

GW - 40

MONITORING REPORTS

DATE:

1989

ANALYTICAL DIVISION
103 JUN 1 10 05

File Copy

**ANALYTICAL RESULTS FOR
OFF-SITE WELLS, 1989**

**GIANT BLOOMFIELD REFINERY
BLOOMFIELD, NEW MEXICO**

April 8, 1990

Prepared for:

**MONTGOMERY & ANDREWS, PA
325 Paseo de Peralta
P.O. Box 2307
Santa Fe, NM 87504-2307**

Submitted to:

**MR. DAVE BOYER
Environmental Bureau Chief
NM Oil Conservation Division
Santa Fe, NM 87105**

Prepared by:

GEOSCIENCE CONSULTANTS, LTD

**CORPORATE OFFICE
SOUTHWEST REGIONAL OFFICE
500 Copper Avenue, NW Suite 200
Albuquerque, New Mexico 87102
(505) 842-0001
FAX (505) 842-0595**

RADIAN
CORPORATION

RECEIVED JAN 10 1990

Radian Work Order 89-12-112

Analytical Report
01/08/90

Geoscience Consultants, Ltd.

Geoscience Consultants, Ltd.
500 Copper NW
Suite 200
Albuquerque, NM 87102
Orlando Gomez

Customer Work Identification M&A QUARTERLY
Purchase Order Number

Contents:

- 1 Analytical Data Summary
- 2 Sample History
- 3 Comments Summary
- 4 Notes and Definitions

Radian Analytical Services
8501 Mo-Pac Boulevard
P. O. Box 201088
Austin, TX 78720-1088

512/454-4797

Client Services Coordinator: WLBROWN

Certified by:

Marilyn Melton

GEOSCIENCE CONSULTANTS, LTD.
 Albuquerque
 500 Copper N.W.
 Suite 200
 Albuquerque, NM 87102
 (505) 842-0001

Newport Beach
 1400 Quail Street
 Suite 140
 Newport Beach, CA 92660
 (714) 724-0536

Las Cruces
 P.O. Drawer MM
 Las Cruces, NM 88004
 (505) 524-5364

Chain of Custody

DATE 12/12/89 PAGE 1 OF 1

LAB NAME Radian Analytical
 ADDRESS 8501 Mo-Pac Blvd.
Austin, TX 78720-1088
 TELEPHONE 512/454-4797

SAMPLE NUMBER 891211150 MATRIX H₂O LOCATION BCM-30

891211155 H₂O BCM-27

891211150 H₂O BCM-37

8912121000 H₂O SHS-2

8912121410 H₂O SHS-1

ANALYSIS REQUEST

GC/MS/ 625/6270	GC/MS/ 624/6240	PESTICIDES/PCB	608/6080	POLYNUCLEAR	AROMATIC 610/6310	PHENOLS, SUB PHENOLS	604/6040	HALOGENATED	VOLATILES 601/6010	AROMATIC VOLATILES	CARBON 415/6060	TOTAL ORGANIC	HALIDES 9020	PETROLEUM	HYDROCARBONS 418.1	TPH	PRIORITY POLLUTANT	CAM METALS (18)	TTL/C/STLC	EF TOX	SDWA-INORGANICS	PRIMARY/SECONDARY	HAZARDOUS WASTE	PROFILE
									X	X	X	X	X	X	X	X				X	X	X	X	X
									X	X	X	X	X	X	X	X				X	X	X	X	X
									X	X	X	X	X	X	X	X				X	X	X	X	X
									X	X	X	X	X	X	X	X				X	X	X	X	X
									X	X	X	X	X	X	X	X				X	X	X	X	X

PROJECT INFORMATION		SAMPLE RECEIPT		RELINQUISHED BY		RELINQUISHED BY	
PROJECT: <u>M & A</u>	TOTAL NO. OF CONTAINERS <u>✓</u>	RECEIVED BY <u>[Signature]</u>	RECEIVED BY <u>[Signature]</u>	(Time)	(Time)	(Signature)	(Time)
PROJECT DIRECTOR <u>[Signature]</u>	CHAIN OF CUSTODY SEALS <u>✓</u>	RECEIVED BY <u>[Signature]</u>	RECEIVED BY <u>[Signature]</u>	(Time)	(Time)	(Printed Name)	(Date)
CHARGE CODE NO. <u>603005</u>	REC'D GOOD CONDITION/COLD <u>30°</u>	RECEIVED BY <u>[Signature]</u>	RECEIVED BY <u>[Signature]</u>	(Time)	(Time)	(Printed Name)	(Date)
SHIPPING ID NO. <u>5343572592</u>	CONFORMS TO RECORD <u>✓</u>	RECEIVED BY <u>[Signature]</u>	RECEIVED BY <u>[Signature]</u>	(Time)	(Time)	(Printed Name)	(Date)
VIA <u>FEDERAL EXPRESS</u>	LAB NO.	RECEIVED BY <u>[Signature]</u>	RECEIVED BY <u>[Signature]</u>	(Time)	(Time)	(Printed Name)	(Date)
SPECIAL INSTRUCTIONS/COMMENTS: <u>Analyze down to groundwater standards. (Detection limits down to groundwater standards.)</u>		RECEIVED BY <u>[Signature]</u>	RECEIVED BY <u>[Signature]</u>	(Time)	(Time)	(Printed Name)	(Date)

Geoscience Consultants, Ltd.
 Radian Work Order: 89-12-112

Method: Halogenated volatiles (1)

List: SW8010

Sample ID:

 891211150 *89M-30*

 8912111255 *89M-27*

 8912111520 *89M-37*

 8912121000 *SH6-2*

Factor:

1

1

5

1

Results in:

ug/L

ug/L

ug/L

ug/L

Matrix:

water

water

water

water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Bromodichloromethane	ND	0.10	ND	0.10	ND	0.50	ND	0.10
Bromoform	ND	0.50	ND	0.50	ND	2.5	ND	0.50
Bromomethane	ND	1.2	ND	1.2	ND	5.9	ND	1.2
Carbon Tetrachloride	ND	0.12	ND	0.12	ND	0.60	ND	0.12
Chlorobenzene	ND	0.25	ND	0.25	ND	1.3	ND	0.25
Chloroethane	ND	0.52	ND	0.52	<u>6.0 *Q</u>	2.6	ND	0.52
2-Chloroethylvinylether	ND	0.50	ND	0.50	ND	2.5	ND	0.50
Chloroform	ND	0.10	ND	0.10	ND	0.50	ND	0.10
Chloromethane	ND	0.30	ND	0.30	<u>6.0 *Q</u>	1.5	ND	0.30
Dibromochloromethane-(2)	ND	0.20	ND	0.20	ND	1.0	ND	0.20
1,2-Dichlorobenzene	ND	0.50	ND	0.50	ND	2.5	ND	0.50
1,3-Dichlorobenzene	ND	0.32	ND	0.32	ND	1.6	ND	0.32
1,4-Dichlorobenzene	ND	0.24	ND	0.24	ND	1.2	ND	0.24
1,1-Dichloroethane	ND	0.50	0.30 *	0.50	ND	2.5	ND	0.50
1,2-Dichloroethane	ND	0.10	ND	0.10	<u>6.0</u>	0.50	ND	0.10
1,1-Dichloroethene	ND	0.20	ND	0.20	ND	1.0	ND	0.20
trans-1,2-Dichloroethene	ND	0.20	ND	0.20	<u>8.0</u>	1.0	ND	0.20
1,2-Dichloropropane	ND	0.10	ND	0.10	ND	0.50	ND	0.10
cis-1,3-Dichloropropene-(2)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
trans-1,3-Dichloropropene	ND	0.30	ND	0.30	ND	1.5	ND	0.30
Methylene Chloride	ND	0.40	ND	0.40	ND	2.0	ND	0.40
1,1,2,2-Tetrachloroethane-(3)	ND	0.15	ND	0.15	ND	0.75	ND	0.15
Tetrachloroethene-(3)	ND	0.10	ND	0.10	ND	0.50	<u>1.7</u>	0.10
1,1,2-Trichloroethane-(2)	ND	0.20	ND	0.20	ND	1.0	ND	0.20
1,1,1-Trichloroethane	ND	0.20	<u>0.71 *</u>	0.20	ND	1.0	ND	0.20
Trichloroethene	ND	0.20	ND	0.20	ND	1.0	ND	0.20
Trichlorofluoromethane	ND	0.20	ND	0.20	ND	1.0	ND	0.20
Vinyl Chloride	ND	0.20	ND	0.20	ND	1.0	ND	0.20

Geoscience Consultants, Ltd.
Radian Work Order: 89-12-112

ND Not detected at specified detection limit

N/A Not available

* Est. result less than 5 times detection limit

Q Outside control limits

- (1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.
- (2) Dibromochloromethane, 1,1,2-Trichloroethane, and cis-1,3-Dichloropropene coelute. Quantitated as Dibromochloromethane unless otherwise noted.
- (3) Tetrachloroethene and 1,1,2,2-Tetrachloroethane coelute. Quantitated as Tetrachloroethene unless otherwise noted.

Geoscience Consultants, Ltd.
 Radian Work Order: 89-12-112

Method: Halogenated volatiles (1)

List: SW8010

Sample ID:	8912111150	8912111255	8912111520	8912121000
Factor:	1	1	5	1
Results in:	ug/L	ug/L	ug/L	ug/L
	01A	02A	03A	04A
Matrix:	water	water	water	water

Surrogate Recovery(%)

1-Bromo-4-fluorobenzene

Control Limits: 76 to 140

Result Det. Limit

113

Result Det. Limit

95

Result Det. Limit

119

Result Det. Limit

101

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

 (2) Dibromochloromethane, 1,1,2-Trichloroethane, and
 cis-1,3-Dichloropropene coelute. Quantitated as
 Dibromochloromethane unless otherwise noted.

 (3) Tetrachloroethene and 1,1,2,2-Tetrachloroethane
 coelute. Quantitated as Tetrachloroethene unless
 otherwise noted.

Geoscience Consultants, Ltd.
Radian Work Order: 89-12-112

Method: Halogenated volatiles (1)

List: SW8010

Sample ID:

8912121410

8912121145E

8912121145I

8912121130

Factor:

5

1

1

1

Results in:

ug/L

ug/L

ug/L

ug/L

Matrix:

water

water

water

water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Bromodichloromethane	ND	0.50	ND	0.10	ND	0.10	ND	0.10
Bromoform	ND	2.5	ND	0.50	ND	0.50	ND	0.50
Bromomethane	ND	5.9	ND	1.2	ND	1.2	ND	1.2
Carbon Tetrachloride	ND	0.60	ND	0.12	ND	0.12	ND	0.12
Chlorobenzene	ND	1.3	ND	0.25	ND	0.25	ND	0.25
Chloroethane	ND	2.6	ND	0.52	ND	0.52	ND	0.52
2-Chloroethylvinylether	ND	2.5	ND	0.50	ND	0.50	ND	0.50
Chloroform	5.7	0.50	ND	0.10	ND	0.10	ND	0.10
Chloromethane	ND	1.5	ND	0.30	ND	0.30	ND	0.30
Dibromochloromethane-(2)	ND	1.0	ND	0.20	ND	0.20	ND	0.20
1,2-Dichlorobenzene	ND	2.5	ND	0.50	ND	0.50	0.60 *	0.50
1,3-Dichlorobenzene	ND	1.6	ND	0.32	ND	0.32	ND	0.32
1,4-Dichlorobenzene	ND	1.2	ND	0.24	ND	0.24	ND	0.24
1,1-Dichloroethane	0.72 *	2.5	ND	0.50	1.9 *	0.50	ND	0.50
1,2-Dichloroethane	7.1	0.50	1.0	0.10	3.5	0.10	18	0.10
1,1-Dichloroethene	ND	1.0	ND	0.20	ND	0.20	ND	0.20
trans-1,2-Dichloroethene	2.1	1.0	0.97 *	0.20	9.3	0.20	ND	0.20
1,2-Dichloropropene	ND	0.50	ND	0.10	ND	0.10	ND	0.10
cis-1,3-Dichloropropene-(2)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
trans-1,3-Dichloropropene	ND	1.5	ND	0.30	ND	0.30	ND	0.30
Methylene Chloride	ND	2.0	ND	0.40	1.0 *	0.40	ND	0.40
1,1,2,2-Tetrachloroethane-(3)	ND	0.75	ND	0.15	ND	0.15	ND	0.15
Tetrachloroethene-(3)	ND	0.50	ND	0.10	1.3	0.10	ND	0.10
1,1,2-Trichloroethane-(2)	ND	1.0	ND	0.20	ND	0.20	ND	0.20
1,1,1-Trichloroethane	ND	1.0	ND	0.20	0.80 *	0.20	ND	0.20
Trichloroethene	6.2	1.0	ND	0.20	2.0	0.20	ND	0.20
Trichlorofluoromethane	ND	1.0	ND	0.20	ND	0.20	ND	0.20
Vinyl Chloride	ND	1.0	ND	0.20	ND	0.20	ND	0.20

ND Not detected at specified detection limit

* Est. result less than 5 times detection limit

N/A Not available

- (1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.
- (2) Dibromochloromethane, 1,1,2-Trichloroethane, and cis-1,3-Dichloropropene coelute. Quantitated as Dibromochloromethane unless otherwise noted.
- (3) Tetrachloroethene and 1,1,2,2-Tetrachloroethane coelute. Quantitated as Tetrachloroethene unless otherwise noted.

Geoscience Consultants, Ltd.
 Radian Work Order: 89-12-112

Method: Halogenated volatiles (1)

List: SW8010

Sample ID:	8912121410	8912121145E	8912121145I	8912121130
Factor:	5	1	1	1
Results in:	ug/L	ug/L	ug/L	ug/L
	05A	06A	07A	08A
Matrix:	water	water	water	water

Surrogate Recovery(X)

1-Bromo-4-fluorobenzene

Control Limits: 76 to 140

Result Det. Limit

117

Result Det. Limit

117

Result Det. Limit

107

Result Det. Limit

104

- (1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.
- (2) Dibromochloromethane, 1,1,2-Trichloroethane, and cis-1,3-Dichloropropene coelute. Quantitated as Dibromochloromethane unless otherwise noted.
- (3) Tetrachloroethene and 1,1,2,2-Tetrachloroethane coelute. Quantitated as Tetrachloroethene unless otherwise noted.

Geoscience Consultants, Ltd.
 Radian Work Orders: 89-12-112

Method: Halogenated volatiles (1)

List: SW8010

Sample ID:

Reagent blank

Factor:

1

Results in:

ug/L

22A

Matrix:

water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Bromodichloromethane	ND	0.10						
Bromoform	ND	0.50						
Bromomethane	ND	1.2						
Carbon Tetrachloride	ND	0.12						
Chlorobenzene	ND	0.25						
Chloroethane	ND	0.52						
2-Chloroethylvinylether	ND	0.50						
Chloroform	ND	0.10						
Chloromethane	ND	0.30						
Dibromochloromethane-(2)	ND	0.20						
1,2-Dichlorobenzene	ND	0.50						
1,3-Dichlorobenzene	ND	0.32						
1,4-Dichlorobenzene	ND	0.24						
1,1-Dichloroethane	ND	0.50						
1,2-Dichloroethane	ND	0.10						
1,1-Dichloroethene	ND	0.20						
trans-1,2-Dichloroethene	ND	0.20						
1,2-Dichloropropane	ND	0.10						
cis-1,3-Dichloropropene-(2)	N/A	N/A						
trans-1,3-Dichloropropene	ND	0.30						
Methylene Chloride	ND	0.40						
1,1,2,2-Tetrachloroethane-(3)	ND	0.15						
Tetrachloroethene-(3)	ND	0.10						
1,1,2-Trichloroethane-(2)	ND	0.20						
1,1,1-Trichloroethane	ND	0.20						
Trichloroethene	ND	0.20						
Trichlorofluoromethane	ND	0.20						
Vinyl Chloride	ND	0.20						

ND Not detected at specified detection limit

N/A Not available

- (1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.
- (2) Dibromochloromethane, 1,1,2-Trichloroethane, and cis-1,3-Dichloropropene coelute. Quantitated as Dibromochloromethane unless otherwise noted.
- (3) Tetrachloroethene and 1,1,2,2-Tetrachloroethane coelute. Quantitated as Tetrachloroethene unless otherwise noted.

Geoscience Consultants, Ltd.
Radian Work Order: 89-12-112

Method: Halogenated volatiles (1)

List: SW8010

Sample ID:

Reagent blank

Factor:

1

Results in:

ug/L

22A

Matrix:

water

Surrogate Recovery(%)

1-Bromo-4-fluorobenzene

Control Limits: 76 to 140

Result Det. Limit

104

Result Det. Limit

Result Det. Limit

Result Det. Limit

- (1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.
- (2) Dibromochloromethane, 1,1,2-Trichloroethane, and cis-1,3-Dichloropropene coelute. Quantitated as Dibromochloromethane unless otherwise noted.
- (3) Tetrachloroethene and 1,1,2,2-Tetrachloroethane coelute. Quantitated as Tetrachloroethene unless otherwise noted.

Geoscience Consultants, Ltd.
 Radian Work Order: 89-12-112

Method: Volatile aromatics (1)				
List: SW8020				
Sample ID:	HM 30 8912111150	BLM 27 8912111255	BLM 37 8912111520	ATX 12 8912121000
Factor:	1	1	2000	10
Results in:	ug/L	ug/L	ug/L	ug/L
	01B	02B	03B	04B
Matrix:	water	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Benzene	ND	0.20	ND	0.20	16000	400	10	2.0
Chlorobenzene	ND	0.20	ND	0.20	ND	400	ND	2.0
1,2-Dichlorobenzene	ND	0.40	ND	0.40	ND	800	ND	4.0
1,3-Dichlorobenzene	ND	0.40	ND	0.40	ND	800	ND	4.0
1,4-Dichlorobenzene	ND	0.30	ND	0.30	ND	600	ND	3.0
Ethylbenzene	ND	0.20	ND	0.20	16000	400	120	2.0
Toluene	ND	0.20	ND	0.20	1800 *	400	2.2 *	2.0
Total xylenes	ND	0.20	ND	0.20	75000	400	37	2.0
<u>Surrogate Recovery(%)</u>								
1-Bromo-4-fluorobenzene	87		94		117		96	
Control Limits: 76 to 140								

ND Not detected at specified detection limit

* Est. result less than 5 times detection limit

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Geoscience Consultants, Ltd.
 Radian Work Order: 89-12-112

Method: Volatile aromatics (1)	5H5	ew	1 m	24D
List: SW8020				
Sample ID:	8912121410	8912121145E	8912121145I	8912121130
Factor:	250	1	5	10
Results in:	ug/L	ug/L	ug/L	ug/L
	058	068	078	088
Matrix:	water	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Benzene	ND	50	3.3	0.20	110	1.0	21	2.0
Chlorobenzene	ND	50	ND	0.20	ND	1.0	ND	2.0
1,2-Dichlorobenzene	ND	100	ND	0.40	ND	2.0	ND	4.0
1,3-Dichlorobenzene	ND	100	ND	0.40	ND	2.0	ND	4.0
1,4-Dichlorobenzene	ND	75	1.4 *	0.30	8.6	1.5	ND	3.0
Ethylbenzene	ND	50	0.55 *	0.20	18	1.0	27	2.0
Toluene	ND	50	ND	0.20	ND	1.0	ND	2.0
Total xylenes	330	50	ND	0.20	9.1	1.0	6.9 *	2.0
Surrogate Recovery(%)								
1-Bromo-4-fluorobenzene	113		94		114		110	
Control Limits: 76 to 140								

ND Not detected at specified detection limit

* Est. result less than 5 times detection limit

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Geoscience Consultants, Ltd.
 □ Albuquerque
 500 Copper N.W.
 Suite 200
 Albuquerque, NM 87102
 (505) 842-0001

□ Silver Spring
 1109 Spring St.
 Suite 706
 Silver Spring, MD 20911
 (301) 597-2088

☐ Silver Spring
1109 Spring St.
Suite 706
Silver Spring, MD
(301) 567-2088

☐ Newport Beach
1400 Quail Street
Suite 140
Newport Beach, CA
(714) 724-0536

Las Cruces
P.O. Drawer MM
Las Cruces, NM 88004
(505) 524-5364

N^o. 3331

Chain of Custody

DATE 10/12/81 PAGE 1 OF 1

PAGE.

5.

[illegible]

DISTRIBUTION:

WHITE CANARY - LABORATORY • PINK - GEOSCIENCE CONSULTANTS, LTD.

Geoscience Consultants, Ltd.
 Radian Work Order: 89-12-112

Method/Analyte	Sample Identifications					
	8912121000		8912121410		METHOD BLANK	
Matrix	04 water		05 water		19 water	
	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Silver by ICPEs						
Silver	ND	mg/L 0.010	ND	mg/L 0.010	ND	mg/L 0.010
Arsenic by GF - SW846						
Arsenic	0.0048 *	mg/L 0.0020	0.024	mg/L 0.0020	ND	mg/L 0.0020
Barium by ICPEs						
Barium	0.40	mg/L 0.010	0.24	mg/L 0.010	ND	mg/L 0.010
Cadmium by ICPEs						
Cadmium	ND	mg/L 0.0050	ND	mg/L 0.0050	ND	mg/L 0.0050
Chromium by ICPEs						
Chromium	ND	mg/L 0.010	ND	mg/L 0.010	ND	mg/L 0.010
Mercury by cold vapor						
Mercury	ND	mg/L 0.0002	ND	mg/L 0.0002	ND	mg/L 0.0002
Lead by GF - SW846						
Lead	0.0045 *	mg/L 0.0020	0.030	mg/L 0.0020	ND	mg/L 0.0020
Selenium by GF - SW846						
Selenium	ND	mg/L 0.0020	ND	mg/L 0.0020	ND	mg/L 0.0020

ND Not detected at specified detection limit

* Est. result less than 5 times detection limit

(1) For a detailed description of flags and technical terms in this report refer to the glossary.



Inter-Mountain
Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: Geoscience Consultants

DATE REPORTED: 12/20/89

SITE: BLM-30

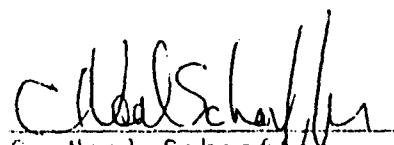
DATE RECEIVED: 12/13/89

LAB NO: F3659

DATE COLLECTED: 12/11/89

Lab pH (s.u.).....	7.38
Lab Conductivity, umhos/cm.....	3735
Lab resistivity, ohm-m.....	2.6774
Total Dissolved Solids (180), mg/l..	3220
Total Dissolved Solids (calc), mg/l.	3094
Total Alkalinity as CaCO ₃ , mg/l.....	140.58
Total Acidity as CaCO ₃ , mg/l.....	0.00
Total Hardness as CaCO ₃ , mg/l.....	1621.00
Sodium Absorption Ratio.....	3.69

	mg/l	meq/l
Bicarbonate as HCO ₃	171.51	2.81
Carbonate as CO ₃	0.00	0.00
Chloride.....	256.94	7.25
Sulfate.....	1797.43	37.45
Calcium.....	553.75	27.63
Magnesium.....	58.22	4.79
Potassium.....	2.13	0.05
Sodium.....	341.40	14.85
Major Cations.....		47.32
Major Anions.....		47.51
Cation/Anion Difference.....		0.19 %


C. Neal Schaeffer
Senior Chemist



Inter-Mountain
Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: Geoscience Consultants

DATE REPORTED: 12/20/89

SITE: BLM-27

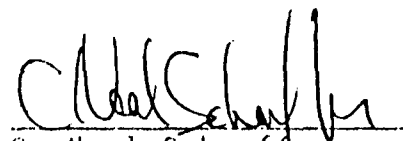
DATE RECEIVED: 12/13/89

LAB NO: F3660

DATE COLLECTED: 12/11/89

Lab pH (s.u.).....	7.31
Lab Conductivity, umhos/cm.....	2973
Lab resistivity, ohm-m.....	3.3636
Total Dissolved Solids (180), mg/l..	2434
Total Dissolved Solids (calc), mg/l.	2415
Total Alkalinity as CaCO ₃ , mg/l.....	271.26
Total Acidity as CaCO ₃ , mg/l.....	0.00
Total Hardness as CaCO ₃ , mg/l.....	1178.91
Sodium Absorption Ratio.....	3.88

	mg/l	meq/l
Bicarbonate as HCO ₃	330.94	5.43
Carbonate as CO ₃	0.00	0.00
Chloride.....	165.94	4.68
Sulfate.....	1308.57	27.26
Calcium.....	467.42	23.32
Magnesium.....	3.09	0.25
Potassium.....	0.88	0.02
Sodium.....	306.40	13.33
Major Cations.....		36.93
Major Anions.....		37.37
Cation/Anion Difference.....		0.59 %


C. Neal Schaeffer
Senior Chemist



2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: Geoscience Consultants

DATE REPORTED: 12/20/89

SITE: BLM-37

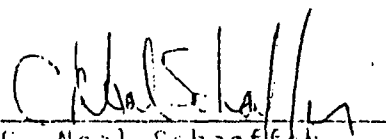
DATE RECEIVED: 12/13/89

LAB NO: F3661

DATE COLLECTED: 12/11/89

Lab pH (s.u.).....	7.95
Lab Conductivity, umhos/cm.....	5443
Lab resistivity, ohm-m.....	1.8372
Total Dissolved Solids (TDS), mg/l..	4606
Total Dissolved Solids (calc), mg/l.	4131
Total Alkalinity as CaCO ₃ , mg/l.....	395.44
Total Acidity as CaCO ₃ , mg/l.....	0.00
Total Hardness as CaCO ₃ , mg/l.....	1705.21
Sodium Absorption Ratio.....	7.36

	mg/l	meq/l
Bicarbonate as HCO ₃	483.66	7.93
Carbonate as CO ₃	0.00	0.00
Chloride.....	457.68	12.91
Sulfate.....	2071.49	43.16
Calcium.....	623.23	31.10
Magnesium.....	36.54	3.01
Potassium.....	5.56	0.14
Sodium.....	698.40	30.38
Major Cations.....		64.62
Major Anions.....		64.00
Cation/Anion Difference.....		0.49 %


C. Neal Schaeffer
Senior Chemist



2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: Geoscience Consultants

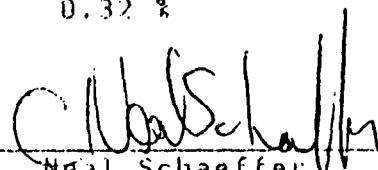
DATE REPORTED: 12/20/89

SITE: SHS-2
LAB NO: F3662

DATE RECEIVED: 12/13/89
DATE COLLECTED: 12/12/89

Lab pH (s.u.).....	7.53
Lab Conductivity, umhos/cm.....	4239
Lab resistivity, ohm-m.....	2.3590
Total Dissolved Solids (180), mg/l..	3002
Total Dissolved Solids (calc), mg/l.	3066
Total Alkalinity as CaCO ₃ , mg/l.....	978.12
Total Acidity as CaCO ₃ , mg/l.....	0.00
Total Hardness as CaCO ₃ , mg/l.....	1282.07
Sodium Absorption Ratio.....	7.35

	mg/l	meq/l
Bicarbonate as HCO ₃	1193.31	19.56
Carbonate as CO ₃	0.00	0.00
Chloride.....	401.47	11.33
Sulfate.....	1033.69	21.54
Calcium.....	309.51	15.44
Magnesium.....	123.99	10.20
Potassium.....	5.40	0.14
Sodium.....	604.80	26.31
Major Cations.....		52.09
Major Anions.....		52.42
Cation/Anion Difference.....		0.32 %


C. Neal Schaeffer
Senior Chemist



Inter-Mountain
Laboratories, Inc.

CLIENT: Geoscience Consultants

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

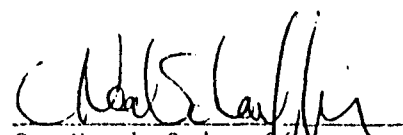
SITE: SHS-1
LAB NO: F3663

DATE REPORTED: 12/20/89

DATE RECEIVED: 12/13/89
DATE COLLECTED: 12/12/89

Lab pH (s.u.).....	7.64
Lab Conductivity, umhos/cm.....	4829
Lab resistivity, ohm-m.....	2.0708
Total Dissolved Solids (180), mg/l..	3304
Total Dissolved Solids (calc), mg/l.	3303
Total Alkalinity as CaCO ₃ , mg/l.....	816.75
Total Acidity as CaCO ₃ , mg/l.....	0.00
Total Hardness as CaCO ₃ , mg/l.....	1271.54
Sodium Absorption Ratio.....	8.34

	mg/l	meq/l
Bicarbonate as HCO ₃	996.44	16.34
Carbonate as CO ₃	0.00	0.00
Chloride.....	749.41	21.14
Sulfate.....	893.78	18.62
Calcium.....	444.26	22.17
Magnesium.....	39.67	3.26
Potassium.....	1.80	0.05
Sodium.....	684.00	29.75
Major Cations.....		55.23
Major Anions.....		56.10
Cation/Anion Difference.....		0.78 %


C. Neal Schaeffer
Senior Chemist



Geoscience Consultants, Ltd.
Albuquerque
500 Copper N.W.
Suite 200
Albuquerque, NM 87102
(505) 842-0001

☐ Silver Spring
1108 Spring St.
Suite 706
Silver Spring, MD 20910
(301) 587-2088

☐ Newport Beach
1400 Quail Street
Suite 140
Newport Beach, CA 92660
(714) 724-0536

☐ Las Cruces
P.O. Drawer MM
Las Cruces, NM 88004
(505) 524-5364

NO 3154

Chain of Custody

DATE 9/2/89 PAGE 1 OF 1

LAB NAME CORE LAB, ALBUQUERQUE
ADDRESS 5310 MONTEVUE RD.
TELEPHONE 713-6143-6774

SAMPLERS SIGNATURE [Signature]

SAMPLE NUMBER 2909061300 MATRIX Petroleum LOCATION BLM-37

ANALYSIS REQUEST

NUMBER OF CONTAINERS	2																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
----------------------	---	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

PROJECT INFORMATION		SAMPLE RECEIPT		RELINQUISHED BY		RELINQUISHED BY		RECEIVED BY	
PROJECT: <u>M9A BEI SUT</u>	TOTAL NO. OF CONTAINERS	CHAIN OF CUSTODY SEALS	REC'D GOOD CONDITION/COLD	CONFORMS TO RECORD	LAB NO.	1. <u>[Signature]</u> M. J. Hee Geoscience	2. <u>[Signature]</u> [Signature] [Signature] [Signature]	3. <u>[Signature]</u> [Signature] [Signature] [Signature]	1. <u>[Signature]</u> [Signature] [Signature] [Signature]
PROJECT DIRECTOR: <u>M. J. Hee</u>	CHARGE CODE NO. <u>603-003</u>	SHIPPING ID. NO. <u>3301863391</u>	VIA: <u>FED. EXP.</u>	SPECIAL INSTRUCTIONS/COMMENTS: <u>1 DAY TURNAROUND</u> <u>LOW RESULTS.</u>					

DISTRIBUTION: WHITE, CANARY - LABORATORY - PINK - GEOSCIENCE CONSULTANTS, LTD.



CORE LABORATORIES

8210 Mosley Rd
Houston, Texas
77075-1110
713 943-9776

October 17, 1989

Geoscience Consultants, Ltd.
500 Copper Avenue N.W., Suite 200
Albuquerque, NM 87102
ATTN: Orlando Gomez

Laboratory Number: 8991029
Date Received: 09/13/89 11:28:30
Sample Identification: Sample #2909061300 Petroleum BLM-37
9-6-89 1300

ANALYTICAL RESULTS

Simulated Distillation by GC

---X OFF	DEG F.
---1BP/5	133/190
---10/15	213/243
---20/25	274/293
---30/35	321/341
---40/45	366/392
---50/55	418/441
---60/65	458/483
---70/75	505/527
---80/85	553/580
---90/95	612/657

Final Boiling Point 795

Arsenic by ICP, ppm wt.	<17
Copper by ICP, ppm wt.	0.07
Iron by ICP, ppm wt.	2.2
Potassium by ICP, ppm wt.	8.6
Nickel by ICP, ppm wt.	<0.18

Continued on Page 2

8210 Mosley Rd
Houston, Texas
77075-1110
713 943-9776

Geoscience Consultants, Ltd.
ATTN: Orlando Gomez

Page 2

Laboratory No: 8991029

Lead by ICP, ppm wt.	324
Selenium by ICP, ppm wt.	2.4
Vanadium by ICP, ppm wt.	0.06
Arsenic, EP TOX Extraction, mg/l	0.01
Barium, EP TOX Extraction, mg/l	0.21
Cadmium, EP TOX Extraction, mg/l	0.01
Lead, EP TOX Extraction, mg/l	1.05
Mercury, EP TOX Extraction, mg/l	0.01
Selenium, EP TOX Extraction, mg/l	0.04
Silver, EP TOX Extraction, mg/l	0.01

Lisa Robinson

Lisa Robinson
Chemist

Silver Spring
1108 Spring St
Suite 706
Silver Spring, MD
(301) 587-2088

☐ **Newport Beach**
1400 Quail Street
Suite 140
Newport Beach, CA 92660
(714) 724-0536

Las Cruces
P.O. Drawer MM
Las Cruces, NM 88004
(505) 524-5364

Chain of Custody

DATE 9/7/87 PAGE 1 OF 1

LAB NAME Radiat Anal

ADDRESS 10395 Old Placetaville Rd.

Sacramento, CA 95827

916/362-5332

SAMPLERS (SIGNATURE)

CARD NUMBER	MATRIX	LOCATION
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		
32		
33		
34		
35		
36		
37		
38		
39		
40		
41		
42		
43		
44		
45		
46		
47		
48		
49		
50		
51		
52		
53		
54		
55		
56		
57		
58		
59		
60		
61		
62		
63		
64		
65		
66		
67		
68		
69		
70		
71		
72		
73		
74		
75		
76		
77		
78		
79		
80		
81		
82		
83		
84		
85		
86		
87		
88		
89		
90		
91		
92		
93		
94		
95		
96		
97		
98		
99		
100		

890908455	water	SHS-1
8909061535	water	SHS-2
8909061600	water	BLM-37
8909070830	water	BLM-30

ANALYSIS REQUEST

[illegible]

PROJECT INFORMATION		SAMPLE RECEIPT		RELINQUISHED BY		RELINQUISHED BY	
PROJECT: MIA OFF-SITE		TOTAL NO. OF CONTAINERS	20	(Signature)	(Time)	(Signature)	(Time)
PROJECT DIRECTOR M. NEE		CHAIN OF CUSTODY SEALS	423	(Printed Name)	(Date)	(Printed Name)	(Date)
CHARGE CODE NO. 653-002		REC'D GOOD CONDITION/COLD	YES	(Signature)	(Time)	(Signature)	(Time)
SHIPPING ID NO. 3381863553		CONFORMS TO RECORD	YES	(Printed Name)	(Date)	(Printed Name)	(Date)
VIA: Federal Express		LAB NO.		(Company)	(Company)	(Company)	(Company)
SPECIAL INSTRUCTIONS/COMMENTS:			RECEIVED BY		RECEIVED BY (LABORATORY)		1
14 DAY TURKAROUND ON RESULTS			(Signature)		(Signature)		(Time)
			(Printed Name)		(Printed Name)		(Date)
			(Company)		(Company)		(Company)
			(Company)		(Company)		(Company)

DISTRIBUTION: WHITE CANARY - LABORATORY • PINK - GEOSCIENCE CONSULTANTS, LTD.

Page 1

Received: 09/08/89

RAS Sacramento

REPORT

Work Order # 89-09-051

09/20/89 08:57:53

REPORT Geo Science

TO 500 Copper N.W., Suite 200
Albuquerque, NM 87102

ATTEN Sample Manager

CLIENT GEO SCIENCE SAMPLES 7
COMPANY Geo Science
FACILITY 500 Copper N.W. Suite 200
Albuquerque, NM 87102

WORK ID M & A Off-Site

TAKEN 09/06, 07/89

TRANS FedEx: 3321853553, 75

TYPE H2O/EP Tox Metals

P.O. # 653-002

INVOICE under separate cover

PREPARED Radian Analytical Services

BY 10295 Old Placerville Road
Sacramento,
California 95827

ATTEN

PHONE 916-262-5332

CONTACT WLBROJN

CERTIFIED BY *[Signature]*

SAMPLE IDENTIFICATION

01 8909061435 H2O SHS-1
02 8909061535 H2O SHS-2
03 8909061600 H2O BLM-37
04 8909070830 H2O BLM-30
05 8909070750 H2O BLM-29
06 8909071100 H2O BLM-27
07 REAGENT BLANK H2O

TEST CODES and NAMES used on this report

3015MS	Digestion by Method 3010
AS EM	Silver by EM-EPA 200.7
AS EM	Arsenic, ICPEES, EPA-200.7
BA EM	Barium, ICPEES, EPA-200.7
CD EM	Cadmium by EM-EPA 200.7
CR EM	Chromium by EM-EPA 200.7
HC SV	Mercury, COLD VAP, EPA-245.1
PB EM	Lead by EM-EPA 200.7
SE EM	Selenium, ICPEES, EPA-200.7

RECEIVED SEP 21 1989

Received: 09/08/89

RAS Sacramento

REPORT

Work Order # S9-09-051

Results By Test

413-1 S4S-2 BLM37 BLM30 Blank
 TEST CODE Sample 01 Sample 02 Sample 03 Sample 04 Sample 05
 (entered units) (entered units) (entered units) (entered units) (entered units)

3015NS	09/12/89	09/12/89	09/12/89	09/12/89
Date Completed	DATE COMPLETED	DATE COMPLETED	DATE COMPLETED	DATE COMPLETED
AG_EN .05	<0.007	<0.007	<0.007	<0.007
AS_EN .1	<0.053	<0.053	<0.053	<0.053
AS_EN mg/L	mg/L	mg/L	mg/L	mg/L
BA_EN 1.0	1.5	0.35	0.57	<0.002
BA_EN mg/L	mg/L	mg/L	mg/L	mg/L
CD_EN .01	<0.004	<0.004	<0.004	<0.004
CD_EN mg/L	mg/L	mg/L	mg/L	mg/L
CR_EN .05	0.029 *	0.043	0.043	<0.007
CR_EN mg/L	mg/L	mg/L	mg/L	mg/L
HG_CV .062	<0.0002	<0.0002	<0.0002	<0.0002
HG_CV mg/L	mg/L	mg/L	mg/L	mg/L
PB_EN .05	0.042	8.7	0.056 *	<0.042
PB_EN mg/L	mg/L	mg/L	mg/L	mg/L
SE_EN .05	<0.075	<0.075	<0.075	<0.075
SE_EN mg/L	mg/L	mg/L	mg/L	mg/L

BLM27 BLM3

TEST CODE	Sample 06	Sample 07
default units	(entered units)	(entered units)
3015NS	09/12/89	09/12/89
Date Completed	DATE COMPLETED	DATE COMPLETED
AG_EN .05	<0.007	<0.007
AG_EN mg/L	mg/L	mg/L
AS_EN .1	<0.053	<0.053
AS_EN mg/L	mg/L	mg/L

Received: 09/08/89

RAS Sacramento

REPORT

Results By Test

Work Order # S9-09-051
Continued From Above

TEST CODE	Sample 06 (entered units)	Sample 07 (entered units)
BA_EM mg/L	1.4	<0.002
CD_EM mg/L	<0.004	<0.004
CR_EM mg/L	0.074	<0.007
HG_CV mg/L	<0.0002	<0.0002
PB_EM mg/L	0.13*	<0.042
SE_EM mg/Kg	<0.075	<0.075

Received: 09/08/89

RAS

Sacramento

REPORT

Work Order # 89-09-051

Results By Test

SAMPLE	Test: 3013HS	Test: AG EN	Test: AS EN	Test: BA EN	Test: CD EN
Sample Id	Date Completed	mg/L	mg/Kg	mg/L	mg/L
SHS-1 01	09/12/89	<0.007	<0.053	0.27	<0.004
8909061455 H2O	DATE COMPLETED				
SHS-2 02	09/12/89	<0.007	<0.053	1.5	<0.004
8909061535 H2O	DATE COMPLETED				
BLM-37 03	09/12/89	<0.007	<0.053	0.36	<0.004
8909061600 H2O	DATE COMPLETED				
BLM-30 04	09/12/89	<0.007	<0.053	0.57	<0.004
8909070830 H2O	DATE COMPLETED				
Blank 05	09/12/89	<0.007	<0.053	<0.002	<0.004
8909070750 H2O	DATE COMPLETED				
BLM-27 06	09/12/89	<0.007	<0.053	1.4	<0.004
8909071100 H2O	DATE COMPLETED				
07	09/12/89	<0.007	<0.053	<0.002	<0.004
REAGENT BLANK H	DATE COMPLETED				

SAMPLE	Test: CR EN	Test: HG CV	Test: PB EN	Test: SE EN
Sample Id	mg/L	mg/L	mg/L	mg/Kg
SHS-1 01	0.011 *	<0.0002	<0.042	<0.075
8909061455 H2O				mg/L
SHS-2 02	0.029 *	<0.0002	0.062 *	<0.075
8909061535 H2O				mg/L
BLM-37 03	0.043	<0.0002	8.7	<0.075
8909061600 H2O				mg/L
BLM-30 04	0.043	<0.0002	0.055 *	<0.075
8909070830 H2O				mg/L
Blank 05	<0.007	<0.0002	<0.042	<0.075
8909070750 H2O				mg/L



Page 5
Received: 09/08/89
RAS Sacramento
REPORT
Results By Test
Work Order # S9-09-051
Continued From Above

SAMPLE	Test: CR EM	Test: HQ CV	Test: PB EM	Test: SE EM
Sample Id	mg/L	mg/L	mg/L	mg/Kg
BLM-2706	0.074	<0.0002	0.13 s	<0.075
8909071100 H2O				mg/L
07	<0.007	<0.0002	<0.042	<0.075
REAGENT BLANK H				mg/L

Received: 09/08/89

RAS Sacramento

REPORT

Work Order # 89-09-051

Results by Sample

SAMPLE ID 8909061435 H2O SHS-1 SAMPLE # Q1 FRACTIONS: A
 Date & Time Collected 09/06/89 Category
 3013WS 09/12/89 AG_EM <0.007 mg/L AS_EM <0.053 mg/L BA_EM 0.27 mg/L CD_EM <0.004 mg/L CR_EM 0.011 *
 DATE COMPLETED
 HG_CV <0.0002 mg/L SE_EM <0.075 mg/L

SAMPLE ID 8909061335 H2O SHS-2 SAMPLE # Q2 FRACTIONS: A
 Date & Time Collected 09/06/89 Category
 3013WS 09/12/89 AG_EM <0.007 mg/L AS_EM <0.053 mg/L BA_EM 1.5 mg/L CD_EM <0.004 mg/L CR_EM 0.029 *
 DATE COMPLETED
 HG_CV <0.0002 mg/L SE_EM <0.075 mg/L

SAMPLE ID 8909061500 H2O BLM-37 SAMPLE # Q3 FRACTIONS: A
 Date & Time Collected 09/06/89 Category
 3013WS 09/12/89 AG_EM <0.007 mg/L AS_EM <0.053 mg/L BA_EM 0.36 mg/L CD_EM <0.004 mg/L CR_EM 0.043
 DATE COMPLETED
 HG_CV <0.0002 mg/L SE_EM <0.075 mg/L

Page 7
Received: 09/08/89

RAS Sacramento

REPORT

Work Order # 89-09-051

Results by Sample

SAMPLE ID 8909070830 H2O BLM-30 SAMPLE # 04 FRACTIONS: A
 Date & Time Collected 09/07/89 Category
 3015WS 09/12/89 AG_EM <0.007 mg/L AS_EM <0.053 mg/L BA_EM 0.57 mg/L CD_EM <0.004 mg/L CR_EM 0.043 mg/L
 DATE COMPLETED
 HG_CV <0.0002 mg/L SE_EM <0.075 mg/L

SAMPLE ID 8909070750 H2O Blank SAMPLE # 05 FRACTIONS: A
 Date & Time Collected 09/07/89 Category
 3015WS 09/12/89 AG_EM <0.007 mg/L AS_EM <0.053 mg/L BA_EM <0.002 mg/L CD_EM <0.004 mg/L CR_EM <0.007 mg/L
 DATE COMPLETED
 HG_CV <0.0002 mg/L SE_EM <0.075 mg/L

SAMPLE ID 8909071100 H2O BLM-27 SAMPLE # 03 FRACTIONS: A
 Date & Time Collected 09/07/89 Category
 3015WS 09/12/89 AG_EM <0.007 mg/L AS_EM <0.053 mg/L BA_EM 1.4 mg/L CD_EM <0.004 mg/L CR_EM 0.074 mg/L
 DATE COMPLETED
 HG_CV <0.0002 mg/L SE_EM <0.075 mg/L

Received: 09/08/89

RAS

Sacramento

REPORT

Results by Sample

Work Order # S9-09-051

SAMPLE ID REAGENT BLANK H2O

SAMPLE # 07 FRACTIONS: A

Date & Time Collected not specified Category

30ISWS 09/12/89
DATE COMPLETED

AG_EM <0.007
mg/L

AS_EM <0.053
mg/L

BA_EM <0.002
mg/L

CD_EM <0.004
mg/L

CR_EM <0.007
mg/L

HG_CV <0.0002
mg/L

PB_EM <0.042
mg/L

SE_EM <0.075
mg/L

Appendix A

Comments, Notes and Definitions

Radian Work Order: 59-07-051

- * Est. result less than 5 times detection limit
- A Analytical and/or post-digestion spike
- B Detected in blank, result not corrected
- C Confirmed on second column
- D Sample diluted for this analyte
- E Estimated result - see report narrative
- G Exceeds calibration range
- J Detected at less than detection limit
- NA Not analyzed
- NC Not calculated
- ND Not detected at specified detection limit
- NR Analyte not requested
- NS Not spiked
- NVA Not available
- P Previously confirmed
- Q Outside control limits
- R Detected in blank, result corrected
- S Determined by Method of Standard Addition
- U Unconfirmed-2nd column not requested
- X Not confirmed by analysis on 2nd column

Radian Work Order: 89-09-Q51

*

The asterisk(*) is used to flag results which are less than five times the method specified detection limit. Studies have shown that the uncertainty of the analysis will increase exponentially as the method detection limit is approached. These results should be considered approximate.

- A This flag indicates that a spike is an analytical and/or post-digestion spike. These spikes have not been subjected to the extraction or digestion step.
- B This flag indicates that the analyte was detected in the reagent blank but the sample results are not corrected for the amount in the blank.
- C Most methods of analysis by gas chromatography recommend reanalysis on a second column of dissimilar phase to resolve compounds of interest from interferences that may occur and for analyte confirmation. The C flag indicates that the analyte has been confirmed by analysis on a second column.
- D This flag identifies all analytes identified in analysis at a secondary dilution factor. In an analysis some compounds can exceed the calibration range of the instrument. Therefore two analyses are performed, one at the concentration of the majority of the analytes, and a second with the sample diluted so that high concentration analytes fall within the calibration range.

Radian Work Order: S9-C9-051

E

The reported value is estimated because of the presence of interference. The potential source of the interference is included in the report narrative.

G This flag identifies a GC/MS result whose concentration exceeds the calibration range for that specific analysis. Usually if one or more compounds have a response greater than full scale, the sample or extract is diluted and re-analyzed.

J Indicates an estimated value for GC/MS data. This flag is used either when estimating a concentration for tentatively identified compounds where a response factor of 1 is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit.

NA This analyte was not analyzed.

NC Applies to RPD and spike recovery results. The relative percent difference (RPD) and spike recovery are not calculated when a result value is less than five times the detection limit or obvious matrix interferences are present. See + definition for further explanation of the unreliability of data near the detection limit. A spike recovery is not calculated when the sample result is greater than four times the spike added concentration because the spike added concentration is considered insignificant.

Radian Work Order: 89-09-051

ND

This flag (or C) is used to denote analytes which are not detected at or above the specified detection limit. The value to the right of the C symbol is the method specified detection limit for the sample.

NR This analyte was not requested by the client.

NS This analyte or surrogate was not added (spiked) to the sample for this analysis.

N/A A result or value is not available for this parameter, usually a detection limit.

P Most methods of analysis by gas chromatography recommend reanalysis on a second column of dissimilar phase to resolve compounds of interest from interferences that may occur and for analyte confirmation. The P flag indicates that the analyte has been confirmed previously. This flag is applicable to analyses of samples arising from a regular sampling program of a specific sample source, for example, a quarterly well monitoring program.

Radian Work Order: S9-07-061
Q

This quality control standard is outside method or laboratory specified control limits. This flag is applied to matrix spike, analytical QC spike, and surrogate recoveries; and to RPD (relative percent difference) values for duplicate analyses and matrix spike/matrix spike duplicate result.

R This flag indicates that the analyte was detected in the reagent blank and the sample results are corrected for the amount in the blank.

S This flag indicates that a specific result from a metals analysis has been obtained using the Method of Standard Addition.

U Most methods of analysis by gas chromatography recommend reanalysis on a second column of dissimilar phase to resolve compounds of interest from interferences that may occur and for analyte confirmation. The U flag indicates that second column was not requested.

X Most methods of analysis by gas chromatography recommend reanalysis on a second column of dissimilar phase to resolve compounds of interest from interferences that may occur and for analyte confirmation. The X flag indicates a second column confirmation was performed but the analyte was not confirmed and is likely a false positive.

Radian Work Order: S9-09-051

TERMS USED IN THIS REPORT:

Analyte - A chemical for which a sample is to be analyzed. The analysis will meet EPA method and GC specifications.

Compound - See Analyte.

Detection Limit - The method specified detection limit, which is the lower limit of quantitation specified by EPA for a method. Radian staff regularly assess their laboratories' method detection limits to verify that they meet or are lower than those specified by EPA. Detection limits which are higher than method limits are based on experimental values at the 99% confidence level. Note, the detection limit may vary from that specified by EPA based on sample size, dilution or cleanup. (Refer to Factor, below)

EPA Method - The EPA specified method used to perform an analysis. EPA has specified standard methods for analysis of environmental samples. Radian will perform its analyses and accompanying QC tests in conformance with EPA methods unless otherwise specified.

Factor - Default method detection limits are based on analysis of clean water samples. A factor is required to calculate sample specific detection limits based on alternate matrices (soil or water), use of cleanup procedures, or dilution of extracts/digestates. For example, extraction or digestion of 10 grams of soil in contrast to 1 liter of water will result in a factor of 100.

Matrix - The sample material. Generally, it will be soil, water, air, oil, or solid waste.

Radian Work Order - The unique Radian identification code assigned to the samples reported in the analytical summary.

Units - ug/L	micrograms per liter (parts per billion); liquids/water
ug/Kg	micrograms per kilogram (parts per billion); soils/solids
ug/M3	micrograms per cubic meter; air samples
mg/L	milligrams per liter (parts per million); liquids/water
mg/Kg	milligrams per kilogram (parts per million); soils/solids
%	percent; usually used for percent recovery of GC standards
uS/cm	conductance unit; microSiemens/centimeter
mL/hr	milliliters per hour; rate of settlement of matter in water
NTU	turbidity unit; nephelometric turbidity unit
CU	color unit; equal to 1 mg/L of chloroplatinate salt

Received: 09/08/89

RAS Sacramento

REPORT

Work Order # 59-09-049

09/26/89 08:18:06

REPORT Geo Science
TO 500 Copper N.W., Suite 200
Albuquerque, NM 87102

ATTEN Sample Manager
CLIENT GEO SCIENCE SAMPLES 9
COMPANY Geo Science
FACILITY 500 Copper N.W. Suite 200
Albuquerque, NM 87102

WORK ID M & A Off-Site
TAKEN 09/05, 07/89
TRANS Fedex: 3381863553, 75
TYPE H2O; 601/602
P.O. # 653-C02
INVOICE under separate cover

PREPARED Radian Analytical Services
BY 10295 Old Placerville Road
Sacramento,
California 95827
ATTEN
PHONE 916-362-5332

David H. Hale
CERTIFIED BY
CONTACT WLBROWN

RECEIVED SEP 27 1989

SAMPLE IDENTIFICATION

01	8909061455 H2O
02	8909061535 H2O
03	8909061600 H2O
04	8909070830 H2O
04	8909070830 MS H2O
04	8909070830 MSD H2O (SPLIT)
04	8909070830 H2O
04	8909070830 MS H2O
04	8909070830 MSD H2O (SPLIT)
05	8909070750 H2O
06	8909071100 H2O
07	8909071330 H2O
08	REAGENT BLANK H2O
09	REAGENT BLANK H2O

TEST CODES and NAMES used on this report

601	Purgeable Halocarbons H2O
602B	Purgeable Aromatics - H2O

Received: 09/08/89

RAS Sacramento

REPORT

Results by Sample

Work Order # S9-09-049

SAMPLE ID 8909061455 H2O S/S-1

FRACTION O1A

TEST CODE 601

NAME Purgeable Halocarbons H2O

Date & Time Collected 09/06/89

Category

ORGANICS ANALYSIS DATA SHEET - PURGEABLE HALOCARBONS (1)

ANALYST _____ MG
INSTRMT _____ B
FILE # DB091911 VERIFIED _____ JD
FACTOR 100 UNITS ug/L

INJECTD 09/19/89

CAS#	COMPOUND	RESULT	DET LIMIT	FACTOR
74-87-3	Chloromethane	ND	50	100
74-83-9	Bromomethane	ND	100	100
75-01-4	Vinyl Chloride	ND	20	100
75-00-3	Chloroethane	ND	50	100
75-09-2	Methylene Chloride	ND	40	100
75-69-4	Trichlorofluoromethane	ND	10	100
75-35-4	1,1-Dichloroethene	ND	10	100
75-34-3	1,1-Dichloroethane	ND	10	100
540-59-0	Total 1,2-Dichloroethene (2)	ND	10	100
67-66-3	Chloroform	ND	10	100
107-06-2	1,2-Dichloroethane	ND	10	100
71-55-6	1,1,1-Trichloroethane	ND	20	100
56-23-5	Carbon Tetrachloride	ND	20	100
75-27-4	Bromodichloromethane	ND	10	100
78-87-5	1,2-Dichloropropane	ND	10	100
10061-01-5	cis-1,3-Dichloropropene	ND	40	100
79-01-6	Trichloroethene	22 C	20	100
124-48-1	Dibromochloromethane (3)	ND	20	100
79-00-5	1,1,2-Trichloroethane (3)	ND	20	100
10061-02-6	trans-1,3-Dichloropropene (3)	ND	40	100
110-75-8	2-Chloroethylvinyl Ether	ND	200	100
75-25-2	Bromoform	ND	200	100
79-34-5	1,1,2,2-Tetrachloroethane (4)	ND	20	100
127-18-4	Tetrachloroethene (4)	ND	10	100
108-90-7	Chlorobenzene	ND	20	100
541-73-1	1,3-Dichlorobenzene	ND	50	100
95-50-1	1,2-Dichlorobenzene	ND	20	100
106-46-7	1,4-Dichlorobenzene	ND	20	100

Page 3

Received: 09/08/89

RAS Sacramento

REPORT

Results by Sample

Work Order # S9-09-049
Continued From Above

SAMPLE ID 8909061455 H2O SAS-1 FRACTION 01A TEST CODE 601 NAME Purgeable Halocarbons H20
Date & Time Collected 09/06/89 Category _____

SURROGATES

540-36-3	1-4-Difluorobenzene	<u>NA</u> % Recovery
460-00-4	1-Bromoc-4-Fluorobenzene	<u>80</u> % Recovery

- (1) See Appendix A for Glossary of Report and Data Flag Definitions
- (2) Quantitated as the Trans-isomer
- (3) Dibromochloromethane, 1,1,2-Trichloroethane and Trans-1,3-dichloropropene co-elute.
- (4) 1,1,2,2-Tetrachloroethane and tetrachloroethene co-elute.

Received: 09/08/89

RAS Sacramento

REPORT

Work Order # S9-09-049

Results by Sample

SAMPLE ID 8909061455 H2O *SHS-1*

FRACTION O1C TEST CODE 6028

NAME Purgeable Aromatics - H2O

Date & Time Collected 09/05/89

Category

ORGANICS ANALYSIS DATA SHEET - PURGEABLE AROMATICS (1)

ANALYST	MC	FILE #	EB091912	VERIFIED	JD
INSTRMT	B	INJECTD 09/19/89	FACTOR	100 UNITS	ug/L
CASE#	COMPOUND	RESULT	DET LIMIT	FACTOR	
71-43-2	Benzene	ND	10	100	
108-86-3	Toluene	ND	30	100	
100-41-4	Ethylbenzene	140 C	10	100	
108-90-7	Chlorobenzene	ND	10	100	
1330-20-7	Total Xylenes	280 C	20	100	
106-46-7	1,4-Dichlorobenzene	ND	20	100	
541-73-1	1,3-Dichlorobenzene	ND	40	100	
95-50-1	1,2-Dichlorobenzene	ND	20	100	

SURROGATE

460-00-4 1-Bromo-4-Fluorobenzene 77% recovery

(1) See Appendix A for Glossary of Report and Data Flag Definitions

Page 5
Received: 09/08/89

RAS Sacramento

REPORT
Results by Sample

Work Order # S9-09-049

AMPLE ID 8909061535 H2O *SHS-2* FRACTION 02A TEST CODE 601 NAME Purgeable Halocarbons H2O
Date & Time Collected 09/06/89 Category _____

ORGANICS ANALYSIS DATA SHEET - PURGEABLE HALOCARBONS (1)

ANALYST _____ INSTRMT _____ B _____ MG _____
FILE # DB071913 VERIFIED _____ JD _____
FACTOR 100 UNITS ug/L

INJECTD 09/19/89

CAS#	COMPOUND	RESULT	DET LIMIT	FACTOR
74-87-3	Chloromethane	ND	50	100
74-83-9	Bromomethane	ND	100	100
75-01-4	Vinyl Chloride	ND	20	100
75-00-3	Chloroethane	ND	50	100
75-09-2	Methylene Chloride	ND	40	100
75-69-4	Trichlorofluoromethane	ND	10	100
75-35-4	1,1-Dichloroethene	ND	10	100
75-34-3	1,1-Dichloroethane	ND	10	100
540-59-0	Total 1,2-Dichloroethene (2)	ND	10	100
67-66-3	Chloroform	ND	10	100
107-06-2	1,2-Dichloroethane	68 C	10	100
71-55-6	1,1,1-Trichloroethane	ND	20	100
56-23-5	Carbon Tetrachloride	ND	20	100
75-27-4	Bromodichloromethane	ND	10	100
78-87-5	1,2-Dichloropropane	ND	10	100
10061-01-5	cis-1,3-Dichloropropene	ND	40	100
79-01-6	Trichloroethene	ND	20	100
124-48-1	Dibromochloromethane (3)	ND	20	100
79-00-5	1,1,2-Trichloroethane (3)	ND	20	100
10061-02-6	trans-1,3-Dichloropropene (3)	ND	40	100
110-75-8	2-Chloroethylvinyl Ether	ND	200	100
75-25-2	Bromoform	ND	200	100
79-34-5	1,1,2,2-Tetrachloroethane (4)	ND	20	100
127-18-4	Tetrachloroethene (4)	13 C	10	100
108-90-7	Chlorobenzene	ND	20	100
541-73-1	1,3-Dichlorobenzene	ND	50	100
95-50-1	1,2-Dichlorobenzene	ND	20	100
106-46-7	1,4-Dichlorobenzene	ND	20	100



Page 6
Received: 09/08/89
RAS Sacramento
Results by Sample
REPORT
Work Order # S9-09-049
Continued From Above
SAMPLE ID 8909061535 H20 *SHS-2* FRACTION 02A TEST CODE 601 NAME Purgeable Halocarbons H20
Date & Time Collected 09/06/89 Category

SURROGATES

540-36-3	1-4-Difluorobenzene	NA % Recovery
460-00-4	1-Bromo-4-Fluorobenzene	101 % Recovery

- (1) See Appendix A for Glossary of Report and Data Flag Definitions
(2) Quantitated as the Trans-isomer
(3) Dibromochloromethane, 1,1,2-Trichloroethane and Trans-1,3-dichloropropene co-elute.
(4) 1,1,2,2-Tetrachloroethane and tetrachloroethene co-elute.

Received: 09/08/89

Results by Sample

SAMPLE ID 8909061535 H2O SHS-2

FRACTION 02C TEST CODE 602B

NAME Purgeable Aromatics - H2O

Date & Time Collected 09/06/89

Category

ORGANICS ANALYSIS DATA SHEET - PURGEABLE AROMATICS (1)

ANALYST	MG	FILE #	EB091914	VERIFIED	JD
INSTRMT	B	INJECTD 09/19/89	FACTOR	100 UNITS	ug/L
CAS#	COMPOUND	RESULT	DET LIMIT	FACTOR	
71-43-2	Benzene	ND	10	100	
108-88-3	Toluene	ND	30	100	
100-41-4	Ethylbenzene	120 C	10	100	
108-90-7	Chlorobenzene	ND	10	100	
1330-20-7	Total Xylenes	48 C	20	100	
106-46-7	1,4-Dichlorobenzene	ND	20	100	
541-73-1	1,3-Dichlorobenzene	ND	40	100	
95-50-1	1,2-Dichlorobenzene	ND	20	100	

SURROGATE

460-00-4 1-Bromo-4-Fluorobenzene 86% recovery

(1) See Appendix A for Glossary of Report and Data Flag Definitions

Page 8

Received: 09/08/89

RAS Sacramento

REPORT

Work Order # S9-09-049

Results by Sample

SAMPLE ID 8909061600 H2O

BLM-37

FRACTION 03A

TEST CODE 601

NAME Purgeable Halocarbons H2O

Date & Time Collected 09/06/89

Category

ORGANICS ANALYSIS DATA SHEET - PURGEABLE HALOCARBONS (1)

ANALYST
INSTRMTMG
B

INJECTD 09/20/89

FILE # DB09205
FACTOR 200VERIFIED
UNITS ug/L

CAS#	COMPOUND	RESULT	DET LIMIT	FACTOR
74-87-3	Chloromethane	ND	100	200
74-83-9	Bromomethane	ND	200	200
75-01-4	Vinyl Chloride	ND	40	200
75-00-3	Chloroethane	ND	100	200
75-09-2	Methylene Chloride	ND	80	200
75-69-4	Trichlorofluoromethane	ND	20	200
75-35-4	1,1-Dichloroethene	ND	20	200
75-34-3	1,1-Dichloroethane	ND	20	200
540-59-0	Total 1,2-Dichloroethene (2)	ND	20	200
67-66-3	Chloroform	ND	20	200
107-06-2	1,2-Dichloroethane	78 C	20	200
71-55-6	1,1,1-Trichloroethane	ND	40	200
56-23-5	Carbon Tetrachloride	ND	40	200
75-27-4	Bromodichloromethane	ND	20	200
78-87-5	1,2-Dichloropropane	ND	20	200
10051-01-5	cis-1,3-Dichloropropene	ND	80	200
79-01-6	Trichloroethene	ND	40	200
124-48-1	Dibromochloromethane (3)	ND	40	200
79-00-5	1,1,2-Trichloroethane (3)	ND	40	200
10051-02-6	trans-1,3-Dichloropropene (3)	ND	80	200
110-75-8	2-Chloroethylvinyl Ether	ND	400	200
75-25-2	Bromoform	ND	400	200
79-34-5	1,1,2,2-Tetrachloroethane (4)	ND	40	200
127-18-4	Tetrachloroethene (4)	ND	20	200
108-90-7	Chlorobenzene	ND	40	200
541-73-1	1,3-Dichlorobenzene	ND	100	200
95-50-1	1,2-Dichlorobenzene	ND	40	200
106-46-7	1,4-Dichlorobenzene	ND	40	200

Page 9

Received: 09/08/89

RAS Sacramento

REPORT

Results by Sample

Work Order # S9-09-049

Continued From Above

SAMPLE ID 8909061600 H2O BLN-37

FRACTION 03A

TEST CODE 601

NAME Purgeable Halocarbons H2O

Date & Time Collected 09/06/89

Category

SURROGATES

540-36-3	1-4-Difluorobenzene	NA % Recovery
460-00-4	1-Bromoc-4-Fluorobenzene	110 % Recovery

- (1) See Appendix A for Glossary of Report and Data Flag Definitions
- (2) Quantitated as the Trans-isomer
- (3) Dibromochloromethane, 1,1,2-Trichloroethane and Trans-1,3-dichloropropene co-elute.
- (4) 1,1,2,2-Tetrachloroethane and tetrachloroethene co-elute.



Page 10
Received: 09/08/89
RAS Sacramento
Results by Sample
REPORT
Work Order # S9-09-049

SAMPLE ID 8909061600 H2O BLM-37
FRACTION 03C TEST CODE 602B NAME Purgeable Aromatics - H2O
Date & Time Collected 09/06/89 Category

ORGANICS ANALYSIS DATA SHEET - PURGEABLE AROMATICS (1)

ANALYST	MG	FILE #	EB092018	VERIFIED	JD
INSTRMT	B	INJECTD	09/20/89	500 UNITS	ug/L
CAS#	COMPOUND	RESULT	DET LIMIT	FACTOR	
71-43-2	Benzene	7600 C	50	500	
108-88-3	Toluene	ND	150	500	
100-41-4	Ethylbenzene	ND	50	500	
108-90-7	Chlorobenzene	ND	50	500	
1330-20-7	Total Xylenes	7400 C	100	500	
106-46-7	1,4-Dichlorobenzene	ND	100	500	
541-73-1	1,3-Dichlorobenzene	ND	200	500	
95-50-1	1,2-Dichlorobenzene	ND	100	500	

SURROGATE
460-00-4 1-Bromo-4-Fluorobenzene 83% recovery

(1) See Appendix A for Glossary of Report and Data Flag Definitions

Received: 09/08/89

RAS Sacramento

Results by Sample

REPORT

Work Order # S9-09-049

SAMPLE ID 8909070830 H2O

BLM-30

FRACTION 04A TEST CODE 601

NAME Purgeable Halocarbons H2O

Date & Time Collected 09/07/89

Category

ORGANICS ANALYSIS DATA SHEET - PURGEABLE HALOCARBONS (1)

ANALYST _____
INSTRMT _____

FILE # DB091917
FACTOR 1

VERIFIED _____
UNITS ug/L

INJECTD 09/19/89

CAS#	COMPOUND	RESULT	DET LIMIT	FACTOR
74-87-3	Chloromethane	ND	0.50	1
74-83-9	Bromomethane	ND	1.0	1
75-01-4	Vinyl Chloride	ND	0.20	1
75-00-3	Chloroethane	ND	0.50	1
75-09-2	Methylene Chloride	ND	0.40	1
75-69-4	Trichlorofluoromethane	ND	0.10	1
75-35-4	1,1-Dichloroethene	ND	0.10	1
75-34-3	1,1-Dichloroethane	ND	0.10	1
540-59-0	Total 1,2-Dichloroethene (2)	ND	0.10	1
67-66-3	Chloroform	ND	0.10	1
107-06-2	1,2-Dichloroethane	ND	0.10	1
71-55-6	1,1,1-Trichloroethane	0.22 C	0.20	1
56-23-5	Carbon Tetrachloride	ND	0.20	1
75-27-4	Bromodichloromethane	ND	0.10	1
78-87-5	1,2-Dichloropropane	ND	0.10	1
10061-01-5	cis-1,3-Dichloropropene	ND	0.40	1
79-01-6	Trichloroethene	ND	0.20	1
124-48-1	Dibromochloromethane (3)	ND	0.20	1
79-00-5	1,1,2-Trichloroethane (3)	ND	0.20	1
10061-02-6	trans-1,3-Dichloropropene (3)	ND	0.40	1
110-75-8	2-Chloroethylvinyl Ether	ND	2.0	1
75-25-2	Bromoform	ND	2.0	1
79-34-5	1,1,2,2-Tetrachloroethane (4)	ND	0.20	1
127-18-4	Tetrachloroethene (4)	ND	0.10	1
108-90-7	Chlorobenzene	ND	0.20	1
541-73-1	1,3-Dichlorobenzene	ND	0.50	1
95-50-1	1,2-Dichlorobenzene	ND	0.20	1
106-46-7	1,4-Dichlorobenzene	ND	0.20	1

Page 12
Received: 09/08/89

RAS Sacramento

Results by Sample
REPORT

Work Order # S9-09-049
Continued From Above

AMPLE ID 8909070830 H2O B/LM-30 FRACTION 04A TEST CODE 601 NAME Purgeable Halocarbons H2O
Date & Time Collected 09/07/89 Category

SURROGATES

540-36-3	1-4-Difluorobenzene	NA % Recovery
450-00-4	1-Bromo-4-Fluorobenzene	93 % Recovery

- (1) See Appendix A for Glossary of Report and Data Flag Definitions
 (2) Quantitated as the Trans-isomer
 (3) Dibromochloromethane, 1,1,2-Trichloroethane and
 Trans-1,3-dichloropropene co-elute.
 (4) 1,1,2,2-Tetrachloroethane and tetrachloroethene co-elute.

Age 13
Received: 09/08/89RAS Sacramento
Results by Sample

REPORT

Work Order # S9-09-049

AMPLE ID 8909070830 MS H2O BLH-30 FRACTION Q4B TEST CODE 601 NAME Purgeable Halocarbons H2O
Date & Time Collected 09/07/89 Category

ORGANICS ANALYSIS DATA SHEET - PURGEABLE HALOCARBONS (1)

ANALYST INSTRMT MG FILE # DE091918 VERIFIED JD
B 1 FACTOR 1 UNITS % RECDV

INJECTD 09/19/89

CAS#	COMPOUND	RESULT	DET LIMIT	FACTOR
74-87-3	Chloromethane	NS	0.50	1
74-83-9	Bromomethane	NS	1.0	1
75-01-4	Vinyl Chloride	NS	0.20	1
75-00-3	Chloroethane	NS	0.50	1
75-09-2	Methylene Chloride	NS	0.40	1
75-69-4	Trichlorofluoromethane	NS	0.10	1
75-35-4	1,1-Dichloroethene	93	0.10	1
75-34-3	1,1-Dichloroethane	NS	0.10	1
540-59-0	Total 1,2-Dichloroethene (2)	NS	0.10	1
67-66-3	Chloroform	NS	0.10	1
107-06-2	1,2-Dichloroethane	NS	0.10	1
71-55-6	1,1,1-Trichloroethane	NS	0.20	1
56-23-5	Carbon Tetrachloride	NS	0.20	1
75-27-4	Bromodichloromethane	NS	0.10	1
78-87-5	1,2-Dichloropropane	NS	0.10	1
10061-01-5	cis-1,3-Dichloropropene	NS	0.40	1
79-01-6	Trichloroethene	89	0.20	1
124-48-1	Dibromochloromethane (3)	NS	0.20	1
79-00-5	1,1,2-Trichloroethane (3)	NS	0.20	1
10061-02-6	trans-1,3-Dichloropropene (3)	NS	0.40	1
110-75-8	2-Chloroethylvinyl Ether	NS	2.0	1
75-25-2	Bromoform	NS	2.0	1
79-34-5	1,1,2,2-Tetrachloroethane (4)	NS	0.20	1
127-18-4	Tetrachloroethene (4)	NS	0.10	1
108-90-7	Chlorobenzene	92	0.20	1
541-73-1	1,3-Dichlorobenzene	NS	0.50	1
95-50-1	1,2-Dichlorobenzene	NS	0.20	1
106-46-7	1,4-Dichlorobenzene	NS	0.20	1

Page 14

Received: 09/08/89

RAS Sacramento

REPORT

Work Order # 59-09-049
Continued From Above

Results by Sample

SAMPLE ID 8909070830 MS H2O BSM-30 FRACTION 04B TEST CODE 601 NAME Purgeable Halocarbons H20

Date & Time Collected 09/07/89

Category

BURROGATES

540-36-3	1-4-Difluorobenzene	NA	% Recovery
460-00-4	1-Bromo-4-Fluorobenzene	98	% Recovery

- (1) See Appendix A for Glossary of Report and Data Flag Definitions
- (2) Quantitated as the Trans-isomer
- (3) Dibromochloromethane, 1,1,2-Trichloroethane and Trans-1,3-dichloropropene co-elute.
- (4) 1,1,2,2-Tetrachloroethane and tetrachloroethene co-elute.

Page 15

Received: 09/08/89

RAS Sacramento

Results by Sample

REPORT

Work Order # S9-09-049

BLM-30

SAMPLE ID 8909070830 MSD H2O (SPLIT)

FRACTION 04C

TEST CODE 601

NAME Purgeable Halocarbons H2O

Date & Time Collected 09/07/89

Category

ORGANICS ANALYSIS DATA SHEET - PURGEABLE HALOCARBONS (1)

ANALYST _____
INSTRMT _____

FILE # _____
FACTOR _____

DB091919
1

VERIFIED _____
UNITS % RECOV. _____

INJECTD 09/19/89

CAS#	COMPOUND	RESULT	DET LIMIT	FACTOR
74-87-3	Chloromethane	NS	0.50	1
74-83-9	Bromomethane	NS	1.0	1
75-01-4	Vinyl Chloride	NS	0.20	1
75-00-3	Chloroethane	NS	0.50	1
75-09-2	Methylene Chloride	NS	0.40	1
75-69-4	Trichlorofluoromethane	NS	0.10	1
75-35-4	1,1-Dichloroethene	91	0.10	1
75-34-3	1,1-Dichloroethane	NS	0.10	1
540-59-0	Total 1,2-Dichloroethene (2)	NS	0.10	1
67-66-3	Chloroform	NS	0.10	1
107-06-2	1,2-Dichloroethane	NS	0.10	1
71-55-6	1,1,1-Trichloroethane	NS	0.20	1
56-23-5	Carbon Tetrachloride	NS	0.20	1
75-27-4	Bromodichloromethane	NS	0.10	1
78-87-5	1,2-Dichloropropane	NS	0.10	1
10061-01-5	cis-1,3-Dichloropropene	NS	0.40	1
79-01-6	Trichloroethene	BS	0.20	1
124-48-1	Dibromochloromethane (3)	NS	0.20	1
79-00-5	1,1,2-Trichloroethane (3)	NS	0.20	1
10061-02-6	trans-1,3-Dichloropropene (3)	NS	0.40	1
110-75-8	2-Chloroethylvinyl Ether	NS	2.0	1
75-25-2	Bromoform	NS	2.0	1
79-34-5	1,1,2,2-Tetrachloroethane (4)	NS	0.20	1
127-18-4	Tetrachloroethene (4)	NS	0.10	1
108-90-7	Chlorobenzene	79	0.20	1
541-73-1	1,3-Dichlorobenzene	NS	0.50	1
95-50-1	1,2-Dichlorobenzene	NS	0.20	1
106-46-7	1,4-Dichlorobenzene	NS	0.20	1

Page 16

Received: 09/08/87

RAS Sacramento

REPORT

Results by Sample

Work Order # S9-09-049
Continued From Above

BLM-30

SAMPLE ID B909070830 MSD H2O (SPLIT)

FRACTION 04C

TEST CODE 601

NAME Purgeable Halocarbons H2O

Date & Time Collected 09/07/87

Category

SURROGATES

540-36-3	1-4-Difluorobenzene	NA % Recovery
460-00-4	1-Bromo-4-Fluorobenzene	75 % Recovery

- (1) See Appendix A for Glossary of Report and Data Flag Definitions
- (2) Quantitated as the Trans-isomer
- (3) Dibromochloromethane, 1,1,2-Trichloroethane and Trans-1,3-dichloropropene co-elute.
- (4) 1,1,2,2-Tetrachloroethane and tetrachloroethene co-elute.

Received: 09/08/89

RAS Sacramento

REPORT

Results by Sample

Work Order # S9-09-049

SAMPLE ID 8909070830 H2O BLM-30

FRACTION 04D

TEST CODE 602B

NAME Purgeable Aromatics - H2O

Date & Time Collected 09/07/89

Category

ORGANICS ANALYSIS DATA SHEET - PURGEABLE AROMATICS (1)

ANALYST _____
INSTRMT B

FILE # ES0920Z VERIFIED JD
INJECTED 09/20/89 FACTOR 1 UNITS ug/L

CAS#	COMPOUND	RESULT	DET LIMIT	FACTOR
71-43-2	Benzene	ND	0.10	1
108-88-3	Toluene	ND	0.30	1
100-41-4	Ethylbenzene	ND	0.10	1
108-90-7	Chlorobenzene	ND	0.10	1
1330-20-7	Total Xylenes	ND	0.20	1
106-46-7	1,4-Dichlorobenzene	ND	0.20	1
541-73-1	1,3-Dichlorobenzene	ND	0.40	1
95-50-1	1,2-Dichlorobenzene	ND	0.20	1

SURROGATE

460-00-4 1-Bromo-4-Fluorobenzene 90% recovery

(1) See Appendix A for Glossary of Report and Data Flag Definitions



Page 18
Received: 09/08/89

RAS Sacramento
Results by Sample

REPORT

Work Order # S9-09-049

SAMPLE ID 8909070830 MS H2O BLM-30 FRACTION 04E TEST CODE 602B NAME Purgeable Aromatics - H2O
Date & Time Collected 09/07/89 Category

ORGANICS ANALYSIS DATA SHEET - PURGEABLE AROMATICS (1)

ANALYST INSTRMT	MG B	CASH	INJECTD 09/20/89	FILE # FACTOR	EBO7203 1 UNITS	VERIFIED % RECDV.	JD
			COMPOUND	RESULT	DET LIMIT	FACTOR	
		71-43-2	Benzene	69	0.10	1	
		108-88-3	Toluene	69	0.30	1	
		100-41-4	Ethylbenzene	NS	0.10	1	
		108-90-7	Chlorobenzene	70	0.10	1	
		1330-20-7	Total Xylenes	NS	0.20	1	
		106-46-7	1,4-Dichlorobenzene	NS	0.20	1	
		541-73-1	1,3-Dichlorobenzene	NS	0.40	1	
		95-50-1	1,2-Dichlorobenzene	NS	0.20	1	

SURROGATE
460-00-4 1-Bromo-4-Fluorobenzene 85% recovery

(1) See Appendix A for Glossary of Report and Data Flag Definitions

Page 19

Received: 09/08/89

RAS Sacramento

Results by Sample

REPORT

Work Order # 59-09-049

BLM-30

SAMPLE ID 8909070830 MSD H2O (SPLIT)

FRACTION 04F

TEST CODE 602B

NAME Purgeable Aromatics - H2O

Date & Time Collected 09/07/89

Category

ORGANICS ANALYSIS DATA SHEET - PURGEABLE AROMATICS (1)

ANALYST	MG	FILE #	EP09207	VERIFIED	JD
INSTRMT	B	INJECTD 09/20/89	FACTOR	1 UNITS % RECDV	
CAS#	COMPOUND	RESULT	DET LIMIT	FACTOR	
71-43-2	Benzene	65	0.10	1	
108-88-3	Toluene	64	0.30	1	
100-41-4	Ethylbenzene	NS	0.10	1	
108-90-7	Chlorobenzene	63	0.10	1	
1230-20-7	Total Xylenes	NS	0.20	1	
106-46-7	1,4-Dichlorobenzene	NS	0.20	1	
541-73-1	1,3-Dichlorobenzene	NS	0.40	1	
95-50-1	1,2-Dichlorobenzene	NS	0.20	1	

SURROGATE

460-00-4 1-Bromo-4-Fluorobenzene 83% recovery

(1) See Appendix A for Glossary of Report and Data Flag Definitions



Age 20
Received: 09/08/89
RAS Sacramento
Results by Sample
REPORT
Work Order # 89-09-049
AMPLE ID 8909070750 H2O *Blank*
FRACTION 05A
Date & Time Collected 09/07/89
NAME Purgeable Halocarbons H2O
Category

ORGANICS ANALYSIS DATA SHEET - PURGEABLE HALOCARBONS (1)

ANALYST	INSTRMT	MG	FILE #	DE092010	VERIFIED	JD
		B	FACTOR	1	UNITS	ug/L
CAS#	COMPOUND	RESULT	DET LIMIT	FACTOR		
74-87-3	Chloromethane	ND	0.50	1		
74-83-9	Bromomethane	ND	1.0	1		
75-01-4	Vinyl Chloride	ND	0.20	1		
75-00-3	Chloroethane	ND	0.50	1		
75-09-2	Methylene Chloride	ND	0.40	1		
75-69-4	Trichlorofluoromethane	ND	0.10	1		
75-35-4	1,1-Dichloroethene	ND	0.10	1		
75-34-3	1,1-Dichloroethane	ND	0.10	1		
540-59-0	Total 1,2-Dichloroethene (2)	ND	0.10	1		
67-66-3	Chloroform	ND	0.10	1		
107-06-2	1,2-Dichloroethane	ND	0.10	1		
71-55-6	1,1,1-Trichloroethane	ND	0.20	1		
56-23-5	Carbon Tetrachloride	ND	0.20	1		
75-27-4	Bromodichloromethane	ND	0.10	1		
78-87-5	1,2-Dichloropropane	ND	0.10	1		
10061-01-5	cis-1,3-Dichloropropene	ND	0.40	1		
79-01-6	Trichloroethene	ND	0.20	1		
124-48-1	Dibromochloromethane (3)	ND	0.20	1		
79-00-5	1,1,2-Trichloroethane (3)	ND	0.20	1		
10051-02-6	trans-1,3-Dichloropropene (3)	ND	0.40	1		
110-75-8	2-Chloroethylvinyl Ether	ND	2.0	1		
75-25-2	Bromoform	ND	2.0	1		
79-34-5	1,1,2,2-Tetrachloroethane (4)	ND	0.20	1		
127-18-4	Tetrachloroethene (4)	ND	0.10	1		
108-90-7	Chlorobenzene	ND	0.20	1		
541-73-1	1,3-Dichlorobenzene	ND	0.50	1		
95-50-1	1,2-Dichlorobenzene	ND	0.20	1		
106-46-7	1,4-Dichlorobenzene	ND	0.20	1		

Page 21

Received: 09/08/89

RAS Sacramento

REPORT

Results by Sample

Work Order # S9-09-049

Continued From Above

AMPLE ID B909070750 H2O *Blank*

FRACTION OSA

TEST CODE 601

NAME Purgeable Halocarbons H2O

Date & Time Collected 09/07/89

Category

SURROGATES

540-36-3	1-4-Difluorobenzene	NA	% Recovery
460-00-4	1-Bromo-4-Fluorobenzene	97	% Recovery

- (1) See Appendix A for Glossary of Report and Data Flag Definitions
- (2) Quantitated as the Trans-isomer
- (3) Dibromochloromethane, 1,1,2-Trichloroethane and Trans-1,3-dichloropropene co-elute.
- (4) 1,1,2,2-Tetrachloroethane and tetrachloroethene co-elute.

Age 22
Received: 09/08/89

RAS Sacramento

REPORT
Results by Sample

Work Order # S9-09-049

SAMPLE ID 8909070750 H2O *Blank*

FRACTION OSC TEST CODE 602B

NAME Purgeable Aromatics - H2O

Date & Time Collected 09/07/89

Category

ORGANICS ANALYSIS DATA SHEET - PURGEABLE AROMATICS (1)

ANALYST INSTRMT	MC B	FILE # FACTOR	EB092011 1 UNITS	VERIFIED ug/L	JD
CAS#	COMPOUND	RESULT	DET LIMIT	FACTOR	
71-43-2	Eneiene	ND	0.10	1	
108-88-3	Toluene	ND	0.30	1	
100-41-4	Ethylbenzene	0.27 C	0.10	1	
108-90-7	Chlorobenzene	ND	0.10	1	
1330-20-7	Total Xylenes	ND	0.20	1	
106-46-7	1,4-Dichlorobenzene	ND	0.20	1	
541-73-1	1,3-Dichlorobenzene	ND	0.40	1	
95-50-1	1,2-Dichlorobenzene	ND	0.20	1	

SURROGATE

460-00-4 1-Bromo-4-Fluorobenzene 76% recovery

(1) See Appendix A for Glossary of Report and Data Flag Definitions

Received: 09/08/89

RAS Sacramento

Results by Sample

REPORT

Work Order # 59-09-049

SAMPLE ID 8909071100 H2O BLM-27 FRACTION O&A TEST CODE 601 NAME Purgeable Halocarbons H2O
Date & Time Collected 09/07/89 Category _____

ORGANICS ANALYSIS DATA SHEET - PURGEABLE HALOCARBONS (1)

ANALYST _____
INSTRMT _____

INJECTD 09/20/89

FILE # _____
FACTOR 1

DE072012
UNITS ug/L

VERIFIED _____
JD

CAS#	COMPOUND	RESULT	DET LIMIT	FACTOR
74-87-3	Chloromethane	ND	0.50	1
74-83-9	Bromomethane	ND	1.0	1
75-01-4	Vinyl Chloride	ND	0.20	1
75-00-3	Chloroethane	ND	0.50	1
75-09-2	Methylene Chloride	ND	0.40	1
75-69-4	Trichlorofluoromethane	1.1 C	0.10	1
75-35-4	1,1-Dichloroethene	ND	0.10	1
75-34-3	1,1-Dichloroethane	2.4 CE	0.10	1
540-59-0	Total 1,2-Dichloroethene (2)	ND	0.10	1
67-66-3	Chloroform	ND	0.10	1
107-06-2	1,2-Dichloroethane	ND	0.10	1
71-55-6	1,1,1-Trichloroethane	ND	0.10	1
56-23-5	Carbon Tetrachloride	1.6 C	0.20	1
75-27-4	Bromodichloromethane	ND	0.20	1
78-87-5	1,2-Dichloropropane	ND	0.10	1
10061-01-5	cis-1,3-Dichloropropene	ND	0.40	1
79-01-6	Trichloroethene	ND	0.20	1
124-48-1	Dibromochloromethane (3)	ND	0.20	1
79-00-5	1,1,2-Trichloroethane (3)	ND	0.20	1
10061-02-6	trans-1,3-Dichloropropene (3)	ND	0.40	1
110-75-8	2-Chloroethylvinyl Ether	ND	2.0	1
75-25-2	Bromoform	ND	2.0	1
79-34-5	1,1,2,2-Tetrachloroethane (4)	ND	0.20	1
127-18-4	Tetrachloroethene (4)	1.3 C	0.10	1
108-90-7	Chlorobenzene	ND	0.20	1
541-73-1	1,3-Dichlorobenzene	ND	0.50	1
95-50-1	1,2-Dichlorobenzene	ND	0.20	1
106-46-7	1,4-Dichlorobenzene	ND	0.20	1

Received: 09/08/89

RAS Sacramento

REPORT

Results by Sample

Work Order # S9-09-049
Continued From Above

SAMPLE ID 8909071100 H2O BLM-27

FRACTION 05A TEST CODE 601

NAME Purgeable Halocarbons H2O

Date & Time Collected 09/07/89

Category

SURROGATES

540-36-3	1-4-Difluorobenzene	NA % Recovery
460-00-4	1-Bromo-4-Fluorobenzene	101 % Recovery

- (1) See Appendix A for Glossary of Report and Data Flag Definitions
- (2) Quantitated as the Trans-isomer
- (3) Dibromochloromethane, 1,1,2-Trichloroethane and Trans-1,3-dichloropropene co-elute.
- (4) 1,1,2,2-Tetrachloroethane and tetrachloroethene co-elute.

Received: 09/08/89

RAS Sacramento

Results by Sample

REPORT

Work Order # S9-09-049

SAMPLE ID 8909071100 H2O BLM-27

FRACTION 05C

TEST CODE 602B

NAME Purgeable Aromatics - H2O

Date & Time Collected 09/07/89

Category

ORGANICS ANALYSIS DATA SHEET - PURGEABLE AROMATICS (1)

ANALYST	MG	FILE #	EB052013	VERIFIED	JD
INSTRMT	B	INJECTD 09/20/89	FACTOR	1 UNITS	ug/L
CAS#	COMPOUND	RESULT	DET LIMIT	FACTOR	
71-43-2	Benzene	ND	0.10	1	
108-88-3	Toluene	ND	0.30	1	
100-41-4	Ethylbenzene	ND	0.10	1	
108-90-7	Chlorobenzene	ND	0.10	1	
1330-20-7	Total Xylenes	ND	0.20	1	
106-46-7	1,4-Dichlorobenzene	ND	0.20	1	
541-73-1	1,3-Dichlorobenzene	ND	0.40	1	
95-50-1	1,2-Dichlorobenzene	ND	0.20	1	

SURROGATE

460-00-4 1-Bromo-4-Fluorobenzene 85% recovery

(1) See Appendix A for Glossary of Report and Data Flag Definitions

Page 29

Received: 09/08/89

RAS Sacramento

Results by Sample

REPORT

Work Order # S9-09-049

SAMPLE ID REAGENT BLANK H2O

FRACTION OSA TEST CODE 601 NAME Purgeable Halocarbons H2O

Date & Time Collected not specified

Category

ORGANICS ANALYSIS DATA SHEET - PURGEABLE HALOCARBONS (1)

ANALYST MG FILE # GB07191 VERIFIED JD
 INSTRMT B INJECTD 09/19/89 FACTOR 1 UNITS ug/L

CAS#	COMPOUND	RESULT	DET LIMIT	FACTOR
74-87-3	Chloromethane	ND	0.50	1
74-83-9	Bromomethane	ND	1.0	1
75-01-4	Vinyl Chloride	ND	0.20	1
75-00-3	Chloroethene	ND	0.50	1
75-09-2	Methylene Chloride	ND	0.40	1
75-69-4	Trichlorofluoromethane	ND	0.10	1
75-35-4	1,1-Dichloroethene	ND	0.10	1
75-34-3	1,1-Dichloroethane	ND	0.10	1
540-59-0	Total 1,2-Dichloroethene (2)	ND	0.10	1
67-66-3	Chloroform	ND	0.10	1
107-06-2	1,2-Dichloroethane	ND	0.10	1
71-55-6	1,1,1-Trichloroethane	ND	0.20	1
56-23-5	Carbon Tetrachloride	ND	0.20	1
75-27-4	Bromodichloromethane	ND	0.10	1
78-87-5	1,2-Dichloropropane	ND	0.10	1
10061-01-5	cis-1,3-Dichloropropene	ND	0.40	1
79-01-6	Trichloroethene	ND	0.20	1
124-48-1	Dibromochloromethane (3)	ND	0.20	1
79-00-5	1,1,2-Trichloroethane (3)	ND	0.20	1
10061-02-6	trans-1,3-Dichloropropene (3)	ND	0.40	1
110-75-8	2-Chloroethylvinyl Ether	ND	2.0	1
75-25-2	Bromoform	ND	2.0	1
79-34-5	1,1,2,2-Tetrachloroethane (4)	ND	0.20	1
127-18-4	Tetrachloroethene (4)	ND	0.10	1
108-90-7	Chlorobenzene	ND	0.20	1
541-73-1	1,3-Dichlorobenzene	ND	0.50	1
95-50-1	1,2-Dichlorobenzene	ND	0.20	1
106-46-7	1,4-Dichlorobenzene	ND	0.20	1



Page 30
Received: 09/08/89
RAS Sacramento
Results by Sample
REPORT
Work Order # S9-09-049
Continued From Above

SAMPLE ID REAGENT BLANK H2O
FRACTION 08A TEST CODE 601 NAME Purgeable Halocarbons H2O
Date & Time Collected not specified Category

540-36-3	1-4-Difluorobenzene		NA % Recovery
460-00-4	1-Bromo-4-Fluorobenzene		121 % Recovery

- (1) See Appendix A for Glossary of Report and Data Flag Definitions
(2) Quantitated as the Trans-isomer
(3) Dibromochloromethane, 1,1,2-Trichloroethane and
Trans-1,3-dichloropropene co-elute.
(4) 1,1,2,2-Tetrachloroethane and tetrachloroethene co-elute.

Page 31
Received: 09/08/89

RAS Sacramento
Results by Sample

REPORT

Work Order # S9-09-049

SAMPLE ID REAGENT BLANK H2O

FRACTION 05B

TEST CODE 601

NAME Purgeable Halocarbons H2O

Date & Time Collected not specified

Category

ORGANICS ANALYSIS DATA SHEET - PURGEABLE HALOCARBONS (1)

ANALYST _____
INSTRMT _____

MC
B

INJECTD 09/20/89

FILE # _____
FACTOR 1

GB09204

VERIFIED _____
UNITS _____
ug/L

CAS#	COMPOUND	RESULT	DET LIMIT	FACTOR
74-87-3	Chloromethane	ND	0.50	1
74-83-9	Bromomethane	ND	1.0	1
75-01-4	Vinyl Chloride	ND	0.20	1
75-00-3	Chloroethane	ND	0.50	1
75-09-2	Methylene Chloride	ND	0.40	1
75-69-4	Trichlorofluoromethane	ND	0.10	1
75-35-4	1,1-Dichloroethene	ND	0.10	1
75-34-3	1,1-Dichloroethane	ND	0.10	1
540-59-0	Total 1,2-Dichloroethene (2)	ND	0.10	1
67-66-3	Chloroform	ND	0.10	1
107-06-2	1,2-Dichloroethane	ND	0.10	1
71-55-6	1,1,1-Trichloroethane	ND	0.20	1
56-23-5	Carbon Tetrachloride	ND	0.20	1
75-27-4	Bromodichloromethane	ND	0.10	1
78-87-5	1,2-Dichloropropane	ND	0.10	1
10051-01-5	cis-1,3-Dichloropropene	ND	0.40	1
79-01-6	Trichloroethene	ND	0.20	1
124-48-1	Dibromochloromethane (3)	ND	0.20	1
79-00-5	1,1,2-Trichloroethane (3)	ND	0.20	1
10061-02-6	trans-1,3-Dichloropropene (3)	ND	0.40	1
110-75-8	2-Chloroethylvinyl Ether	ND	2.0	1
75-25-2	Bromoform	ND	2.0	1
79-34-5	1,1,2,2-Tetrachloroethane (4)	ND	0.20	1
127-18-4	Tetrachloroethene (4)	ND	0.10	1
108-90-7	Chlorobenzene	ND	0.20	1
541-73-1	1,3-Dichlorobenzene	ND	0.50	1
95-50-1	1,2-Dichlorobenzene	ND	0.20	1
106-46-7	1,4-Dichlorobenzene	ND	0.20	1

Page 32

Received: 09/08/89

RAS

Sacramento

REPORT

Results by Sample

Work Order # S9-09-049

Continued From Above

SAMPLE ID REAGENT BLANK H2O

FRACTION Q58

TEST CODE 601

NAME Purgeable Halocarbons H2O

Date & Time Collected not specified

Category

SURROGATES

540-36-3	1-4-Difluorobenzene	NA % Recovery
460-00-4	1-Bromo-4-Fluorobenzene	99 % Recovery

- (1) See Appendix A for Glossary of Report and Data Flag Definitions
- (2) Quantitated as the Trans-isomer
- (3) Dibromochloromethane, 1,1,2-Trichloroethane and Trans-1,3-dichloropropene co-elute.
- (4) 1,1,2,2-Tetrachloroethane and tetrachloroethane co-elute.

Page 33

Received: 09/08/89

RAS Sacramento

Results by Sample

REPORT

Work Order # S9-09-049

AMPLE ID REAGENT BLANK H2O

FRACTION Q8C

TEST CODE 601

NAME Purgeable Halocarbons H2O

Date & Time Collected not specified

Category

ORGANICS ANALYSIS DATA SHEET - PURGEABLE HALOCARBONS (1)

ANALYST _____
INSTRMT _____

INJECTED 09/21/89

FILE # _____
FACTORS _____

VERIFIED _____
UNITS _____

JD _____
ug/L _____

CAS#	COMPOUND	RESULT	DET LIMIT	FACTOR
74-87-3	Chloromethane	ND	0.50	1
74-83-9	Bromomethane	ND	1.0	1
75-01-4	Vinyl Chloride	ND	0.20	1
75-00-3	Chloroethane	ND	0.50	1
75-09-2	Methylene Chloride	ND	0.40	1
75-69-4	Trichlorofluoromethane	ND	0.10	1
75-35-4	1,1-Dichloroethane	ND	0.10	1
75-34-3	1,1-Dichloroethane	ND	0.10	1
540-59-0	Total 1,2-Dichloroethane (2)	ND	0.10	1
67-66-3	Chloroform	ND	0.10	1
107-06-2	1,2-Dichloroethane	ND	0.10	1
71-55-6	1,1,1-Trichloroethane	ND	0.20	1
56-23-5	Carbon Tetrachloride	ND	0.20	1
75-27-4	Bromodichloromethane	ND	0.10	1
78-87-5	1,2-Dichloropropane	ND	0.10	1
10061-01-5	cis-1,3-Dichloropropene	ND	0.40	1
79-01-6	Trichloroethene	ND	0.20	1
124-48-1	Dibromochloromethane (3)	ND	0.20	1
79-00-5	1,1,2-Trichloroethane (3)	ND	0.20	1
10061-02-6	trans-1,3-Dichloropropene (3)	ND	0.40	1
110-75-8	2-Chloroethylvinyl Ether	ND	2.0	1
75-25-2	Bromoform	ND	2.0	1
79-34-5	1,1,2,2-Tetrachloroethane (4)	ND	0.20	1
127-18-4	Tetrachloroethene (4)	ND	0.10	1
108-90-7	Chlorobenzene	ND	0.20	1
541-73-1	1,3-Dichlorobenzene	ND	0.50	1
95-50-1	1,2-Dichlorobenzene	ND	0.20	1
106-46-7	1,4-Dichlorobenzene	ND	0.20	1

Page 34

Received: 09/08/89

RAS Sacramento

Results by Sample

REPORT

Work Order # S9-09-049
Continued From Above

SAMPLE ID REAGENT BLANK H2O

FRACTION OSC

TEST CODE 601

NAME Purgeable Halocarbons H2O

Date & Time Collected not specified

Category

SURROGATES

540-36-3	1-4-Difluorobenzene	NA % Recovery
460-00-4	1-Bromo-4-Fluorobenzene	82 % Recovery

- (1) See Appendix A for Glossary of Report and Data Flag Definitions
- (2) Quantitated as the Trans-isomer
- (3) Dibromochloromethane, 1,1,2-Trichloroethane and Trans-1,3-dichloropropene co-elute.
- (4) 1,1,2,2-Tetrachloroethane and tetrachloroethene co-elute.

Page 35
Received: 09/08/89

RAS Sacramento

REPORT

Work Order # S9-09-049

Results by Sample

SAMPLE ID REAGENT BLANK H2O

FRACTION 09A

TEST CODE 602B

NAME Purgeable Aromatics - H2O

Date & Time Collected not specified

Category

ORGANICS ANALYSIS DATA SHEET - PURGEABLE AROMATICS (1)

ANALYST INSTRMT	MG B	INJECTD 09/19/89	FILE # FACTOR	R809191 1 UNITS	VERIFIED ug/L	JD
		CAS#	COMPOUND	RESULT	DET LIMIT	FACTOR
		71-43-2	Benzene	ND	0.10	1
		108-88-3	Toluene	ND	0.30	1
		100-41-4	Ethylbenzene	ND	0.10	1
		108-90-7	Chlorobenzene	ND	0.10	1
		1330-20-7	Total Xylenes	ND	0.20	1
		106-46-7	1,4-Dichlorobenzene	ND	0.20	1
		541-73-1	1,3-Dichlorobenzene	ND	0.40	1
		95-50-1	1,2-Dichlorobenzene	ND	0.20	1

SURROGATE

460-00-4 1-Bromo-4-Fluorobenzene 122% recovery

(1) See Appendix A for Glossary of Report and Data Flag Definitions

RADIAN
CORPORATION

RAS Sacramento

REPORT

Work Order # S9-09-049

ge 36

ceived: 09/03/89

Results by Sample

NAME Purgeable Aromatics - H2O

MPLE ID REAGENT BLANK H2O

FRACTION 098

TEST CODE 6028

Date & Time Collected not specified

Category

ORGANICS ANALYSIS DATA SHEET - PURGEABLE AROMATICS (1)

ANALYST	MG	FILE #	R207204	VERIFIED	JD
INSTRMT	B	FACTOR	1	ug/L	
		INJECTD 09/20/89			
		CAS#	COMPOUND	RESULT	DET LIMIT
					FACTOR
		71-43-2	Benzene	ND	0.10
					1
		108-88-3	Toluene	ND	0.30
					1
		100-41-4	Ethylbenzene	ND	0.10
					1
		108-90-7	Chlorobenzene	ND	0.10
					1
		1330-20-7	Total Xylenes	ND	0.20
					1
		106-46-7	1, 4-Dichlorobenzene	ND	0.20
					1
		541-73-1	1, 3-Dichlorobenzene	ND	0.40
					1
		95-50-1	1, 2-Dichlorobenzene	ND	0.20
					1

SURROGATE

460-00-4 1-Bromo-4-Fluorobenzene 92% recovery

(1) See Appendix A for Glossary of Report and Data Flag Definitions

ge 37

ceived: 09/08/89

RAS Sacramento

REPORT

Work Order # 59-09-049

Results by Sample

IMPLE ID REAGENT BLANK H2O

FRACTION 09C

TEST CODE 602B

NAME Purgeable Aromatics - H2O

Date & Time Collected not specified

Category

ORGANICS ANALYSIS DATA SHEET - PURGEABLE AROMATICS (1)

ANALYST	MC	FILE #	R307211	VERIFIED	JD
INSTRMT	B	FACTOR	1	Ug/L	
CAS#	COMPOUND	RESULT	DET LIMIT	FACTOR	
71-43-2	Benzene	ND	0.10	1	
108-88-3	Toluene	ND	0.30	1	
100-41-4	Ethylbenzene	ND	0.10	1	
108-90-7	Chlorobenzene	ND	0.10	1	
1330-20-7	Total Xylenes	ND	0.20	1	
106-46-7	1,4-Dichlorobenzene	ND	0.20	1	
541-73-1	1,3-Dichlorobenzene	ND	0.40	1	
95-50-1	1,2-Dichlorobenzene	ND	0.20	1	

SURROGATE

460-00-4 1-Bromo-4-Fluorobenzene 92% recovery

(1) See Appendix A for Glossary of Report and Data Flag Definitions

RADIANT
CORPORATION

Page 38

Received: 09/08/89

RAS Sacramento

REPORT

NonReported Work

Work Order # S9-09-049

FRACTION AND TEST CODES FOR WORK NOT REPORTED ELSEWHERE

01B	:	DUPGC	01D	:	DUPGC
02B	:	DUPGC	02D	:	DUPGC
03B	:	DUPGC	03D	:	DUPGC
05B	:	DUPGC	05D	:	DUPGC
06B	:	DUPGC	06D	:	DUPGC
07B	:	DUPGC	07D	:	DUPGC



Page 1
 Received: 09/08/89
 RNS 23788543
 REPORT
 09/20/89 14:59:53
 WASH STATE # 59-09-050

REPORT GAO SILENCE
 TO 500 CORPENT N.W. Suite 200
 ALBUQUERQUE, NM 87102
 ATTN: SAMPLE MANAGER
 CLIENT GED SCIENCE SAMPLES S
 COMPANY GAO SILENCE
 FACILITY 500 CORPENT N.W. Suite 200
 ALBUQUERQUE, NM 87102
 WORK ID N.W. A 091-5116
 TAKEN 09/08/89
 TRAKS 09/08/89 13:59:53
 TYPE 09/08/89
 P.O. # 652-002
 INVOICE UNDER SEPARATE ORDER

ORDERED BY
 10000 Old Flacerville Road
 Sacramento
 California 95827
 ATTN: PHONE 916-362-5332

Paul N. Cole
 CERTIFIED BY

CONTACT WLBROWN

RECEIVED SEP 22 1989

SAMPLE IDENTIFICATION

01 8909071425 H2O
 02 8909071945 H2O
 03 8909071901 H2O
 04 REAGENT BLANK H2O
 05 REAGENT BLANK H2O

TEST CODES and NAMES used on this report

621 Extracable Halocarbons H2O
 6002 Extracable Aromatics - H2O

RECEIVED: 09/08/89

LAB. STATEMENTS
Results by Sample

REPORT

Work Order # 89-09-050

SAMPLE ID 890901425 H2O GFW-6

REACTION DIA TEST CODE 601

NAME FURANABLE HALOCARBONS H2O

Date: 8/1/89 Collected 09/07/89

Category

ORGANICS ANALYSIS DATA SHEET - FURANABLE HALOCARBONS (1)

ANALYST _____
INSTRUM _____

INJECTD 08/19/89

FILE # _____
FACTOR 1

VERIFIED _____
UNITS _____

CASE#	COMPOUND	RESULT	DEF LIMIT	FACTOR
74-87-3	Chloromethane	ND	0.50	1
75-88-9	Bromomethane	ND	1.0	1
76-89-4	Vinyl Chloride	ND	0.20	1
78-90-3	Chloroethane	ND	0.50	1
79-91-2	Methylene Chloride	1.0	0.40	1
79-92-4	Trichlorofluoromethane	ND	0.10	1
79-93-4	1,1-Dichloroethane	ND	0.10	1
79-94-2	1,1-Dichloroethane	1.4	0.10	1
540-59-0	Total 1,2-Dichloroethane (2)	0.48	0.10	1
67-66-3	Chloroform	ND	0.10	1
107-06-2	1,2-Dichloroethane	3.5	0.10	1
71-55-6	1,1,1-Trichloroethane	0.97	0.20	1
56-23-5	Carbon Tetrachloride	ND	0.20	1
79-27-4	Bromodichloromethane	ND	0.10	1
78-87-5	1,2-Dichloropropene	ND	0.10	1
10061-01-5	cis-1,3-Dichloropropene	ND	0.40	1
79-01-6	Trichloroethene	0.77	0.20	1
124-48-1	Dibromochloromethane (3)	ND	0.20	1
79-00-5	1,1,2-Trichloroethane (3)	ND	0.20	1
10061-02-6	trans-1,3-Dichloropropene (3)	ND	0.40	1
110-75-8	2-Chloroethylvinyl Ether	ND	2.0	1
79-25-2	Bromoform	ND	2.0	1
79-24-5	1,1,2,2-Tetrachloroethane (4)	ND	0.20	1
127-18-4	Tetrachloroethene (4)	ND	0.10	1
108-90-7	Chlorobenzene	ND	0.20	1
541-73-1	1,3-Dichlorobenzene	ND	0.50	1
98-50-1	1,2-Dichlorobenzene	ND	0.20	1
106-46-7	1,4-Dichlorobenzene	ND	0.20	1

Page 3

Received: 07/08/89

RMS

Sentiment

REPORT

Results: 14 Sample

Work Order # 89-09-050
Continued From Above

SAMPLE ID 8909071455 H20 GRW-6

RECEIVED 07/08/89

TEST CODE 601

NAME Purgeable Halocarbons H20

Date: Time Collected 09/07/89

Category

SUBSTANCES

940-00-0

1-4-Difluorobenzene

140-00-4

1-Bromo-3-Fluorobenzene

No % Recovery

127 % Recovery

- (1) See Appendix A for Glossary of Reports and Data File Definitions
- (2) Quantitated as the Trans-Isomer
- (3) Dibromochloromethane, 1,1-Dibromochloroethane and, Trans-1,2-dichloropropane co-elute.
- (4) 1,1,2,2-Tetrachloroethane and tetrachloroethene co-elute.

848 848 848

REPORT

Work Order # 89-09-050

890907 07/03/89

848 848 848

SAMPLE ID 890907 H20 *GPW-b*

FRACITION D10 TEST CODE 6028

NAME POTEEBLE AROMATICS - H20

Date / 1989 Collected 09/07/89

Category

ORGANICS ANALYSIS DATA SHEET - POTEEBLE AROMATICS (1)

ANALYST INSTRMT	MG 2	INJECTD CONC/INJECT	FILE # FACTOR	EROSION 1 UNITS	VERIFIED US/L	JD
CASE#	COMPOUND	RESULT	DET LIMIT	FACTOR		
71-40-2	Benzene	1 B C	0.10	1		
108-82-3	Toluene	ND	0.30	1		
100-41-4	Ethylbenzene	16 C	0.10	1		
108-90-7	Chlorobenzene	ND	0.10	1		
1330-20-7	Total Nylanes	15 C	0.20	1		
106-46-7	1,4-Dichlorobenzene	ND	0.20	1		
541-73-1	1,3-Dichlorobenzene	ND	0.40	1		
95-50-1	1,2-Dichlorobenzene	ND	0.20	1		

SURROGATE

460-00-4 1-Bromo-4-Fluorobenzene 123% recovery

(1) See Appendix A for Glossary of Report and Data Flag Definitions

DATE: 09/08/89
 RECEIVED: 09/08/89
 HAD: 09/08/89
 REPORT: 09/08/89
 ANALYST: 09/08/89

Work Order # 59-09-050

SAMPLE ID: 990901345 H2O GRW-4
 LOCATION: 601
 TEST CODE: 601
 NAME: Purgeable Halocarbons H2O
 DATE: 09/07/89
 Category: 100

ORGANICS ANALYSIS DATA SHEET - PURGEABLE HALOCARBONS (1)

ANALYST: MS VERIFIED: JD
 INSTRKT: E FILE # D80P157 UNITS: ug/L

CAS#	COMPOUND	RESULT	DET LIMIT	FACTOR
74-87-3	Chloromethane	ND	50	100
74-83-9	Bromomethane	ND	100	100
75-01-4	Methyl Chloride	ND	20	100
75-00-5	Chloroethane	ND	50	100
75-09-2	Methylene Chloride	ND	40	100
75-69-4	Trichlorofluoromethane	ND	10	100
75-35-4	1,1-Dichloroethane	ND	10	100
75-34-3	1,1-Dichloroethane	ND	10	100
540-59-0	Total 1,2-Dichloroethene (2)	33.2	10	100
67-66-2	Chloroform	ND	10	100
107-06-2	1,2-Dichloroethane	ND	10	100
71-55-6	1,1,1-Trichloroethane	71.0	20	100
56-23-5	Carbon Tetrachloride	ND	20	100
75-27-4	Bromodichloromethane	ND	10	100
78-87-5	1,2-Dichloropropane	ND	10	100
10061-01-5	cis-1,3-Dichloropropene	ND	40	100
79-01-6	Trichloroethene	ND	20	100
124-48-1	Dibromochloromethane (3)	ND	20	100
79-00-5	1,1,2-Trichloroethane (3)	ND	20	100
10061-02-6	trans-1,3-Dichloropropene (3)	ND	40	100
110-75-8	2-Chloroethyl Vinyl Ether	ND	200	100
75-25-2	Bromoforn	ND	200	100
79-34-5	1,1,2,2-Tetrachloroethane (4)	ND	20	100
127-18-4	Tetrachloroethene (4)	ND	10	100
108-90-7	Chlorobenzene	ND	20	100
841-73-1	1,3-Dichlorobenzene	ND	50	100
95-50-1	1,2-Dichlorobenzene	ND	20	100
106-46-7	1,4-Dichlorobenzene	ND	20	100

3003
3/22/80 09/05/89

685 5418555555

REPORT

Work Order # 89-09-050
Continued From Above

Result: 14 Sample

SAMPLE ID 2807071345 H20 GRW-4

EXAMINATION FOR TEST CODE 801

NAME Purgeable Halocarbons H20

Date & Time Collected 09/07/89

Category

STANDARD

520-32-3
480-00-4

1-1,1,1-Trichloroethene
1-1,1,2-Trichloroethene

125 % Recovery
108 % Recovery

(1) See Appendix 4 for Glossary of Report and Data Flag Definitions

(2) Quantitated as 100 Trans-Isomer

(3) Dibromochloroethene, 1,1,2-Trichloroethene and

Trans-1,2-Dichloroethene include

(4) 1,1,2,2-Tetrachloroethane and perchloroethylene compounds.

3087
Received: 09/08/89

R-5 340130-010

REPORT

Work Order # 39-09-030

Results by Sample

SAMPLE ID 3909071345 R30 *GRW-4*

FRACTION 021 TEST CODE 402B

NAME PURGEABLE AROMATICS - H2O

Date & Time Collected 09/07/89

Category

ORGANICS ANALYSIS DATA SHEET - PURGEABLE AROMATICS (1)

ANALYST	MG	FILE #	ERG51910	VERIFIED	JD
INSTRMT	B	INJECTED	CONCENTR	US/L	
		CASE#	COMPOUND	RESULT	DET LIMIT
					FACTOR
		71-40-2	Benzene	550.0	10
		103-82-3	Toluene	ND	30
		100-41-4	Ethylbenzene	200.0	10
		102-50-7	Chlorobenzene	ND	10
		1320-20-7	Total Xylenes	200.0	20
		100-44-7	1,4-Dichlorobenzene	ND	20
		541-73-1	1,3-Dichlorobenzene	ND	40
		95-50-1	1,2-Dichlorobenzene	ND	20

SURROGATE

460-00-4 1-Bromo-4-Fluorobenzene 111% recovery

(1) See Appendix A for Glossary of Report and Data Flag Definitions

Work Order # 89-09-050

REPORT

342 Salvamento

Sample: 14 Sample

Received: 09/05/89

FILE ID 890901401 H2O CAR-S-2 ACTION 02 TEST CODE 401 NAME Purgeable Halocarbons H2O
Date & Time Collected 09/07/89 Category

ORGANIC ANALYSIS DATA SHEET - PURGEABLE HALOCARBONS (1)

ANALYST ME FILE # D4051912 VERIFIED JD
INSTRUMENT 1 FACTOR 1 UNITS UG/L

CAS#	COMPOUND	RESULT	DET LIMIT	FACTOR
74-87-3	Chloromethane	ND	0.50	1
74-83-9	Bromomethane	ND	1.0	1
75-01-4	Vinyl Chloride	ND	0.20	1
75-00-3	Chloroethane	ND	0.50	1
75-09-2	Methylene Chloride	ND	0.10	1
75-69-4	Trichlorofluoromethane	1.10	0.10	1
75-35-4	1,1-Dichloroethane	ND	0.10	1
75-34-3	1,1-Dichloroethane	ND	0.10	1
540-59-0	Total 1,2-Dichloroethane (2)	ND	0.10	1
67-66-3	Chloroform	ND	0.10	1
107-06-2	1,2-Dichloroethane	ND	0.10	1
71-55-6	1,1,1-Trichloroethane	ND	0.20	1
56-23-5	Carbon Tetrachloride	ND	0.20	1
75-27-2	Bromodichloromethane	ND	0.10	1
78-57-5	1,2-Dichloropropene	ND	0.10	1
10051-01-5	cis-1,3-Dichloropropene	ND	0.40	1
79-01-6	Trichloroethene	ND	0.20	1
124-48-1	Dibromochloromethane (3)	ND	0.20	1
79-00-5	1,1,2-Trichloroethane (3)	ND	0.20	1
10061-02-6	trans-1,3-Dichloropropene (3)	ND	0.40	1
110-75-8	2-Chloroethylvinyl Ether	ND	2.0	1
75-25-2	Bromoform	ND	2.0	1
79-34-5	1,1,2,2-Tetrachloroethane (4)	ND	0.20	1
127-18-4	Tetrachloroethane (4)	ND	0.10	1
108-90-7	Chlorobenzene	ND	0.20	1
541-73-1	1,3-Dichlorobenzene	ND	0.50	1
95-50-1	1,2-Dichlorobenzene	ND	0.20	1
106-46-7	1,4-Dichlorobenzene	ND	0.20	1

Page 9

Received: 07/08/87

AMS Sacramento

Results by Sample

REPORT

Work Order # 89-09-050

Continued From Above

SAMPLE ID 8907071601 H20

52

FRACTION 034

TEST CODE 601

NAME Purceable Halocarbons H20

Date & Time Collected 09/07/87

Category

SURROGATES

540-36-3	1-2-Difluorobenzene	NA	% Recovery
460-00-4	1-Bromo-4-Fluorobenzene	BZ	% Recovery

- (1) See Appendix A for Glossary of Report and Data Flag Definitions
- (2) Quantitated as the Trans-isomer
- (3) Dibromochloromethane, 1,1,2-Trichloroethane and Trans-1,3-dichloropropene co-elute.
- (4) 1,1,2,2-Tetrachloroethane and tetrachloroethene co-elute.

Page 10
Received: 09/08/89

RAS Sacramento
Results by Sample

REPORT

Work Order # 89-09-050

SAMPLE ID 8909071601 H2O 52

FRACTION 030

TEST CODE 602B

NAME Purgeable Aromatics - H2O

Date & Time Collected 09/07/89

Category

ORGANICS ANALYSIS DATA SHEET - PURGEABLE AROMATICS (1)

ANALYST	MG	INSTRMT	4	CASE#	COMPOUND	RESULT	FILE #	E4091815	VERIFIED	JD	DET LIMIT	FACTOR
				71-43-2	Benzene	ND					0.10	1
				108-92-3	Toluene	ND					0.20	1
				100-41-4	Ethylbenzene	ND					0.10	1
				108-90-7	Chlorobenzene	ND					0.10	1
				1330-20-7	Total Xylenes	ND					0.20	1
				106-46-7	1,4-Dichlorobenzene	ND					0.20	1
				541-73-1	1,3-Dichlorobenzene	ND					0.40	1
				95-50-1	1,2-Dichlorobenzene	ND					0.20	1

SURROGATE

460-00-4 1-Bromo-4-Fluorobenzene 106% recovery

(1) See Appendix A for Glossary of Report and Data Flag Definitions

Page 11
Received: 09/08/89

SAS Sacramento
Result: by Sample

REPORT

Work Order # 89-09-050

SAMPLE ID REAGENT BLANK H2O

FRACTION 0-4

TEST CODE 601

NAME Purgeable Halocarbons H2O

Date & Time Collected not specified

Category

ORGANICS ANALYSIS DATA SHEET - PURGEABLE HALOCARBONS (1)

ANALYST _____
INSTRMT _____

FILE # _____
FACTOR _____

0402181
1

VERIFIED _____
UNITS _____

JD
ug/L

INJECTED 08/18/89

CAS#

COMPOUND

RESULT

DET LIMIT

FACTOR

74-87-3	Chloromethane	ND	0.50	1
74-83-9	Bromomethane	ND	1.0	1
75-01-4	Vinyl Chloride	ND	0.20	1
75-00-3	Chloroethane	ND	0.50	1
75-09-2	Methylene Chloride	ND	0.40	1
75-68-4	Trichlorofluoromethane	ND	0.10	1
75-35-4	1,1-Dichloroethene	ND	0.10	1
75-34-3	1,1-Dichloroethane	ND	0.10	1
540-59-0	Total 1,2-Dichloroethene (2)	ND	0.10	1
67-66-3	Chloroform	ND	0.10	1
107-06-2	1,2-Dichloroethane	ND	0.10	1
71-55-6	1,1,1-Trichloroethane	ND	0.20	1
56-23-5	Carbon Tetrachloride	ND	0.20	1
75-27-4	Bromodichloromethane	ND	0.10	1
78-87-5	1,2-Dichloropropene	ND	0.10	1
10061-01-5	cis-1,3-Dichloropropene	ND	0.40	1
79-01-6	Trichloroethene	ND	0.20	1
124-48-1	Dibromochloromethane (3)	ND	0.20	1
79-00-5	1,1,2-Trichloroethane (3)	ND	0.20	1
10061-02-6	trans-1,3-Dichloropropene (3)	ND	0.40	1
110-75-8	2-Chloroethylvinyl Ether	ND	2.0	1
75-25-2	Bromoform	ND	2.0	1
79-34-5	1,1,2,2-Tetrachloroethane (4)	ND	0.20	1
127-18-4	Tetrachloroethane (4)	ND	0.10	1
108-90-7	Chlorobenzene	ND	0.20	1
541-73-1	1,3-Dichlorobenzene	ND	0.50	1
95-50-1	1,2-Dichlorobenzene	ND	0.20	1
106-44-7	1,4-Dichlorobenzene	ND	0.20	1

CORPORATION

59-12

Received: 07/03/89

828

828

REPORT

Results by Sample

Work Order # 89-09-050
Continued From Above

SAMPLE ID REPENT ELAKA RD

FRAC 100% GEL

TEST CODE 601

NAME Purgeable Halocarbons H20

Date & Time Collected not specified

Category

SUBSTRATES

540-26-3
460-00-4

1,2-Difluorobenzene
1,2,4-Trifluorobenzene

100% Recovery
96% Recovery

- (1) See Appendix A for Glossary of Report and Data File Definitions
- (2) Quantitated as 1,2,4-Trifluorobenzene
- (3) Dibromochloroethane, 1,1,2-Trichloroethane and
Trips-1,2-Dichloropropane co-elute
- (4) 1,1,2,2-Tetrachloroethane and tetrachloroethane co-elute.

Page 13
Received: 09/08/89

ASD
SAMPLING
PURITY 13 SAMPLE

REPORT

Work Order # 87-09-050

SAMPLE ID REAGENT BLANK 433

SPATIAL 133

TEST CODE 501

NAME FURANOLIC HALOCARBONS H20

Date & Time Collected Not Specified

Category

ORGANIC ANALYSIS DATA SHEET - PURGEABLE HALOCARBONS (1)

ANALYST
INSTRMT

MC
E

FILE #
INJECTOR

0605151
1

VERIFIED
UNITS

05
UG/L

CASE#	COMPOUND	RESULT	DET LIMIT	FACTOR
74-87-3	Chloromethane	ND	0.50	1
74-89-9	Bromomethane	ND	1.0	1
75-01-4	Vinyl Chloride	ND	0.20	1
75-00-3	Chloroethane	ND	0.50	1
75-09-2	Methylene Chloride	ND	0.40	1
75-28-4	Trichlorofluoromethane	ND	0.10	1
75-35-4	1,1-Dichloroethane	ND	0.10	1
75-34-3	1,1-Dichloroethane	ND	0.10	1
540-59-0	Total 1,2-Dichloroethene (2)	ND	0.10	1
67-66-3	Chloroform	ND	0.10	1
107-06-2	1,2-Dichloroethane	ND	0.10	1
71-55-6	1,1,1-Trichloroethane	ND	0.20	1
56-23-5	Carbon Tetrachloride	ND	0.20	1
75-27-4	Bromodichloromethane	ND	0.10	1
78-87-5	1,2-Dichloropropene	ND	0.10	1
10061-01-5	cis-1,3-Dichloropropene	ND	0.40	1
79-01-6	Trichloroethene	ND	0.20	1
124-48-1	Dibromochloromethane (3)	ND	0.20	1
79-00-5	1,1,2-Trichloroethane (3)	ND	0.20	1
10061-02-6	trans-1,3-Dichloropropene (3)	ND	0.40	1
110-75-8	2-Chloroethyl Vinyl Ether	ND	2.0	1
75-25-2	Bromoform	ND	2.0	1
75-34-5	1,1,2,2-Tetrachloroethane (3)	ND	0.20	1
127-18-4	Tetrachloroethane (2)	ND	0.10	1
108-90-7	Chlorobenzene	ND	0.20	1
541-73-1	1,3-Dichlorobenzene	ND	0.50	1
95-50-1	1,3-Dichlorobenzene	ND	0.20	1
106-46-7	1,4-Dichlorobenzene	ND	0.20	1



Page 14

Work Order # 89-09-050

REPORT

Continued From Above

RECEIVED: 07/03/89

RECEIVED: 07/03/89

RECEIVED: 07/03/89

RECEIVED: 07/03/89

SAMPLE ID REAGENT BLANK -30

DATE & TIME COLLECTED NOT SPECIFIED

CATEGORY

SUBSTRATES

540-36-3	1-4-DIFLUOROBENZENE	NA % Recovery
460-00-4	1-BROMO-4-FLUOROBENZENE	121 % Recovery

- (1) See Appendix A for Glossary of Report and Data Flag Definitions
- (2) Quantitated as the Triethylacetate
- (3) Dibromodichloromethane, 1,1,2-trichloroethane and Trans-1,2-dichloroethane are included
- (4) 1,1,2-trichloroethane and dichloromethane are included.

Page 15
Received: 09/08/89

HAZ. SUBSTANCE
Results by Sample

REPORT

Work Order # 89-09-050

SAMPLE ID REAGENT BLANK #20

PREP. DATE 09/08/89

TEST CODE 6028

NAME Purgeable Aromatics - H2O

Date & Time Collected Not Specified

Category

ORGANIC ANALYSIS DATA SHEET - PURGEABLE AROMATICS (1)

ANALYST INSTRMT	MG 4	INJECTD QUANTITY	FILE # FACTOR	R-00181 1 UNITS	VERIFIED DATE	JD
		QAC#	COMPOUND	RESULT	DET LIMIT	FACTOR
		71-43-2	Benzene	ND	0.10	1
		106-98-0	Toluene	ND	0.20	1
		100-41-4	Ethylbenzene	ND	0.10	1
		106-90-7	Chlorobenzene	ND	0.10	1
		1330-20-7	Total xylenes	ND	0.20	1
		106-46-7	1,4-Dichlorobenzene	ND	0.20	1
		541-73-1	1,3-Dichlorobenzene	ND	0.40	1
		95-50-1	1,2-Dichlorobenzene	ND	0.20	1

SURROGATE

450-00-4 1-Bromo-4-Fluorobenzene 101% recovery

(1) See Appendix A for Glossary of Report and Data Flag Definitions

Page 16
Received: 07/03/99

MSB CORPORATION

REPORT
Particulate Sample

Work Order # 39-09-050

SAMPLE 10 REAGENT BLANK H2O

FRACTION 008

TEST CODE 402B

NAME FUDGEABLE AROMATICS - H2O

Date: Time Collected Not Specified

Category

ORGANICS ANALYSIS DATA SHEET - FUDGEABLE AROMATICS (1)

ANALYST	MS	INJECTD	FILE #	RECD	VERIFIED	JD
INSTRMT	E	CONC	EDITOR	1	US/L	
			COMPOUND	RESULT	DET LIMIT	FACTOR
		71-43-2	Benzene	ND	0.10	1
		106-98-9	Toluene	ND	0.30	1
		100-41-4	Ethylbenzene	ND	0.10	1
		109-90-7	Chlorobenzene	ND	0.10	1
		1330-20-7	Total Aromatics	ND	0.20	1
		106-46-7	1,4-Dichlorobenzene	ND	0.20	1
		541-73-1	1,3-Dichlorobenzene	ND	0.40	1
		95-50-1	1,2-Dichlorobenzene	ND	0.20	1

SURROGATE

460-00-4 1-Bromo-4-Fluorobenzene 122% recovery

(1) See Appendix A for Glossary of Report and Data Flag Definitions



CORPORATION

Page 17

Received: 09/08/89

R48 SACCHINOL

REPORT

Work Order # 39-09-050

Unrefined Work

FRACTION AND TEST CODES FOR WORK NOT REPORTED ELSEWHERE

DIB	:	DUPGC	OIL	:	DUPGC
DEB	:	DUPGC	GGD	:	DUPGC
DEB	:	DUPGC	GGD	:	DUPGC

ARTICLE I

CONCEPTS, NOTES AND DEFINITIONS

5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100
101
102
103
104
105
106
107
108
109
110
111
112
113
114
115
116
117
118
119
120
121
122
123
124
125
126
127
128
129
130
131
132
133
134
135
136
137
138
139
140
141
142
143
144
145
146
147
148
149
150
151
152
153
154
155
156
157
158
159
160
161
162
163
164
165
166
167
168
169
170
171
172
173
174
175
176
177
178
179
180
181
182
183
184
185
186
187
188
189
190
191
192
193
194
195
196
197
198
199
200
201
202
203
204
205
206
207
208
209
210
211
212
213
214
215
216
217
218
219
220
221
222
223
224
225
226
227
228
229
230
231
232
233
234
235
236
237
238
239
240
241
242
243
244
245
246
247
248
249
250
251
252
253
254
255
256
257
258
259
260
261
262
263
264
265
266
267
268
269
270
271
272
273
274
275
276
277
278
279
280
281
282
283
284
285
286
287
288
289
290
291
292
293
294
295
296
297
298
299
300
301
302
303
304
305
306
307
308
309
310
311
312
313
314
315
316
317
318
319
320
321
322
323
324
325
326
327
328
329
330
331
332
333
334
335
336
337
338
339
340
341
342
343
344
345
346
347
348
349
350
351
352
353
354
355
356
357
358
359
360
361
362
363
364
365
366
367
368
369
370
371
372
373
374
375
376
377
378
379
380
381
382
383
384
385
386
387
388
389
390
391
392
393
394
395
396
397
398
399
400
401
402
403
404
405
406
407
408
409
410
411
412
413
414
415
416
417
418
419
420
421
422
423
424
425
426
427
428
429
430
431
432
433
434
435
436
437
438
439
440
441
442
443
444
445
446
447
448
449
450
451
452
453
454
455
456
457
458
459
460
461
462
463
464
465
466
467
468
469
470
471
472
473
474
475
476
477
478
479
480
481
482
483
484
485
486
487
488
489
490
491
492
493
494
495
496
497
498
499
500
501
502
503
504
505
506
507
508
509
510
511
512
513
514
515
516
517
518
519
520
521
522
523
524
525
526
527
528
529
530
531
532
533
534
535
536
537
538
539
540
541
542
543
544
545
546
547
548
549
550
551
552
553
554
555
556
557
558
559
560
561
562
563
564
565
566
567
568
569
570
571
572
573
574
575
576
577
578
579
580
581
582
583
584
585
586
587
588
589
590
591
592
593
594
595
596
597
598
599
600
601
602
603
604
605
606
607
608
609
610
611
612
613
614
615
616
617
618
619
620
621
622
623
624
625
626
627
628
629
630
631
632
633
634
635
636
637
638
639
640
641
642
643
644
645
646
647
648
649
650
651
652
653
654
655
656
657
658
659
660
661
662
663
664
665
666
667
668
669
670
671
672
673
674
675
676
677
678
679
680
681
682
683
684
685
686
687
688
689
690
691
692
693
694
695
696
697
698
699
700
701
702
703
704
705
706
707
708
709
710
711
712
713
714
715
716
717
718
719
720
721
722
723
724
725
726
727
728
729
730
731
732
733
734
735
736
737
738
739
740
741
742
743
744
745
746
747
748
749
750
751
752
753
754
755
756
757
758
759
760
761
762
763
764
765
766
767
768
769
770
771
772
773
774
775
776
777
778
779
780
781
782
783
784
785
786
787
788
789
790
791
792
793
794
795
796
797
798
799
800
801
802
803
804
805
806
807
808
809
810
811
812
813
814
815
816
817
818
819
820
821
822
823
824
825
826
827
828
829
830
831
832
833
834
835
836
837
838
839
840
841
842
843

0
 1
 2
 3
 4
 5
 6
 7
 8
 9
 10
 11
 12
 13
 14
 15
 16
 17
 18
 19
 20
 21
 22
 23
 24
 25
 26
 27
 28
 29
 30
 31
 32
 33
 34
 35
 36
 37
 38
 39
 40
 41
 42
 43
 44
 45
 46
 47
 48
 49
 50
 51
 52
 53
 54
 55
 56
 57
 58
 59
 60
 61
 62
 63
 64
 65
 66
 67
 68
 69
 70
 71
 72
 73
 74
 75
 76
 77
 78
 79
 80
 81
 82
 83
 84
 85
 86
 87
 88
 89
 90
 91
 92
 93
 94
 95
 96
 97
 98
 99

[illegible]

Notes and Definitions

Revision Work Order: 38-06-050

The standard is used to check recovery. Also are less than five times the method detection level. Results have shown that the uncertainty of the analysis will not be appreciable as the method detection limit is approached. These results should be considered approximate.

This flag indicates that a sample is an analytical and/or post-digestion blank. These samples have not been subjected to the extraction or digestion step.

This flag indicates that the analyte was detected in the reagent blank but the sample results are not corrected for the amount in the blank.

Most methods of analysis by gas chromatography recommend reanalysis on a second column of dissimilar phase to resolve compounds of interest from interferences that may occur and for analyte confirmation. The C flag indicates that the analyte has been confirmed by analysis on a second column.

This flag identifies all analytes identified in analysis at a secondary dilution factor. In an analysis some compounds can exceed the calibration range of the instrument. Therefore two analyses are performed, one at the concentration of the majority of the analytes, and a second with the sample diluted so that all concentration analyte(s) fall within the calibration range.

Radiation Work Order: 99-09-050

E

The reported value is estimated because of the presence of interferences. The potential source of the interference is included in the report narrative.

9 This flag identifies a GC/MS result whose concentration exceeds the calibration range for that specific analyte. Usually if one or more compounds have a response greater than 1.0 scale, the sample or extract is diluted and re-analyzed.

0 Indicates an estimated value for GC/MS data. This flag is used either when estimating a concentration for tentatively identified compounds where a response factor of 1 is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit.

NA This analyte was not analyzed.

NC Applies to RPD and spike recovery results. The relative percent difference (RPD) and spike recovery are not calculated when a result value is less than five times the detection limit or obvious matrix interferences are present. See 4 definition for further explanation of the unreliability of data near the detection limit. A spike recovery is not calculated when the sample result is greater than four times the spike added concentration because the spike added concentration is considered insignificant.

Radon Work Order: 59-09-050
ND

This flag (or C) is used to denote analytes which are not detected at or above the specified detection limit. The value to the right of the C symbol is the method specified detection limit for the sample.

NR This analyte was not requested by the client

NS This analyte or surrogate was not added (spiked) to the sample for this analysis.

N/A A result or value is not available for this parameter, usually a detection limit.

P Most methods of analysis by gas chromatography recommend reanalysis on a second column or dissimilar phase to resolve compounds of interest from interferences that may occur and for analyte confirmation. The P flag indicates that the analyte has been confirmed previously. This flag is applicable to analyses of samples arising from a regular sampling program or a specific sample source. For example, a quarterly well monitoring program.

Radial Nark Order. EP-09-050
G

This quality control standard is outside method or laboratory specified control limits. This flag is applied to matrix spike, analytical QC spike, and surrogate recoveries, and to RPD (relative percent difference) values for duplicate analyses and matrix spike/matrix spike duplicate result.

R This flag indicates that the analyte was detected in the reagent blank and the sample results are corrected for the amount in the blank.

S This flag indicates that a specific result from a metals analysis has been obtained using the Method of Standards Addition.

U Most methods of analysis by gas chromatography recommend reanalysis on a second column of dissimilar phase to resolve compounds of interest from interferences that may occur and for analyte confirmation. The U flag indicates that second column was not requested.

X Most methods of analysis by gas chromatography recommend reanalysis on a second column of dissimilar phase to resolve compounds of interest from interferences that may occur and for analyte confirmation. The X flag indicates a second column confirmation was performed but the analyte was not confirmed and is likely a false positive.

Radian Work Order: 89-09-050

TERMS USED IN THIS REPORT:

Analyte - A chemical for which a sample is to be analyzed. The analysis will meet EPA method and GC specifications.

Compound - See Analyte.

Detection Limit - The method specified detection limit, which is the lower limit of quantitation specified by EPA for a method. Radian staff regularly assess their laboratories' method detection limits to verify that they meet or are lower than those specified by EPA. Detection limits which are higher than method limits are based on experimental values at the 99% confidence level. Note, the detection limit may vary from that specified by EPA based on sample size, dilution or cleanup. (Refer to Factor, below)

EPA Method - The EPA specified method used to perform an analysis. EPA has specified standard methods for analysis of environmental samples. Radian will perform its analyses and accompanying GC tests in conformance with EPA methods unless otherwise specified.

Factor - Default method detection limits are based on analysis of clean water samples. A factor is required to calculate sample specific detection limits based on alternate matrices (soil or water), use of cleanup procedures, or dilution of extracts/digestates. For example, extraction or digestion of 10 grams of soil in contrast to 1 liter of water will result in a factor of 100.

Matrix - The sample material. Generally, it will be soil, water, air, oil, or solid waste.

Radian Work Order - The unique Radian identification code assigned to the samples reported in the analytical summary.

Units - ug/L	micrograms per liter (parts per billion); liquids/water
ug/Kg	micrograms per kilogram (parts per billion); soils/solids
ug/M3	micrograms per cubic meter; air samples
mg/L	milligrams per liter (parts per million); liquids/water
mg/Kg	milligrams per kilogram (parts per million); soils/solids
%	percent; usually used for percent recovery of GC standards
uS/cm	conductance unit, microSiemens/centimeter
mL/hr	milliliters per hour; rate of settlement of matter in water
NTU	turbidity unit; nephelometric turbidity unit
CU	color unit; equal to 1 mg/L of chloroplatinate salt

Geoscience Consultants, Ltd.

☒ Albuquerque
500 Copper N.W.
Suite 200
Albuquerque, NM
(505) 842-0001

☐ Silver Spring
1109 Spring St.
Suite 706
Silver Spring, MD
(301) 587-2088

☐ Newport Beach
1400 Quail Street
Suite 140
Newport Beach, CA
(714) 724-0536

☐ Las Cruces
P.O. Drawer MM
Las Cruces, NM 88004
(505) 524-5364

3118
N^o

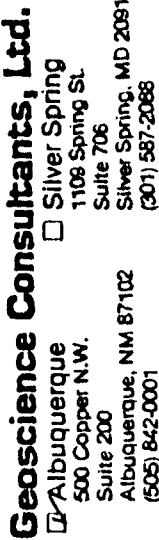
Chain of Custody

DATE 09-07-89 PAGE 1 OF 2

LAB NAME <u>INTERMOUNTAIN LABORATORIES, INC.</u>		ADDRESS <u>2506 W. MAIN</u>		FARMINGTON, NEW MEXICO 87401		TELEPHONE <u>306-4737</u>	
SAMPLERS (SIGNATURE) <u>He Pinkney</u>		MATRIX		LOCATION			
SAMPLE NUMBER	3909061455		Water	SHS-1			
	3909061535		Water	SHS-2			
	3909061600		Water	BLM-37			
	3909070750		Water	Field Block			
	3909070830		Water	BLM-30			
	3909071100		Water	BLM-27			
	3909071330		Water	GRW-2			
	3909071425		Water	GRW-6			
	3909071345		Water	GRW-4			
PROJECT INFORMATION		TOTAL NO. OF CONTAINERS		CHAIN OF CUSTODY SEALS		REC'D GOOD CONDITION/C	
PROJECT: <u>MEA OFF-SITE</u>		CONFORMS TO RECORD		LAB NO.			
PROJECT DIRECTOR <u>M. NEE</u>							
CHARGE CODE NO. <u>653-002</u>							
SHIPPING ID. NO. <u>Hand Delivered</u>							
VIA:							
SPECIAL INSTRUCTIONS/COMMENTS: <u>14 DAY TURNAROUND ON RESULTS</u>							

[illegible]

DISTRIBUTION: WHITE CANARY - LABORATORY • PINK - GEOSCIENCE CONSULTANTS LTD



☐ **Newport Beach**
1400 Quail Street
Suite 140
Newport Beach, CA
(714) 724-0536

☐ **Las Cruces**
P.O. Drawer MM
Las Cruces, NM 88004
(505) 524-5364

No. 3119.

Chain of Custody

DATE 09-07-89 PAGE 2 OF 2

[illegible]

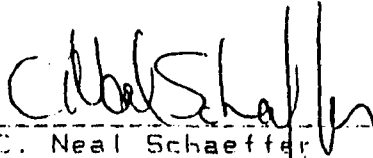
DISTRIBUTION: WHITE, CANARY - LABORATORY • PINK - GEOSCIENCE CONSULTANTS, LTD.

CLIENT: Geoscience Consultants, Ltd DATE REPORTED: 09/21/89
SAMPLE: 8909061455
SITE: SHS-1 DATE RECEIVED: 09/07/89
LAB NO: F3123 DATE COLLECTED: 09/07/89

Lab pH.....	7.14
Lab Conductivity, umhos/cm.....	5043
Lab resistivity, ohm-cm.....	1.9829
Total Dissolved Solids (180), mg/l..	5326 *
Total Dissolved Solids (calc), mg/l.	3126
Total Alkalinity as CaCO ₃ , mg/l.....	807.34
Total Acidity as CaCO ₃ , mg/l.....	0.00
Total Hardness as CaCO ₃ , mg/l.....	1172.60
Sodium Absorption Ratio.....	8.88
Nitrate, mg/l.....	0.02

	mg/l	meq/l
Bicarbonate as HCO ₃	984.95	16.15
Carbonate as CO ₃	0.00	0.00
Chloride.....	683.92	19.29
Sulfate.....	857.57	17.87
Calcium.....	289.50	14.45
Magnesium.....	109.51	9.01
Potassium.....	2.58	0.07
Sodium.....	699.00	30.40
Major Cations.....		53.92
Major Anions.....		53.31
Cation/Anion Difference.....		0.57 %

* TDS (180) could not be accurately determined apparently due to hydrocarbon interferences.


C. Neal Schaeffer
Senior Chemist

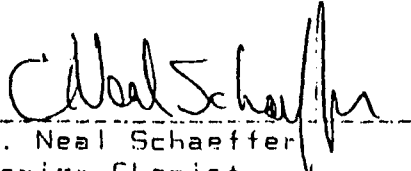


2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: Geoscience Consultants, Ltd DATE REPORTED: 09/21/89
SAMPLE: 8909061535
SITE: SHS-2 DATE RECEIVED: 09/07/89
LAB NO: F3124 DATE COLLECTED: 09/07/89

Lab pH.....	7.48
Lab Conductivity, umhos/cm.....	4446
Lab resistivity, ohm-m.....	2.2492
Total Dissolved Solids (180), mg/l..	3242
Total Dissolved Solids (calc), mg/l.	3089
Total Alkalinity as CaCO ₃ , mg/l.....	894.62
Total Acidity as CaCO ₃ , mg/l.....	0.00
Total Hardness as CaCO ₃ , mg/l.....	1346.69
Sodium Absorption Ratio.....	7.23
Nitrate, mg/l.....	0.31

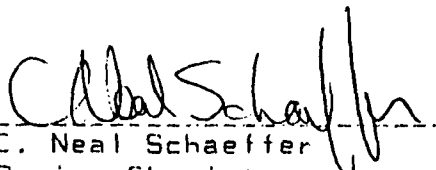
	mg/l	meq/l
Bicarbonate as HCO ₃	1091.44	17.89
Carbonate as CO ₃	0.00	0.00
Chloride.....	297.35	8.39
Sulfate.....	1231.21	25.65
Calcium.....	201.60	10.06
Magnesium.....	205.19	16.87
Potassium.....	6.85	0.18
Sodium.....	610.20	26.54
Major Cations.....		53.65
Major Anions.....		51.95
Cation/Anion Difference.....		1.61 %


C. Neal Schaeffer
Senior Chemist

CLIENT: Geoscience Consultants, Ltd DATE REPORTED: 09/21/89
SAMPLE: 8909061600
SITE: BLM-37 DATE RECEIVED: 09/07/89
LAB NO: F3125 DATE COLLECTED: 09/07/89

Lab pH.....	7.28
Lab Conductivity, umhos/cm.....	5847
Lab resistivity, ohm-m.....	1.7103
Total Dissolved Solids (180), mg/l..	4598
Total Dissolved Solids (calc), mg/l.	4127
Total Alkalinity as CaCO ₃ , mg/l.....	567.32
Total Acidity as CaCO ₃ , mg/l.....	0.00
Total Hardness as CaCO ₃ , mg/l.....	2073.62
Sodium Absorption Ratio.....	6.22
Nitrate, mg/l.....	124.4

	mg/l	meq/l
Bicarbonate as HCO ₃	692.13	11.35
Carbonate as CO ₃	0.00	0.00
Chloride.....	535.24	15.10
Sulfate.....	2064.91	43.02
Calcium.....	66.12	3.30
Magnesium.....	464.18	38.17
Potassium.....	5.40	0.14
Sodium.....	651.00	28.32
Major Cations.....		69.93
Major Anions.....		69.46
Cation/Anion Difference.....		0.33 %


C. Neal Schaeffer
Senior Chemist



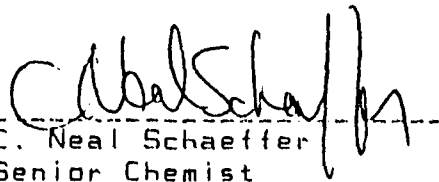
2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: Geoscience Consultants, Ltd DATE REPORTED: 09/21/89
SAMPLE: 8909070750
SITE: Field Blank DATE RECEIVED: 09/07/89
LAB NO: F3126 DATE COLLECTED: 09/07/89

Lab pH.....	6.79
Lab Conductivity, umhos/cm.....	6.21
Lab resistivity, ohm-m.....	N/A
Total Dissolved Solids (180), mg/l..	2
Total Dissolved Solids (calc), mg/l.	3
Total Alkalinity as CaCO ₃ , mg/l.....	0.95
Total Acidity as CaCO ₃ , mg/l.....	0.00
Total Hardness as CaCO ₃ , mg/l.....	2.02
Sodium Absorption Ratio.....	0.03
Nitrate, mg/l.....	0.08

	mg/l	meq/l
Bicarbonate as HCO ₃	1.16	0.02
Carbonate as CO ₃	0.00	0.00
Chloride.....	0.00	0.00
Sulfate.....	1.65	0.03
Calcium.....	0.42	0.02
Magnesium.....	0.23	0.02
Potassium.....	0.10	0.00
Sodium.....	0.10	0.00
Major Cations.....		0.05
Major Anions.....		0.05
Cation/Anion Difference.....		6.03 %*

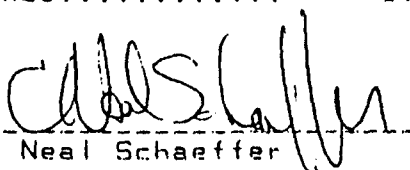
* All analytes have been rerun with no significant change. It is virtually impossible to balance as the EC is extremely low. Essentially there is nothing in the sample to analyze.


C. Neal Schaeffer
Senior Chemist

CLIENT: Geoscience Consultants, Ltd DATE REPORTED: 09/21/89
SAMPLE: 8909070830
SITE: BLM-30 DATE RECEIVED: 09/07/89
LAB NO: F3127 DATE COLLECTED: 09/07/89

Lab pH.....	7.47
Lab Conductivity, umhos/cm.....	3995
Lab resistivity, ohm-m.....	2.5031
Total Dissolved Solids (180), mg/l..	3222
Total Dissolved Solids (calc), mg/l.	3074
Total Alkalinity as CaCO ₃ , mg/l.....	152.74
Total Acidity as CaCO ₃ , mg/l.....	0.00
Total Hardness as CaCO ₃ , mg/l.....	1580.54
Sodium Absorption Ratio.....	3.72
Nitrate, mg/l.....	8.09

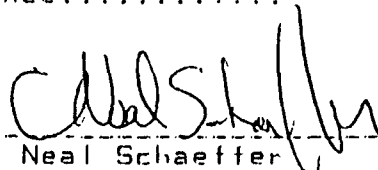
	mg/l	meq/l
Bicarbonate as HCO ₃	186.34	3.05
Carbonate as CO ₃	0.00	0.00
Chloride.....	267.62	7.55
Sulfate.....	1771.10	36.90
Calcium.....	545.13	27.20
Magnesium.....	53.61	4.41
Potassium.....	5.76	0.15
Sodium.....	339.60	14.77
Major Cations.....		46.53
Major Anions.....		47.50
Cation/Anion Difference.....		1.03 %


C. Neal Schaeffer
Senior Chemist

CLIENT: Geoscience Consultants, Ltd DATE REPORTED: 09/21/89
SAMPLE: 8909071100
SITE: BLM-27 DATE RECEIVED: 09/07/89
LAB NO: F3128 DATE COLLECTED: 09/07/89

Lab pH.....	7.57
Lab Conductivity, umhos/cm.....	3191
Lab resistivity, ohm-m.....	3.1338
Total Dissolved Solids (180), mg/l..	2408
Total Dissolved Solids (calc), mg/l.	2251
Total Alkalinity as CaCO ₃ , mg/l.....	305.48
Total Acidity as CaCO ₃ , mg/l.....	0.00
Total Hardness as CaCO ₃ , mg/l.....	1195.75
Sodium Absorption Ratio.....	3.65
Nitrate, mg/l.....	3.49

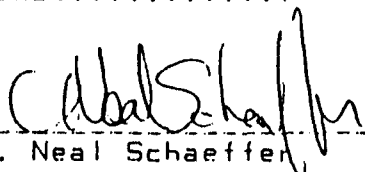
	mg/l	meq/l
Bicarbonate as HCO ₃	372.69	6.11
Carbonate as CO ₃	0.00	0.00
Chloride.....	188.32	5.31
Sulfate.....	1231.21	25.65
Calcium.....	167.73	8.37
Magnesium.....	189.03	15.55
Potassium.....	1.28	0.03
Sodium.....	290.00	12.61
Major Cations.....		36.56
Major Anions.....		37.07
Cation/Anion Difference.....		0.69 %


C. Neal Schaeffer
Senior Chemist

CLIENT: Geoscience Consultants, Ltd DATE REPORTED: 09/21/89
SAMPLE: B909071330
SITE: GRW-2 DATE RECEIVED: 09/07/89
LAB NO: F3129 DATE COLLECTED: 09/07/89

Lab pH.....	7.48
Lab Conductivity, umhos/cm.....	4860
Lab resistivity, ohm-m.....	2.0576
Total Dissolved Solids (180), mg/l..	3692
Total Dissolved Solids (calc), mg/l.	3560
Total Alkalinity as CaCO ₃ , mg/l.....	480.04
Total Acidity as CaCO ₃ , mg/l.....	0.00
Total Hardness as CaCO ₃ , mg/l.....	1600.70
Sodium Absorption Ratio.....	6.23
Nitrate, mg/l.....	18.3

	mg/l	meq/l
Bicarbonate as HCO ₃	585.65	9.60
Carbonate as CO ₃	0.00	0.00
Chloride.....	346.91	9.79
Sulfate.....	1773.57	36.95
Calcium.....	467.71	23.34
Magnesium.....	105.49	8.68
Potassium.....	5.30	0.14
Sodium.....	573.00	24.92
Major Cations.....		57.07
Major Anions.....		56.34
Cation/Anion Difference.....		0.65 %


C. Neal Schaeffer
Senior Chemist

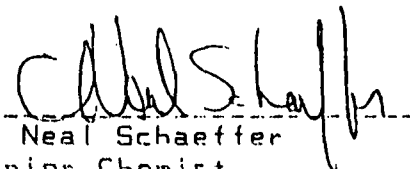


2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: Geoscience Consultants, Ltd DATE REPORTED: 09/21/89
SAMPLE: 89D9071425
SITE: GRW-6 DATE RECEIVED: 09/07/89
LAB NO: F3130 DATE COLLECTED: 09/07/89

Lab pH.....	7.39
Lab Conductivity, umhos/cm.....	4690
Lab resistivity, ohm-m.....	2.1372
Total Dissolved Solids (180), mg/l..	3100
Total Dissolved Solids (calc), mg/l.	3022
Total Alkalinity as CaCO ₃ , mg/l.....	589.14
Total Acidity as CaCO ₃ , mg/l.....	0.00
Total Hardness as CaCO ₃ , mg/l.....	1266.05
Sodium Absorption Ratio.....	7.06
Nitrate, mg/l.....	0.17

	mg/l	meq/l
Bicarbonate as HCO ₃	718.75	11.78
Carbonate as CO ₃	0.00	0.00
Chloride.....	614.53	17.34
Sulfate.....	1016.40	21.18
Calcium.....	379.01	18.91
Magnesium.....	77.93	4.41
Potassium.....	3.00	0.08
Sodium.....	577.50	25.12
Major Cations.....		50.52
Major Anions.....		50.29
Cation/Anion Difference.....		0.22 %

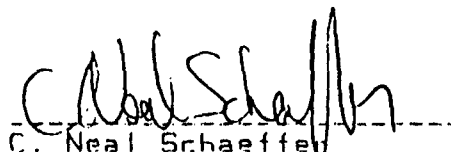

C. Neal Schaeffer
Senior Chemist

CLIENT: Geoscience Consultants, Ltd DATE REPORTED: 09/21/89
SAMPLE: 8909071345
SITE: GRW-4 DATE RECEIVED: 09/07/89
LAB NO: F3131 DATE COLLECTED: 09/07/89

Lab pH.....	7.49
Lab Conductivity, umhos/cm.....	5287
Lab resistivity, ohm-m.....	1.8914
Total Dissolved Solids (180), mg/l..	13732 *
Total Dissolved Solids (calc), mg/l.	3640
Total Alkalinity as CaCO ₃ , mg/l.....	916.44
Total Acidity as CaCO ₃ , mg/l.....	0.00
Total Hardness as CaCO ₃ , mg/l.....	1407.17
Sodium Absorption Ratio.....	8.84
Nitrate, mg/l.....	0.02

	mg/l	meq/l
Bicarbonate as HCO ₃	1118.06	18.33
Carbonate as CO ₃	0.00	0.00
Chloride.....	564.97	15.94
Sulfate.....	1280.59	26.68
Calcium.....	346.75	17.30
Magnesium.....	131.82	10.84
Potassium.....	3.30	0.08
Sodium.....	762.60	33.17
Major Cations.....		61.40
Major Anions.....		60.94
Cation/Anion Difference.....		0.37 %

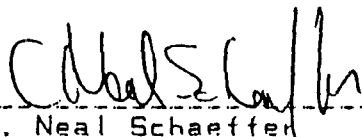
* TDS (180) could not be accurately determined apparently due to hydrocarbon interferences.


C. Neal Schaeffer
Senior Chemist

CLIENT: Geoscience Consultants, Ltd DATE REPORTED: 09/21/89
SAMPLE: 8909071601
SITE: GBR-52 DATE RECEIVED: 09/07/89
LAB NO: F3132 DATE COLLECTED: 09/07/89

Lab pH.....	7.66
Lab Conductivity, umhos/cm.....	3082
Lab resistivity, ohm-m.....	3.2446
Total Dissolved Solids (180), mg/l..	2572
Total Dissolved Solids (calc), mg/l.	2515
Total Alkalinity as CaCO ₃ , mg/l.....	207.29
Total Acidity as CaCO ₃ , mg/l.....	0.00
Total Hardness as CaCO ₃ , mg/l.....	1284.19
Sodium Absorption Ratio.....	3.29
Nitrate, mg/l.....	3.91

	mg/l	meq/l
Bicarbonate as HCO ₃	252.89	4.15
Carbonate as CO ₃	0.00	0.00
Chloride.....	39.65	1.12
Sulfate.....	1573.58	32.78
Calcium.....	487.87	24.34
Magnesium.....	16.28	1.34
Potassium.....	1.74	0.04
Sodium.....	271.40	11.81
Major Cations.....		37.53
Major Anions.....		38.05
Cation/Anion Difference.....		0.68 %


C. Neal Schaeffer
Senior Chemist