APCL

Applied Physics & Chemistry Laboratory

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

July 07, 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 03-3414 and your project : 04-4428.10 JPL GW Mon-2Q03.
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 #: 801-033414
Collected by: Leo Williamson
Collected on: 05/28/03

Received: 05/28/03
Extracted: 05/29/03
Tested: 05/28-06/03/03
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-5 03-03414-1	MW-8 03-03414-2
BICARBONATE	SM2320B	mg/L	2	146	153
CARBONATE	SM2320B	mg-$CaCO_3$/L	2	<2	<2
PH	9040B	pH unit	0.01	6.84	7.00
SOLIDS, TOTAL DISSOLVED (TDS)	160.1	mg/L	10	263	277
CHROMIUM (VI)	7196	mg/L	0.01	<0.01	<0.01
Dilution Factor				1	1
PERCHLORATE	314.0	µg/L	4	<4	4.2
Dilution Factor				2	2
CHLORIDE CL^-	300.0	mg/L	0.2	9.0	14.1
NITRATE AS N	300.0	mg/L	0.04	2.3	1.4
SULFATE SO_4^{--}	300.0	mg/L	0.5	22.1	36.4
Dilution Factor				1	1
ARSENIC	200.9	µg/L	5	<5	<5
CALCIUM	200.7	µg/L	200	45,300	52,300
IRON	200.7	µg/L	50	357	48.7J
MAGNESIUM	200.7	µg/L	100	13,800	16,500
POTASSIUM	200.7	µg/L	400	2,740	2,450
SODIUM	200.7	µg/L	2000	16,500	18,000
Dilution Factor				1	1
1,4-DIOXANE	8270-SIM	µg/L	1	<1	-

Component Analyzed	Method	Unit	PQL	Analysis Result MW-5 03-03414-1	MW-8 03-03414-2	TB-15-5/28/03 03-03414-3
VOLATILE ORGANIC COMPOUNDS						
Dilution Factor				1	1	1
BENZENE	524.2	µg/L	0.5	<0.5	<0.5	<0.5
BROMOBENZENE	524.2	µg/L	0.5	<0.5	<0.5	<0.5
BROMOCHLOROMETHANE	524.2	µg/L	0.5	<0.5	<0.5	<0.5
BROMODICHLOROMETHANE	524.2	µg/L	0.5	<0.5	<0.5	<0.5
BROMOFORM	524.2	µg/L	0.5	<0.5	<0.5	<0.5
BROMOMETHANE	524.2	µg/L	0.5	<0.5	<0.5	<0.5
N-BUTYLBENZENE	524.2	µg/L	0.5	<0.5	<0.5	<0.5
SEC-BUTYLBENZENE	524.2	µg/L	0.5	<0.5	<0.5	<0.5
TERT-BUTYLBENZENE	524.2	µg/L	0.5	<0.5	<0.5	<0.5
2-BUTANONE	524.2	µg/L	10	<10	<10	<10
CARBON TETRACHLORIDE	524.2	µg/L	0.5	<0.5	<0.5	<0.5
CHLOROBENZENE	524.2	µg/L	0.5	<0.5	<0.5	<0.5
CHLORODIBROMOMETHANE	524.2	µg/L	0.5	<0.5	<0.5	<0.5
CHLOROETHANE	524.2	µg/L	0.5	<0.5	<0.5	<0.5
CHLOROFORM	524.2	µg/L	0.5	<0.5	<0.5	<0.5
CHLOROMETHANE	524.2	µg/L	0.5	<0.5	<0.5	<0.5
2-CHLOROTOLUENE	524.2	µg/L	0.5	<0.5	<0.5	<0.5

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Component Analyzed	Method	Unit	PQL	Analysis Result MW-5 03-03414-1	MW-8 03-03414-2	TB-15-5/28/03 03-03414-3
4-CHLOROTOLUENE	524.2	µg/L	0.5	<0.5	<0.5	<0.5
1,2-DIBROMO-3-CHLOROPROPANE	524.2	µg/L	1.1 (a)	<1.1	<1.1	<1.1
1,2-DIBROMOETHANE (EDB)	524.2	µg/L	0.5	<0.5	<0.5	<0.5
DIBROMOMETHANE	524.2	µg/L	0.5	<0.5	<0.5	<0.5
1,2-DICHLOROBENZENE	524.2	µg/L	0.5	<0.5	<0.5	<0.5
1,3-DICHLOROBENZENE	524.2	µg/L	0.5	<0.5	<0.5	<0.5
1,4-DICHLOROBENZENE	524.2	µg/L	0.5	<0.5	<0.5	<0.5
DICHLORODIFLUOROMETHANE	524.2	µg/L	0.5	<0.5	<0.5	<0.5
1,1-DICHLOROETHANE	524.2	µg/L	0.5	<0.5	<0.5	<0.5
1,2-DICHLOROETHANE	524.2	µg/L	0.5	<0.5	<0.5	<0.5
1,1-DICHLOROETHENE	524.2	µg/L	0.5	<0.5	<0.5	<0.5
CIS-1,2-DICHLOROETHENE	524.2	µg/L	0.5	<0.5	<0.5	<0.5
TRANS-1,2-DICHLOROETHENE	524.2	µg/L	0.5	<0.5	<0.5	<0.5
1,2-DICHLOROPROPANE	524.2	µg/L	0.5	<0.5	<0.5	<0.5
1,3-DICHLOROPROPANE	524.2	µg/L	0.5	<0.5	<0.5	<0.5
2,2-DICHLOROPROPANE	524.2	µg/L	0.5	<0.5	<0.5	<0.5
1,1-DICHLOROPROPENE	524.2	µg/L	0.5	<0.5	<0.5	<0.5
CIS-1,3-DICHLOROPROPENE	524.2	µg/L	0.5	<0.5	<0.5	<0.5
TRANS-1,3-DICHLOROPROPENE	524.2	µg/L	0.5	<0.5	<0.5	<0.5
ETHYLBENZENE	524.2	µg/L	0.5	<0.5	<0.5	<0.5
HEXACHLOROBUTADIENE	524.2	µg/L	0.5	<0.5	<0.5	<0.5
ISOPROPYLBENZENE (CUMENE)	524.2	µg/L	0.5	<0.5	<0.5	<0.5
P-ISOPROPYLTOLUENE	524.2	µg/L	0.5	<0.5	<0.5	<0.5
METHYLENE CHLORIDE	524.2	µg/L	1.8 (a)	<1.8	3.7	3.8
4-METHYL-2-PENTANONE (MIBK)	524.2	µg/L	10	5J	5J	5J
METHYL-T-BUTYL ETHER (MTBE)	524.2	µg/L	1	<1	<1	<1
NAPHTHALENE	524.2	µg/L	0.5	<0.5	<0.5	<0.5
N-PROPYLBENZENE	524.2	µg/L	0.5	<0.5	<0.5	<0.5
STYRENE	524.2	µg/L	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
1,1,2,2-TETRACHLOROETHANE	524.2	µg/L	0.5	<0.5	<0.5	<0.5
TETRACHLOROETHENE	524.2	µg/L	0.5	<0.5	<0.5	<0.5
TOLUENE	524.2	µg/L	0.5	<0.5	<0.5	<0.5
1,2,3-TRICHLOROBENZENE	524.2	µg/L	0.5	<0.5	<0.5	<0.5
1,2,4-TRICHLOROBENZENE	524.2	µg/L	0.5	<0.5	<0.5	<0.5
1,1,1-TRICHLOROETHANE	524.2	µg/L	0.5	<0.5	<0.5	<0.5
1,1,2-TRICHLOROETHANE	524.2	µg/L	0.5	<0.5	<0.5	<0.5
TRICHLOROETHENE	524.2	µg/L	0.5	<0.5	<0.5	<0.5
TRICHLOROFLUOROMETHANE	524.2	µg/L	0.5	<0.5	<0.5	<0.5
1,2,3-TRICHLOROPROPANE	524.2	µg/L	0.5	<0.5	<0.5	<0.5
112TRICHLORO-122TRIFLUOROETHANE	524.2	µg/L	0.5	<0.5	<0.5	<0.5
1,2,4-TRIMETHYLBENZENE	524.2	µg/L	0.5	<0.5	<0.5	<0.5
1,3,5-TRIMETHYLBENZENE	524.2	µg/L	0.5	<0.5	<0.5	<0.5
VINYL CHLORIDE	524.2	µg/L	0.5	<0.5	<0.5	<0.5

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Component Analyzed	Method	Unit	PQL	Analysis Result MW-5 03-03414-1	MW-8 03-03414-2	TB-15-5/28/03 03-03414-3
O-XYLENE	524.2	µg/L	0.5	<0.5	<0.5	<0.5
M/P-XYLENE	524.2	µg/L	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) 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: 03-3414

Applied P & Ch Laboratory
13760 Magnolia Ave. Chino, CA 91710
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Case Narrative

Project: JPL/04-4428.10

For GEOFON, Inc.

APCL Service No: 03-3414

1. Sample Identification

The sample identifications are listed in the following table:

GEOFON, Inc. Sample ID	APCL Sample ID
MW-5	03-03414-1
MW-8	03-03414-2
TB-15-5/28/03	03-03414-3

2. Analytical Methodology

Samples are analyzed by EPA methods

524.2 (Volatile Organic Compounds),
7196A (Chromium (VI)),
314.0 (Perchlorate, low level),
300.0 (Anions, by IC),
SM2320B (Bicarbonate, Carbonate),
9040B (pH),
160.1 (Solids, Total Dissolved (TDS)),
200.7 (Metals, by ICP),
200.9 (Arsenic, As, by GFAA),
8270C-SIM (1,4-Dioxane),

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) EPA 524.2:

Methylene Chloride in the amount of 5.9 ug/L was detected in the Method Blank of batch 03G2684. Methylene Chloride was also detected in the associated field samples, due to lab contamination.

"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

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 0036

GEOFON's LAB COORDINATOR: Brad Shojaee	LAB COORDINATOR'S PHONE: (909) 396-7662	LAB COORDINATOR'S FAX: (909) 396-1455	LABORATORY SERVICE ID: —	LABORATORY CONTACT: Kenny Chan	MAIL REPORT (COMPANY NAME): GEOFON INC.	
PROJECT NAME: JPL GW MON-2003	PROJECT LOCATION: MW-5/MW-8	PROJECT NUMBER: 04-4428.10	LABORATORY PHONE: (909) 590-1828	LABORATORY FAX: (909) 590-1498	RECIPIENT NAME: Leo W. Williamson	
PROJECT CONTACT: Leo W. Williamson	PROJECT PHONE NUMBER: (714) 920-8729	PROJECT FAX: (909) 396-1455	LABORATORY ADDRESS: 13760 Magnolia Ave		ADDRESS: 22632 Golden Springs Dr. #270	
PROJECT ADDRESS: 4900 Oak Grove Dr.	CITY, STATE AND ZIPCODE: Pasadena, CA.	CLIENT: US NAVY ENGDIV	CITY, STATE AND ZIPCODE: Chino, CA. 91710		CITY, STATE AND ZIPCODE: Diamond Bar, CA. 91765	
PROJECT MANAGER: Asrar 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 & 2009 (Minerals)	7196 (Hex Chrome)	SM2320B (Calc./Bicarb)	300.0 (Cl/SO4/NO3)	314.0 (Perchlorate)	160.1 (TDS)	200.8 (Cr & Pb)	Comments
1	MW-5	H_2O	5/28/03	830	HCl NONE NHO_3	3+1+ 1+1	III	NORMAL	X	X	X	X	X	X	X	X	MINERALS: Na/K/Ca/As/Mg/Fe
2	MW-8	↓	↓	1115	↓	↓	↓	↓	X	X	X	X	X	X	X	X	
3																	
4																	
5	TB-15-5/28/03	H_2O	5/28/03	—	HCl	2	III	NORMAL	X								
6																	
7																	
8																	
9																	
10																	

3414

SAMPLES COLLECTED BY: Leo W. Williamson

RELINQUISHED BY: Leo W. Williamson; S. Burbidge

COURIER AND AIR BILL NUMBER:

RECEIVED BY: S. Burbidge; [signature]

DATE	TIME
5-29-03	12:40
5/28/03	1530

COOLER TEMPERATURE UPON RECEIPT

SAMPLE'S CONDITION UPON RECEIPT

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

GEOFON INCORPORATED

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

CHAIN-OF-CUSTODY RECORD

LABORATORY COPY

SHALLOW WELLS 0037

GEOFON'S LAB COORDINATOR: Brad Shojaee	LAB COORDINATOR'S PHONE: (909) 396-7662	LAB COORDINATOR'S FAX: (909) 396-1455	LABORATORY SERVICE ID: —	LABORATORY CONTACT: Kenny Chan	MAIL REPORT (COMPANY NAME): GEOFON, INC.
PROJECT NAME: SPL GW Mon-2003	PROJECT LOCATION: mw-5	PROJECT NUMBER: 04-44210	LABORATORY PHONE: (909) 590-1828	LABORATORY FAX: (909) 590-1498	RECIPIENT NAME: Leo W. Williamson
PROJECT CONTACT: Leo W. Williamson	PROJECT PHONE NUMBER: (714) 920-8729	PROJECT FAX: (909) 396-1455	LABORATORY ADDRESS: 13760 Magnolia Ave		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, CA. 91710		CITY, STATE AND ZIPCODE: Diamond Bar, CA. 91765
PROJECT MANAGER: Asrar Faheem	PROJECT MANAGER'S PHONE: (909) 396-7662	PROJECT MANAGER'S FAX: (909) 396-7662			

Item	Sample Identifier	Matrix	Date	Time	Preserved	# of Cont	QC Level	T.A.T	Analyses: 8270 SIM (4-DIOXANE)	Comments
1	MW-5	H_2O	5/28/03	930	HCl NONE HNO3	2	III	NORMAL	X	
2										
3										
4										
5										
6										
7										
8										
9										
10										

3414

COOLER TEMPERATURE UPON RECEIPT

SAMPLES COLLECTED BY: Leo W. Williamson

COURIER AND AIR BILL NUMBER.

SAMPLE'S CONDITION UPON RECEIPT

RELINQUISHED BY	RECEIVED BY	DATE	TIME
Leo W. Williamson		5-28-03	12:40
		5/28/03	1530

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

Sample Receiving Checklist

APCL ServiceID: 3414 Client Name/Project: Geofon / JPL

1. Sample Arrival

Date/Time Received 5/28/03 1530 Date/Time Opened 5/28/03 1530 By (name): Kenneth 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 3

☑ 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 3.9 _____ _____ _____ _____ _____

(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: _____ Date: 28 May 2003 Time: 7:39 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.

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Sample Login: Check List

03-03414 (0470_ 151) (2202777_ 151)

05/28/03

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:	*05/28/03 1530*
		COC No.	
☐	Shipping Information	Shipping Company	*APCL pick up*
		Packing Information:	*Cooler/Ice Chester*
		Cooler Temperature:	*3.9 °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-5	VOC	03-03414-1-α	W	V	C	40	3	G	052803	N	0	7	☐
	MW-5	Metal	03-03414-1-β	W	P	N	500	1	G	052803	N	0	7	☐
	MW-5	300	03-03414-1-γ	W	P		1000	1	G	052803	N	0	7	☐
	MW-5	Dioxane	03-03414-1-δ	W	G		1000	2	G	052803	N	0	7	☐
2	MW-8	VOC	03-03414-2-α	W	V	C	40	3	G	052803	N	0	7	☐
	MW-8	Metal	03-03414-2-β	W	P	N	500	1	G	052803	N	0	7	☐
	MW-8	300	03-03414-2-γ	W	P		1000	1	G	052803	N	0	7	☐
3	TB-15-5/28/03	VOC	03-03414-3	W	V	C	40	2	G	052803	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-5	VOC	03-03414-1-α	W	X								☐
	MW-5	Metal	03-03414-1-β	W									☐
	MW-5	300	03-03414-1-γ	W		X	X	X	X	X	X	X	☐
	MW-5	Dioxane	03-03414-1-δ	W									☐

Level C Data Package Deliverables

Volatile Organics

Applied P & Ch Laboratory

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:	33414	Collected by:	
		Lab Sample ID:	03G2684-MB-01	Received Date:	05/29/2003
Sample ID:	**03G2684-MB-01**	Sample Matrix	Water	Moisture %:	-
Sample Type:	Method Blank	Prep. Method:	5030	Instrument ID:	GC/MS: G
Anal. Method:	524.2	Prep. Date:	05/29/03	Anal. Date:	05/29/03
Batch No:	03G2684	Prep. No:	-	Anal. Time:	14:10
Data File Name:	G2684K01	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	5.9	
42	4-METHYL-2-PENTANONE (MIBK)	108-10-1	µg/L	10	< 10	U
43	METHYL-T-BUTYL ETHER (MTBE)	1634-04-4	µg/L	1	< 1	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	98
2	1,2-DICHLOROETHANE-D4	17060-07-0	70-129	95
3	DIBROMOFLUOROMETHANE	1868-53-7	70-122	101
4	TOLUENE-D8	2037-26-5	73-129	106
# of out-of-control				0

Internal Standard			Control Limit, %	IS Rec.%
1	CHLOROBENZENE-D5	3114-55-4	50-200	81
2	1,4-DICHLOROBENZENE-D4	3855-82-1	50-200	87
3	FLUOROBENZENE	462-06-6	50-200	89
# 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:	05/28/2003
Project ID:	JPL	Service ID:	33414	Collected by:	
		Lab Sample ID:	03-3414-1	Received Date:	05/28/2003
Sample ID:	**MW-5**	Sample Matrix	Water	Moisture %:	–
Sample Type:	Field Sample	Prep. Method:	5030	Instrument ID:	GC/MS: G
Anal. Method:	524.2	Prep. Date:	05/29/03	Anal. Date:	05/29/03
Batch No:	03G2684	Prep. No:	–	Anal. Time:	16:09
Data File Name:	3414-01	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	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[a]	<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[a]	<1.8	U
42	4-METHYL-2-PENTANONE (MIBK)	108-10-1	µg/L	10	5	J
43	METHYL-T-BUTYL ETHER (MTBE)	1634-04-4	µg/L	1	<1	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	1-BROMO-4-FLUOROBENZENE (4-BROMOFL	460-00-4	70-129	109
2	1,2-DICHLOROETHANE-D4	17060-07-0	70-129	87
3	DIBROMOFLUOROMETHANE	1868-53-7	70-122	96
4	TOLUENE-D8	2037-26-5	73-129	104
# of out-of-control				0

Internal Standard		Control Limit, %	IS Rec.%
1	CHLOROBENZENE-D5	3114-55-4	50-200	89
2	1,4-DICHLOROBENZENE-D4	3855-82-1	50-200	89
3	FLUOROBENZENE	462-06-6	50-200	102
# of out-of-control				0

Not Detected is shown as PQL, with dilution and moisture corrected if applicable.
[a] 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:	05/28/2003
Project ID:	JPL	Service ID:	33414	Collected by:	
		Lab Sample ID:	03-3414-2	Received Date:	05/28/2003
Sample ID:	**MW-8**	Sample Matrix	Water	Moisture %:	-
Sample Type:	Field Sample	Prep. Method:	5030	Instrument ID:	GC/MS: G
Anal. Method:	524.2	Prep. Date:	05/29/03	Anal. Date:	05/29/03
Batch No:	03G2684	Prep. No:	-	Anal. Time:	16:39
Data File Name:	3414-02	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[a]	< 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[a]	3.7	B
42	4-METHYL-2-PENTANONE (MIBK)	108-10-1	µg/L	10	5	J
43	METHYL-T-BUTYL ETHER (MTBE)	1634-04-4	µg/L	1	< 1	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	1-BROMO-4-FLUOROBENZENE (4-BROMOFL	460-00-4	70-129	102
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	103
# 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	104
# of out-of-control				0

Not Detected is shown as PQL, with dilution and moisture corrected if applicable.
[a] 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:	05/28/2003
Project ID:	JPL	Service ID:	33414	Collected by:	
		Lab Sample ID:	03-3414-3	Received Date:	05/28/2003
Sample ID:	**TB-15-5/28/03**	Sample Matrix	Water	Moisture %:	
Sample Type:	Field Sample	Prep. Method:	5030	Instrument ID:	GC/MS: C
Anal. Method:	524.2	Prep. Date:	05/29/03	Anal. Date:	05/29/03
Batch No:	03G2684	Prep. No:	–	Anal. Time:	17:09
Data File Name:	3414-03	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[a]	< 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[a]	3.8	B
42	4-METHYL-2-PENTANONE (MIBK)	108-10-1	µg/L	10	5	J
43	METHYL-T-BUTYL ETHER (MTBE)	1634-04-4	µg/L	1	< 1	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 1-BROMO-4-FLUOROBENZENE (4-BROMOFL	460-00-4	70-129	96
2 1,2-DICHLOROETHANE-D4	17060-07-0	70-129	84
3 DIBROMOFLUOROMETHANE	1868-53-7	70-122	92
4 TOLUENE-D8	2037-26-5	73-129	99
# of out-of-control			0

Internal Standard		Control Limit, %	IS Rec.%
1 CHLOROBENZENE-D5	3114-55-4	50-200	98
2 1,4-DICHLOROBENZENE-D4	3855-82-1	50-200	103
3 FLUOROBENZENE	462-06-6	50-200	107
# of out-of-control			0

Not Detected is shown as PQL, with dilution and moisture corrected if applicable.
[a] 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-2C

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:	033414
Project ID:	JPL	Project No:	04-4428.10	Sample Matrix:	Water
		Batch No:	03G2684		

#	Client Sample No	Lab Sample ID	S1 % #	S2 % #	S3 % #	S4 % #	TOT OUT
1	03G2684-LCS-01	03G2684-LCS-01	89	103	102	100	0
2	MW-5MS	03-3414-1MS	105	116	110	108	0
3	MW-5MSD	03-3414-1MSD	108	110	108	107	0
4	03G2684-MB-01	03G2684-MB-01	98	95	101	106	0
5	MW-5	03-3414-1	109	87	96	104	0
6	MW-8	03-3414-2	102	86	97	103	0
7	TB-15-5/28/03	03-3414-3	96	84	92	99	0
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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:	33414
Project ID:	JPL	Project No:	04-4428.10	Sample Matrix:	Water
		Batch No:	03G2684		
LCS Filename:	G2684L01	Date Analyzed:	052903	Time Analyzed:	11:16
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	19.6	98	65-120
CHLOROBENZENE	µg/L	20	0	19.6	98	65-134
1,1-DICHLOROETHENE	µg/L	20	0	18.2	91	65-127
TOLUENE	µg/L	20	0	18.8	94	65-134
TRICHLOROETHENE	µg/L	20	0	18.9	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:	33414
Project ID:	JPL	Project No:	04-4428.10	Sample Matrix:	Water
		Batch No:	03G2684		
MS Filename:	G2684M01	Date Analyzed:	052903	Time Analyzed:	11:44
MSD Filename:	G2684N01	Date Analyzed:	052903	Time Analyzed:	12:43
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
BENZENE	µg/L	20	0	21.4	107	65-121
CHLOROBENZENE	µg/L	20	0	22.5	113	65-134
1,1-DICHLOROETHENE	µg/L	20	0	21.1	106	65-127
TOLUENE	µg/L	20	0	21.1	106	65-134
TRICHLOROETHENE	µg/L	20	0	21.3	107	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	20.8	104	3	28	65-121
CHLOROBENZENE	µg/L	20	22.3	112	1	35	65-134
1,1-DICHLOROETHENE	µg/L	20	20.3	102	4	31	65-127
TOLUENE	µg/L	20	20.7	104	2	35	65-134
TRICHLOROETHENE	µg/L	20	21.3	107	0	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:	33414
Project ID:	JPL	Project No:	04-4428.10	Analysis Date:	05/29/03
		Sample Matrix:	Water	Analysis Time:	14:10
Sample ID:	**03G2684-MB-01**	Batch No:	03G2684	Instrument ID:	GC/MS: G
Lab Sample ID:	03G2684-MB-01	Data File Name:	G2684K01	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	03G2684-LCS-01	03G2684-LCS-01	Lab Control Spike	G2684L01	05/29/03	11:16
2	MW-5MS	03-3414-1MS	Matrix Spike	G2684M01	05/29/03	11:44
3	MW-5MSD	03-3414-1MSD	Matrix Spike Duplicate	G2684N01	05/29/03	12:43
4	MW-5	03-3414-1	Field Sample	3414-01	05/29/03	16:09
5	MW-8	03-3414-2	Field Sample	3414-02	05/29/03	16:39
6	TB-15-5/28/03	03-3414-3	Field Sample	3414-03	05/29/03	17:09
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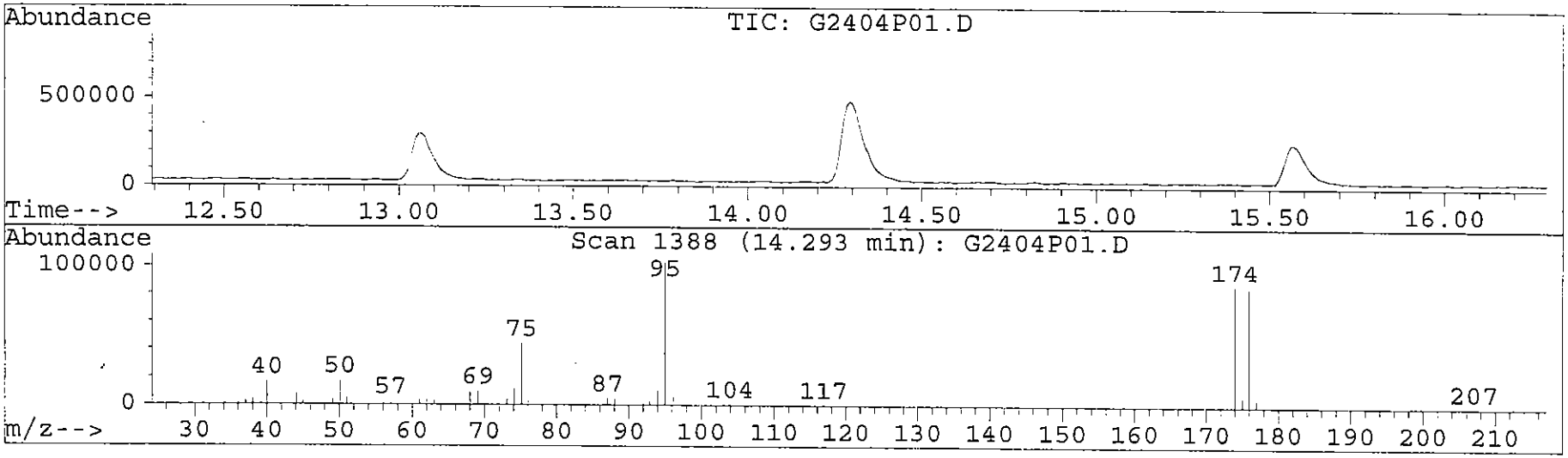
BFB

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.: 033414

Lab File ID: G2404 P01 BFB Injection Date: 05/15/2003

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					
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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

Response Factor Report GCMS-G

624

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	~~0.9~~
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	

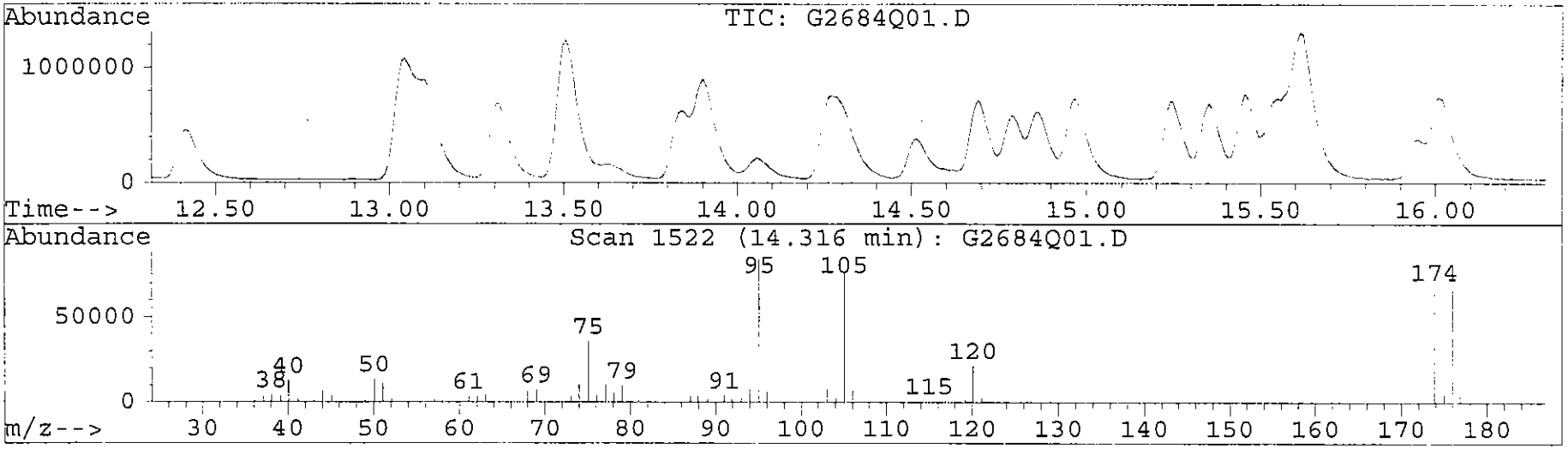
(#) = Out of Range

BFB

Data File : C:\HPCHEM\1\DATA\03G2684\G2684Q01.D
Acq On : 29 May 03 10:45 am
Sample : ##03g2684, w
Misc :

Vial: 19
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: 1522

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	16.3	13677	PASS
75	95	30	60	42.7	35832	PASS
95	95	100	100	100.0	83864	PASS
96	95	5	9	7.2	6077	PASS
173	174	0	2	0.0	0	PASS
174	95	50	100	81.1	68048	PASS
175	174	5	9	6.8	4621	PASS
176	174	95	101	97.1	66048	PASS
177	176	5	9	6.2	4072	PASS

G2684Q01.D E524G004.M Thu May 29 13:17:44 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:	033414
Project ID:	JPL	BFB Inj. Date:	05/29/03	Batch No:	03G2684
		BFB Inj. Time:	10:45	Sequence No:	03G2684
Project No:	04-4428.10	Instrument ID:	G	GC Column:	DB-VEX
Data File Name:	G2684Q01	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	03G2697-CCV-01	03G2684-CCV-01	G2684Q01	05/29/03	10:45
2	03G2684-LCS-01	03G2684-LCS-01	G2684L01	05/29/03	11:16
3	MW-5MS	03-3414-1MS	G2684M01	05/29/03	11:44
4	MW-5MSD	03-3414-1MSD	G2684N01	05/29/03	12:43
5	03G2684-MB-01	03G2684-MB-01	G2684K01	05/29/03	14:10
6	MW-5	03-3414-1	3414-01	05/29/03	16:09
7	MW-8	03-3414-2	3414-02	05/29/03	16:39
8	TB-15-5/28/03	03-3414-3	3414-03	05/29/03	17:09
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Evaluate Continuing Calibration Report

630

Data File : C:\HPCHEM\1\DATA\03G2684\G2684Q01.D Vial: 19
Acq On : 29 May 03 10:45 am Operator: Eddie
Sample : ##03g2684, w 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	96	0.00
2		3	di-Cl-di-F-methane 85 8	0.212	0.192	9.3	87	0.00
3	P	4	Chloromethane 50 5	0.142	0.158	-11.3	92	0.00
4		9	F114 85 135	0.255	0.232	9.1	86	0.00
5	C	5	vinyl chloride 62 6	0.194	0.188	2.9	89	0.00
6		6	bromomethane 94 9	0.172	0.192	-11.5	103	0.00
7		7	Chloroethane 64 66	0.153	0.150	2.0	90	0.00
8		8	tri-Cl-F-methane 101 10	0.396	0.362	8.6	87	0.00
9		111	isopropyl alcohol x10	0.004	0.005#	-20.8#	98	0.00
10		100	ethyl ether x5	0.158	0.150	5.2	98	0.00
11		102	Acrolein x10	0.011	0.008#	26.4#	73	0.00
12		119	methyl acetate	0.177	0.156	12.2	68	0.00
13		104	Carbon disulfide	0.623	0.546	12.2	84	0.00
14		103	Acrylonitrilex10	0.023	0.028#	-17.3	97	0.00
15		95	Acetone x10	0.019	0.021#	-11.9	115	0.00
16		108	F-113	0.344	0.312	9.4	86	0.00
17	M,C	13	11-dichloroethene 61 9	0.362	0.329	9.0	88	0.00
18		101	Acetonnitrilex10	0.007	0.008#	-10.0	106	0.00
19		109	Iodomethane	0.399	0.250	37.2#	57	0.00
20		113	Tert butyl alcohol x10	0.009	0.011#	-21.5#	116	0.00
21		18	methylene chloride 49 8	0.245	0.319	-30.1#	128	0.00
22		112	Allyl chloride	0.430	0.376	12.6	87	0.00
23		200	Nitro methane x10	0.039	0.040#	-2.4	88	0.00
24		10	t-Bu-Me-ether 73 57	0.496	0.522	-5.4	103	0.00
25		19	t-12-di-Cl-ethene 96 6	0.263	0.255	3.1	86	0.00
26		98	Vinyl acetate x5	0.149	0.293	-96.3#	156#	0.00
27	P	21	11-dichloroethane 63 8	0.525	0.538	-2.5	92	0.00

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\03G2684\G2684Q01.D Vial: 19
Acq On : 29 May 03 10:45 am Operator: Eddie
Sample : ##03g2684, w 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	-6.5	100	0.00
29		115 Di isoprop ether	1.421	1.382	2.8	96	0.00
30		22 c-12-di-Cl-ethene 96 6	0.281	0.283	-0.6	93	0.00
31		23 22-Dichloropropane 77 9	0.428	0.418	2.4	95	0.00
32		24 Br-Cl-methane 128 13	0.104	0.127	-21.5#	100	0.00
33	C	25 chloroform 83 8	0.512	0.491	4.1	95	0.00
34		201 Ethyl acetate x2	0.118	0.154	-30.2#	123	0.00
35		116 ETBE	0.916	0.875	4.5	100	0.00
36		117 Iso-butyl alcohol X10	0.022	0.031#	-41.1#	124	0.00
37		26 tetrahydrofuranx5	0.011	0.012#	-7.7	97	0.00
38	S	27 Di-Br-F-Methane (S1) 11	0.371	0.381	-2.7	96	0.00
39		34 111-tri-Cl-ethane 97 9	0.399	0.389	2.5	93	0.00
40		30 12-dichloroethane 64 6	0.184	0.213	-15.9	98	0.00
41		35 11-Di-Cl-propene 75 11	0.354	0.333	6.1	89	0.00
42	S	29 1,2-di-Cl-ethane-d4 [Sur	0.169	0.176	-4.0	96	0.00
43	M	36 benzene 78 5	0.851	0.848	0.4	93	0.00
44		37 CCl4 117 11	0.359	0.343	4.4	90	0.00
45		97 thiophene	0.424	0.429	-1.0	94	0.00
46		118 TAME	0.515	0.614	-19.0	98	0.00
47	C	39 12-di-Cl-propane 63 7	0.251	0.265	-5.3	97	0.00
48	M	40 trichloroethene 130 13	0.304	0.290	4.6	91	0.00
49		96 Me-methacrylate	0.087	0.104	-19.0	92	0.00
50		42 Br-di-Cl-methane 83 8	0.362	0.336	7.1	94	0.00
51		41 dibromomethane 174 17	0.109	0.130	-19.3	95	0.00
52		45 c-13-di-Cl-propene 75 11	0.309	0.321	-3.7	96	0.00
53	S	55 toluene-d8(S2) 100	0.504	0.503	0.1	94	0.00
54		92 2-ClEt-Vi-ether10	0.026	0.028#	-8.1	97	0.00

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\03G2684\G2684Q01.D Vial: 19
Acq On : 29 May 03 10:45 am Operator: Eddie
Sample : ##03g2684, w 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	0.772	5.6	93	0.00
56		107 Et methacrylate	0.132	0.201	-51.9#	133	0.00
57		93 2-Hexanone x5	0.045	0.066	-45.7#	110	0.00
58		48 112-tri-Cl-Et 97 8	0.110	0.126	-14.3	98	0.00
59		58 1,2-di-br-ethane 107 109	0.121	0.133	-10.5	96	0.00
60		51 di-Br-Cl-methane 129 12	0.217	0.210	3.2	100	0.00
61		46 t-13-di-cl-propene 75 11	0.309	0.321	-3.7	96	0.00
62		105 1-Chlorohexane	0.315	0.250	20.7#	91	0.00
63	I	47 Cl-benzene-d5, I2	1.000	1.000	0.0	100	0.00
64		54 MIBK	0.323	0.375	-16.2	103	0.00
65		49 1,3-di-cl-propane 76 78	0.708	0.684	3.4	92	0.00
66		59 tetra-Cl-ethene 166 16	0.856	0.793	7.4	89	0.00
67	M P	60 chlorobenzene 112 7	1.602	1.597	0.3	95	0.00
68		61 1112-tetra-Cl-Et 131 13	0.721	0.752	-4.3	98	0.00
69	C	64 ethylbenzene 91 10	2.837	2.639	7.0	93	0.00
70		65 m/p-Xylenes x2	2.136	2.006	6.1	91	0.00
71		99 1-4-di-Cl-butane	0.702	0.649	7.6	96	0.00
72	P	52 bromoform 173 17	0.308	0.315	-2.3	104	0.00
73		66 styrene 104 7	1.729	1.559	9.8	92	0.00
74		67 o-xylene 91 10	2.058	1.913	7.1	90	0.00
75	P	68 1122-Tetra-Cl-Et 83 8	0.347	0.376	-8.4	99	0.00
76		110 t-1,4-dichloro-2-butene	0.078	0.075	4.4	92	0.00
77		106 Cl-benzyl	0.512	0.625	-22.0#	113	0.00
78	I	62 1,4-DCB-d4 150 152 I3	1.000	1.000	0.0	103	0.00
79		69 123-tri-Cl-Pr 110 9	0.116	0.122	-5.4	106	0.00

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\03G2684\G2684Q01.D Vial: 19
Acq On : 29 May 03 10:45 am Operator: Eddie
Sample : ##03g2684, w 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	0.764	7.3	93	0.00
81		71 isopropylbenzene	105	12	3.357	2.963	11.8	91	0.00
82		72 bromobenzene	156	15	0.717	0.701	2.3	93	0.00
83		73 n-propylbenzene	120	7	0.988	0.884	10.5	91	0.00
84		74 2-Cl-Tl	126	128	0.592	0.575	2.9	93	0.00
85		75 4-Cl-Tl	126	128	0.889	0.840	5.4	92	0.00
86		76 135-tri-Me-Bz	105	12	2.617	2.347	10.3	94	0.00
87		79 tert-butylbenzene	119	9	2.946	2.618	11.1	90	0.00
88		78 124-tri-Me-Bz	105	12	2.186	2.053	6.1	99	0.00
89		80 13-di-Cl-Bz	146	148	1.161	1.101	5.2	98	0.00
90		82 14-di-Cl-Bz	146	148	1.669	1.505	9.8	89	0.00
91		81 sec-butylbenzene	105	13	4.113	3.457	15.9	89	0.00
92		77 4-iso-Pr-toluene	119	13	3.116	2.725	12.5	92	0.00
93		84 12-di-Cl-benzene	146	14	1.116	1.052	5.7	94	0.00
94		85 n-butylbenzene	91	13	2.695	2.322	13.9	93	0.00
95		86 12-diBr-3-Cl-Pra	157	15	0.067	0.071	-5.9	100	0.00
96		87 124-tri-Cl-Bz	180	18	0.654	0.703	-7.5	109	0.00
97		88 naphthalene	128	12	0.583	0.736	-26.3#	127	0.00
98		90 123-tri-Cl-Bz	180	18	0.469	0.546	-16.4	108	0.00
99		89 hx-Cl-butadiene	225	26	0.681	0.582	14.5	92	0.00

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

Continuing Calibration Concentration Summary

Data File G2684Q01.D
Method File E524G004

Compound Name	Amount	Actual	Units	%Dev	Target Response
1 Fluorobenzene I1 1	10	10.00	ppb	0.00	713991
3 di-Cl-di-F-methane 85 87	20	18.14	ppb	9.32	274560
4 Chloromethane 50 52	20	18.25	ppb	8.73	225545
9 F114 85 135	20	17.12	ppb	14.42	330605
5 vinyl chloride 62 64	20	19.42	ppb	2.92	268660
6 bromomethane 94 96	20	22.30	ppb	11.50	274520
7 Chloroethane 64 66	20	19.60	ppb	2.02	213631
8 tri-Cl-F-methane 101 103	20	18.28	ppb	8.58	516479
111 isopropyl alcohol x10	200	241.66	ppb	20.83	69108
100 ethyl ether x5	100	105.10	ppb	5.10	1070002
102 Acrolein x10	200	151.07	ppb	24.47	120095
119 methyl acetate	20	17.71	ppb	11.46	222394
104 Carbon disulfide	20	17.55	ppb	12.25	780208
103 Acrylonitrilex10	200	222.22	ppb	11.11	392999
95 Acetone x10	200	247.02	ppb	23.51	306038
108 F-113	20	18.11	ppb	9.45	445250
13 11-dichloroethene 61 96	20	18.20	ppb	9.00	470082
101 Acetonnitrilex10	200	238.50	ppb	19.25	108757
109 Iodomethane	20	12.26	ppb	38.71	357555
113 Tert butyl alcohol x10	200	243.08	ppb	21.54	159886
18 methylene chloride 49 84	20	26.01	ppb	30.07	455282
112 Allyl chloride	20	19.78	ppb	1.12	536616
200 Nitro methane x10	200	204.72	ppb	2.36	572067
10 t-Bu-Me-ether 73 57	20	21.08	ppb	5.40	745816
19 t-12-di-Cl-ethene 96 61	20	19.38	ppb	3.12	364371
98 Vinyl acetate x5	100	149.57	ppb	49.57	2088805
21 11-dichloroethane 63 83	20	20.49	ppb	2.45	768428
91 2-butanone MEKx10	200	213.06	ppb	6.53	1427520
115 Di isoprop ether	20	19.45	ppb	2.76	1973456
22 c-12-di-Cl-ethene 96 61	20	20.12	ppb	0.62	404019
23 22-Dichloropropane 77 97	20	19.52	ppb	2.41	596517
24 Br-Cl-methane 128 130	20	21.00	ppb	5.01	181074
25 chloroform 83 85	20	19.18	ppb	4.12	701522
201 Ethyl acetate x2	40	51.40	ppb	28.50	438906
116 ETBE	20	21.54	ppb	7.71	1249183
117 Iso-butyl alcohol X10	200	254.67	ppb	27.33	444917
26 tetrahydrofuranx5	100	107.66	ppb	7.66	82114
27 Di-Br-F-Methane (S1) 111 1	20	20.53	ppb	2.66	544331
34 111-tri-Cl-ethane 97 99	20	19.49	ppb	2.55	555606
30 12-dichloroethane 64 62	20	20.26	ppb	1.32	304010
35 11-Di-Cl-propene 75 110	20	18.78	ppb	6.12	474973
29 1,2-di-Cl-ethane-d4 [Surr] 10	20	20.80	ppb	4.00	250639
36 benzene 78 52	20	19.92	ppb	0.40	1210640
37 CCl4 117 119	20	19.12	ppb	4.39	490183

97 thiophene	20	20.21	ppb	1.04	612241
118 TAME	20	21.33	ppb	6.66	876255
39 12-di-Cl-propane 63 76	20	21.06	ppb	5.29	377963
40 trichloroethene 130 132	20	19.08	ppb	4.60	414626
96 Me-methacrylate	20	20.89	ppb	4.43	148538
42 Br-di-Cl-methane 83 85	20	20.32	ppb	1.61	479894
41 dibromomethane 174 172	20	20.08	ppb	0.40	185088
45 c-13-di-Cl-propene 75 110	20	20.74	ppb	3.68	458065
55 toluene-d8(S2) 100 99	20	19.98	ppb	0.11	718585
92 2-ClEt-Vi-ether10	200	216.14	ppb	8.07	400033

Compound Name	Amount	Actual	Units	%Dev	Target Response
56 toluene 91 92	20	18.88	ppb	5.58	1102151
107 Et methacrylate	20	28.25	ppb	41.23	287320
93 2-Hexanone x5	100	119.46	ppb	19.46	472510
48 112-tri-Cl-Et 97 83	20	20.29	ppb	1.46	179727
58 1,2-di-br-ethane 107 109	20	20.19	ppb	0.96	190228
51 di-Br-Cl-methane 129 127	20	20.86	ppb	4.29	300332
46 t-13-di-cl-propene 75 110	20	20.74	ppb	3.68	458065
105 1-Chlorohexane	20	18.56	ppb	7.20	356499
47 Cl-benzene-d5, I2	10	10.00	ppb	0.00	223967
54 MIBK	20	23.57	ppb	17.84	167900
49 1,3-di-cl-propane 76 78	20	19.31	ppb	3.43	306418
59 tetra-Cl-ethene 166 168	20	18.52	ppb	7.39	355107
60 chlorobenzene 112 77	20	19.94	ppb	0.31	715260
61 1112-tetra-Cl-Et 131 133	20	20.86	ppb	4.29	336911
64 ethylbenzene 91 106	20	18.61	ppb	6.96	1182269

Compound Name	Amount	Actual	Units	%Dev	Target Response
65 m/p-Xylenes x2	40	37.55	ppb	6.11	1796677
99 1-4-di-Cl-butane	20	21.69	ppb	8.43	290641
52 bromoform 173 175	20	20.46	ppb	2.29	141252
66 styrene 104 78	20	19.99	ppb	0.05	698529
67 o-xylene 91 106	20	18.59	ppb	7.05	856934
68 1122-Tetra-Cl-Et 83 85	20	21.69	ppb	8.45	168513
110 t-1,4-dichloro-2-butene	20	19.12	ppb	4.38	33438
106 Cl-benzyl	20	24.96	ppb	24.79	279752
62 1,4-DCB-d4 150 152 I3	10	10.00	ppb	0.00	203050
69 123-tri-Cl-Pr 110 97	20	21.08	ppb	5.40	49625
70 4-Br-1-F-Bz (S3) 174 95	20	18.55	ppb	7.25	310388
71 isopropylbenzene 105 120	20	17.65	ppb	11.76	1203154
72 bromobenzene 156 158	20	19.53	ppb	2.34	284539
73 n-propylbenzene 120 78	20	17.90	ppb	10.52	359075
74 2-Cl-TI 126 128	20	19.42	ppb	2.90	233607
75 4-Cl-TI 126 128	20	18.91	ppb	5.43	341260
76 135-tri-Me-Bz 105 120	20	17.93	ppb	10.34	953050
79 tert-butylbenzene 119 91	20	17.77	ppb	11.14	1063215
78 124-tri-Me-Bz 105 120	20	18.78	ppb	6.12	833554
80 13-di-Cl-Bz 146 148	20	18.96	ppb	5.20	447112
82 14-di-Cl-Bz 146 148	20	18.04	ppb	9.80	611359
81 sec-butylbenzene 105 134	20	16.81	ppb	15.94	1403967

77 4-iso-Pr-toluene	119 134	20	17.49	ppb	12.55	1106502
84 12-di-Cl-benzene	146 148	20	18.86	ppb	5.69	427356
85 n-butylbenzene	91 134	20	17.23	ppb	13.85	942893
86 12-diBr-3-Cl-Pra	157 155	20	19.56	ppb	2.18	28929
87 124-tri-Cl-Bz	180 182	20	19.79	ppb	1.05	285358
88 naphthalene	128 129	20	21.33	ppb	6.66	298891
90 123-tri-Cl-Bz	180 182	20	20.27	ppb	1.36	221675
				Ave.% Dev	8.20	

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:	033414
Project ID:	JPL	Project No:	04-4428.10	Sample Matrix:	Water
		CCV Data File:	G2684Q01	Instrument ID:	G

Batch No: 03G2684

#	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			05/29/03 10:45	713991	9.48	223967	13.07	203050	15.59
CCV Upper Limit				1427982	9.98	447934	13.57	406100	16.09
CCV Lower Limit				356995	8.98	111983	12.57	101525	15.09
1	03G2684-LCS-01	03G2684-LCS-01	05/29/03 11:16	708791	9.47	220328	13.07	209010	15.58
2	MW-5MS	03-3414-1MS	05/29/03 11:44	638973	9.49	197185	13.09	178464	15.60
3	MW-5MSD	03-3414-1MSD	05/29/03 12:43	632200	9.52	187812	13.13	165478	15.65
4	03G2684-MB-01	03G2684-MB-01	05/29/03 14:10	638085	9.48	180507	13.10	176069	15.59
5	MW-5	03-3414-1	05/29/03 16:09	729302	9.47	200248	13.07	181489	15.59
6	MW-8	03-3414-2	05/29/03 16:39	743133	9.47	208530	13.07	195818	15.58
7	TB-15-5/28/03	03-3414-3	05/29/03 17:09	760474	9.47	220283	13.07	209259	15.59
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									

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

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

VOC Analysis General Logbook

...# 03G 2684 Batch # 03G2684 Matrix: W Date: 5-29-03 Analyst: Eddie

...IS/Surrogate: GC- 15114/15115 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	$V/X=f_1$	$V_f/V_i=f_2$	$V_{epg}/V_{inj}=f_3$	F	A-#	Datafile	Note	pH
	SP	G2684P01	E524G	25/25 = 1	/ =	/ =	1		G2684P01		
	CW	Q01	004	/ =	/ =	/ =			Q01	5-29-03 (0=45 AM)	GC15/61
	LM	L01		/ =	/ =	/ =			L01		
	MS	M01		/ =	/ =	/ =			M01	$3414-01	<2
	MSD	N01		/ =	/ =	/ =			N01	$3414-01	<2
	MB	K01		/ =	/ =	/ =			K01		
51	Sample	3391-01		/ =	/ =	/ =			3391-01		<2
52		02		/ =	/ =	/ =			02		
53		03		/ =	/ =	/ =			03	tb	
54		3414-01		/ =	/ =	/ =			3414-01		
55		02		/ =	/ =	/ =			02		
56		03		/ =	/ =	/ =			03	tb	
57				/ =	/ =	/ =					
58				/ =	/ =	/ =					
59				/ =	/ =	/ =					
60				/ =	/ =	/ =					
61				/ =	/ =	/ =					
62				/ =	/ =	/ =					
63				/ =	/ =	/ =					
64				/ =	/ =	/ =					
65				/ =	/ =	/ =					
66				/ =	/ =	/ =					
67				/ =	/ =	/ =					
68				/ =	/ =	/ =					
69				/ =	/ =	/ =					
70				/ =	/ =	/ =					
71				/ =	/ =	/ =					
72				/ =	/ =	/ =					
73				/ =	/ =	/ =					
74				/ =	/ =	/ =					
75				/ =	/ =	/ =					
76				/ =	/ =	/ =					

Type	Op #	STD Lot #	$C_{std}(ng/\mu L)\times V_{std}(\mu L)/X(g \text{ or } mL)=T$	Op #	STD Lot #	$C_{std}(ng/\mu L)\times V_{std}(\mu L)/X(g \text{ or } mL)=T$
/LCSD	3947	GC-	× /X= ppb		GC-	× /X= ppb
/MSD	3948/3949	GC- 15/62	200 × 2.5 /X= 20 ppb		GC-	× /X= ppb

...tnote/Anomaly:

[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 sample only.
...form 7-201, April 03, 1996; Ver 4.1 No pencil. Use blue pen for record. Use red pen for correction. Supervisor Initial

Applied P & Ch Laboratory
1760 Magnolia Ave. Chino CA 91710
Tel (909) 590-1828 Fax: (909) 590-1498

VOC Analysis General Logbook

Op # 03G2404 Batch # 03G2404 Matrix: W Date: 5-15-03 Analyst: Eddie

Lot # 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:

Op. #	Type	Sample ID	Method	$V/X=f_1$	$V_f/V_i=f_2$	$V_{spg}/V_{inj}=f_3$	F	A-#	Datafile	Note	pH
3817	SP	G2404P01	E524G	25/25 =1	/ =	/ =	1		G2404P01	5-15-03 10:18AM	GC15137
3818	calib	4-003	004	/ =	/ =	/ =			4-003	gc15137	
3819		4-002		/ =	/ =	/ =			4-002		
3820		4-010		/ =	/ =	/ =			4-010		
3821		4-020		/ =	/ =	/ =			4-020		
3822		4-040		/ =	/ =	/ =			4-040		
3823		4-080		/ =	/ =	/ =			4-080		
3824	CW	G2404Q01		/ =	/ =	/ =			G2404Q01	CW/iCW 5-16-03 11:08AM	
3825	LCS	L01		/ =	/ =	/ =			L01	GC15138	
3826	MS	M01		/ =	/ =	/ =			M01	$3082-04	<2
3827	MSD	N01		/ =	/ =	/ =			N01	$3082-04	<2
3828	MB	K01		/ =	/ =	/ =			K01		
3829	sample	3082-01		/ =	/ =	/ =			3082-01		<2
3830		02		/ =	/ =	/ =			02		
3831		03		/ =	/ =	/ =			03		
[illegible]		04		/ =	/ =	/ =			04	MS	
[illegible]		05		/ =	/ =	/ =			05		
3834		06		/ =	/ =	/ =			06		
3835		07		/ =	/ =	/ =			07		
3836		3102-01		/ =	/ =	/ =			3102-01		
3837		02		/ =	/ =	/ =			02		
3838		03		/ =	/ =	/ =			03		
3839		04		/ =	/ =	/ =			04		
3840		05		/ =	/ =	/ =			05		
3841		06		/ =	/ =	/ =			06		
3842		07		/ =	/ =	/ =			07		
3843		08		/ =	/ =	/ =			08		
3844		3115-01		/ =	/ =	/ =			3115-01		
3845		02		/ =	/ =	/ =			02		
3846		03		/ =	/ =	/ =			03		
3847		04		/ =	/ =	/ =			04	pass 12hrs	
3848				/ =	/ =	/ =					

Type	Op #	STD Lot #	$C_{std}(ng/\mu L)\times V_{std}(\mu L)/X(g\ or\ mL)=T$	Op #	STD Lot #	$C_{std}(ng/\mu L)\times V_{std}(\mu L)/X(g\ or\ mL)=T$
LCS/LCSD	3825	GC-	× /X= ppb		GC-	× /X= ppb
MS/MSD	3826/3827	GC- 15138	20 × 2.5 /X= 20 ppb		GC-	× /X= ppb

Note/Anomaly:

639

Level C Data Package Deliverables

8270-SIM

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

Applied P & Ch Laboratory

Organic Analysis Results for Method 8270-SIM

Client Name:	GEOFON, Inc.	Project No:	04-4428.10	Collection Date:	05/29/2003
Project ID:	JPL	Service ID:	33414	Collected by:	
		Lab Sample ID:	03G2697-MB-01	Received Date:	05/29/2003
Sample ID:	**03G2697-MB-01**	Sample Matrix	Water	Moisture %:	--
Sample Type:	Method Blank	Prep. Method:	3520	Instrument ID:	GC/MS: M
Anal. Method:	8270-SIM	Prep. Date:	05/29/03	Anal. Date:	06/03/03
Batch No:	03G2697	Prep. No:	1 of 1	Anal. Time:	16:07
Data File Name:	G2697K01	Sample Amount:	1000 mL	Dilution Factor:	1
Extract Vol.	1.0 mL				

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	1,4-DIOXANE	123-91-1	μg/L	1	<1	U
Internal Standard				Control Limit, %	IS Rec.%	
1	1,4-DIOXANE-D8	17647-74-4		50-200	84	
# 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 8270-SIM

Client Name:	GEOFON, Inc.	Project No:	04-4428.10	Collection Date:	05/28/2003
Project ID:	JPL	Service ID:	33414	Collected by:	
		Lab Sample ID:	03-3414-1	Received Date:	05/28/2003
Sample ID:	**MW-5**	Sample Matrix	Water	Moisture %:	–
Sample Type:	Field Sample	Prep. Method:	3520	Instrument ID:	GC/MS: M
Anal. Method:	8270-SIM	Prep. Date:	05/29/03	Anal. Date:	06/03/03
Batch No:	03G2697	Prep. No:	1 of 1	Anal. Time:	23:44
Data File Name:	3414-01	Sample Amount:	1000 mL	Dilution Factor:	1
Extract Vol.	1.0 mL				

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	1,4-DIOXANE	123-91-1	µg/L	1	< 1	U
Internal Standard				Control Limit, %	IS Rec.%	
1	1,4-DIOXANE-D8	17647-74-4		50-200	74	
# 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

FORM-3C

Applied P & Ch Laboratory

Lab Control Spike/Lab Control Spike Duplicate Recovery for Method 8270-SIM

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:	03G2697		
LCS Filename:	G2697L01	Date Analyzed:	060303	Time Analyzed:	16:30
LCSD Filename:	G2697J01	Date Analyzed:	060303	Time Analyzed:	16:56

Spiked Components	Unit	Spike Added	Concentration Unspiked	Concentration LCS	LCS Rec% #	QC Limit, % REC
1,4-DIOXANE	µg/L	20	0	19.1	96	40-140
# of Out-of-control					0	

Spiked Components	Unit	Spike Added	LCSD Concentration	LCSD Rec% #	RPD% #	QC Limit, % RPD	QC Limit, % REC
1,4-DIOXANE	µg/L	20	19.1	96	0	30	40-140
# 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-3C

Applied P & Ch Laboratory

Matrix Spike/Matrix Spike Duplicate Recovery for Method 8270-SIM

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:	03G2697		
MS Filename:	G2697M02	Date Analyzed:	060303	Time Analyzed:	18:10
MSD Filename:	G2697N02	Date Analyzed:	060303	Time Analyzed:	18:36
MS Sample No:	**09MW-01-1-GW**	Sample Lab ID:	03-3401-1		

Spiked Components	Unit	Spike Added	Concentration Unspiked	Concentration MS	MS Rec% #	QC Limit, % REC
1,4-DIOXANE	µg/L	20	0.7	20.8	101	40-140
# of Out-of-control					0	

Spiked Components	Unit	Spike Added	MSD Concentration	MSD Rec% #	RPD% #	QC Limit, % RPD	QC Limit, % REC
1,4-DIOXANE	µg/L	20	20.7	100	1	30	40-140
# 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-4B

Applied P & Ch Laboratory

Method Blank Summary for Method 8270-SIM

Client Name:	GEOFON, Inc.	Contract No:		Lab Code:	APCL
Case No:		SAS No:		Service ID:	33414
Project ID:	JPL	Project No:	04-4428.10	Analysis Date:	06/03/03
		Sample Matrix:	Water	Analysis Time:	16:07
Sample ID:	**03G2697-MB-01**	Batch No:	03G2697	Instrument ID:	GC/MS: M
Lab Sample ID:	03G2697-MB-01	Data File Name:	G2697K01	GC Column:	DB-5.625
				Column ID:	0.25 mm

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

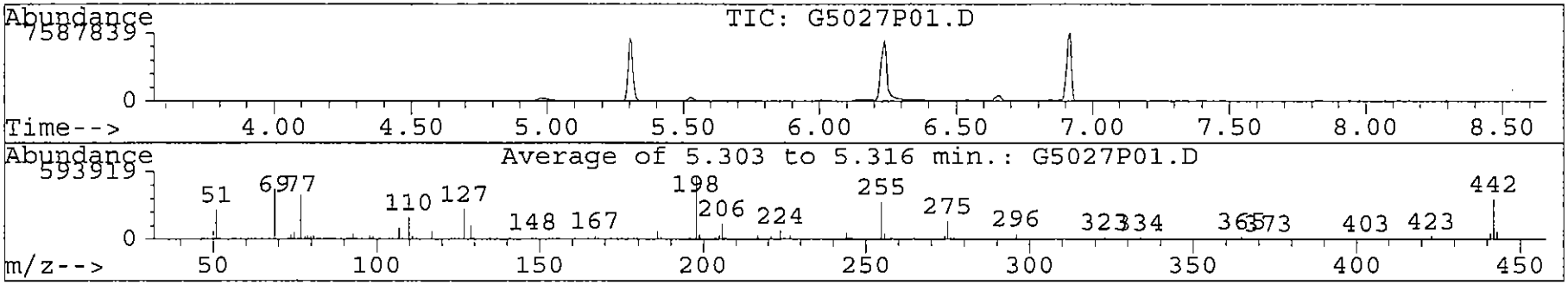
#	Client Sample No	Lab Sample ID	Sample Type	Data Filename	Analysis Date	Analysis Time
1	03G2697-LCS-01	03G2697-LCS-01	Lab Control Spike	G2697L01	06/03/03	16:30
2	03G2697-LSD-01	03G2697-LSD-01	Lab Control Spike Duplicate	G2697J01	06/03/03	16:56
3	09MW-01-1-GWMS	03-3401-1MS	Matrix Spike	G2697M02	06/03/03	18:10
4	09MW-01-1-GWMSD	03-3401-1MSD	Matrix Spike Duplicate	G2697N02	06/03/03	18:36
5	MW-5	03-3414-1	Field Sample	3414-01	06/03/03	23:44
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						

DFTPP

Data File : C:\HPCHEM\1\DATA\02G5027\G5027P01.D
Acq On : 17 Dec 02 2:19 pm
Sample : ##02g5027,w dftpp gc14349
Misc :

Vial: 99
Operator: Andy Huang
Inst : GC/MS - M
Multiplr: 1.00

Methód : C:\HPCHEM\1\METHODS\DIOSIM06.M
Title : * Applied P & Ch Lab * GC/MS 8270



Peak Apex is scan: AVERAGE

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	80	44.9	254307	PASS
68	69	0	2	0.0	0	PASS
69	198	1	100	78.3	443243	PASS
70	69	0	2	0.3	1277	PASS
127	198	25	75	46.2	261139	PASS
197	198	0	1	0.0	0	PASS
198	198	100	100	100.0	565803	PASS
199	198	5	9	6.7	37981	PASS
275	198	10	30	27.4	155040	PASS
365	198	1	100	3.7	20870	PASS
441	443	1	99	78.6	52501	PASS
442	198	40	110	61.8	349717	PASS
443	442	15	24	19.1	66784	PASS

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name : APPLIED P & CH LAB Contract:

Lab Code: Case No.: SAS No.: SDG No.: 033414

Lab File ID: G5027P01 DFTPP Injection Date: 12/17/02

Instrument ID: GCMS-M DFTPP Injection Time: 1419

m/e	ION ABUNDANCE CRITERIA	%RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	44.9
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	78.3
70	Less than 2.0% of mass 69	0.2 (0.3)1
127	40.0 - 60.0% of mass 198	46.2
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100 % relative abundance	100.0
199	5.0 - 9.0% of mass 198	6.7
275	10.0 - 30.0% of mass 198	27.4
365	Greater than 0.75% of mass 198	3.7
441	Present, but less than mass 443	9.3 (78.6)3
442	40.0 - 100.0% of mass 198	61.8
443	17.0 - 23.0% of mass 442	11.8 (19.1)2

1-Value is % mass 69 2-Value is % mass 442 3-Value is % mass 443

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	SSTD040	DS006-40	DS006-040.D	12/17/2002	1438
02	SSTD030	DS006-30	DS006-030.D	12/17/2002	1457
03	SSTD020	DS006-20	DS006-020.D	12/17/2002	1516
04	SSTD010	DS006-10	DS006-10.D	12/17/2002	1536
05	SSTD001	DS006-01	DS006-01.D	12/17/2002	1555
06					
07					
08					
09					
10					
11					
12					
13					
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18					
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20					
21					
22					
23					

Response Factor Report GC/MS - M

Method : C:\HPCHEM\1\METHODS\DIOSIM06.M
Title : * Applied P & Ch Lab * GC/MS 8270
Last Update : Tue Dec 17 16:08:23 2002
Response via : Initial Calibration

Calibration Files
30 =M06-030.D 20 =M06-020.D 10 =M06-010.D
1 =M06-001.D 40 =M06-040.D

		Compound	30	20	10	1	40	Avg	%RSD
1)	I 1	1.4-Dioxane-d8	----------ISTD----------						
2)	2	1,4-Dioxane	1.151	1.165	1.216	1.379	1.165	1.215	7.81

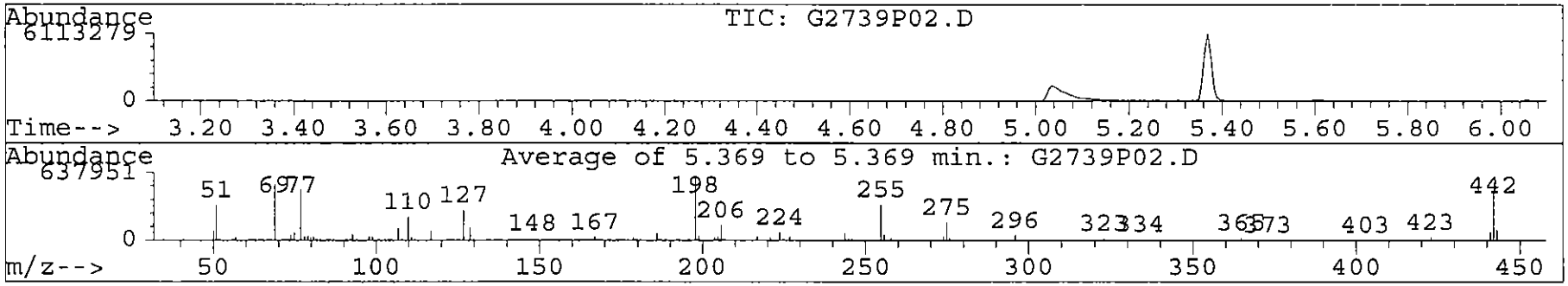
(#) = Out of Range

DFTPP

Data File : C:\HPCHEM\1\DATA\03G2739\G2739P02.D
Acq On : 3 Jun 03 3:15 pm
Sample : dftpp gc14349
Misc :

Vial: 99
Operator: Andy Huang
Inst : GC/MS - M
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\DIOSIM06.M
Title : * Applied P & Ch Lab * GC/MS 8270



Peak Apex is scan: 88

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	80	54.6	331904	PASS
68	69	0	2	0.0	0	PASS
69	198	1	100	85.2	517952	PASS
70	69	0	2	0.0	0	PASS
127	198	25	75	46.6	283392	PASS
197	198	0	1	0.0	0	PASS
198	198	100	100	100.0	607808	PASS
199	198	5	9	6.6	40096	PASS
275	198	10	30	27.7	168576	PASS
365	198	1	100	3.7	22656	PASS
441	443	1	99	80.2	73952	PASS
442	198	40	110	77.1	468352	PASS
443	442	15	24	19.7	92192	PASS

FORM-5B

Applied P & Ch Laboratory

Semivolatile Organic Instrument Performance Check for Method 8270-SIM

Decafluorotriphenylphosphine (DFTPP), Part II

Client Name:	GEOFON, Inc.	Contract No:		Lab Code:	APCL
Case No:		SAS No:		Service ID:	033414
Project ID:	JPL	DFTPP Inj. Date:	06/03/03	Batch No:	03G2697
		DFTPP Inj. Time:	15:15	Sequence No:	03G2739
Project No:	04-4428.10	Instrument ID:	M	GC Column:	DB-5.625
Data File Name:	G2739P02			Column ID:	0.25 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	03G2697-CCV-01	03G2697-CCV-01	G2739Q02	06/03/03	15:45
2	03G2697-MB-01	03G2697-MB-01	G2697K01	06/03/03	16:07
3	03G2697-LCS-01	03G2697-LCS-01	G2697L01	06/03/03	16:30
4	03G2697-LSD-01	03G2697-LSD-01	G2697J01	06/03/03	16:56
5	09MW-01-1-GWMS	03-3401-1MS	G2697M02	06/03/03	18:10
6	09MW-01-1-GWMSD	03-3401-1MSD	G2697N02	06/03/03	18:36
7	MW-5	03-3414-1	3414-01	06/03/03	23:44
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

FORM-7B

Applied P & Ch Laboratory

CCV Recovery for Method 8270-SIM

Client Name:	GEOFON, Inc.	Contract No.:		Lab Code:	APCL
Case No:		SAS No.:		Service ID:	33414
Project ID:	JPL	Project No.:	04-4428.10	Instrument	M
		Batch No.:	03G2697	Sequence No.	03G2739
CCV File:	G2739Q02	Date Analyzed:	06/03/2003	Time Analyzed:	15:45

Target Components

#	Component Name	Unit	Expe-cted	Test Result	Rec. %	Dev. %	Flag	Control Limit, %	by
1	1,4-DIOXANE	mg/L	20	19.4	97	-3	√	80-120	CCV
					Total CCV Out of Control		0		

FORM-8B

Applied P & Ch Laboratory

Internal Standard Area and RT Summary for Method 8270-SIM

Client Name:	GEOFON, Inc.	Contract No:		Lab Code:	APCL
Case No:		SAS No:		Service ID:	033414
Project ID:	JPL	Project No:	04-4428.10	Sample Matrix:	Water
		CCV Data File:	G2739Q02	Instrument ID:	M

Batch No: 03G2697

#	Client Sample No	Lab Sample ID	Analysis Date & Time	IS-1 Area #	IS-1 RT #
12 Hour CCV STD			06/03/03 15:45	483801	4.03
CCV Upper Limit				967602	4.53
CCV Lower Limit				241900	3.53
1	03G2697-MB-01	03G2697-MB-01	06/03/03 16:07	403974	4.14
2	03G2697-LCS-01	03G2697-LCS-01	06/03/03 16:30	348169	4.21
3	03G2697-LSD-01	03G2697-LSD-01	06/03/03 16:56	357813	4.18
4	09MW-01-1-GWMS	03-3401-1MS	06/03/03 18:10	352352	4.19
5	09MW-01-1-GWMSD	03-3401-1MSD	06/03/03 18:36	347620	4.15
6	MW-5	03-3414-1	06/03/03 23:44	357841	4.36
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

IS-1 = 1,4-DIOXANE-D8

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

Organic Sample Preparation Logbook

Batch # 0292697 Matrix: W Target method: 1,4 Dioxane EXT Method: 3520C Date: 5/29/03

Solvent: CH_2Cl_2 Lot # 027471 ; Exchange Solvent: N/A Lot # N/A ; Analyst: JR

Lot #: Surr.: GC- Conc.: ppm Na_2SO_4: Ro 0078

Op. #	Sample Type	Sample ID #	Smpl Amnt (mL or g)	Surr. Vol mL	Extract sub-ID	Final Vol. mL	Dilution F=V/X	Note & Anomaly
4601	MB	0292697-K01	1000.0	N/A	1,4Dioxane	1.00	0.001	
4602	LCS	-L01	1000.0					
4603	LCSD	-L01	1000.0					
4604	Sample-1	3381-1	1000.0					
4605	MS	-S	1000.0					
4606	MSD	-S	1000.0					
4607	Sample-2	-2	1000.0					
4608	Sample-3	-3	1000.0					
4609	Sample-4	-4	1000.0					
4610	Sample-5	-5	1000.0					
4611	Sample-6	-6	1000.0					
4612	Sample-7	-7	1000.0					
4613	Sample-8	3391-1	1000.0					
4614	Sample-9	-2	1000.0					
4615	Sample-10	3401-1	1000.0					
4616	Sample-11	-2	1000.0					
4617	Sample-12	-3	1000.0					
4618	Sample-13	3414-1	1000.0					
4619	Sample-14	3421-8	1000.0					
4620	Sample-15							
4621	Sample-16							
4622	Sample-17							
4623	Sample-18							
4624	Sample-19							
4625	Sample-20							
4626	MTX Dup.							
4627	LCS'							
4628	LCSD'							
4629	MS'	3401-1	1000.0	N/A	(-d8) Dioxane	1.00	0.001	
4630	MSD'	-1	1000.0	1	1	1	1	

JR 5/29/03

Type	Op #	STD Lot #	$C_{std(ppm)} \times V_{std(mL)} / X_{(g \text{ or } mL)} = T$	Op #	STD Lot #	$C_{std(ppm)} \times V_{std(mL)} / X_{(g \text{ or } mL)} = T$
LCS/LCSD	4602	GC-15154	1000 × 20.0 × 1.00 /X= ppb	4603	GC-15154	1000 × 20.0 × 1.00 /X= ppb
MS/MSD	4605	GC- ↓	1000 × ↓ × ↓ /X= ppb	4606	GC- ↓	1000 × ↓ × ↓ /X= ppb
LCS'/LCSD'		GC-	1000 × × /X= ppb		GC-	1000 × × /X= ppb
MS'/MSD'	4629	GC- ↓	1000 × ↓ × ↓ /X= ppb	4630	GC- ↓	1000 × ↓ × ↓ /X= ppb

Supervisor Initial

Applied P & Ch Laboratory
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Organic Sample Preparation

Extraction method: **1** 3510–separate funnel; **2** 3520–L-L continue extraction; **3** 3550–Ultrasonic; **4** LUFT–Shaker; **5** 3540–Soxhlet; **6** Solid phase Extraction; **7** Microextraction; **8** SFE; **9** Dilution; **10** Concentration; **11** Other, specify.

Service ID: 3381 Batch # 05G2697 Matrix W GC, GC/MS Method 1,4 Dioxane Ext Method 3520C

Sample Extraction								
OP. by	Jde		Date	5/29/03	Surro Lot GC-	NA	Conc.	NA ppm
LCS Lot GC-	15154		Conc.	20.0 ppm	MS Lot GC-	15154	Conc.	20.0 ppm
Ext. solv.	CH_2Cl_2		Lot #	027471	Exchage solv.	NA	Lot #	NA

Sample ID	-K01	-L01	-J01	-5 MS	-5 MSD	-1	-2	-3
Sample Matrix	W							
Sample Amount, X (g/mL)	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0
Any TCLP, EP, WET, SPLP ?								
Surr. STD used, mL	NA							
Spike STD used, mL		1.00						
[Extracted at pH]	/	/	/	/	/	/	/	/
Solvent amount, mL	200	x	x	x	x	x	x	x
Final volume, V, mL	1.00							
Extraction DF $f_e = V/X$	0.001							
Sub-ID of extracts	1,4 Dioxane							
Anomaly Footnote† :								

Sample Cleanup								
Op. by			Date	/ /	(For details, see Cleanup worksheet)			
Cleanup method:								
Cleanup DF, f_c								
Preparation DF, $f_1 = f_e\, f_c$								

Pre-injection*:		Op. by		Date	/ /	IS Lot : GC-		Conc.	ppm
2nd dilution, f_2	(1)								
V_t, µL	(40)								
Single Extract GC, GC/MS Analysis:									
$V_2 = V_t/f_2$, µL	($40/f_2$)								
$V_{solvent} = V_t - V_2$, µL									
Double Extract GC, GC/MS Analysis:									
$V_> = \frac{1}{2}V_t/f_2$, µL	($20/f_2$)								
$V_< = \frac{1}{2}\frac{V_t}{f_2}\frac{f_<}{f_>}$, µL	($\frac{20}{f_2}\frac{f_<}{f_>}$)								
$V_{solvent} = V_t - V_> - V_<$									
IS volume, µL	(10)								
Final Conc. of IS	(40 ppm)								
Total $F = 2\, f_1\, f_>$ or $f_1\, f_2$									

† Extraction Anomaly Footnote:
1. Difficult to concentrate to 1.0 mL.
2. Extract is dark color
3. Extract is sticky
4. Heterogenous matrix.
5. Too much precipitate during extraction.
6. There is an oil layer above the sample.
7. Mixture of soil & water.
8. BN-extract is interfered, A-extract only.
9. Sample has strong stink
10. Some solvent suspected
11. special color, specify

* For double extract analysis (ABN), $f_> = \max[f_A, f_B]$ and $f_< = \min[f_A, f_B]$, where f_A, f_B are f_1 for A and BN extracts, respectively. The values in () is the typical case for 625/8270 ABN analysis.

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Organic Sample Preparation

Extraction method: **1** 3510–separate funnel; **2** 3520–L-L continue extraction; **3** 3550–Ultrasonic; **4** LUFT–Shaker; **5** 3540–Soxhlet; **6** Solid phase Extraction; **7** Microextraction; **8** SFE; **9** Dilution; **10** Concentration; **11** Other, specify.

Service ID: 3414 Batch # 034 2697 Matrix W GC, GC/MS Method 1,4 Dioxane Ext Method 3520C

Sample Extraction	OP. by Jde		Date 5/29/03		Surro Lot GC- NA		Conc. NA pp	
	LCS Lot GC-15154		Conc. 20.0 pp		MS Lot GC-15154		Conc. 20.0 pp	
	Ext. solv. CH_2Cl_2		Lot # 027471		Exchage solv. NA		Lot # NA	
Sample ID	-1							
Sample Matrix	W							
Sample Amount, X (g/mL)	1000.							
Any TCLP, EP, WET, SPLP ?								
Surr. STD used, mL	NA							
Spike STD used, mL								
[Extracted at pH]	/	/	/	/	/	/	/	/
Solvent amount, mL	200	×	×	×	×	×	×	×
Final volume, V, mL	1.00							
Extraction DF $f_e = V/X$	0.001							
Sub-ID of extracts	1,4Dioxane							
Anomaly Footnote† :								
Sample Cleanup	Op. by		Date / /		(For details, see Cleanup worksheet)			
Cleanup method:								
Cleanup DF, f_c								
Preparation DF, $f_1 = f_e\, f_c$								

Pre-injection*:		Op. by		Date / /		IS Lot : GC-		Conc. pp
2nd dilution, f_2	(1)							
V_t, μL	(40)							
Single Extract GC, GC/MS Analysis:								
$V_2 = V_t/f_2$, μL	($40/f_2$)							
$V_{solvent} = V_t - V_2$, μL								
Double Extract GC, GC/MS Analysis:								
$V_> = \frac{1}{2}V_t/f_2$, μL	($20/f_2$)							
$V_< = \frac{1}{2}\frac{V_t}{f_2}\frac{f_<}{f_>}$, μL	($\frac{20}{f_2}\frac{f_<}{f_>}$)							
$V_{solvent} = V_t - V_> - V_<$								
IS volume, μL	(10)							
Final Conc. of IS	(40 ppm)							
Total $F = 2\, f_1\, f_>$ or $f_1\, f_2$								

† Extraction Anomaly Footnote:
1. Difficult to concentrate to 1.0 mL.
2. Extract is dark color
3. Extract is sticky
4. Heterogenous matrix.
5. Too much precipitate during extraction.
6. There is an oil layer above the sample.
7. Mixture of soil & water.
8. BN-extract is interfered, A-extract only.
9. Sample has strong stink
10. Some solvent suspected
11. special color, specify

* For double extract analysis (ABN), $f_> = \max[f_A, f_B]$ and $f_< = \min[f_A, f_B]$, where f_A, f_B are f_1 for A and BN extracts, respectively. The values in () is the typical case for 625/8270 ABN analysis.

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LOG-009

Semi-VOC Analysis Logbook

Sequence # 03G2739 Starting Date: 6/7/03 Time 4:49 pm Analyst: JH

Seq. type: ☐ Cal. ☒ Ini. Batch ☐ Middle ☐ Final ☐ Continue ☐ Study Datafile Path: C:\HPCHEM\1\DATA\03G2739

Routine Maintenance: ☐ Replace Septum ☒ Replace Liner ☐ Replace Seal ☐ Cut Guid Column ☐ Cut Column ☐ Others

Op. #	Batch-No	MTX	S Type*	Sample ID	Method**	f_2	F	A-#	Datafile	OK ?†	Note††
1241			SP	G2739P01	DFTPP60S			99	G2739P01	/	6/7/03 4:49 pm.
1242			CCV	Q01	D10S1M06			100	Q01	/	GC14349
1243	03G2739	S	MB	K01			0.0333	1	K01	/	GC15155
1244			LCS	L01				2	L01	/	
1245			LCSD	J01				3	J01	/	
1246			MS	M01				4	M01	/	#3475-02
1247			MSD	N01				5	N01	/	1
1248				3475-02				6	3475-02	/	
1249				3475-04				7	-04	/	
1250	03G2697	W	SP.	G2739P02	DFTPP60S			99	G2739P02	/	6/8/03 8:45 pm.
1251			CCV	Q02	D10S1M06			100	G2739Q02	/	GC14349
1252			MB	G2697K01			0.001	1	G2697K01	/	GC15155
1253			LCS	L01				2	L01	/	
1254			LCSD	J01				3	J01	/	
1255			MS	M01				4	M01	/	
1256			MSD	N01				5	N01	/	
1257			MS'	M02				6	M02	/	
1258			MSD'	N02				7	N02	/	
1259				3381-01				8	3381-01	/	
1260				-02				9	-02	/	
1261				-03				10	-03	/	
1262				-04				11	-04	/	
1263				-05				12	-05	/	
1264				-06				13	-06	/	
1265				-07				14	-07	/	
1266				3391-01				15	3391-01	/	
1267				-02				16	-02	/	
1268				3401-01				17	3401-01	/	
1269				-02				18	-02	/	
1270				-03				19	-03	/	

Footnote/Anomaly:

* Sample type such as, SP(BFB, or DFTPP), CCV, CVA, CVB, LCS, LCSD, MS, MSD, MD, CLS etc. For field samples leave as blank.

** Method name: [MMMM][S][nnn]. [MMMM] – method code, per SOP C-88. Special codes: DSL2: Diesel #2; FP30: Fuel Finger Print (C8-C30); FP40: Fuel Finger Print (C8-C40); EGLY: Ethylene Glycol; FORM: Formaldehyde; MEOH: Methyl Alcohol. [S] – APCL system code; [nnn] – initial calibration number.

† Specify the result of the injection is accepted (√), or denied (X), or need Re-run (R) or use as a reference data (ref).

†† Lot # for CCV/Closing, Time for SP (e.g. DFTPP) must be recorded.

Supervisor Initial 656

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LOG-010

M

Semi-VOC Analysis Logbook

Sequence # 03G2739 Starting Date: 6/2/03 Time 4:49 pm Analyst: J-H

Seq. type: ☐ Cal. ☐ Ini. Batch ☐ Middle ☐ Final ☐ Continue ☐ Study Datafile Path: C:\HPCHEM\1\DATA\03G2739

Routine Maintenance: ☐ Replace Septum ☐ Replace Liner ☐ Replace Seal ☐ Cut Guid Column ☐ Cut Column ☐ Others

Op. #	Batch-No	MTX	S Type*	Sample ID	Method**	f_2	F	A-#	Datafile	OK ?†	Note††
1271	03G2697	W		3414-01	D10SIM66		0.001	20	3414-01	/	
1272	1	1		3421-08	1		1	21	3421-08	/	
1273											
1274											
1275											
1276											
1277											
1278											
1279											
1280											
1281											
1282											
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1293											
1294											
1295											
1296											
1297											
1298											
1299											
1300											

Tom 6/2/03

Footnote/Anomaly:

* Sample type such as, SP(BFB, or DFTPP), CCV, CVA, CVB, LCS, LCSD, MS, MSD, MD, CLS etc. For field samples leave as blank.

** Method name: [MMMM][S][nnn]. [MMMM] – method code, per SOP C-88. Special codes: DSL2: Diesel #2; FP30: Fuel Finger Print (C8-C30); FP40: Fuel Finger Print (C8-C40); EGLY: Ethylene Glycol; FORM: Formaldehyde; MEOH: Methyl Alcohol. [S] – APCL system code; [nnn] – initial calibration number.

† Specify the result of the injection is accepted (√), or denied (X), or need Re-run (R) or use as a reference data (ref).

†† Lot # for CCV/Closing, Time for SP (e.g. DFTPP) must be recorded.

FILE: [CUST.DOC.GC]GC_LOG .TEX Root-File: GC_LOG_ROOT.TEX 1-Page-File:[CUST.DOC.GC]GC_LOG1.TEX
APCL form 7-101, Nov 22, 2000; Ver 5.0 No pencil. Use blue pen for record. Use red pen for correction.

Supervisor Initial [signature] 657

plied P & Ch Laboratory
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(909) 590-1828 Fax: (909) 590-1498

M LOG-063

Semi-VOC Analysis Logbook

ence # 026502) Starting Date: 12-17-02 Time 2:19 pm Analyst: JW

type: ☐ Cal. ☒ Ini. Batch ☐ Middle ☐ Final ☐ Continue ☐ Study Datafile Path: _____

ine Maintenance: ☐ Replace Septum ☒ Replace Liner ☐ Replace Seal ☐ Cut Guid Column ☐ Cut Column ☐ Others _____

#	Batch-No	MTX	S Type*	Sample ID	Method**	f_2	F	A-#	Datafile	OK ?†	Note††
85			SP	G502)P01	DFTPP625			99	G502)P01	✓	12-17-02 2:19pm
86			Cali-	M06-040	D105\M06			1	M06-040	✓	40ppm GC16554
87			↓	-030	↓			2	-030	✓	30 ↓
88				-020				3	-020	✓	20
89				-010				4	-010	✓	10
90			↓	-001				5	-001	✓	1
91			CCV	G502)Q01				100	G502)Q01	✓	GC16554
92	026502)	W	MB	K01			0.001	6	K01	—	
93		↓	LCS	L01			↓	7	L01	—	
94			LCSD	J01				8	J01	—	
95			MS	M01				9	M01	—	$6556-03
96			MSD	N01				10	N01	✓	1
97			MS'	M02			0.000962	11	M02	✓	$6587-01
98			MSD'	N02			↓	12	N02	✓	1
99				6587-01				13	6587-01	✓	
00				-02				14	-02	✓	
01				-03				15	-03	✓	
02				6556-01			0.002	16	6556-01	✓	
03				-02			0.001	17	-02	✓	
04				-03			↓	18	-03	✓	
05				6588-01			0.000962	19	6588-01	✓	
06				6603-01			↓	20	6603-01	✓	
07				-02				21	-02	✓	
08				6558-01				22	6558-01	✓	
09				-03			0.001	23	-03	✓	
10				6586-02			↓	24	6586-02	✓	
11				-04				25	-04	✓	
12				-05				26	-05	✓	
13				-06				27	-06	R, overscale	
14				-08				28	-08	↓ ✓	

Footnote/Anomaly:

* Sample type such as, SP(BFB, or DFTPP), CCV, CVA, CVB, LCS, LCSD, MS, MSD, MD, CLS etc. For field samples leave as blank.

** Method name: [MMMM][S][nnn]. [MMMM] – method code, per SOP C-88. Special codes: DSL2: Diesel #2; FP30: Fuel Finger Print (C8-C30); FP40: Fuel Finger Print (C8-C40); EGLY: Ethylene Glycol; FORM: Formaldehyde; MEOH: Methyl Alcohol. [S] – APCL system code; [nnn] – initial calibration number.

† Specify the result of the injection is accepted (√), or denied (X), or need Re-run (R) or use as a reference data (ref).

†† Lot # for CCV/Closing, Time for SP (e.g. DFTPP) must be recorded.

Supervisor Initial

Level C Data Package Deliverables

Metals

Applied P & Ch Laboratory

Applied P & Ch Laboratory

Metal Analysis Results

Client Name: GEOFON, Inc.
Project ID: JPL

Project No: 04-4428.10
Service ID: 33414
Lab Sample ID: 03M1535-MB-01
Sample Matrix Water

Collection Date: 06/02/2003
Collected by:
Received Date: 06/02/2003
Moisture %: -

Sample ID: **03M1535-MB-01**
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		03M1525L	05/29/03	05/29/03	1	200.7
IRON	7439-89-6	µg/L	50	5.1	B	P		03M1525L	05/29/03	05/29/03	1	200.7
MAGNESIUM	7439-95-4	µg/L	100	49.4	B	P		03M1525L	05/29/03	05/29/03	1	200.7
POTASSIUM	7440-09-7	µg/L	400	156	B	P		03M1525L	05/29/03	05/29/03	1	200.7
SODIUM	7440-23-5	µg/L	2000	< 2000	U	P		03M1525L	05/29/03	05/29/03	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:	05/28/2003
Project ID:	JPL	Service ID:	33414	Collected by:	
		Lab Sample ID:	03-3414-1	Received Date:	05/28/2003
Sample ID:	**MW-5**	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	45300		P		03M1525L	05/29/03	05/29/03	1	200.7
IRON	7439-89-6	µg/L	50	357		P		03M1525L	05/29/03	05/29/03	1	200.7
MAGNESIUM	7439-95-4	µg/L	100	13800		P		03M1525L	05/29/03	05/29/03	1	200.7
POTASSIUM	7440-09-7	µg/L	400	2740		P		03M1525L	05/29/03	05/29/03	1	200.7
SODIUM	7440-23-5	µg/L	2000	16500		P		03M1525L	05/29/03	05/29/03	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 ID: JPL

Project No: 04-4428.10
Service ID: 33414
Lab Sample ID: 03-3414-2
Sample Matrix Water

Collection Date: 05/28/2003
Collected by:
Received Date: 05/28/2003
Moisture %: -

Sample ID: **MW-8**
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	2.0	B	F		03M1535E	06/02/03	06/02/03	1	200.9
CALCIUM	7440-70-2	µg/L	200	52300		P		03M1525L	05/29/03	05/29/03	1	200.7
IRON	7439-89-6	µg/L	50	48.7	B	P		03M1525L	05/29/03	05/29/03	1	200.7
MAGNESIUM	7439-95-4	µg/L	100	16500		P		03M1525L	05/29/03	05/29/03	1	200.7
POTASSIUM	7440-09-7	µg/L	400	2450		P		03M1525L	05/29/03	05/29/03	1	200.7
SODIUM	7440-23-5	µg/L	2000	18000		P		03M1525L	05/29/03	05/29/03	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:	033414	Sequence No.:	03M1525L
		Instrument:	ICP -L	Method:	200.9
Batch No.(s):	03M1525				

Analysis Date: **05/29/03** Concentration Units: **UG/L**

#	Analyte	ICV True	11:48 Result	%R	CCV True	12:07 Result	%R	CCV True	13:04 Result	%R	CCV True	13:42 Result	%R
1	Aluminum	10000.0	9961.00	99.6	5000.0	5302.64	106.1	5000.0	4794.09	95.9	5000.0	4825.23	96.5
2	Antimony	4000.0	3994.99	99.9	2000.0	2051.36	102.6	2000.0	1961.18	98.1	2000.0	1970.19	98.5
3	Arsenic	1000.0	995.39	99.5	500.0	507.93	101.6	500.0	480.98	96.2	500.0	489.86	98.0
4	Barium	10000.0	9779.38	97.8	5000.0	5159.57	103.2	5000.0	4778.21	95.6	5000.0	4906.47	98.1
5	Beryllium	1000.0	986.85	98.7	500.0	497.96	99.6	500.0	465.29	93.1	500.0	480.06	96.0
6	Cadmium	2000.0	1969.19	98.5	1000.0	1033.76	103.4	1000.0	984.24	98.4	1000.0	994.41	99.4
7	Calcium	100000.0	101169.99	101.2	50000.0	50933.90	101.9	50000.0	48533.82	97.1	50000.0	48869.72	97.7
8	Chromium	1000.0	985.56	98.6	500.0	517.87	103.6	500.0	484.29	96.9	500.0	488.64	97.7
9	Cobalt	4000.0	3928.68	98.2	2000.0	2079.33	104.0	2000.0	1970.50	98.5	2000.0	1989.71	99.5
10	Copper	4000.0	3985.57	99.6	2000.0	2058.27	102.9	2000.0	1978.06	98.9	2000.0	1995.25	99.8
11	Iron	10000.0	9841.19	98.4	5000.0	5228.99	104.6	5000.0	4841.45	96.8	5000.0	4881.64	97.6
12	Lead	1000.0	975.57	97.6	500.0	502.74	100.5	500.0	474.40	94.9	500.0	475.12	95.0
13	Magnesium	50000.0	48949.84	97.9	25000.0	25608.29	102.4	25000.0	23506.31	94.0	25000.0	23732.96	94.9
14	Manganese	4000.0	3925.63	98.1	2000.0	2058.65	102.9	2000.0	1926.86	96.3	2000.0	1983.50	99.2
15	Nickel	4000.0	3917.81	97.9	2000.0	2074.07	103.7	2000.0	1964.22	98.2	2000.0	1985.35	99.3
16	Potassium	30000.0	29967.49	99.9	15000.0	14859.19	99.1	15000.0	13933.23	92.9	15000.0	14346.56	95.6
17	Selenium	1000.0	989.38	98.9	500.0	510.16	102.0	500.0	475.47	95.1	500.0	480.02	96.0
18	Silver	2000.0	1999.98	100.0	1000.0	1031.29	103.1	1000.0	980.77	98.1	1000.0	978.16	97.8
19	Sodium	200000.0	199352.77	99.7	100000.0	102633.21	102.6	100000.0	96864.63	96.9	100000.0	97874.49	97.9
20	Thallium	1000.0	993.55	99.4	500.0	517.53	103.5	500.0	483.60	96.7	500.0	484.59	96.9
21	Vanadium	4000.0	3976.86	99.4	2000.0	2059.93	103.0	2000.0	1939.43	97.0	2000.0	1954.53	97.7
22	Zinc	4000.0	3916.62	97.9	2000.0	2062.38	103.1	2000.0	1964.56	98.2	2000.0	1989.94	99.5
23	Molybdenum	4000.0	3953.31	98.8	2000.0	2064.50	103.2	2000.0	1929.98	96.5	2000.0	1938.82	96.9

(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:	033414	Sequence No.:	03M1525L
		Instrument:	ICP -L	Method:	200.9

Batch No.(s): 03M1525

Analysis Date: **05/29/03** Concentration Units: **UG/L**

#	Analyte	CCV True	14:25 Result	%R	True	Result	%R	True	Result	%R	True	Result	%R
1	Aluminum	5000.0	4977.98	99.6									
2	Antimony	2000.0	2022.25	101.1									
3	Arsenic	500.0	499.39	99.9									
4	Barium	5000.0	4965.33	99.3									
5	Beryllium	500.0	485.85	97.2									
6	Cadmium	1000.0	1012.67	101.3									
7	Calcium	50000.0	50133.41	100.3									
8	Chromium	500.0	499.22	99.8									
9	Cobalt	2000.0	2036.50	101.8									
10	Copper	2000.0	2035.28	101.8									
11	Iron	5000.0	5046.78	100.9									
12	Lead	500.0	484.64	96.9									
13	Magnesium	25000.0	24068.38	96.3									
14	Manganese	2000.0	2013.71	100.7									
15	Nickel	2000.0	2026.52	101.3									
16	Potassium	15000.0	14550.52	97.0									
17	Selenium	500.0	491.35	98.3									
18	Silver	1000.0	992.29	99.2									
19	Sodium	100000.0	99701.57	99.7									
20	Thallium	500.0	498.11	99.6									
21	Vanadium	2000.0	1998.07	99.9									
22	Zinc	2000.0	2026.05	101.3									
23	Molybdenum	2000.0	1977.61	98.9									

(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:	033414	Sequence No.:	03M1535E
		Instrument:	GFAA-E	Method:	200.9

Batch No.(s): 03M1535

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

		ICV	15:36		CCV	16:53		CCV	18:08		CCV	18:27	
#	Analyte	True	Result	%R	True	Result	%R	True	Result	%R	True	Result	%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:	033414	Sequence No.:	03M1525L
		Instrument:	ICP -L	Method:	200.9

Batch No.(s): 03M1525

Analysis Date: **05/29/03** Concentration Units: **UG/L**

#	Analyte	True	11:57 Found	R%	Time Found	R%
1	Aluminum	200.0	203.75	101.9		
2	Antimony	20.0	19.23	96.2		
3	Arsenic	20.0	22.30	111.5		
4	Barium	10.0	12.03	120.3		
5	Beryllium	4.0	4.42	110.6		
6	Cadmium	5.0	5.11	102.2		
7	Calcium	1000.0	1025.08	102.5		
8	Chromium	10.0	10.62	106.2		
9	Cobalt	20.0	22.54	112.7		
10	Copper	10.0	10.52	105.2		
11	Iron	50.0	54.39	108.8		
12	Lead	10.0	9.09	90.9		
13	Magnesium		23.70			
14	Manganese	10.0	11.17	111.7		
15	Nickel	20.0	21.35	106.7		
16	Potassium		156.42			
17	Selenium	10.0	6.87	68.7		
18	Silver	10.0	11.43	114.3		
19	Sodium		13.36			
20	Thallium	10.0	9.23	92.3		
21	Vanadium	10.0	10.84	108.4		
22	Zinc	20.0	21.88	109.4		
23	Molybdenum	15.0	14.58	97.2		

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:	033414	Sequence No.:	03M1525L
		Instrument:	ICP -L	Method:	200.9

Batch No.(s): 03M1525

Analysis Date: **05/29/03** Concentration Units: **UG/L**

#	Analyte	ICB Result	11:54 C	CCB Result	12:13 C	CCB Result	13:07 C	CCB Result	13:46 C	CCB Result	14:29 C
1	Aluminum	11.00	U	11.00	U	11.00	U	11.00	U	11.00	U
2	Antimony	3.00	U	3.00	U	3.00	U	3.00	U	3.00	U
3	Arsenic	2.40	U	2.40	U	2.40	U	2.40	U	2.40	U
4	Barium	2.25	B	0.63	U	1.44	B	2.36	B	0.72	B
5	Beryllium	0.15	B	0.12	B	0.26	B	0.15	B	0.19	B
6	Cadmium	0.21	U	0.21	U	0.21	U	0.28	B	0.21	U
7	Calcium	83.00	U	83.00	U	83.00	U	98.11	B	83.00	U
8	Chromium	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U
9	Cobalt	0.29	U	0.29	U	0.51	B	1.04	B	0.29	U
10	Copper	0.71	U	0.71	U	1.83	B	1.74	B	1.40	B
11	Iron	2.48	B	4.87	B	4.85	B	5.51	B	12.65	B
12	Lead	-1.57	B	-1.89	B	1.40	U	-1.91	B	-2.12	B
13	Magnesium	31.76	B	38.66	B	61.02	B	45.61	B	15.00	B
14	Manganese	0.87	B	0.62	B	1.03	B	1.43	B	0.68	B
15	Nickel	0.35	U	0.35	U	0.35	U	0.39	B	0.35	U
16	Potassium	154.78	B	154.19	B	156.87	B	153.25	B	153.43	B
17	Selenium	2.60	U	2.60	U	2.60	U	2.60	U	2.60	U
18	Silver	1.49	B	1.28	B	1.39	B	1.20	U	1.20	U
19	Sodium	198.00	U	198.00	U	198.00	U	198.00	U	198.00	U
20	Thallium	1.60	U	1.60	U	1.60	U	1.60	U	1.60	U
21	Vanadium	0.44	U	0.55	B	0.44	U	0.44	U	0.44	U
22	Zinc	0.81	U	0.81	U	0.81	U	1.01	B	0.81	U
23	Molybdenum	2.96	B	1.23	B	2.23	B	2.59	B	1.58	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:	033414	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

Project No: 04-4428.10
Service ID: 033414
ICP ID Number: ICP -L

Lab Code: APCL
Sequence No.: 03M1525L

Batch No.(s): 03M1525

Analysis Date: **05/29/03**

Concentration Units: **UG/L**

#	Analyte	Expected Sol. A	Expected Sol. AB	Initial 12:01 Sol. A	Initial 12:01 Found 12:03 Sol. AB	%R	Final 14:19 Sol. A	Final 14:19 Found 14:22 Sol. AB	%R
1	Aluminum	500000	500000	478855	476912.5	95.4	462381	462803.2	92.6
2	Antimony	0	1000	-5	926.6	92.7	-4	969.9	97.0
3	Arsenic	0	1000	-1	906.4	90.6	-1	941.1	94.1
4	Barium	0	500	0	497.8	99.6	1	477.0	95.4
5	Beryllium	0	500	0	466.8	93.4	0	459.0	91.8
6	Cadmium	0	1000	-1	922.0	92.2	-1	941.4	94.1
7	Calcium	500000	500000	520048	530570.4	106.1	518507	523503.5	104.7
8	Chromium	0	500	7	466.8	93.4	7	468.7	93.7
9	Cobalt	0	500	4	447.0	89.4	4	456.4	91.3
10	Copper	0	500	7	504.6	100.9	5	495.1	99.0
11	Iron	200000	200000	177289	172041.1	86.0	170684	167465.0	83.7
12	Lead	0	1000	4	890.9	89.1	3	900.5	90.0
13	Magnesium	500000	500000	476850	468214.2	93.6	447866	446223.6	89.2
14	Manganese	0	500	-2	477.8	95.6	0	469.4	93.9
15	Nickel	0	1000	4	864.6	86.5	3	880.0	88.0
16	Potassium	0	0	191	183.5		189	179.7	
17	Selenium	0	1000	-7	895.3	89.5	-6	919.7	92.0
18	Silver	0	1000	5	1009.3	100.9	5	971.7	97.2
19	Sodium	0	0	-192	-69.7		29	-32.8	
20	Thallium	0	1000	-2	895.5	89.5	-4	881.5	88.1
21	Vanadium	0	500	1	476.9	95.4	1	464.8	93.0
22	Zinc	0	1000	10	937.9	93.8	10	958.2	95.8
23	Molybdenum	0	1000	2	881.9	88.2	1	877.4	87.7

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:	33414
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	50.0	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	50.3	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: _____

_____

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:	33414
Project ID:	JPL	Project No:	04-4428.10	Sample Matrix:	Water
		Batch No:	03M1525L		
MS Filename:	-	Date Analyzed:	052903	Time Analyzed:	12:46
MSD Filename:	-	Date Analyzed:	052903	Time Analyzed:	12:50
MS Sample No:	**AE420**	Sample Lab ID:	03-3389-9		

Spiked Components	Unit	Spike Added	Concentration Unspiked	Concentration MS	MS Rec% #	QC Limit, % REC
CALCIUM	µg/L	20000	473000	444000	-144 *	75-125
IRON	µg/L	1000	0	904	90	75-125
MAGNESIUM	µg/L	10000	201000	175000	-259 *	75-125
POTASSIUM	µg/L	5000	4890	12000	142 *	75-125
SODIUM	µg/L	40000	452000	437000	-36 *	75-125
# of Out-of-control					4	

Spiked Components	Unit	Spike Added	MSD Concentration	MSD Rec% #	RPD% #	QC Limit, % RPD	QC Limit, % REC
CALCIUM	µg/L	20000	452000	-104 *	-31 *	20	75-125
IRON	µg/L	1000	924	92	2	20	75-125
MAGNESIUM	µg/L	10000	184000	-169 *	-41 *	20	75-125
POTASSIUM	µg/L	5000	12300	148 *	4	20	75-125
SODIUM	µg/L	40000	447000	-11 *	-105 *	20	75-125
# of Out-of-control				4	3		

Column to be used to flag recovery and RPD values:

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

Comments: _____

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:	033414	Sequence No	03M1525
		Batch No.:	03M1525	Method.	200.9
Spike Sample No. :	03-3389-09	Matrix:	WATER	Instrument	ICP-L
Client Sample No.:	**AE420**	Analysis Date:	05/29/03		

Concentration Units: **UG/L**

#	Analyte	Spiked Sample Result(SSR)	12:53 C	Sample Result(SR)	12:36 C	Spike Added(SA)	% Rec.	Control Limit	Q
1	Aluminum	2039.2191		2.3639	U	2000.00	102.0	75-125	
2	Antimony	514.5115		-3.2971	U	500.00	102.9	75-125	
3	Arsenic	520.0990		-0.3470	U	500.00	104.0	75-125	
4	Barium	3886.2036		21.6237		4000.00	96.6	75-125	
5	Beryllium	182.4957		0.0856	B	200.00	91.2	75-125	
6	Cadmium	245.0381		-0.2405	U	250.00	98.0	75-125	
7	Calcium	460043.0000		472930.9375		20000.00	-64.4		
8	Chromium	964.8719		0.7463	B	1000.00	96.4	75-125	
9	Cobalt	972.9851		0.1124	U	1000.00	97.3	75-125	
10	Copper	1031.5735		5.8847	B	1000.00	102.6	75-125	
11	Iron	947.2427		-16.7129	U	1000.00	94.7	75-125	
12	Lead	2646.3032		0.2839	U	3000.00	88.2	75-125	
13	Magnesium	190576.2500		201450.0313		10000.00	-108.7		
14	Manganese	1083.0605		179.7312		1000.00	90.3	75-125	
15	Nickel	956.3861		-0.4838	U	1000.00	95.6	75-125	
16	Potassium	12693.7490		4892.3813		5000.00	156.0	75-125	N
17	Selenium	645.6242		144.8367		500.00	100.2	75-125	
18	Silver	1043.8335		5.4342	B	1000.00	103.8	75-125	
19	Sodium	453064.9688		452185.6563		40000.00	2.2		
20	Thallium	457.8111		-0.1159	U	500.00	91.6	75-125	
21	Vanadium	1922.8342		0.9157	B	2000.00	96.1	75-125	
22	Zinc	492.5609		-0.6638	U	500.00	98.5	75-125	
23	Molybdenum	2001.3403		6.4245		2000.00	99.7	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:	033414	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:	033414	Sequence No.:	03M1525L
		Batch No.:	03M1525	Method:	200.9
Spike Sample No.	03-3389-09	Matrix:	WATER	Instrument:	ICP -L
Client Sample No.	**AE420**	% Solid:	0.00	Analysis Date:	05/29/03

Concentration Unit: **UG/L**

#	Analyte	12:36 Sample(s)	C	12:39 Duplicate	C	RPD(%)	Q
1	Aluminum	2.3639	U	2.0582	U		
2	Antimony	-3.2971	U	-3.6534	U		
3	Arsenic	-0.3470	U	-0.4985	U		
4	Barium	21.6237		21.2824		1.6	
5	Beryllium	0.0856	B	0.0803	B	6.4	
6	Cadmium	-0.2405	U	-0.1131	U		
7	Calcium	472930.9375		465575.6875		1.6	
8	Chromium	0.7463	B	0.7498	B	0.5	
9	Cobalt	0.1124	U	0.1288	U		
10	Copper	5.8847	B	3.5322	B	50.0	
11	Iron	-16.7129	U	-15.4709	U		
12	Lead	0.2839	U	-0.2411	U		
13	Magnesium	201450.0313		193420.1406		4.1	
14	Manganese	179.7312		174.8012		2.8	
15	Nickel	-0.4838	U	-0.5836	U		
16	Potassium	4892.3813		4819.2373		1.5	
17	Selenium	144.8367		141.2172		2.5	
18	Silver	5.4342	B	5.3839	B	0.9	
19	Sodium	452185.6563		443773.3750		1.9	
20	Thallium	-0.1159	U	-2.2162	U		
21	Vanadium	0.9157	B	0.8254	B	10.4	
22	Zinc	-0.6638	U	-0.4959	U		
23	Molybdenum	6.4245		4.3417	B	38.7	

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:	033414	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:	33414
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:	33414
Project ID:	JPL	Project No:	04-4428.10	Sample Matrix:	Water
		Batch No:	03M1525L		
LCS Filename:	-	Date Analyzed:	052903	Time Analyzed:	12:29
LCSD Filename:	-	Date Analyzed:	052903	Time Analyzed:	12:32

Spiked Components	Unit	Spike Added	Concentration Unspiked	Concentration LCS	LCS Rec% #	QC Limit, % REC
CALCIUM	µg/L	20000	0	19700	99	80-120
IRON	µg/L	1000	0	1030	103	80-120
MAGNESIUM	µg/L	10000	0	9700	97	80-120
POTASSIUM	µg/L	5000	0	4560	91	80-120
SODIUM	µg/L	40000	0	38500	96	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	19700	99	0	20	80-120
IRON	µg/L	1000	1020	102	1	20	80-120
MAGNESIUM	µg/L	10000	9550	96	1	20	80-120
POTASSIUM	µg/L	5000	4500	90	1	20	80-120
SODIUM	µg/L	40000	37700	94	2	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:	033414	Sequence No.:	03M1525L
		Batch No.:	03M1525	Method:	200.9
Dilution Sample No.:	03-3389-09	Matrix:	WATER	Instrument:	ICP -L
Client Sample No.:	**AE420**	Analysis Date:	05/29/03		

Concentration Units: **UG/L**

#	Analyte	Initial Sample Results(I)	12:36 C	Serial Dilut Results(S)	12:43 C	% Diff.	Q
1	Aluminum	2.36	U	-0.33	U		
2	Antimony	-3.30	U	-10.22	U		
3	Arsenic	-0.35	U	2.86	U		
4	Barium	21.62		21.39	B	1.1	
5	Beryllium	0.09	B	0.74	B	762.7	
6	Cadmium	-0.24	U	-1.23	U		
7	Calcium	472930.94		431954.97		8.7	
8	Chromium	0.75	B	1.23	B	65.1	
9	Cobalt	0.11	U	0.17	U		
10	Copper	5.88	B	10.19	B	73.1	
11	Iron	-16.71	U	-2.16	U		
12	Lead	0.28	U	-5.77	U		
13	Magnesium	201450.03		181858.98		9.7	
14	Manganese	179.73		173.58		3.4	
15	Nickel	-0.48	U	-3.06	U		
16	Potassium	4892.38		3626.44		25.9	E
17	Selenium	144.84		130.47		9.9	
18	Silver	5.43	B	8.58	B	57.8	
19	Sodium	452185.66		437142.31		3.3	
20	Thallium	-0.12	U	-3.90	U		
21	Vanadium	0.92	B	1.40	U	100.0	
22	Zinc	-0.66	U	-1.21	U		
23	Molybdenum	6.42		6.57	B	2.3	

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:	033414	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:	033414	Sequence No.:	03M1525L
		Batch No.:	03M1525	Method:	200.9
Preparation Matrix:	WATER	Instrument:	ICP -L		

#	Client Sample No.	APCL Sample No.	Preparation Date	Weight (gram)	Volume (ml)
1	AE420	03-3389-09DM	05/29/03		50.0
2	AE127	03-3389-04	05/29/03		50.0
3	AE128	03-3389-05	05/29/03		50.0
4	1	03-3388-01TC	05/29/03		50.0
5	MW-13	03-3391-01	05/29/03		50.0
6	MW-16	03-3391-02	05/29/03		50.0
7	AE142	03-3394-11	05/29/03		50.0
8	AE143	03-3394-12	05/29/03		50.0
9	AE144	03-3394-13	05/29/03		50.0
10	AE020	03-3396-01	05/29/03		50.0
11	AE021	03-3396-02	05/29/03		50.0
12	AE022	03-3396-03	05/29/03		50.0
13	AE023	03-3396-04	05/29/03		50.0
14	051EB1-14822	03-3405-01	05/29/03		50.0
15	AE145	03-3413-01	05/29/03		50.0
16	MW-5	03-3414-01	05/29/03		50.0
17	MW-8	03-3414-02	05/29/03		50.0
18		03M1525MB	05/29/03		50.0
19		03M1525LCS	05/29/03		50.0
20		03M1525LCSD	05/29/03		50.0
21	AE420 Dup.	03M1525MD	05/29/03		50.0
22	AE420 MS	03M1525MS	05/29/03		50.0
23	AE420 MSD	03M1525MSD	05/29/03		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:	033414	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:	033414	Sequence No.:	03M1525L
		Instrument:	ICP -L	Method:	200.9
Batch No.(s):	03M1525	Start Date:	05/29/03	End Date:	05/29/03

#	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	11:34	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√							
2	STD1 1423A	1.00	11:38	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√							
3	STD2 1423B	1.00	11:41	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√							
4	STD3 1423C	1.00	11:45	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√							
5	ICV 1447A	1.00	11:48	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√							
6	ICB	1.00	11:54	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√							
7	CRI A1432	1.00	11:57	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√							
8	ICSA 1441	1.00	12:01	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√							
9	ICSAB 1443	1.00	12:03	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√							
10	CCV 1447B	1.00	12:07	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√							
11	CCB	1.00	12:13	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√							
12	M-BL 03M1525 W	1.00	12:25	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√							
13	LCS-03M1525	1.00	12:29	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√							
14	LCSD-03M1525	1.00	12:32	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√							
15	3389-9 S F=1	1.00	12:36	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√							
16	3389-9 D F=1	1.00	12:39	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√							
17	3389-9 1/5 F=5	5.00	12:43	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√							
18	3389-9 MS F=1	1.00	12:46	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√							
19	3389-9 MSD F=1	1.00	12:50	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√							
20	3389-9 PS F=1	1.00	12:53	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√							
21	CCV 1447B	1.00	13:04	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√							
22	CCB	1.00	13:07	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√							
23	3389-4 F=1	1.00	13:11	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√							
24	3389-5 F=1	1.00	13:14	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√							
25	3391-1 F=1	1.00	13:18	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√							
26	3391-2 F=1	1.00	13:21	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√							
27	3394-11 F=1	1.00	13:25	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√							
28	3394-12 F=1	1.00	13:28	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√							
29	3394-13 F=1	1.00	13:32	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√							
30	3396-1 F=1	1.00	13:35	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√							
31	3396-2 F=1	1.00	13:39	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√							
32	CCV 1447B	1.00	13:42	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√							
33	CCB	1.00	13:46	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√							
34	3396-3 F=1	1.00	13:49	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√							
35	3396-4 F=1	1.00	13:53	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√							
36	3413-1 F=1	1.00	13:56	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√							
37	3414-1 F=1	1.00	14:00	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√							
38	3414-2 F=1	1.00	14:03	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√							
39	3405-1 F=1	1.00	14:06	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√							
40	TC BLANK	2.00	14:10	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√							

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:	033414	Sequence No.:	03M1525L
		Instrument:	ICP -L	Method:	200.9
Batch No.(s):	03M1525	Start Date:	05/29/03	End Date:	05/29/03

#	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	3388-1TC F=2	2.00	14:14	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
42	ICSA 1441	1.00	14:19	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
43	ICSAB 1443	1.00	14:22	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
44	CCV 1447B	1.00	14:25	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
45	CCB	1.00	14:29	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						
46	DLC A1427	1.00	14:32	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√						

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:	033414	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	3444-3 F=1	1.00	17:24	√
21	3391-1 F=1	1.00	17:31	√
22	3391-2 F=1	1.00	17:37	√
23	3414-1 F=1	1.00	17:43	√
24	3414-2 F=1	1.00	17:49	√
25	3465-1 F=1	1.00	17:56	√
26	3465-2 F=1	1.00	18:02	√
27	CCV A1474	1.00	18:08	√
28	CCB	1.00	18:15	√
29	3465-3 F=1	1.00	18:21	√
30	CCV A1474	1.00	18:27	√
31	CCB	1.00	18:34	√

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Analysis Anomaly Record

Batch #: 03M1525 Method: 6010B Matrix: W Date: 5/29/03

Samples Involved: 3389, 3391, 3394, 3396, 3413, 3405, 3414

- **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) K Na Ca Mg
  - ☐ 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: N.T Date: 5/29/03

Note: _____

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Digest-074

Metal Digestion (3010/3050) Worksheet

Batch # 03M1525 Matrix: W Method used: 3010A Date: 5/29/03 Digested by: Xi Diluted by: N.T

Lot #: ASTM Type I water RW1413 HNO_3 1102120 H_2SO_4 _____ HCl 4102050 H_2O_2 _____

OP #	Type	Samp ID /Lot #	X (g or mL)	$V_{digest}/X = f_1$	$V_f/V_i = f_2$	$V_f'/V_i' = f_3$	$F=f_1f_2f_3$	Note
2899	Method Blank	Bl. Lot: RW1413	50	50 /X= 1	/ =	/ =		23 Me
2900	LCS1	Bl. Lot: "		/X=	/ =	/ =		
2901	Sample-1	3389 —9		/X=	/ =	/ =		T=95°C
2902	MS1 on S-1	—9		/X=	/ =	/ =		
2903	MS2 on S-1	—9		/X=	/ =	/ =		
2904	Sample 2	—4		/X=	/ =	/ =		
2905	Sample 3	—5		/X=	/ =	/ =		
2906	Sample 4	3391 —1		/X=	/ =	/ =		
2907	Sample 5	—2		/X=	/ =	/ =		
2908	Sample 6	3394 —11		/X=	/ =	/ =		
2909	Sample 7	—12		/X=	/ =	/ =		
2910	Sample 8	—13		/X=	/ =	/ =		
2911	Sample 9	3414 —1		/X=	/ =	/ =		
2912	Sample 10	—2		/X=	/ =	/ =		
2913	LCS2	Bl. Lot: RW1413		/X=	/ =	/ =		
2914	Sample 11	3396 —1		/X=	/ =	/ =		
2915	Sample 12	—2		/X=	/ =	/ =		
2916	Sample 13	—3		/X=	/ =	/ =		
2917	Sample 14	—4		/X=	/ =	/ =		
2918	Sample 15	3413 —1		/X=	/ =	/ =		
2919	Sample 16	3405 —1		/X=	/ =	/ =		
2920	Sample 17	Tc Blank		/X=	1015 = 2	/ =	2	
2921	Sample 18	3388-1 Tc		/X=	" / " = "	/ =	2	
2922	Sample 19		Xi	/X=	/ =	/ =		
2923	Sample 20			5/29/03	/ =	/ =		
2924	Duplicate	3389 —9	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- /AA- 1433	/ / / 25	/ / / 2	/ / / 1	
MS2	/AsSe/Sb/M_{20}	AA- /AA- /AA- /AA- "	/ / /	/ / /	/ / /	
LCS1	/AsSe/Sb/M_{20}	AA- /AA- /AA- /AA- 1492	/ / /	/ / /	/ / /	
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 M_j) represents 20 (or j) metals, (see STD logbook).
If digest needs dilution for different metals, use dilution worksheet.

APCL form 6-116 April. 03, 1996. Ver. 4.0 No pencil. Use blue pen for record. Use red pen for correction.
Root-File:[CUST.DOC.AA]DIGEST.ROOT.TEX File:[CUST.DOC.AA]DIGEST .TEX

Supervisor Initial Y.W 686

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Digest-082

Metal Digestion (3010/3050) Worksheet

Batch # BM1535 Matrix: W Method used: 3020A Date: 6/2/03 Digested by: X1 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- /AA4473	/ / / 5	/ / / 10.5	/ / / 10.05	
MS2	/As/Se/Sb/M_{20}	AA- /AA- /AA- /AA- "	/ / / ↓	/ / / ↓	/ / / ↓	
LCS1	/As/Se/Sb/M_{20}	AA- /AA- /AA- /AA4471	/ / /	/ / /	/ / /	
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 M_j) represents 20 (or j) metals, (see STD logbook).
If digest needs dilution for different metals, use dilution worksheet.