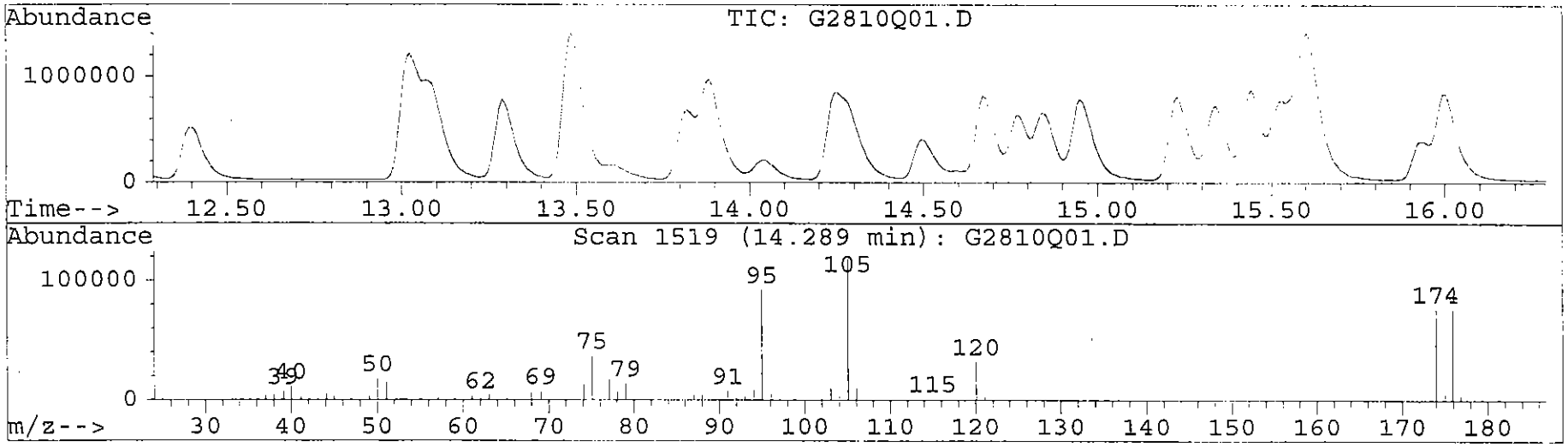
		Compound			AvgRF	CCRF	%Dev	Area%	Dev(min)
80	S	70 4-Br-1-F-Bz (S3)	174	9	0.824	0.843	-2.3	89	0.00
81		71 isopropylbenzene	105	12	3.357	3.371	-0.4	90	0.00
82		72 bromobenzene	156	15	0.717	0.765	-6.6	89	0.00
83		73 n-propylbenzene	120	7	0.988	0.985	0.3	88	0.00
84		74 2-Cl-Tl	126	128	0.592	0.637	-7.5	90	0.00
85		75 4-Cl-Tl	126	128	0.889	0.949	-6.8	90	0.00
86		76 135-tri-Me-Bz	105	12	2.617	2.685	-2.6	93	0.00
87		79 tert-butylbenzene	119	9	2.946	2.996	-1.7	90	0.00
88		78 124-tri-Me-Bz	105	12	2.186	2.238	-2.4	94	0.00
89		80 13-di-Cl-Bz	146	148	1.161	1.275	-9.8	99	0.00
90		82 14-di-Cl-Bz	146	148	1.669	1.709	-2.4	88	0.00
91		81 sec-butylbenzene	105	13	4.113	3.830	6.9	86	0.00
92		77 4-iso-Pr-toluene	119	13	3.116	3.158	-1.4	93	0.00
93		84 12-di-Cl-benzene	146	14	1.116	1.180	-5.7	92	0.00
94		85 n-butylbenzene	91	13	2.695	2.575	4.4	90	0.00
95		86 12-diBr-3-Cl-Pra	157	15	0.067	0.076	-13.0	93	0.00
96		87 124-tri-Cl-Bz	180	18	0.654	0.691	-5.6	93	0.00
97		88 naphthalene	128	12	0.583	0.617	-5.8	93	0.00
98		90 123-tri-Cl-Bz	180	18	0.469	0.512	-9.1	88	0.00
99		89 hx-Cl-butadiene	225	26	0.681	0.669	1.7	92	0.00

BFB

Data File : C:\HPCHEM\1\DATA\03G2810\G2810Q01.D
Acq On : 5 Jun 03 11:50 am
Sample : f=1 ccv
Misc :

Vial: 17
Operator: Eddie
Inst : GCMS-G
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\E524G004.M
Title : **Applied P &Ch Lab** EPA 524.2



Peak Apex is scan: 1519

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	19.2	17736	PASS
75	95	30	60	39.9	36824	PASS
95	95	100	100	100.0	92216	PASS
96	95	5	9	7.3	6735	PASS
173	174	0	2	0.0	0	PASS
174	95	50	100	82.9	76472	PASS
175	174	5	9	7.6	5796	PASS
176	174	95	101	99.2	75848	PASS
177	176	5	9	5.9	4456	PASS

G2810Q01.D E524G004.M Fri Jun 06 10:16:08 2003

FORM-5A

Applied P & Ch Laboratory

Volatile Organic Instrument Performance Check for Method 524.2

Bromofluorobenzene (BFB), Part II

Client Name:	GEOFON, Inc.	Contract No:		Lab Code:	APCL
Case No:		SAS No:		Service ID:	033444
Project ID:	JPL	BFB Inj. Date:	06/05/03	Batch No:	03G2810
		BFB Inj. Time:	11:50	Sequence No:	03G2810
Project No:	04-4428.10	Instrument ID:	G	GC Column:	DB-VEX
Data File Name:	G2810Q01	Heated Purge: (Y/N)	N	Column ID:	0.45 mm

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

#	Client Sample No	Lab Sample ID	Data File Name	Date Analyzed	Time Analyzed
1	03G2810-CCV-01	03G2810-CCV-01	G2810Q01	06/05/03	11:50
2	03G2810-LCS-01	03G2810-LCS-01	G2810L01	06/05/03	12:19
3	MW-6MS	03-3444-1MS	G2810M01	06/05/03	12:49
4	MW-6MSD	03-3444-1MSD	G2810N01	06/05/03	13:18
5	MW-7MS	03-3444-2MS	G2810M02	06/05/03	13:49
6	MW-7MSD	03-3444-2MSD	G2810N02	06/05/03	14:18
7	03G2810-MB-01	03G2810-MB-01	G2810K01	06/05/03	15:46
8	TB-16-5/29/03	03-3444-4	3444-04	06/05/03	16:44
9	MW-6	03-3444-1	3444-01	06/05/03	18:40
10	MW-7	03-3444-2	3444-02	06/05/03	19:09
11	MW-15	03-3444-3	3444-03	06/05/03	19:37
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Continuing Calibration Concentration Summary

Data File G2810Q01.D
Method File E524G004

Compound Name	Amount	Actual	Units	%Dev	Target Response
1 Fluorobenzene I1 1	10	10.00	ppb	0.00	783807
3 di-Cl-di-F-methane 85 87	20	19.41	ppb	2.95	322583
4 Chloromethane 50 52	20	20.75	ppb	3.75	285797
9 F114 85 135	20	18.28	ppb	8.61	388528
5 vinyl chloride 62 64	20	21.35	ppb	6.73	324245
6 bromomethane 94 96	20	21.13	ppb	5.66	285575
7 Chloroethane 64 66	20	21.05	ppb	5.23	251890
8 tri-Cl-F-methane 101 103	20	19.38	ppb	3.11	600902
111 isopropyl alcohol x10	200	278.31	ppb	39.15	87369
100 ethyl ether x5	100	104.34	ppb	4.34	1166114
102 Acrolein x10	200	228.57	ppb	14.28	201401
119 methyl acetate	20	13.01	ppb	34.96	184299
104 Carbon disulfide	20	18.92	ppb	5.40	923349
103 Acrylonitrilex10	200	224.96	ppb	12.48	437199
95 Acetone x10	200	247.54	ppb	23.77	336638
108 F-113	20	20.61	ppb	3.04	556188
13 11-dichloroethene 61 96	20	19.59	ppb	2.07	555350
101 Acetonnitrilex10	200	253.02	ppb	26.51	126960
109 Iodomethane	20	14.38	ppb	28.08	461562
113 Tert butyl alcohol x10	200	231.83	ppb	15.91	167399
18 methylene chloride 49 84	20	21.68	ppb	8.39	416498
112 Allyl chloride	20	21.61	ppb	8.04	640237
200 Nitro methane x10	200	217.88	ppb	8.94	668400
10 t-Bu-Me-ether 73 57	20	19.79	ppb	1.04	768735
19 t-12-di-Cl-ethene 96 61	20	21.53	ppb	7.66	444487
98 Vinyl acetate x5	100	171.25	ppb	71.25	2655799
21 11-dichloroethane 63 83	20	20.69	ppb	3.47	851931
91 2-butanone MEKx10	200	213.21	ppb	6.60	1568195
115 Di isoprop ether	20	20.04	ppb	0.22	2232676
22 c-12-di-Cl-ethene 96 61	20	21.04	ppb	5.18	463630
23 22-Dichloropropane 77 97	20	20.38	ppb	1.90	683772
24 Br-Cl-methane 128 130	20	21.21	ppb	6.06	200802
25 chloroform 83 85	20	19.22	ppb	3.89	772024
201 Ethyl acetate x2	40	53.28	ppb	33.21	501118
116 ETBE	20	20.97	ppb	4.83	1334759
117 Iso-butyl alcohol X10	200	260.93	ppb	30.47	501118
26 tetrahydrofuranx5	100	110.04	ppb	10.04	92144
27 Di-Br-F-Methane (S1) 111 1	20	20.89	ppb	4.43	607867
34 111-tri-Cl-ethane 97 99	20	19.88	ppb	0.61	622084
30 12-dichloroethane 64 62	20	19.27	ppb	3.65	316641
35 11-Di-Cl-propene 75 110	20	19.84	ppb	0.82	550858
29 1,2-di-Cl-ethane-d4 [Surr] 10	20	19.59	ppb	2.03	259189
36 benzene 78 52	20	20.66	ppb	3.31	1378440
37 CCl4 117 119	20	19.79	ppb	1.03	557032

97 thiophene	20	20.98	ppb	4.91	697877
118 TAME	20	21.52	ppb	7.62	970647
39 12-di-Cl-propane 63 76	20	21.48	ppb	7.38	423166
40 trichloroethene 130 132	20	20.48	ppb	2.39	488502
96 Me-methacrylate	20	20.47	ppb	2.36	159572
42 Br-di-Cl-methane 83 85	20	19.76	ppb	1.21	512101
41 dibromomethane 174 172	20	20.71	ppb	3.57	209863
45 c-13-di-Cl-propene 75 110	20	20.52	ppb	2.61	497669
55 toluene-d8(S2) 100 99	20	20.60	ppb	2.99	813304
92 2-ClEt-Vi-ether10	200	206.34	ppb	3.17	419237

Compound Name	Amount	Actual	Units	%Dev	Target Response
56 toluene 91 92	20	19.75	ppb	1.26	1265226
107 Et methacrylate	20	29.49	ppb	47.45	330146
93 2-Hexanone x5	100	115.80	ppb	15.80	502027
48 112-tri-Cl-Et 97 83	20	19.93	ppb	0.37	193723
58 1,2-di-br-ethane 107 109	20	20.13	ppb	0.63	208118
51 di-Br-Cl-methane 129 127	20	19.86	ppb	0.71	313599
46 t-13-di-cl-propene 75 110	20	20.52	ppb	2.61	497669
105 1-Chlorohexane	20	19.33	ppb	3.37	407510
47 Cl-benzene-d5, I2	10	10.00	ppb	0.00	219755
54 MIBK	20	26.60	ppb	33.01	185887
49 1,3-di-cl-propane 76 78	20	22.19	ppb	10.94	345387
59 tetra-Cl-ethene 166 168	20	22.56	ppb	12.78	424304
60 chlorobenzene 112 77	20	22.53	ppb	12.67	793160
61 1112-tetra-Cl-Et 131 133	20	22.72	ppb	13.60	360080
64 ethylbenzene 91 106	20	21.10	ppb	5.51	1315542

Compound Name	Amount	Actual	Units	%Dev	Target Response
65 m/p-Xylenes x2	40	42.77	ppb	6.93	2007747
99 1-4-di-Cl-butane	20	23.58	ppb	17.92	308601
52 bromoform 173 175	20	21.84	ppb	9.21	147968
66 styrene 104 78	20	22.57	ppb	12.86	769958
67 o-xylene 91 106	20	21.22	ppb	6.08	959644
68 1122-Tetra-Cl-Et 83 85	20	24.10	ppb	20.49	183710
110 t-1,4-dichloro-2-butene	20	20.89	ppb	4.47	35845
106 Cl-benzyl	20	25.29	ppb	26.43	277906
62 1,4-DCB-d4 150 152 I3	10	10.00	ppb	0.00	196133
69 123-tri-Cl-Pr 110 97	20	22.39	ppb	11.93	50904
70 4-Br-1-F-Bz (S3) 174 95	20	21.08	ppb	5.40	340722
71 isopropylbenzene 105 120	20	20.72	ppb	3.58	1364079
72 bromobenzene 156 158	20	22.17	ppb	10.86	311978
73 n-propylbenzene 120 78	20	21.26	ppb	6.29	411986
74 2-Cl-TI 126 128	20	21.80	ppb	9.01	253307
75 4-Cl-TI 126 128	20	21.63	ppb	8.15	376989
76 135-tri-Me-Bz 105 120	20	20.05	ppb	0.27	1029451
79 tert-butylbenzene 119 91	20	20.77	ppb	3.84	1200093
78 124-tri-Me-Bz 105 120	20	20.57	ppb	2.83	881932
80 13-di-Cl-Bz 146 148	20	20.66	ppb	3.29	470563
82 14-di-Cl-Bz 146 148	20	21.67	ppb	8.37	709475
81 sec-butylbenzene 105 134	20	20.74	ppb	3.69	1672695

77 4-iso-Pr-toluene	119 134	20	20.30	ppb	1.51	1240581
84 12-di-Cl-benzene	146 148	20	21.22	ppb	6.10	464406
85 n-butylbenzene	91 134	20	20.78	ppb	3.91	1098567
86 12-diBr-3-Cl-Pra	157 155	20	22.88	ppb	14.39	33167
87 124-tri-Cl-Bz	180 182	20	20.79	ppb	3.95	290102
88 naphthalene	128 129	20	19.59	ppb	2.07	263473
90 123-tri-Cl-Bz	180 182	20	20.64	ppb	3.22	218145
				Ave.% Dev	8.76	

Evaluate Continuing Calibration Report

1043

Data File : C:\HPCHEM\1\DATA\03G2810\G2810Q01.D Vial: 17
Acq On : 5 Jun 03 11:50 am Operator: Eddie
Sample : f=1 ccv Inst : GCMS-G
Misc : Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\E524G004.M
Title : **Applied P &Ch Lab** EPA 524.2
Last Update : Fri May 16 10:36:26 2003
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 35% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1 Fluorobenzene I1 1	1.000	1.000	0.0	105	0.00
2		3 di-Cl-di-F-methane 85 8	0.212	0.206	2.9	103	0.00
3	P	4 Chloromethane 50 5	0.142	0.182	-28.4#	116	0.00
4		9 F114 85 135	0.255	0.248	2.7	101	0.00
5	C	5 vinyl chloride 62 6	0.194	0.207	-6.7	108	0.00
6		6 bromomethane 94 9	0.172	0.182	-5.7	107	0.00
7		7 Chloroethane 64 66	0.153	0.161	-5.2	107	0.00
8		8 tri-Cl-F-methane 101 10	0.396	0.383	3.1	101	0.00
9		111 isopropyl alcohol x10	0.004	0.006#	-39.2#	124	0.00
10		100 ethyl ether x5	0.158	0.149	5.9	107	0.00
11		102 Acrolein x10	0.011	0.013#	-12.4	122	0.00
12		119 methyl acetate	0.177	0.118	33.7#	56	0.00
13		104 Carbon disulfide	0.623	0.589	5.4	100	0.00
14		103 Acrylonitrilex10	0.023	0.028#	-18.9	108	0.00
15		95 Acetone x10	0.019	0.021#	-12.1	126	0.00
16		108 F-113	0.344	0.355	-3.0	108	0.00
17	M,C	13 11-dichloroethene 61 9	0.362	0.354	2.1	104	0.00
18		101 Acetonnitrilex10	0.007	0.008#	-17.0	124	0.00
19		109 Iodomethane	0.399	0.294	26.2#	73	0.00
20		113 Tert butyl alcohol x10	0.009	0.011#	-15.9	121	0.00
21		18 methylene chloride 49 8	0.245	0.266	-8.4	117	0.00
22		112 Allyl chloride	0.430	0.408	5.0	104	0.00
23		200 Nitro methane x10	0.039	0.043#	-8.9	103	0.00
24		10 t-Bu-Me-ether 73 57	0.496	0.490	1.0	106	0.00
25		19 t-12-di-Cl-ethene 96 6	0.263	0.284	-7.7	105	0.00
26		98 Vinyl acetate x5	0.149	0.339	-127.4#	198#	0.00
27	P	21 11-dichloroethane 63 8	0.525	0.543	-3.5	102	0.00

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\03G2810\G2810Q01.D Vial: 17
Acq On : 5 Jun 03 11:50 am Operator: Eddie
Sample : f=1 ccv Inst : GCMS-G
Misc : Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\E524G004.M
Title : **Applied P &Ch Lab** EPA 524.2
Last Update : Fri May 16 10:36:26 2003
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 35% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
28		91 2-butanone MEKx10	0.094	0.100	-6.6	109	0.00
29		115 Di isoprop ether	1.421	1.424	-0.2	108	0.00
30		22 c-12-di-Cl-ethene 96 6	0.281	0.296	-5.2	107	0.00
31		23 22-Dichloropropane 77 9	0.428	0.436	-1.9	109	0.00
32		24 Br-Cl-methane 128 13	0.104	0.128	-22.7#	111	0.00
33	C	25 chloroform 83 8	0.512	0.492	3.9	104	0.00
34		201 Ethyl acetate x2	0.118	0.160	-35.4#	141	0.00
35		116 ETBE	0.916	0.851	7.1	107	0.00
36		117 Iso-butyl alcohol X10	0.022	0.032#	-44.7#	140	0.00
37		26 tetrahydrofuranx5	0.011	0.012#	-10.0	109	0.00
38	S	27 Di-Br-F-Methane (S1) 11	0.371	0.388	-4.4	107	0.00
39		34 111-tri-Cl-ethane 97 9	0.399	0.397	0.6	104	0.00
40		30 12-dichloroethane 64 6	0.184	0.202	-9.9	102	0.00
41		35 11-Di-Cl-propene 75 11	0.354	0.351	0.8	103	0.00
42	S	29 1,2-di-Cl-ethane-d4 [Sur	0.169	0.165	2.0	99	0.00
43	M	36 benzene 78 5	0.851	0.879	-3.3	106	0.00
44		37 CCl4 117 11	0.359	0.355	1.0	103	0.00
45		97 thiophene	0.424	0.445	-4.9	108	0.00
46		118 TAME	0.515	0.619	-20.1#	108	0.00
47	C	39 12-di-Cl-propane 63 7	0.251	0.270	-7.4	108	0.00
48	M	40 trichloroethene 130 13	0.304	0.312	-2.4	108	0.00
49		96 Me-methacrylate	0.087	0.102	-16.5	99	0.00
50		42 Br-di-Cl-methane 83 8	0.362	0.327	9.7	101	0.00
51		41 dibromomethane 174 17	0.109	0.134	-23.2#	107	0.00
52		45 c-13-di-Cl-propene 75 11	0.309	0.317	-2.6	104	0.00
53	S	55 toluene-d8(S2) 100	0.504	0.519	-3.0	106	0.00
54		92 2-ClEt-Vi-ether10	0.026	0.027#	-3.2	101	0.00

(#) = Out of Range

1045

Data File : C:\HPCHEM\1\DATA\03G2810\G2810Q01.D Vial: 17
Acq On : 5 Jun 03 11:50 am Operator: Eddie
Sample : f=1 ccv Inst : GCMS-G
Misc : Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\E524G004.M
Title : **Applied P &Ch Lab** EPA 524.2
Last Update : Fri May 16 10:36:26 2003
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 35% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
55	M C	56 toluene 91 9	0.817	0.807	1.3	107	0.00
56		107 Et methacrylate	0.132	0.211	-59.0#	153#	0.00
57		93 2-Hexanone x5	0.045	0.064	-41.0#	116	0.00
58		48 112-tri-Cl-Et 97 8	0.110	0.124	-12.2	105	0.00
59		58 1,2-di-br-ethane 107 109	0.121	0.133	-10.1	105	0.00
60		51 di-Br-Cl-methane 129 12	0.217	0.200	7.9	105	0.00
61		46 t-13-di-cl-propene 75 11	0.309	0.317	-2.6	104	0.00
62		105 1-Chlorohexane	0.315	0.260	17.4	104	0.00
63	I	47 Cl-benzene-d5, I2	1.000	1.000	0.0	99	0.00
64		54 MIBK	0.323	0.423	-31.1#	114	0.00
65		49 1,3-di-cl-propane 76 78	0.708	0.786	-10.9	103	0.00
66		59 tetra-Cl-ethene 166 16	0.856	0.965	-12.8	107	0.00
67	M P	60 chlorobenzene 112 7	1.602	1.805	-12.7	105	0.00
68		61 1112-tetra-Cl-Et 131 13	0.721	0.819	-13.6	105	0.00
69	C	64 ethylbenzene 91 10	2.837	2.993	-5.5	104	0.00
70		65 m/p-Xylenes x2	2.136	2.284	-6.9	102	0.00
71		99 1-4-di-Cl-butane	0.702	0.702	0.0	102	0.00
72	P	52 bromoform 173 17	0.308	0.337	-9.2	109	0.00
73		66 styrene 104 7	1.729	1.752	-1.3	101	0.00
74		67 o-xylene 91 10	2.058	2.183	-6.1	101	0.00
75	P	68 1122-Tetra-Cl-Et 83 8	0.347	0.418	-20.5#	108	0.00
76		110 t-1,4-dichloro-2-butene	0.078	0.082	-4.5	98	0.00
77		106 Cl-benzyl	0.512	0.632	-23.5#	113	0.00
78	I	62 1,4-DCB-d4 150 152 I3	1.000	1.000	0.0	99	0.00
79		69 123-tri-Cl-Pr 110 9	0.116	0.130	-11.9	109	0.00

(#) = Out of Range

Data File : C:\HPCHEM\1\DATA\03G2810\G2810Q01.D Vial: 17
Acq On : 5 Jun 03 11:50 am Operator: Eddie
Sample : f=1 ccv Inst : GCMS-G
Misc : Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\E524G004.M
Title : **Applied P &Ch Lab** EPA 524.2
Last Update : Fri May 16 10:36:26 2003
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 35% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound		AvgRF	CCRF	%Dev	Area%	Dev(min)
80	S	70 4-Br-1-F-Bz (S3)	174 9	0.824	0.869	-5.4	102	0.00
81		71 isopropylbenzene	105 12	3.357	3.477	-3.6	103	0.00
82		72 bromobenzene	156 15	0.717	0.795	-10.9	103	0.00
83		73 n-propylbenzene	120 7	0.988	1.050	-6.3	104	0.00
84		74 2-Cl-Tl	126 128	0.592	0.646	-9.0	101	0.00
85		75 4-Cl-Tl	126 128	0.889	0.961	-8.2	101	0.00
86		76 135-tri-Me-Bz	105 12	2.617	2.624	-0.3	101	0.00
87		79 tert-butylbenzene	119 9	2.946	3.059	-3.8	102	0.00
88		78 124-tri-Me-Bz	105 12	2.186	2.248	-2.8	105	0.00
89		80 13-di-Cl-Bz	146 148	1.161	1.200	-3.3	104	0.00
90		82 14-di-Cl-Bz	146 148	1.669	1.809	-8.4	103	0.00
91		81 sec-butylbenzene	105 13	4.113	4.264	-3.7	106	0.00
92		77 4-iso-Pr-toluene	119 13	3.116	3.163	-1.5	103	0.00
93		84 12-di-Cl-benzene	146 14	1.116	1.184	-6.1	102	0.00
94		85 n-butylbenzene	91 13	2.695	2.801	-3.9	108	0.00
95		86 12-diBr-3-Cl-Pra	157 15	0.067	0.085	-25.7#	114	0.00
96		87 124-tri-Cl-Bz	180 18	0.654	0.740	-13.1	110	0.00
97		88 naphthalene	128 12	0.583	0.672	-15.3	112	0.00
98		90 123-tri-Cl-Bz	180 18	0.469	0.556	-18.5	106	0.00
99		89 hx-Cl-butadiene	225 26	0.681	0.683	-0.4	104	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

FORM-8A

Applied P & Ch Laboratory

Internal Standard Area and RT Summary for Method 524.2

Client Name:	GEOFON, Inc.	Contract No:		Lab Code:	APCL
Case No:		SAS No:		Service ID:	033444
Project ID:	JPL	Project No:	04-4428.10	Sample Matrix:	Water
		CCV Data File:	G2810Q01	Instrument ID:	G

Batch No: 03G2810

#	Client Sample No	Lab Sample ID	Analysis Date & Time	IS-1 Area #	IS-1 RT #	IS-2 Area #	IS-2 RT #	IS-3 Area #	IS-3 RT #
	12 Hour CCV STD		06/05/03 11:50	783807	9.46	219755	13.06	196133	15.56
	CCV Upper Limit			1567614	9.96	439510	13.56	392266	16.06
	CCV Lower Limit			391903	8.96	109877	12.56	98066	15.06
1	03G2810-LCS-01	03G2810-LCS-01	06/05/03 12:19	792564	9.45	230675	13.05	206357	15.55
2	MW-6MS	03-3444-1MS	06/05/03 12:49	698409	9.44	201957	13.06	182084	15.56
3	MW-6MSD	03-3444-1MSD	06/05/03 13:18	719973	9.44	215809	13.06	194967	15.55
4	MW-7MS	03-3444-2MS	06/05/03 13:49	685579	9.45	201851	13.06	186312	15.57
5	MW-7MSD	03-3444-2MSD	06/05/03 14:18	721639	9.47	206224	13.07	196455	15.57
6	03G2810-MB-01	03G2810-MB-01	06/05/03 15:46	692934	9.45	187232	13.04	179560	15.56
7	TB-16-5/29/03	03-3444-4	06/05/03 16:44	735983	9.45	203389	13.05	195172	15.55
8	MW-6	03-3444-1	06/05/03 18:40	793004	9.44	211773	13.05	194406	15.56
9	MW-7	03-3444-2	06/05/03 19:09	759140	9.44	204396	13.05	188242	15.55
10	MW-15	03-3444-3	06/05/03 19:37	772205	9.44	207600	13.05	188276	15.56
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									

IS-1 = FLUOROBENZENE
IS-2 = CHLOROBENZENE-D5
IS-3 = 1,4-DICHLOROBENZENE-D4

Area Upper Limit = +100% of CCV internal standard area
Area Lower Limit = - 50% of CCV internal standard area
RT Upper Limit = +0.50 minutes of CCV internal standard RT
RT Lower Limit = - 0.50 minutes of CCV internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits

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

VOC Analysis General Logbook

Lot # 0369404 Batch # 0369404 Matrix: W Date: 5-15-03 Analyst: Eddie

Surr. IS/Surrogate: GC- 15114/15115 Methanol(mark-M): _____ PEG (mark-PEG): _____ Defoaming(mark-DF): _____

Calib. + Ini. Batch ☑ Initial Batch; ☐ Middle Batch; ☐ Final Batch. ☐ Internal Study Datafile Path: _____

#	Type	Sample ID	Method	$V_i/X=f_1$	$V_f/V_i=f_2$	$V_{spg}/V_{inj}=f_3$	F	A-#	Datafile	Note	pH
3817	SP	69404P01	E5246	25/25 = 1	1 =	1 =	1		69404P01	5-15-03 10:18AM	GC15137
3818	Calib	4-003	004	1 =	1 =	1 =			4-003	gc15137	
3819		4-002		1 =	1 =	1 =			4-002		
3820		4-010		1 =	1 =	1 =			4-010		
3821		4-020		1 =	1 =	1 =			4-020		
3822		4-040		1 =	1 =	1 =			4-040		
3823	↓	4-080		1 =	1 =	1 =			4-080	↓	
3824	CCV	69404B01		1 =	1 =	1 =			69404B01	CCV/ICV 5-16-03 1:08AM	
3825	LCS	L01		1 =	1 =	1 =			L01	GC15137	
3826	MS	M01		1 =	1 =	1 =			M01	3082-04 <2	
3827	MSD	N01		1 =	1 =	1 =			N01	3082-04 <2	
3828	MB	E01		1 =	1 =	1 =			E01		
3829	Sample	3082-01		1 =	1 =	1 =			3082-01		<2
3830		02		1 =	1 =	1 =			02		
3831		03		1 =	1 =	1 =			03		
		04		1 =	1 =	1 =			04	MS	
		05		1 =	1 =	1 =			05		
3834		06		1 =	1 =	1 =			06		
3835		07		1 =	1 =	1 =			07		
3836		3102-01		1 =	1 =	1 =			3102-01		
3837		02		1 =	1 =	1 =			02		
3838		03		1 =	1 =	1 =			03		
3839		04		1 =	1 =	1 =			04		
3840		05		1 =	1 =	1 =			05		
3841		06		1 =	1 =	1 =			06		
3842		07		1 =	1 =	1 =			07		
3843		08		1 =	1 =	1 =			08		
3844		3115-01		1 =	1 =	1 =			3115-01		
3845		02		1 =	1 =	1 =			02		
3846		03		1 =	1 =	1 =			03		
3847	↓	04	↓	1 =	1 =	1 =	↓		04	push 12hrs	
3848				1 =	1 =	1 =					

Type	Op #	STD Lot #	$C_{std}(ng/\mu L)\times V_{std}(\mu L)/X(g \text{ or } mL)=T$	Op #	STD Lot #	$C_{std}(ng/\mu L)\times V_{std}(\mu L)/X(g \text{ or } mL)=T$
LCS/LCSD	3825	GC-15138	30 × 2.5 /X = 20 ppb		GC-	× /X= ppb
MS/MSD	3836/3847	GC-15138	30 × 2.5 /X = 20 ppb		GC-	× /X= ppb

Note/Anomaly:

VOC-096

Applied P & Ch Laboratory
[illegible] Magnolia Ave. Chino CA 91710
(909) 590-1828 Fax: (909) 590-1498

VOC Analysis General Logbook

Sequence # 0364-810 Batch # 0705-810 Matrix: W Date: 6-5-03 Analyst: Eddie

IS/Surrogate: GC-5114/5115 Methanol(mark-*M*): _____ PEG (mark-*PEG*): _____ Defoaming(mark-*DF*): _____

Ini. Batch ☑ Initial Batch; ☐ Middle Batch; ☐ Final Batch. ☐ Internal Study Datafile Path: _____

#	Type	Sample ID	Method	$V/X=J_1$	$V_f/V_i=J_2$	$V_{pg}/V_{inj}=J_3$	F	A-#	Datafile	Note	pH
1	SP	G2810P01	E524G	5/25 = 1	/ =	/ =	1		G2810P01		
2	LCS	L01	004	/ =	/ =	/ =			L01	6-5-03 11:50AM	GC-5114
3	MS	M01		/ =	/ =	/ =			M01	3444-1	
4	MSD	M01		/ =	/ =	/ =			M01	3444-1	
5	MS	M02		/ =	/ =	/ =			M02	3444-2	
6	MSD	M02		/ =	/ =	/ =			M02	3444-2	
7	MB	K01		/ =	/ =	/ =			K01		
8	Sample	3465-04		/ =	/ =	/ =			3465-04		<2
9		3444-04		/ =	/ =	/ =			3444-04		
10		3465-01		/ =	/ =	/ =			3465-01		
11		02		/ =	/ =	/ =			02		
12		03		/ =	/ =	/ =			03		
13		3444-01		/ =	/ =	/ =			3444-01		
14		02		/ =	/ =	/ =			02		
15		03		/ =	/ =	/ =			03		
16				/ =	/ =	/ =					
17				/ =	/ =	/ =					
18				/ =	/ =	/ =					
19				/ =	/ =	/ =					
20				/ =	/ =	/ =					
21				/ =	/ =	/ =					
22				/ =	/ =	/ =					
23				/ =	/ =	/ =					
24				/ =	/ =	/ =					
25				/ =	/ =	/ =					
26				/ =	/ =	/ =					
27				/ =	/ =	/ =					
28				/ =	/ =	/ =					
29				/ =	/ =	/ =					
30				/ =	/ =	/ =					
31				/ =	/ =	/ =					
32				/ =	/ =	/ =					

Type	Op #	STD Lot #	$C_{std}(ng/\mu L)\times V_{std}(\mu L)/X(g \text{ or } mL)=T$	Op #	STD Lot #	$C_{std}(ng/\mu L)\times V_{std}(\mu L)/X(g \text{ or } mL)=T$
LCS/LCSD	4043	GC-	× /X= ppb		GC-	× /X= ppb
MS/MSD	4044/4045	GC-5115	200 × 2.5 /X=20 ppb		GC-	× /X= ppb

Footnote/Anomaly:

FILE: [CUST.DOC.GC]VOC_LOG .TEX Root-File: VOC_LOG_ROOT.TEX 1-Page-File:[CUST.DOC.GC]VOC_LOG1.TEX; pH for field water samples only.
QCL form 7-201, April 03, 1996; Ver 4.1 No pencil. Use blue pen for record. Use red pen for correction. Supervisor Initial

Level C Data Package Deliverables

Metals

Applied P & Ch Laboratory

Applied P & Ch Laboratory

Metal Analysis Results

Client Name:	GEOFON, Inc.	Project No:	04-4428.10	Collection Date:	06/02/2003
Project ID:	JPL	Service ID:	33444	Collected by:	
		Lab Sample ID:	03M1535-MB-01	Received Date:	06/02/2003
Sample ID:	**03M1535-MB-01**	Sample Matrix	Water	Moisture %:	–
Sample Type:	Method Blank				

Element Name	CAS No	Unit	RL	Result	C	M	Q	Batch	D-Date	A-Date	DF	Method
ARSENIC	7440-38-2	µg/L	5	< 5	U	F		03M1535E	06/02/03	06/02/03	1	200.9
CALCIUM	7440-70-2	µg/L	200	< 200	U	P		03M1537M	06/02/03	06/02/03	1	200.7
IRON	7439-89-6	µg/L	50	< 50	U	P		03M1537M	06/02/03	06/02/03	1	200.7
MAGNESIUM	7439-95-4	µg/L	100	< 100	U	P		03M1537M	06/02/03	06/02/03	1	200.7
POTASSIUM	7440-09-7	µg/L	400	73.2	B	P		03M1537M	06/02/03	06/02/03	1	200.7
SODIUM	7440-23-5	µg/L	2000	< 2000	U	P		03M1537M	06/02/03	06/02/03	1	200.7

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

Note: RL: PQL (EQL) or CRDL D-Date: Digestion Date; A-Date: Analysis Date; DF: Dilution Factor

C Qualifier: U - Not Detected or less than IDL B - Less than RL (PQL, EQL or CRDL), but greater than IDL.

Q Qualifier: N - Spike recovery out of control * - Duplicate analysis out of control

W - Post digestion spike for GFAA out of control E - Serial dilution difference out of control

M Qualifier: P - ICP A - FLAA F - GFAA CV - Cold Vapor

Applied P & Ch Laboratory

Metal Analysis Results

Client Name:	GEOFON, Inc.	Project No:	04-4428.10	Collection Date:	05/29/2003
Project ID:	JPL	Service ID:	33444	Collected by:	
		Lab Sample ID:	03-3444-1	Received Date:	05/29/2003
Sample ID:	MW-6	Sample Matrix	Water	Moisture %:	–
Sample Type:	Field Sample				

Element Name	CAS No	Unit	RL	Result	C	M	Q	Batch	D-Date	A-Date	DF	Method
ARSENIC	7440-38-2	µg/L	5	< 5	U	F		03M1535E	06/02/03	06/02/03	1	200.9
CALCIUM	7440-70-2	µg/L	200	162000		P		03M1537M	06/02/03	06/02/03	1	200.7
IRON	7439-89-6	µg/L	50	785		P		03M1537M	06/02/03	06/02/03	1	200.7
MAGNESIUM	7439-95-4	µg/L	100	51200		P		03M1537M	06/02/03	06/02/03	1	200.7
POTASSIUM	7440-09-7	µg/L	400	2690		P		03M1537M	06/02/03	06/02/03	1	200.7
SODIUM	7440-23-5	µg/L	2000	35100		P		03M1537M	06/02/03	06/02/03	1	200.7

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

Note: RL: PQL (EQL) or CRDL D-Date: Digestion Date; A-Date: Analysis Date; DF: Dilution Factor

C Qualifier: U - Not Detected or less than IDL B - Less than RL (PQL, EQL or CRDL), but greater than IDL.

Q Qualifier: N - Spike recovery out of control * - Duplicate analysis out of control

W - Post digestion spike for GFAA out of control E - Serial dilution difference out of control

M Qualifier: P - ICP A - FLAA F - GFAA CV - Cold Vapor

Applied P & Ch Laboratory

Metal Analysis Results

Client Name:	GEOFON, Inc.	Project No:	04-4428.10	Collection Date:	05/29/2003
Project ID:	JPL	Service ID:	33444	Collected by:	
		Lab Sample ID:	03-3444-2	Received Date:	05/29/2003
Sample ID:	**MW-7**	Sample Matrix	Water	Moisture %:	–
Sample Type:	Field Sample				

Element Name	CAS No	Unit	RL	Result	C	M	Q	Batch	D-Date	A-Date	DF	Method
ARSENIC	7440-38-2	µg/L	5	< 5	U	F		03M1535E	06/02/03	06/02/03	1	200.9
CALCIUM	7440-70-2	µg/L	200	54200		P		03M1537M	06/02/03	06/02/03	1	200.7
IRON	7439-89-6	µg/L	50	138		P		03M1537M	06/02/03	06/02/03	1	200.7
MAGNESIUM	7439-95-4	µg/L	100	17200		P		03M1537M	06/02/03	06/02/03	1	200.7
POTASSIUM	7440-09-7	µg/L	400	2250		P		03M1537M	06/02/03	06/02/03	1	200.7
SODIUM	7440-23-5	µg/L	2000	17800		P		03M1537M	06/02/03	06/02/03	1	200.7

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

Note: RL: PQL (EQL) or CRDL D-Date: Digestion Date; A-Date: Analysis Date; DF: Dilution Factor

C Qualifier: U - Not Detected or less than IDL B - Less than RL (PQL, EQL or CRDL), but greater than IDL.

Q Qualifier: N - Spike recovery out of control * - Duplicate analysis out of control
W - Post digestion spike for GFAA out of control E - Serial dilution difference out of control

M Qualifier: P - ICP A - FLAA F - GFAA CV - Cold Vapor

Applied P & Ch Laboratory

Metal Analysis Results

Client Name:	GEOFON, Inc.	Project No:	04-4428.10	Collection Date:	05/29/2003
Project ID:	JPL	Service ID:	33444	Collected by:	
		Lab Sample ID:	03-3444-3	Received Date:	05/29/2003
Sample ID:	MW-15	Sample Matrix	Water	Moisture %:	–
Sample Type:	Field Sample				

Element Name	CAS No	Unit	RL	Result	C	M	Q	Batch	D-Date	A-Date	DF	Method
ARSENIC	7440-38-2	µg/L	5	2.1	B	F		03M1535E	06/02/03	06/02/03	1	200.9
CALCIUM	7440-70-2	µg/L	200	57400		P		03M1537M	06/02/03	06/02/03	1	200.7
IRON	7439-89-6	µg/L	50	389		P		03M1537M	06/02/03	06/02/03	1	200.7
MAGNESIUM	7439-95-4	µg/L	100	18400		P		03M1537M	06/02/03	06/02/03	1	200.7
POTASSIUM	7440-09-7	µg/L	400	2800		P		03M1537M	06/02/03	06/02/03	1	200.7
SODIUM	7440-23-5	µg/L	2000	24500		P		03M1537M	06/02/03	06/02/03	1	200.7

Note: RL: PQL (EQL) or CRDL D-Date: Digestion Date; A-Date: Analysis Date; DF: Dilution Factor

C Qualifier: U - Not Detected or less than IDL B - Less than RL (PQL, EQL or CRDL), but greater than IDL.

Q Qualifier: N - Spike recovery out of control * - Duplicate analysis out of control

W - Post digestion spike for GFAA out of control E - Serial dilution difference out of control

M Qualifier: P - ICP A - FLAA F - GFAA CV - Cold Vapor

FORM-2A Metal

Applied P & Ch Laboratory

Initial and Continuing Calibration Verification

Client Name:	GEOFON, Inc.	Project No:	04-4428.10	Lab Code:	APCL
Project Name:	JPL	Service ID:	033444	Sequence No.:	03M1537M
		Instrument:	ICP -M	Method:	200.9
Batch No.(s):	03M1537				

Analysis Date: **06/02/03** Concentration Units: **UG/L**

#	Analyte	ICV True	11:12 Result	%R	CCV True	11:29 Result	%R	CCV True	12:08 Result	%R	CCV True	12:28 Result	%R
1	Aluminum	10000.0	9942.63	99.4	5000.0	5240.06	104.8	5000.0	5027.22	100.5	5000.0	5177.05	103.5
2	Antimony	4000.0	3993.87	99.8	2000.0	2030.03	101.5	2000.0	1883.43	94.2	2000.0	2028.49	101.4
3	Arsenic	1000.0	1006.07	100.6	500.0	508.36	101.7	500.0	451.06	90.2	500.0	515.27	103.1
4	Barium	10000.0	9978.16	99.8	5000.0	5274.75	105.5	5000.0	5193.62	103.9	5000.0	5094.50	101.9
5	Beryllium	1000.0	1001.81	100.2	500.0	515.72	103.1	500.0	459.63	91.9	500.0	497.51	99.5
6	Cadmium	2000.0	1995.47	99.8	1000.0	1026.26	102.6	1000.0	920.40	92.0	1000.0	1024.26	102.4
7	Calcium	100000.0	99827.40	99.8	50000.0	51437.58	102.9	50000.0	48054.31	96.1	50000.0	51298.20	102.6
8	Chromium	1000.0	996.13	99.6	500.0	514.56	102.9	500.0	481.77	96.4	500.0	513.20	102.6
9	Cobalt	4000.0	3978.34	99.5	2000.0	2075.74	103.8	2000.0	1860.40	93.0	2000.0	2066.41	103.3
10	Copper	4000.0	4003.92	100.1	2000.0	2095.23	104.8	2000.0	2161.82	108.1	2000.0	2019.21	101.0
11	Iron	10000.0	10019.62	100.2	5000.0	5255.54	105.1	5000.0	4921.42	98.4	5000.0	5079.04	101.6
12	Lead	1000.0	991.40	99.1	500.0	521.80	104.4	500.0	548.20	109.6	500.0	526.33	105.3
13	Magnesium	50000.0	49783.73	99.6	25000.0	26349.39	105.4	25000.0	26641.57	106.6	25000.0	25460.94	101.8
14	Manganese	4000.0	3995.70	99.9	2000.0	2115.48	105.8	2000.0	2289.80	114.5	2000.0	2031.98	101.6
15	Nickel	4000.0	3967.96	99.2	2000.0	2075.61	103.8	2000.0	1843.84	92.2	2000.0	2073.46	103.7
16	Potassium	30000.0	29805.81	99.4	15000.0	14951.97	99.7	15000.0	14090.86	93.9	15000.0	14764.40	98.4
17	Selenium	1000.0	994.78	99.5	500.0	522.59	104.5	500.0	521.21	104.2	500.0	523.30	104.7
18	Silver	2000.0	2053.56	102.7	1000.0	1036.71	103.7	1000.0	1000.95	100.1	1000.0	1005.79	100.6
19	Sodium	200000.0	199293.44	99.6	100000.0	101587.53	101.6	100000.0	93312.11	93.3	100000.0	101341.95	101.3
20	Thallium	1000.0	988.25	98.8	500.0	517.78	103.6	500.0	516.59	103.3	500.0	519.65	103.9
21	Vanadium	4000.0	3998.54	100.0	2000.0	2073.94	103.7	2000.0	1926.80	96.3	2000.0	2018.54	100.9
22	Zinc	4000.0	3977.12	99.4	2000.0	2075.09	103.8	2000.0	2144.69	107.2	2000.0	2055.25	102.8
23	Molybdenum	4000.0	3991.30	99.8	2000.0	2067.26	103.4	2000.0	2090.13	104.5	2000.0	2052.07	102.6

(a) ICV Control Limit 95-105%; For Hg, 90-110%.

(b) CCV Control Limit 90-110%; For Hg, 80-120%.

FORM-2A Metal

Applied P & Ch Laboratory

Initial and Continuing Calibration Verification

Client Name:	GEOFON, Inc.	Project No:	04-4428.10	Lab Code:	APCL
Project Name:	JPL	Service ID:	033444	Sequence No.:	03M1537M
		Instrument:	ICP -M	Method:	200.9
Batch No.(s):	03M1537				

Analysis Date: **06/02/03** Concentration Units: **UG/L**

#	Analyte	CCV True	13:07 Result	%R	CCV True	13:25 Result	%R	CCV True	14:04 Result	%R	CCV True	14:51 Result	%R
1	Aluminum	5000.0	5285.99	105.7	5000.0	5256.06	105.1	5000.0	5174.55	103.5	5000.0	5556.35	111.1
2	Antimony	2000.0	2011.73	100.6	2000.0	1978.14	98.9	2000.0	1963.85	98.2	2000.0	1949.13	97.5
3	Arsenic	500.0	503.66	100.7	500.0	492.99	98.6	500.0	485.56	97.1	500.0	476.05	95.2
4	Barium	5000.0	5217.66	104.4	5000.0	5180.50	103.6	5000.0	5104.67	102.1	5000.0	5348.25	107.0
5	Beryllium	500.0	494.92	99.0	500.0	491.84	98.4	500.0	480.56	96.1	500.0	485.15	97.0
6	Cadmium	1000.0	1031.30	103.1	1000.0	1022.42	102.2	1000.0	995.08	99.5	1000.0	1034.78	103.5
7	Calcium	50000.0	52276.36	104.6	50000.0	51782.73	103.6	50000.0	50685.59	101.4	50000.0	53658.25	107.3
8	Chromium	500.0	520.09	104.0	500.0	515.10	103.0	500.0	504.99	101.0	500.0	524.80	105.0
9	Cobalt	2000.0	2084.83	104.2	2000.0	2060.79	103.0	2000.0	2005.13	100.3	2000.0	2084.18	104.2
10	Copper	2000.0	2083.98	104.2	2000.0	2072.90	103.6	2000.0	2056.92	102.8	2000.0	2164.46	108.2
11	Iron	5000.0	5160.81	103.2	5000.0	5119.42	102.4	5000.0	5009.47	100.2	5000.0	5295.56	105.9
12	Lead	500.0	532.88	106.6	500.0	528.11	105.6	500.0	532.31	106.5	500.0	536.97	107.4
13	Magnesium	25000.0	26204.10	104.8	25000.0	26043.28	104.2	25000.0	25801.55	103.2	25000.0	27299.64	109.2
14	Manganese	2000.0	2070.12	103.5	2000.0	2097.93	104.9	2000.0	2063.92	103.2	2000.0	2125.33	106.3
15	Nickel	2000.0	2094.83	104.7	2000.0	2062.55	103.1	2000.0	2003.32	100.2	2000.0	2080.99	104.0
16	Potassium	15000.0	14690.09	97.9	15000.0	14902.25	99.3	15000.0	14887.51	99.3	15000.0	15239.40	101.6
17	Selenium	500.0	524.27	104.9	500.0	518.88	103.8	500.0	518.10	103.6	500.0	523.62	104.7
18	Silver	1000.0	1024.15	102.4	1000.0	1016.08	101.6	1000.0	1000.53	100.1	1000.0	1045.07	104.5
19	Sodium	100000.0	102541.80	102.5	100000.0	101375.90	101.4	100000.0	99653.48	99.7	100000.0	104594.88	104.6
20	Thallium	500.0	517.10	103.4	500.0	510.31	102.1	500.0	510.69	102.1	500.0	510.21	102.0
21	Vanadium	2000.0	2041.22	102.1	2000.0	2023.43	101.2	2000.0	1978.67	98.9	2000.0	2058.29	102.9
22	Zinc	2000.0	2122.65	106.1	2000.0	2114.28	105.7	2000.0	2100.56	105.0	2000.0	2205.20	110.3
23	Molybdenum	2000.0	2100.56	105.0	2000.0	2090.95	104.5	2000.0	2063.30	103.2	2000.0	2162.33	108.1

(a) ICV Control Limit 95-105%; For Hg, 90-110%.

(b) CCV Control Limit 90-110%; For Hg, 80-120%.

FORM-2A Metal

Applied P & Ch Laboratory

Initial and Continuing Calibration Verification

Client Name:	GEOFON, Inc.	Project No:	04-4428.10	Lab Code:	APCL
Project Name:	JPL	Service ID:	033444	Sequence No.:	03M1537M
		Instrument:	ICP -M	Method:	200.9
Batch No.(s):	03M1537				

Analysis Date: **06/02/03** Concentration Units: **UG/L**

#	Analyte	CCV True	14:59 Result	%R	True	Result	%R	True	Result	%R	True	Result	%R
1	Aluminum	5000.0	5207.74	104.2									
2	Antimony	2000.0	1955.18	97.8									
3	Arsenic	500.0	478.53	95.7									
4	Barium	5000.0	5123.84	102.5									
5	Beryllium	500.0	484.22	96.8									
6	Cadmium	1000.0	990.31	99.0									
7	Calcium	50000.0	50505.78	101.0									
8	Chromium	500.0	504.13	100.8									
9	Cobalt	2000.0	1999.38	100.0									
10	Copper	2000.0	2063.93	103.2									
11	Iron	5000.0	5033.10	100.7									
12	Lead	500.0	534.97	107.0									
13	Magnesium	25000.0	26015.87	104.1									
14	Manganese	2000.0	2107.81	105.4									
15	Nickel	2000.0	1986.64	99.3									
16	Potassium	15000.0	15422.19	102.8									
17	Selenium	500.0	521.21	104.2									
18	Silver	1000.0	998.85	99.9									
19	Sodium	100000.0	99397.13	99.4									
20	Thallium	500.0	510.12	102.0									
21	Vanadium	2000.0	1972.53	98.6									
22	Zinc	2000.0	2107.67	105.4									
23	Molybdenum	2000.0	2068.24	103.4									

(a) ICV Control Limit 95-105%; For Hg, 90-110%.

(b) CCV Control Limit 90-110%; For Hg, 80-120%.

FORM-2A Metal

Applied P & Ch Laboratory

Initial and Continuing Calibration Verification

Client Name:	GEOFON, Inc.	Project No:	04-4428.10	Lab Code:	APCL
Project Name:	JPL	Service ID:	033444	Sequence No.:	03M1535E
		Instrument:	GFAA-E	Method:	200.9
Batch No.(s):	03M1535				

Analysis Date: 06/02/03 Concentration Units: UG/L

#	Analyte	ICV True	ICV 15:36 Result	ICV %R	CCV True	CCV 16:53 Result	CCV %R	CCV True	CCV 18:08 Result	CCV %R	CCV True	CCV 18:27 Result	CCV %R
1	Arsenic	50.0	51.00	102.0	50.0	50.70	101.4	50.0	50.00	100.0	50.0	50.70	101.4

(a) ICV Control Limit 95-105%; For Hg, 90-110%.

(b) CCV Control Limit 90-110%; For Hg, 80-120%.

FORM-2B Metal

Applied P & Ch Laboratory

CRDL Standard For AA and ICP

Client Name:	GEOFON, Inc.	Project No:	04-4428.10	Lab Code:	APCL
Project Name:	JPL	Service ID:	033444	Sequence No.:	03M1537M
		Instrument:	ICP -M	Method:	200.9
Batch No.(s):	03M1537				

Analysis Date: 06/02/03 Concentration Units: UG/L

#	Analyte	True	11:20 Found	R%	Time Found	R%
1	Aluminum	200.0	234.00	117.0		
2	Antimony	20.0	21.59	108.0		
3	Arsenic	20.0	21.72	108.6		
4	Barium	10.0	12.57	125.7		
5	Beryllium	4.0	4.51	112.7		
6	Cadmium	5.0	4.72	94.5		
7	Calcium	1000.0	1111.53	111.2		
8	Chromium	10.0	11.39	113.9		
9	Cobalt	20.0	23.47	117.3		
10	Copper	10.0	12.80	128.0		
11	Iron	50.0	46.81	93.6		
12	Lead	10.0	11.00	110.0		
13	Magnesium		-1.03			
14	Manganese	10.0	10.82	108.2		
15	Nickel	20.0	23.05	115.2		
16	Potassium		155.36			
17	Selenium	10.0	13.49	134.9		
18	Silver	10.0	11.62	116.2		
19	Sodium		8.93			
20	Thallium	10.0	11.65	116.5		
21	Vanadium	10.0	10.88	108.8		
22	Zinc	20.0	22.11	110.6		
23	Molybdenum	15.0	16.24	108.3		

FORM-3 Metal

Applied P & Ch Laboratory

Metal ICB/CCB Summary

Client Name: GEOFON, Inc.
Project Name: JPL
Batch No.(s): 03M1537

Project No: 04-4428.10
Service ID: 033444
Instrument: ICP -M

Lab Code: APCL
Sequence No.: 03M1537M
Method: 200.9

Analysis Date: 06/02/03

Concentration Units: UG/L

#	Analyte	ICB Result	11:16 C	CCB Result	11:32 C	CCB Result	12:32 C	CCB Result	13:11 C	CCB Result	13:29 C
1	Aluminum	6.90	U	20.55	B	6.90	U	9.17	B	9.34	B
2	Antimony	5.16	B	2.40	U	5.27	B	3.74	B	2.97	B
3	Arsenic	1.80	U	1.80	U	1.80	U	1.80	U	1.80	U
4	Barium	1.64	B	1.34	B	1.21	B	1.65	B	0.89	U
5	Beryllium	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U
6	Cadmium	0.18	B	0.25	B	0.16	U	0.29	B	0.16	U
7	Calcium	121.00	U	121.00	U	121.00	U	121.00	U	121.00	U
8	Chromium	0.26	U	0.26	U	0.26	U	0.26	U	0.26	U
9	Cobalt	0.74	B	0.46	U	0.46	U	0.46	U	0.46	U
10	Copper	5.97	B	5.24	B	1.90	U	1.90	U	1.90	U
11	Iron	7.70	U	13.83	B	7.70	U	7.70	U	7.70	U
12	Lead	0.90	U	0.90	U	0.90	U	1.06	B	0.90	U
13	Magnesium	19.00	U	19.00	U	19.00	U	19.00	U	19.00	U
14	Manganese	0.77	B	0.63	U	0.63	U	0.86	B	0.63	U
15	Nickel	0.60	B	0.44	U	0.44	U	0.44	U	0.44	U
16	Potassium	160.96	B	164.74	B	68.88	B	70.22	B	68.98	B
17	Selenium	1.80	U	2.46	B	-3.63	B	1.80	U	1.80	U
18	Silver	0.61	B	0.47	B	-0.55	B	0.43	U	0.68	B
19	Sodium	189.00	U	189.00	U	-202.61	B	-381.16	B	189.00	U
20	Thallium	1.80	U	1.80	U	1.80	U	2.27	B	2.93	B
21	Vanadium	0.53	U	0.53	U	0.53	U	0.90	B	0.96	B
22	Zinc	1.30	U	1.30	U	1.30	U	1.30	U	1.30	U
23	Molybdenum	2.69	B	1.80	B	1.43	B	1.36	B	0.55	B

FORM-3 Metal

Applied P & Ch Laboratory

Metal ICB/CCB Summary

Client Name:	GEOFON, Inc.	Project No:	04-4428.10	Lab Code:	APCL
Project Name:	JPL	Service ID:	033444	Sequence No.:	03M1537M
		Instrument:	ICP -M	Method:	200.9
Batch No.(s):	03M1537				

Analysis Date: 06/02/03 Concentration Units: UG/L

#	Analyte	CCB Result	14:09 C	CCB Result	15:06 C	CCB Result	Time C	CCB Result	Time C	CCB Result	Time C
1	Aluminum	10.14	B	17.40	B						
2	Antimony	2.40	U	2.40	U						
3	Arsenic	-3.77	B	-3.34	B						
4	Barium	0.89	U	0.89	U						
5	Beryllium	0.19	U	0.19	U						
6	Cadmium	0.16	U	0.16	U						
7	Calcium	124.84	B	222.94							
8	Chromium	0.26	U	0.26	U						
9	Cobalt	0.46	U	0.46	U						
10	Copper	1.90	U	1.90	U						
11	Iron	7.70	U	7.70	U						
12	Lead	0.90	U	0.90	U						
13	Magnesium	19.00	U	19.00	U						
14	Manganese	0.63	U	0.63	U						
15	Nickel	-0.63	B	-0.78	B						
16	Potassium	70.31	B	78.58	B						
17	Selenium	1.80	U	1.80	U						
18	Silver	-0.47	B	0.43	U						
19	Sodium	-201.38	B	189.00	U						
20	Thallium	1.80	U	1.80	U						
21	Vanadium	0.53	B	0.53	U						
22	Zinc	1.30	U	1.30	U						
23	Molybdenum	0.48	U	0.48	U						

FORM-3 Metal

Applied P & Ch Laboratory

Metal ICB/CCB Summary

Client Name:	GEOFON, Inc.	Project No:	04-4428.10	Lab Code:	APCL
Project Name:	JPL	Service ID:	033444	Sequence No.:	03M1535E
		Instrument:	GFAA-E	Method:	200.9
Batch No.(s):	03M1535				

Analysis Date: 06/02/03 Concentration Units: UG/L

#	Analyte	ICB Result	15:42 C	CCB Result	16:59 C	CCB Result	18:15 C	CCB Result	18:34 C	CCB Result	Time C
1	Arsenic	1.80	U	1.80	U	1.80	U	1.80	U		

FORM-4 Metal

Applied P & Ch Laboratory

ICP Interference Check Sample

Client Name: GEOFON, Inc.
Project Name: JPL
Batch No.(s): 03M1537

Project No: 04-4428.10
Service ID: 033444
ICP ID Number: ICP -M

Lab Code: APCL
Sequence No.: 03M1537M

Analysis Date: **06/02/03**

Concentration Units: **UG/L**

#	Analyte	Expected Sol. A	Expected Sol. AB	Initial 11:22 Sol. A	Found 11:25 Sol. AB	%R	Final 14:44 Sol. A	Found 14:47 Sol. AB	%R
1	Aluminum	500000	500000	464290	458836.3	91.8	458682	464695.8	92.9
2	Antimony	0	1000	-10	954.1	95.4	-10	908.0	90.8
3	Arsenic	0	1000	2	963.3	96.3	-3	916.9	91.7
4	Barium	0	500	4	496.3	99.3	2	497.7	99.5
5	Beryllium	0	500	0	474.9	95.0	0	456.0	91.2
6	Cadmium	0	1000	0	915.2	91.5	-1	919.3	91.9
7	Calcium	500000	500000	495897	470558.3	94.1	496981	476691.8	95.3
8	Chromium	0	500	6	473.6	94.7	6	482.7	96.5
9	Cobalt	0	500	2	450.4	90.1	2	451.2	90.2
10	Copper	0	500	6	483.8	96.8	-1	493.1	98.6
11	Iron	200000	200000	184377	178537.4	89.3	177283	175558.6	87.8
12	Lead	0	1000	-4	943.5	94.3	1	979.0	97.9
13	Magnesium	500000	500000	482688	472549.8	94.5	473346	476208.9	95.2
14	Manganese	0	500	0	478.1	95.6	-1	491.9	98.4
15	Nickel	0	1000	3	883.0	88.3	2	882.4	88.2
16	Potassium	0	0	237	226.4		170	137.2	
17	Selenium	0	1000	-7	964.5	96.5	14	962.7	96.3
18	Silver	0	1000	-2	975.1	97.5	-3	980.3	98.0
19	Sodium	0	0	257	416.2		-19	214.4	
20	Thallium	0	1000	11	939.8	94.0	13	924.2	92.4
21	Vanadium	0	500	0	467.0	93.4	1	461.8	92.4
22	Zinc	0	1000	11	945.1	94.5	12	1003.8	100.4
23	Molybdenum	0	1000	2	931.2	93.1	-1	940.1	94.0

FORM-5A Metal

Applied P & Ch Laboratory

Matrix Spike/Matrix Spike Duplicate Recovery for Method 200.9

Client Name:	GEOFON, Inc.	Contract No:		Lab Code:	APCL
Case No:		SAS No:		Service ID:	33444
Project ID:	JPL	Project No:	04-4428.10	Sample Matrix:	Water
		Batch No:	03M1535E		
MS Filename:	-	Date Analyzed:	060203	Time Analyzed:	16:27
MSD Filename:	-	Date Analyzed:	060203	Time Analyzed:	16:33
MS Sample No:	**MW-6**	Sample Lab ID:	03-3444-1		

Spiked Components	Unit	Spike Added	Concentration Unspiked	Concentration MS	MS Rec% #	QC Limit, % REC
ARSENIC	µg/L	50	0	48.3	97	75-125
# of Out-of-control					0	

Spiked Components	Unit	Spike Added	MSD Concentration	MSD Rec% #	RPD% #	QC Limit, % RPD	QC Limit, % REC
ARSENIC	µg/L	50	48.6	97	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: _____

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FORM-5A Metal

Applied P & Ch Laboratory

Matrix Spike/Matrix Spike Duplicate Recovery for Method 200.9

Client Name:	GEOFON, Inc.	Contract No:		Lab Code:	APCL
Case No:		SAS No:		Service ID:	33444
Project ID:	JPL	Project No:	04-4428.10	Sample Matrix:	Water
		Batch No:	03M1535E		
MS Filename:	-	Date Analyzed:	060203	Time Analyzed:	17:15
MSD Filename:	-	Date Analyzed:	060203	Time Analyzed:	17:21
MS Sample No:	**MW-7**	Sample Lab ID:	03-3444-2		

Spiked Components	Unit	Spike Added	Concentration Unspiked	Concentration MS	MS Rec% #	QC Limit, % REC
ARSENIC	µg/L	50	0	49.0	98	75-125
# of Out-of-control					0	

Spiked Components	Unit	Spike Added	MSD Concentration	MSD Rec% #	RPD% #	QC Limit, % RPD	QC Limit, % REC
ARSENIC	µg/L	50	47.8	96	2	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: _____

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FORM-5A Metal

Applied P & Ch Laboratory

Matrix Spike/Matrix Spike Duplicate Recovery for Method 200.7

Client Name:	GEOFON, Inc.	Contract No:		Lab Code:	APCL
Case No:		SAS No:		Service ID:	33444
Project ID:	JPL	Project No:	04-4428.10	Sample Matrix:	Water
		Batch No:	03M1537M		
MS Filename:	-	Date Analyzed:	060203	Time Analyzed:	12:56
MSD Filename:	-	Date Analyzed:	060203	Time Analyzed:	13:00
MS Sample No:	**MW-6**	Sample Lab ID:	03-3444-1		

Spiked Components	Unit	Spike Added	Concentration Unspiked	Concentration MS	MS Rec% #	QC Limit, % REC
CALCIUM	µg/L	20000	162000	168000	30 *	75-125
IRON	µg/L	1000	785	1710	93	75-125
MAGNESIUM	µg/L	10000	51200	55900	47 *	75-125
POTASSIUM	µg/L	5000	2690	7730	101	75-125
SODIUM	µg/L	40000	35100	72500	94	75-125
# of Out-of-control					2	

Spiked Components	Unit	Spike Added	MSD Concentration	MSD Rec% #	RPD% #	QC Limit, % RPD	QC Limit, % REC
CALCIUM	µg/L	20000	168000	30 *	0	20	75-125
IRON	µg/L	1000	1710	93	0	20	75-125
MAGNESIUM	µg/L	10000	57000	58 *	2	20	75-125
POTASSIUM	µg/L	5000	7640	99	2	20	75-125
SODIUM	µg/L	40000	72000	92	2	20	75-125
# of Out-of-control				2	0		

Column to be used to flag recovery and RPD values:

* – Values outside of contract required QC Limits D – Spiked components diluted out

Comments: _____

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FORM-5A Metal

Applied P & Ch Laboratory

Matrix Spike/Matrix Spike Duplicate Recovery for Method 200.7

Client Name:	GEOFON, Inc.	Contract No:		Lab Code:	APCL
Case No:		SAS No:		Service ID:	33444
Project ID:	JPL	Project No:	04-4428.10	Sample Matrix:	Water
		Batch No:	03M1537M		
MS Filename:	-	Date Analyzed:	060203	Time Analyzed:	13:39
MSD Filename:	-	Date Analyzed:	060203	Time Analyzed:	13:42
MS Sample No:	**MW-7**	Sample Lab ID:	03-3444-2		

Spiked Components	Unit	Spike Added	Concentration Unspiked	Concentration MS	MS Rec% #	QC Limit, % REC
CALCIUM	µg/L	20000	54200	72600	92	75-125
IRON	µg/L	1000	138	1120	98	75-125
MAGNESIUM	µg/L	10000	17200	26600	94	75-125
POTASSIUM	µg/L	5000	2250	7500	105	75-125
SODIUM	µg/L	40000	17800	56100	96	75-125
# of Out-of-control					0	

Spiked Components	Unit	Spike Added	MSD Concentration	MSD Rec% #	RPD% #	QC Limit, % RPD	QC Limit, % REC
CALCIUM	µg/L	20000	74300	101	9	20	75-125
IRON	µg/L	1000	1180	104	6	20	75-125
MAGNESIUM	µg/L	10000	26800	96	2	20	75-125
POTASSIUM	µg/L	5000	7480	105	0	20	75-125
SODIUM	µg/L	40000	57100	98	2	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: _____

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FORM-5B Metal

Applied P & Ch Laboratory

Post Digest Spike Sample Recovery

Client Name:	GEOFON, Inc.	Project No:	04-4428.10	Lab Code:	APCL
Project Name:	JPL	Service ID:	033444	Sequence No.:	03M1537M
		Batch No.:	03M1537	Method:	200.9
Spike Sample No. :	03-3444-01	Matrix:	WATER	Instrument:	ICP -M
Client Sample No.:	MW-6	Analysis Date:	06/02/03		

Concentration Units: UG/L

#	Analyte	Spiked Sample Result(SSR)	12:04 C	Sample Result(SR)	11:46 C	Spike Added(SA)	% Rec.	Control Limit	Q
1	Aluminum	2228.9153		36.5019	B	2000.00	109.6	75-125	
2	Antimony	447.2098		0.7123	U	500.00	89.4	75-125	
3	Arsenic	484.5293		-1.2631	U	500.00	96.9	75-125	
4	Barium	4807.1958		147.0415		4000.00	116.5	75-125	
5	Beryllium	189.9951		0.0476	U	200.00	95.0	75-125	
6	Cadmium	231.1964		-0.2714	U	250.00	92.5	75-125	
7	Calcium	172104.7500		151830.7813		20000.00	101.4		
8	Chromium	1040.7628		16.0299		1000.00	102.5	75-125	
9	Cobalt	936.2001		2.7535	B	1000.00	93.3	75-125	
10	Copper	1092.9030		5.7678	B	1000.00	108.7	75-125	
11	Iron	1804.3965		763.1682		1000.00	104.1	75-125	
12	Lead	3346.4131		0.1093	U	3000.00	111.5	75-125	
13	Magnesium	63376.3438		51314.2305		10000.00	120.6		
14	Manganese	1104.0011		7.2717		1000.00	109.7	75-125	
15	Nickel	941.9952		43.1892		1000.00	89.9	75-125	
16	Potassium	7526.1890		2494.1963		5000.00	100.6	75-125	
17	Selenium	538.5984		-0.3001	U	500.00	107.7	75-125	
18	Silver	1044.1323		-0.0361	U	1000.00	104.4	75-125	
19	Sodium	72573.5156		32701.3848		40000.00	99.7	75-125	
20	Thallium	538.5551		3.6788	B	500.00	107.0	75-125	
21	Vanadium	2018.6143		7.6707	B	2000.00	100.5	75-125	
22	Zinc	562.4015		6.9027	B	500.00	111.1	75-125	
23	Molybdenum	2336.7134		2.3301	B	2000.00	116.7	75-125	

FORM-5B Metal

Applied P & Ch Laboratory

Post Digest Spike Sample Recovery

Client Name:	GEOFON, Inc.	Project No:	04-4428.10	Lab Code:	APCL
Project Name:	JPL	Service ID:	033444	Sequence No.:	03M1537M
		Batch No.:	03M1537	Method:	200.9
Spike Sample No. :	03-3444-01	Matrix:	WATER	Instrument:	ICP -M
Client Sample No.:	MW-6	Analysis Date:	06/02/03		

Concentration Units: UG/L

#	Analyte	Spiked Sample Result(SSR)	13:04 C	Sample Result(SR)	12:46 C	Spike Added(SA)	% Rec.	Control Limit	Q
1	Aluminum	2245.7664		30.0306	B	2000.00	110.8	75-125	
2	Antimony	479.1466		1.4348	U	500.00	95.8	75-125	
3	Arsenic	540.4716		-2.4048	U	500.00	108.1	75-125	
4	Barium	4707.4868		147.7640		4000.00	114.0	75-125	
5	Beryllium	200.9234		0.0393	U	200.00	100.5	75-125	
6	Cadmium	249.2281		-0.1573	U	250.00	99.7	75-125	
7	Calcium	179801.3438		162318.2813		20000.00	87.4		
8	Chromium	1089.3823		16.4422		1000.00	107.3	75-125	
9	Cobalt	1014.0060		2.8895	B	1000.00	101.1	75-125	
10	Copper	1014.8499		2.8083	B	1000.00	101.2	75-125	
11	Iron	1828.7225		785.3618		1000.00	104.3	75-125	
12	Lead	3214.6619		-0.5542	U	3000.00	107.2	75-125	
13	Magnesium	60646.3477		51161.0703		10000.00	94.9		
14	Manganese	1018.6343		6.8908		1000.00	101.2	75-125	
15	Nickel	1031.2228		46.0714		1000.00	98.5	75-125	
16	Potassium	8112.5669		2691.0327		5000.00	108.4	75-125	
17	Selenium	543.5732		-0.6773	U	500.00	108.7	75-125	
18	Silver	1030.0820		0.6735	B	1000.00	102.9	75-125	
19	Sodium	76575.7656		35059.4453		40000.00	103.8	75-125	
20	Thallium	538.1854		5.4083	B	500.00	106.6	75-125	
21	Vanadium	2064.0808		7.7537	B	2000.00	102.8	75-125	
22	Zinc	537.0910		6.2649	B	500.00	106.2	75-125	
23	Molybdenum	2269.5151		1.4667	B	2000.00	113.4	75-125	

FORM-5B Metal

Applied P & Ch Laboratory

Post Digest Spike Sample Recovery

Client Name:	GEOFON, Inc.	Project No:	04-4428.10	Lab Code:	APCL
Project Name:	JPL	Service ID:	033444	Sequence No.:	03M1535E
		Batch No.:	03M1535	Method:	200.9
Spike Sample No. :	03-3444-01	Matrix:	WATER	Instrument:	GFAA-E
Client Sample No.:	MW-6	Analysis Date:	06/02/03		

Concentration Units: **UG/L**

#	Analyte	Spiked Sample Result(SSR)	16:40 C	Sample Result(SR)	16:07 C	Spike Added(SA)	% Rec.	Control Limit	Q
1	Arsenic	49.5000		1.7000	U	50.00	99.0	75-125	

FORM-6 Metal

Applied P & Ch Laboratory

Duplicates Verification

Client Name:	GEOFON, Inc.	Project No:	04-4428.10	Lab Code:	APCL
Project Name:	JPL	Service ID:	033444	Sequence No.:	03M1537M
		Batch No.:	03M1537	Method:	200.9
Spike Sample No.	03-3444-01	Matrix:	WATER	Instrument:	ICP -M
Client Sample No.	MW-6	% Solid:	0.00	Analysis Date:	06/02/03

Concentration Unit: **UG/L**

#	Analyte	12:46 Sample(s)	C	11:50 Duplicate	C	RPD(%)	Q
1	Aluminum	30.0306	B	35.8550	B	17.7	
2	Antimony	1.4348	U	1.6336	U		
3	Arsenic	-2.4048	U	-1.2404	U		
4	Barium	147.7640		150.2931		1.7	
5	Beryllium	0.0393	U	0.0081	U		
6	Cadmium	-0.1573	U	-0.2892	U		
7	Calcium	162318.2813		154509.3906		4.9	
8	Chromium	16.4422		15.8867		3.4	
9	Cobalt	2.8895	B	3.2040	B	10.3	
10	Copper	2.8083	B	5.2453	B	60.5	
11	Iron	785.3618		771.6895		1.8	
12	Lead	-0.5542	U	0.4256	U		
13	Magnesium	51161.0703		52550.8516		2.7	
14	Manganese	6.8908		7.2023		4.4	
15	Nickel	46.0714		42.9448		7.0	
16	Potassium	2691.0327		2501.1614		7.3	
17	Selenium	-0.6773	U	1.6048	U		
18	Silver	0.6735	B	-0.1531	U	200.0	
19	Sodium	35059.4453		33229.7383		5.4	
20	Thallium	5.4083	B	1.1675	U	200.0	
21	Vanadium	7.7537	B	7.5016	B	3.3	
22	Zinc	6.2649	B	6.6248	B	5.6	
23	Molybdenum	1.4667	B	0.9221	B	45.6	

FORM-6 Metal

Applied P & Ch Laboratory

Duplicates Verification

Client Name:	GEOFON, Inc.	Project No:	04-4428.10	Lab Code:	APCL
Project Name:	JPL	Service ID:	033444	Sequence No.:	03M1537M
		Batch No.:	03M1537	Method:	200.9
Spike Sample No.	03-3444-01	Matrix:	WATER	Instrument:	ICP -M
Client Sample No.	MW-6	% Solid:	0.00	Analysis Date:	06/02/03

Concentration Unit: **UG/L**

#	Analyte	12:46 Sample(s)	C	12:49 Duplicate	C	RPD(%)	Q
1	Aluminum	30.0306	B	23.9001	B	22.7	
2	Antimony	1.4348	U	2.3834	U		
3	Arsenic	-2.4048	U	0.0184	U		
4	Barium	147.7640		143.1186		3.2	
5	Beryllium	0.0393	U	0.0092	U		
6	Cadmium	-0.1573	U	-0.1858	U		
7	Calcium	162318.2813		157241.6563		3.2	
8	Chromium	16.4422		16.1876		1.6	
9	Cobalt	2.8895	B	2.7290	B	5.7	
10	Copper	2.8083	B	1.0950	U	200.0	
11	Iron	785.3618		760.6400		3.2	
12	Lead	-0.5542	U	-0.2983	U		
13	Magnesium	51161.0703		49586.8203		3.1	
14	Manganese	6.8908		6.3829		7.7	
15	Nickel	46.0714		45.5188		1.2	
16	Potassium	2691.0327		2566.4229		4.7	
17	Selenium	-0.6773	U	-3.0595	U		
18	Silver	0.6735	B	-0.1746	U	200.0	
19	Sodium	35059.4453		33841.7422		3.5	
20	Thallium	5.4083	B	2.9241	B	59.6	
21	Vanadium	7.7537	B	8.0431	B	3.7	
22	Zinc	6.2649	B	5.9123	B	5.8	
23	Molybdenum	1.4667	B	0.5688	B	88.2	

FORM-6 Metal

Applied P & Ch Laboratory

Duplicates Verification

Client Name:	GEOFON, Inc.	Project No:	04-4428.10	Lab Code:	APCL
Project Name:	JPL	Service ID:	033444	Sequence No.:	03M1535E
		Batch No.:	03M1535	Method:	200.9
Spike Sample No.	03-3444-01	Matrix:	WATER	Instrument:	GFAA-E
Client Sample No.	MW-6	% Solid:	0.00	Analysis Date:	06/02/03

Concentration Unit: **UG/L**

#	Analyte	16:07 Sample(s)	C	16:14 Duplicate	C	RPD(%)	Q
1	Arsenic	1.7000	U	1.0000	U		

FORM-7 Metal

Applied P & Ch Laboratory

Lab Control Spike/Lab Control Spike Duplicate Recovery for Method 200.9

Client Name:	GEOFON, Inc.	Contract No:		Lab Code:	APCL
Case No:		SAS No:		Service ID:	33444
Project ID:	JPL	Project No:	04-4428.10	Sample Matrix:	Water
		Batch No:	03M1535E		
LCS Filename:	-	Date Analyzed:	060203	Time Analyzed:	15:55
LCSD Filename:	-	Date Analyzed:	060203	Time Analyzed:	16:01

Spiked Components	Unit	Spike Added	Concentration Unspiked	Concentration LCS	LCS Rec% #	QC Limit, % REC
ARSENIC	µg/L	50	0	46.7	93	80-120
# of Out-of-control					0	

Spiked Components	Unit	Spike Added	LCSD Concentration	LCSD Rec% #	RPD% #	QC Limit, % RPD	QC Limit, % REC
ARSENIC	µg/L	50	46.3	93	0	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: _____

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FORM-7 Metal

Applied P & Ch Laboratory

Lab Control Spike/Lab Control Spike Duplicate Recovery for Method 200.7

Client Name:	GEOFON, Inc.	Contract No:		Lab Code:	APCL
Case No:		SAS No:		Service ID:	33444
Project ID:	JPL	Project No:	04-4428.10	Sample Matrix:	Water
		Batch No:	03M1537M		
LCS Filename:	-	Date Analyzed:	060203	Time Analyzed:	12:39
LCSD Filename:	-	Date Analyzed:	060203	Time Analyzed:	12:42

Spiked Components	Unit	Spike Added	Concentration Unspiked	Concentration LCS	LCS Rec% #	QC Limit, % REC
CALCIUM	µg/L	20000	0	21000	105	80-120
IRON	µg/L	1000	0	1020	102	80-120
MAGNESIUM	µg/L	10000	0	10300	103	80-120
POTASSIUM	µg/L	5000	0	4700	94	80-120
SODIUM	µg/L	40000	0	39200	98	80-120
# of Out-of-control					0	

Spiked Components	Unit	Spike Added	LCSD Concentration	LCSD Rec% #	RPD% #	QC Limit, % RPD	QC Limit, % REC
CALCIUM	µg/L	20000	21400	107	2	20	80-120
IRON	µg/L	1000	1010	101	1	20	80-120
MAGNESIUM	µg/L	10000	10200	102	1	20	80-120
POTASSIUM	µg/L	5000	4700	94	0	20	80-120
SODIUM	µg/L	40000	38800	97	1	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: _____

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FORM-9 Metal

Applied P & Ch Laboratory

Serial Dilution

Client Name:	GEOFON, Inc.	Project No:	04-4428.10	Lab Code:	APCL
Project Name:	JPL	Service ID:	033444	Sequence No.:	03M1537M
		Batch No.:	03M1537	Method:	200.9
Dilution Sample No.:	03-3444-01	Matrix:	WATER	Instrument:	ICP -M
Client Sample No.:	MW-6	Analysis Date:	06/02/03		

Concentration Units: **UG/L**

#	Analyte	Initial Sample Results(I)	11:46 C	Serial Dilut Results(S)	11:53 C	% Diff.	Q
1	Aluminum	36.50	B	107.15	B	193.5	
2	Antimony	0.71	U	6.92	U		
3	Arsenic	-1.26	U	-14.89	U		
4	Barium	147.04		152.47		3.7	
5	Beryllium	0.05	U	-0.01	U		
6	Cadmium	-0.27	U	-0.62	U		
7	Calcium	151830.78		157169.08		3.5	
8	Chromium	16.03		16.52	B	3.1	
9	Cobalt	2.75	B	3.59	B	30.3	
10	Copper	5.77	B	8.06	U	100.0	
11	Iron	763.17		750.92		1.6	
12	Lead	0.11	U	6.65	B		
13	Magnesium	51314.23		54105.89		5.4	
14	Manganese	7.27		7.31	B	0.5	
15	Nickel	43.19		44.49		3.0	
16	Potassium	2494.20		2517.35		0.9	
17	Selenium	-0.30	U	5.89	U		
18	Silver	-0.04	U	0.66	U		
19	Sodium	32701.38		31894.17		2.5	
20	Thallium	3.68	B	-8.33	U	100.0	
21	Vanadium	7.67	B	7.33	B	4.4	
22	Zinc	6.90	B	5.01	U	100.0	
23	Molybdenum	2.33	B	1.34	U	100.0	

FORM-9 Metal

Applied P & Ch Laboratory

Serial Dilution

Client Name:	GEOFON, Inc.	Project No:	04-4428.10	Lab Code:	APCL
Project Name:	JPL	Service ID:	033444	Sequence No.:	03M1537M
		Batch No.:	03M1537	Method:	200.9
Dilution Sample No.:	03-3444-01	Matrix:	WATER	Instrument:	ICP -M
Client Sample No.:	MW-6	Analysis Date:	06/02/03		

Concentration Units: **UG/L**

#	Analyte	Initial Sample Results(I)	12:46 C	Serial Dilut Results(S)	12:53 C	% Diff.	Q
1	Aluminum	30.03	B	44.55	B	48.3	
2	Antimony	1.43	U	1.86	U		
3	Arsenic	-2.40	U	-15.39	U		
4	Barium	147.76		147.59		0.1	
5	Beryllium	0.04	U	-0.13	U		
6	Cadmium	-0.16	U	0.01	U		
7	Calcium	162318.28		164458.02		1.3	
8	Chromium	16.44		15.84	B	3.7	
9	Cobalt	2.89	B	1.82	U	100.0	
10	Copper	2.81	B	-4.10	U	100.0	
11	Iron	785.36		770.93		1.8	
12	Lead	-0.55	U	-0.14	U		
13	Magnesium	51161.07		53088.04		3.8	
14	Manganese	6.89		3.93	B	43.0	
15	Nickel	46.07		46.47		0.9	
16	Potassium	2691.03		2393.08		11.1	E
17	Selenium	-0.68	U	-9.70	U		
18	Silver	0.67	B	-0.10	U	100.0	
19	Sodium	35059.45		32581.89		7.1	
20	Thallium	5.41	B	9.86	B	82.2	
21	Vanadium	7.75	B	9.57	B	23.5	
22	Zinc	6.26	B	3.69	U	100.0	
23	Molybdenum	1.47	B	-2.99	U	100.0	

FORM-9 Metal

Applied P & Ch Laboratory

Serial Dilution

Client Name:	GEOFON, Inc.	Project No:	04-4428.10	Lab Code:	APCL
Project Name:	JPL	Service ID:	033444	Sequence No.:	03M1535E
		Batch No.:	03M1535	Method:	200.9
Dilution Sample No.:	03-3444-01	Matrix:	WATER	Instrument:	GFAA-E
Client Sample No.:	MW-6	Analysis Date:	06/02/03		

Concentration Units: **UG/L**

#	Analyte	Initial Sample Results(I)	16:07 C	Serial Dilut Results(S)	16:20 C	% Diff.	Q
1	Arsenic	1.70	U	9.00	B		

FORM-13 Metal

Applied P & Ch Laboratory

Preparation Log

Client Name:	GEOFON, Inc.	Project No:	04-4428.10	Lab Code:	APCL
Project Name:	JPL	Service ID:	033444	Sequence No.:	03M1537M
		Batch No.:	03M1537	Method:	200.9
Preparation Matrix:	WATER	Instrument:	ICP -M		

#	Client Sample No.	APCL Sample No.	Preparation Date	Weight (gram)	Volume (ml)
1	MI573-SO-5-27-03-1	03-3407-01TC	06/02/03		50.0
2	MI573-SO-5-27-03-3	03-3407-03TC	06/02/03		50.0
3	MW-6	03-3444-01DM	06/02/03		50.0
4	MW-7	03-3444-02	06/02/03		50.0
5	MW-15	03-3444-03	06/02/03		50.0
6	24 hrs Composite	03-3449-01	06/02/03		50.0
7	MW-1	03-3465-01	06/02/03		50.0
8	MW-9	03-3465-02	06/02/03		50.0
9	MW-10	03-3465-03	06/02/03		50.0
10	051EB1-14824	03-3467-01	06/02/03		50.0
11	1990-065-231	03-3469-02	06/02/03		50.0
12	Composite	03-3471-01	06/02/03		50.0
13	MW-1-203	03-3473-06	06/02/03		50.0
14	MW-2-203	03-3473-07	06/02/03		50.0
15	MW-3-203	03-3473-08	06/02/03		50.0
16	MW-4-203	03-3473-09	06/02/03		50.0
17	7647-94	03-3474-01	06/02/03		50.0
18		03M1537MB	06/02/03		50.0
19		03M1537LCS	06/02/03		50.0
20		03M1537LCSD	06/02/03		50.0
21	MW-6 Dup.	03M1537MD	06/02/03		50.0
22	MW-6 MS	03M1537MS	06/02/03		50.0
23	MW-6 MSD	03M1537MSD	06/02/03		50.0

FORM-13 Metal

Applied P & Ch Laboratory

Preparation Log

Client Name:	GEOFON, Inc.	Project No:	04-4428.10	Lab Code:	APCL
Project Name:	JPL	Service ID:	033444	Sequence No.:	03M1535E
		Batch No.:	03M1535	Method:	200.9
Preparation Matrix:	WATER	Instrument:	GFAA-E		

#	Client Sample No.	APCL Sample No.	Preparation Date	Weight (gram)	Volume (ml)
1	MW-13	03-3391-01	06/02/03		50.0
2	MW-16	03-3391-02	06/02/03		50.0
3	MW-5	03-3414-01	06/02/03		50.0
4	MW-8	03-3414-02	06/02/03		50.0
5	MW-6	03-3444-01DM	06/02/03		50.0
6	MW-7	03-3444-02	06/02/03		50.0
7	MW-15	03-3444-03	06/02/03		50.0
8	MW-1	03-3465-01	06/02/03		50.0
9	MW-9	03-3465-02	06/02/03		50.0
10	MW-10	03-3465-03	06/02/03		50.0
11		03M1535MB	06/02/03		50.0
12		03M1535LCS	06/02/03		50.0
13		03M1535LCSD	06/02/03		50.0
14	MW-6 Dup.	03M1535MD	06/02/03		50.0
15	MW-6 MS	03M1535MS	06/02/03		50.0
16	MW-6 MSD	03M1535MSD	06/02/03		50.0

FORM-14 Metal

Applied P & Ch Laboratory

Analysis Run Log

Client Name:	GEOFON, Inc.	Project No:	04-4428.10	Lab Code:	APCL
Project Name:	JPL	Service ID:	033444	Sequence No.:	03M1537M
		Instrument:	ICP -M	Method:	200.9
Batch No.(s):	03M1537	Start Date:	06/02/03	End Date:	06/02/03

#	APCL Sample No.	D/F	Time	Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Hg	Ni	K	Se	Ag	Na	Tl	V	Zn	Mo	Sr	Ti	Sn	Li	B	Si
1	Calib Blank	1.00	10:57	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
2	STD1 1423A	1.00	11:01	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
3	STD2 1423B	1.00	11:04	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
4	STD3 1423C	1.00	11:08	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
5	ICV 1447A	1.00	11:12	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
6	ICB	1.00	11:16	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
7	CRI A1432	1.00	11:20	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
8	ICSA 1441	1.00	11:22	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
9	ICSAB 1443	1.00	11:25	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
10	CCV 1447B	1.00	11:29	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
11	CCB	1.00	11:32	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
12	M-BL 03M1537 W	1.00	11:36	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
13	LCS-03M1537	1.00	11:39	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
14	LCSD-03M1537	1.00	11:43	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
15	3444-1 S F=1	1.00	11:46	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
16	3444-1 D F=1	1.00	11:50	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
17	3444-1 1/5 F=5	5.00	11:53	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
18	3444-1 MS F=1	1.00	11:57	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
19	3444-1 MSD F=1	1.00	12:01	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
20	3444-1 PS F=1	1.00	12:04	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
21	CCV 1447B	1.00	12:08	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
22	Calib Blank	1.00	12:13	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
23	STD1 1423A	1.00	12:17	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
24	STD2 1423B	1.00	12:21	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
25	STD3 1423C	1.00	12:25	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
26	CCV 1447B	1.00	12:28	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
27	CCB	1.00	12:32	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
28	M-BL 03M1537 W	1.00	12:35	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
29	LCS-03M1537	1.00	12:39	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
30	LCSD-03M1537	1.00	12:42	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
31	3444-1 S F=1	1.00	12:46	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
32	3444-1 D F=1	1.00	12:49	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
33	3444-1 1/5 F=5	5.00	12:53	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
34	3444-1 MS F=1	1.00	12:56	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
35	3444-1 MSD F=1	1.00	13:00	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
36	3444-1 PS F=1	1.00	13:04	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
37	CCV 1447B	1.00	13:07	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
38	CCB	1.00	13:11	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
39	TC Blank	2.00	13:13	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
40	3407-1TC F=2	2.00	13:16	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						

FORM-14 Metal

Applied P & Ch Laboratory

Analysis Run Log

Client Name:	GEOFON, Inc.	Project No:	04-4428.10	Lab Code:	APCL
Project Name:	JPL	Service ID:	033444	Sequence No.:	03M1537M
		Instrument:	ICP -M	Method:	200.9
Batch No.(s):	03M1537	Start Date:	06/02/03	End Date:	06/02/03

#	APCL Sample No.	D/F	Time	Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Hg	Ni	K	Se	Ag	Na	Tl	V	Zn	Mo	Sr	Ti	Sn	Li	B	Si
41	3407-3TC F=2	2.00	13:19	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
42	CCV 1447B	1.00	13:25	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
43	CCB	1.00	13:29	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
44	3444-2 F=1	1.00	13:32	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
45	3444-2 D F=1	1.00	13:35	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
46	3444-2 MS F=1	1.00	13:39	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
47	3444-2 MSD F=1	1.00	13:42	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
48	3444-3 F=1	1.00	13:47	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
49	3465-1 F=1	1.00	13:50	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
50	3465-2 F=1	1.00	13:53	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
51	3465-3 F=1	1.00	13:57	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
52	3467-1 F=1	1.00	14:00	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
53	CCV 1447B	1.00	14:04	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
54	CCB	1.00	14:09	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
55	3471-1 F=1	1.00	14:12	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
56	3473-6 F=1	1.00	14:16	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
57	3473-7 F=1	1.00	14:20	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
58	3473-8 F=1	1.00	14:23	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
59	3473-9 F=1	1.00	14:27	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
60	3469-2 F=1	1.00	14:30	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
61	3474-1 F=1	1.00	14:33	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
62	3449-1 F=1	1.00	14:37	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
63	ICSA 1441	1.00	14:44	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
64	ICSAB 1443	1.00	14:47	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
65	CCV 1447B	1.00	14:51	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
66	CCV 1447B	1.00	14:59	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
67	CCB	1.00	15:06	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
68	DLC A1427	1.00	15:10	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						

FORM-14 Metal

Applied P & Ch Laboratory

Analysis Run Log

Client Name:	GEOFON, Inc.	Project No:	04-4428.10	Lab Code:	APCL
Project Name:	JPL	Service ID:	033444	Sequence No.:	03M1535E
		Instrument:	GFAA-E	Method:	200.9
Batch No.(s):	03M1535	Start Date:	06/02/03	End Date:	06/02/03

#	APCL Sample No.	D/F	Time	Al Sb As Ba Be Cd Ca Cr Co Cu Fe Pb Mg Mn Hg Ni K Se Ag Na Tl V Zn Mo Sr Ti Sn Li B Si
1	Calib. Blank	1.00	15:00	√
2	1/2 STD1 1472A	1.00	15:06	√
3	STD1 1472A	1.00	15:12	√
4	STD2 1472B	1.00	15:18	√
5	STD3 1472C	1.00	15:25	√
6	ICV A1474	1.00	15:36	√
7	ICB	1.00	15:42	√
8	M-BL 03M1535	1.00	15:48	√
9	LCS-03M1535	1.00	15:55	√
10	LCSD-03M1535	1.00	16:01	√
11	3444-1 S F=1	1.00	16:07	√
12	3444-1 D F=1	1.00	16:14	√
13	3444-1 1/5 F=5	5.00	16:20	√
14	3444-1 MS F=1	1.00	16:27	√
15	3444-1 MSD F=1	1.00	16:33	√
16	3444-1 PS F=1	1.00	16:40	√
17	3444-2 F=1	1.00	16:46	√
18	CCV A1474	1.00	16:53	√
19	CCB	1.00	16:59	√
20	3444-2 D F=1	1.00	17:08	√
21	3444-2 MS F=1	1.00	17:15	√
22	3444-1 MSD F=1	1.00	17:21	√
23	3444-3 F=1	1.00	17:24	√
24	3391-1 F=1	1.00	17:31	√
25	3391-2 F=1	1.00	17:37	√
26	3414-1 F=1	1.00	17:43	√
27	3414-2 F=1	1.00	17:49	√
28	3465-1 F=1	1.00	17:56	√
29	3465-2 F=1	1.00	18:02	√
30	CCV A1474	1.00	18:08	√
31	CCB	1.00	18:15	√
32	3465-3 F=1	1.00	18:21	√
33	CCV A1474	1.00	18:27	√
34	CCB	1.00	18:34	√

Applied P & Ch Laboratory
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Metal Digestion (3010/3050) Worksheet

Batch # BM1537 Matrix: W Method used: 3010A Date: 6/2/03 Digested by: XL Diluted by: YW

Lot #: ASTM Type I water RW1414 HNO_3 1102120 H_2SO_4 _____ HCl 4102050 H_2O_2 _____

OP #	Type	Samp ID /Lot #	X (g or mL)	$V_{digest}/X = f_1$	$V_f/V_i = f_2$	$V_j'/V_i' = f_3$	$F=f_1f_2f_3$	Note
3159	Method Blank	Bl. Lot RW1414	50	50 /X= 1	/ =	/ =		23 Me
3160	LCS1	Bl. Lot: "		/X=	/ =	/ =		
3161	Sample-1	3444 -1		/X=	/ =	/ =		T=95°C
3162	MS1 on S-1	-1		/X=	/ =	/ =		
3163	MS2 on S-1	-1		/X=	/ =	/ =		
3164	Sample 2	-2		/X=	/ =	/ =		MS/MSD
3165	Sample 3	-3		/X=	/ =	/ =		
3166	Sample 4	3465 -1		/X=	/ =	/ =		
3167	Sample 5	-2		/X=	/ =	/ =		
3168	Sample 6	-3		/X=	/ =	/ =		
3169	Sample 7	3467 -1		/X=	/ =	/ =		
3170	Sample 8	3471 -1		/X=	/ =	/ =		
3171	Sample 9	3473 -6		/X=	/ =	/ =		
3172	Sample 10	-7		/X=	/ =	/ =		
3173	LCS2	Bl. Lot RW1414		/X=	/ =	/ =		
3174	Sample 11	-8		/X=	/ =	/ =		
3175	Sample 12	-9		/X=	/ =	/ =		
3176	Sample 13	3469 -2		/X=	/ =	/ =		
3177	Sample 14	3474 -1		/X=	/ =	/ =		
3178	Sample 15	3449 -1		/X=	/ =	/ =		
3179	Sample 16	TC Blank		/X=	10/5 = 2	/ =	2	
3180	Sample 17	3407-1 TC		/X=	/ =	/ =		
3181	Sample 18	-3 "	↓	↓ /X= ↓	↓ / = ↓	/ =	↓	
3182	Sample 19			/X=	/ =	/ =		
3183	Sample 20	XV	6/2/03	/X=	/ =	/ =		
3184	Duplicate	3444 -1	50	50 /X= 1	/ =	/ =		

Specification of matrix spike and lab control spike

QC Type	Spiked Element *	Spike Stock Solution Lot #	Spike Stock (Rep.) Conc. C_s, µg/mL	Spike Stock Volum Used V_s mL	Spike Level $T'=C_sV_s/V$ ppm or mg/L	Sample Spike T, ppm
MS1	/AsSe/Sb/M_{20}	AA- /AA- /AA- /AA4433	/ / / 25	/ / / 2	/ / / 1	
MS2	/AsSe/Sb/M_{20}	AA- /AA- /AA- /AA- "	/ / /	/ / /	/ / /	
LCS1	/AsSe/Sb/M_{20}	AA- /AA- /AA- /AA4472	/ / /	/ / /	/ / /	
LCS2	/AsSe/Sb/M_{20}	AA- /AA- /AA- /AA- "	/ / / ↓	/ / / ↓	/ / / ↓	

* Notation: T – rep. sample spike level. T' – digest solution spike level. $T=f\,T'=C_sV_s/X$. M20 (or Mj) represents 20 (or j) metals, (see STD logbook).
If digest needs dilution for different metals, use dilution worksheet.

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Metal Digestion (3010/3050) Worksheet

Batch # BM1535 Matrix: W Method used: 3020A Date: 6/2/03 Digested by: XL Diluted by: YW

Lot #: ASTM Type I water RW1414 HNO_3 1102/20 H_2SO_4 _____ HCl _____ H_2O_2 _____

OP #	Type	Samp ID /Lot #	X (g or mL)	$V_{digest}/X = f_1$	$V_j/V_i = f_2$	$V_j'/V_i' = f_3$	$F=f_1f_2f_3$	Note
3107	Methqd Blank	Bl. Lot RW1414	50	50 /X= 1	/ =	/ =		GFAA /As
3108	LCS1	Bl. Lot: "		/X=	/ =	/ =		
3109	Sample-1	3444 -1		/X=	/ =	/ =		
3110	MS1 on S-1	3444 -1		/X=	/ =	/ =		
3111	MS2 on S-1	X1 6/2/03 -1		/X=	/ =	/ =		
3112	Sample 2	-2		/X=	/ =	/ =		MS/MSD
3113	Sample 3	-3		/X=	/ =	/ =		
3114	Sample 4	3391 -1		/X=	/ =	/ =		
3115	Sample 5	-2		/X=	/ =	/ =		
3116	Sample 6	3414 -1		/X=	/ =	/ =		
3117	Sample 7	-2		/X=	/ =	/ =		
3118	Sample 8	3465 -1		/X=	/ =	/ =		
3119	Sample 9	-2		/X=	/ =	/ =		
3120	Sample 10	-3		/X=	/ =	/ =		
3121	LCS2	Bl. Lot RW1414	↓	/X= ↓	/ =	/ =		
3122	Sample 11			/X=	/ =	/ =		
3123	Sample 12			/X=	/ =	/ =		
3124	Sample 13			/X=	/ =	/ =		
3125	Sample 14			/X=	/ =	/ =		
3126	Sample 15			X1 /X=	/ =	/ =		
3127	Sample 16			/X=	/ =	/ =		
3128	Sample 17			6/2/03	/ =	/ =		
3129	Sample 18			/X=	/ =	/ =		
3130	Sample 19			/X=	/ =	/ =		
3131	Sample 20			/X=	/ =	/ =		
3132	Duplicate	3444 -1	50	50 /X= 1	/ =	/ =		

Specification of matrix spike and lab control spike

QC Type	Spiked Element *	Spike Stock Solution Lot #	Spike Stock (Rep.) Conc. C_s, µg/mL	Spike Stock Volum Used V_s mL	Spike Level $T'=C_sV_s/V$ ppm or mg/L	Sample Spike T, ppm
MS1	/As/Se/Sb/M_{20}	AA- /AA- /AA- /AA1473	/ / / 5	/ / 10.5	/ / 10.05	
MS2	/As/Se/Sb/M_{20}	AA- /AA- /AA- /AA- "	/ / /	/ / /	/ / /	
LCS1	/As/Se/Sb/M_{20}	AA- /AA- /AA- /AA1471	/ / /	/ / /	/ / /	
LCS2	/As/Se/Sb/M_{20}	AA- /AA- /AA- /AA- "	/ / /	/ / /	/ / /	

* Notation: T = rep. sample spike level. T' = digest solution spike level. $T=f\,T'=C_sV_s/X$. M20 (or Mj) represents 20 (or j) metals, (see STD logbook).
If digest needs dilution for different metals, use dilution worksheet.